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Welcome to ICENS 2016

On behalf of the organizing committee, we are pleased to announce that the 2nd International Conference on Engineering and Natural Sciences (ICENS 2016) is held from May 24 to 28, 2016 in Sarajevo, Bosnia and Herzegovina. ICENS 2016 provides an ideal academic platform for researchers to present the latest research findings and describe emerging technologies, and directions in Engineering and Natural Sciences issues. The conference seeks to contribute to presenting novel research results in all aspects of Engineering and Natural Sciences.

The conference aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of Engineering and Natural Sciences. It also provides the premier interdisciplinary forum for scientists, engineers, and practitioners to present their latest research results, ideas, developments, and applications in all areas of Engineering and Natural Sciences. The conference will bring together leading academic scientists, researchers and scholars in the domain of interest from around the world. ICENS 2016 is the oncoming event of the successful conference series focusing on

Engineering and Natural Sciences. The scientific program focuses on current advances in the research, production and use of Engineering and Natural Sciences with particular focus on their role in maintaining academic level in Engineering and Applied Sciences and elevating the science level.

The conference's goals are to provide a scientific forum for all international prestige scholars around the world and enable the interactive exchange of state-of-the-art knowledge. The conference will focus on evidence-based benefits proven in clinical trials and scientific experiments.

Best regards,

Chairman of Conference

Prof. Dr. Özer ÇINAR

ICENS

INTERNATIONAL CONFERENCE ON ENGINEERING AND NATURAL SCIENCES

24-28 May 2016
Sarajevo

PROGRAM SCHEDULE

ORAL PRESENTATIONS

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	A-1. Session - Chairmain: Prof.Dr.Harry Miller	**B-1. Session - Chairmain: Prof.Dr. Semra Bilgiç**	**C-1. Session - Chairmain: Mujo Hodžić**	**D-1. Session - Chairmain: Prof.Dr. Ümit Alver**
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11:20	053 - A Neural Network Approach for Inverse Kinematic of a 4-DOF lighting robot arm - Nihat ÇABUK, Veli Bakırcioğlu, Faruk Sen,	190 - Production of the bio-oil by slow pyrolysis of hornbeam sawdust - Uğur Moralı, Sevgi Şensöz	488 - Performance of dual axis solar tracking system using fuzzy logic control: A case study in Pinarhisar, Turkey - Hayrettin Toylan	665 - SYNTHESIS AND CHARACTERIZATiON OF ZINC OXIDE NANOSTRUCTURES - Mücahid ÖZCAN, Cansu NOBERİ, Cengiz KAYA
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12:00	008 - Reluctance Network Model Circuit Analysis and Optimization of Permanent Magnet Brushless DC Motor - Ismail TOPALOGLU, Fatih Korkmaz, Hayati Mamur, Murat Arı	762 - THE ANION TYPE DEPENDENCE ON THE CORROSION PROTECTION EFFECT OF POLYPYRROLE COATING FOR STEEL IN ACIDIC MEDIA - Semra Bilgiç, Seval Akpolat	581 - On CYCLE CODES OF HYPERCUBE GRAPHS - Mevlut Tekkoyun, Irfan Stap	1101- Influence of ZnS thickness on electrical and photoelectrical properties of ZnS/p-Si heterojunctions - Yusuf Selim Ocak
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SESSION E	SESSION F	SESSION G	SESSION H
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242 - Planning Multiple UAVs to Visit Points of Interest Considering Flight Range and Service Time Constraints - Murat Karakaya, Ender SEVİNÇ	255 - PERMEATION PROPERTIES OF SELF COMPACTING LIGHTWEIGHT CONCRETE WITH SCORIA AGGREGATE - Tahir Gonen, Salih Yazıcıoğlu	974 - Finite Elements Modelling of the Gas Metal Arc Welding Process - Gökhan BİÇER, İsmaİl TİRTOM, Essam Abo-Serie	185 - INVESTIGATION OF HEAT TRANSFER PERFORMANCE FOR DIFFERENT MASS FLOW RATE IN COMPACT PLATE HEAT EXCHANGER - Mehmet Kan, Osman Ipek, Barış Gürel
069 - A contemporary Analysis for Bus Rapid Transit System in Istanbul - Melike Erdogan, Ihsan Kaya	317 - Detecting Moving Objects from Unmanned Ground Vehicles Using Hybrid Image Registration Method - Barış Gökçe, Güray Sonugür	1025- USING OF DME IN THE DIESEL ENGINES - Ferhat Kaya, MEHMET AKİF CEVİZ, SÜLEYMAN KARSLI, Hüseyin Güllüce, Ali Rıza Kaleli	230 - A General Overview of Cogeneration Systems in Turkey - Tolga Taner, Mustafa Kılıc
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084 - DETERMINATION OF CONCRETE STRENGTH BY ELECTRICAL AND SEISMIC METHODS - Nevbahar Sabbağ, Osman Uyanık	331 - A COMPARISON OF THE TRAFFIC ACCIDENT HOTSPOTS DEDECTION METHODS ON THE TURKISH HIGHWAY ROAD NETWORK - Saffet Erdoğan	678 - The Prediction of Tool Life by Using Changes in Cutting Forces During Turning Process - Osman Öztürk, Ali Ünüvar	267 - A study on performance characteristics of a solar-assisted ejector cooling system - Fatih AKKURT
145 - Comparison of EGM08 Bouguer Gravity with Ground Survey: A Case Study in Western Anatolian Region, Turkey - Fikret DOĞRU, Oya PAMUKÇU		054 - Application of Statistical Process Control (SPC) for a Manufacturing of GGG50 Spheroidal Graphite Cast Iron - Murat ÇOLAK, Metin Uçurum, Mehmet Çınar	272 - Investigation of Surface Roughness in Turning of Co-based Super alloy Haynes 25 under Cryogenic Cooling - MURAT SARIKAYA, ŞENER KARABULUT, ABDULKADIR GÜLLÜ
297 - SHALE GAS DRILLING AND ITS EFFECTS ON OIL MARKETS - Ahmet Numan ÖZAKIN, Süleyman Karsli, HÜSEYİN GÜLLÜCE, Ferhat Kaya	376 - COMPARISON OF QUANTITATIVE AND SEMI QUANTITATIVE XRF ANALYSIS OF FUSION SAMPLES TAKEN FROM CEMENT PRODUCTION PROCESSES - MELIKE ARSLANHAN, FARUK DEMİR	079 - A Conceptual Design of a Rotary Cup Atomizer and a Fluidized Bed for Dry Granulation of Molten Slag in Iron-Steel Industry - Semih Akın, Yusuf Ali Kara	291 - LIGHTWEIGHT DESIGN OF VEHICLE ENERGY ABSORBERS USING STEEL, ALUMINUM AND MAGNESIUM ALLOYS - Emre Demirci, ALI RIZA YILDIZ
303 - Using The Pumice In Construction As An Insulation Material - Hüseyin Güllüce, Suleyman Karsli, Ahmet Numan Özakın, Ferhat Kaya	818 - DESIGN AND DEVELOP FOR DISASTER MANAGEMENT INFORMATION SYSTEM - Mehmet ALKAN, Havva Güzel	110 - Investigation of Relationship between Vacuum Level and Thermal Conductivity in Vacuum Insulation Panel - Metin DAVRAZ, Hilmi Cenk BAYRAKCI, Murat Koru, Osman Ipek	313 - On The Self-Balanced Normal Stresses in An Elastic Body with a Locally Curved and Hollow Fiber - Kadriye Şimşek Alan
419 - STANDART PENETRATION TEST CORRELATION FOR KOCAELI, TURKEY - UTKAN MUTMAN, MURAT KARADENİZ	431 - Behaviors of normal and high strength reinforced concrete columns under the high eccentric loading - Metin HÜSEM	057 - Determination of the casting cost using Fondweb ERP Software - Gürhan Deniz, Didem Güleryüz Çilingir, Murat Çolak	323 - Heat Transfer Enhancement with a Free Pulsating Turbulent Impinging Jet - Unal Akdag, Selma Akcay, M.Levent Karabayır, Dogan Demiral
085 - RELATIONSHIP BETWEEN CHANGE OF WATER CONTENT AND ELECTRICAL RESISTIVITY METHOD IN THE CONCRETE - Nevbahar Sabbağ, Osman Uyanık	442 - An experimental study on water-exit of partially and fully submerged rigid bodies - Bulent Guzel, Fatih C. KORKMAZ	1108 - Design of Collision Warning System for Non-Signaled Rail Lines in Turkey - ısmaıl bıcer, ahmet yazıcı, RIFAT EDİZKAN	774 - Determination of injection timing requirement of a steam injected diesel engine - Adnan Parlak, Vezir Ayhan, Idris Cesur
935 - Influence of nano-clay on properties of cement paste and mortar - Rıza Polat, Ramazan Demirboğa, Fatma Karagöl	448 - AN EXPERIMENTAL INVESTIGATION ON THE AERATION EFFICIENCY OF STEPPED SPILLWAYS - Tuba Bostan, Aslı Sarı	144 - Prediction of surface roughness in milling compacted graphite iron with artificial neural network and regression analysis - Şener Karabulut, Abdülkadir Güllü, Murat Sarıkaya	1007- INTERINSTITUTIONAL RELATIONS ANALYSIS IN THE SCOPE OF NATIONAL SPATIAL DATA INFRASTRUCTURE AND COMPARED WITH THE TEMPORAL TREND ANALYSIS - Fatih Taktak, Hulya DEMIR

ORAL PRESENTATIONS

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13:40	123 - OBJECT-ORIENTED PROGRAM CONTROLLED ELECTROANALYTICAL BIOSENSING - Emrah Kaplan	402 - The Effect of Resin Paper Coating On Some Particleboard Properties - Abdullah Istek, İsmail Özlüsoylu, Ufuk Aydın	855 - The Best Vehicle Engine System Selection Using VIKOR and TOPSIS Methods - Engin Ufuk ERGUL, Aytac Yıldız, Levent Ugur	681 - On the investigation of a novel P&O MPPT algorithm based on extraterrestrial irradiance for PV systems - Said Mahmut ÇINAR, SEDAT BAKIM
13:50	126 - Comparison of GPS-TEC Measurements with IRI-PLAS and IRI-2012 Models Over a Mid-Latitude Station, MADR, Spain - Salih Alcay, Gurkan Oztan	450 - The Investigation of the Response against to ECF and TCF Bleaching of Wheat Straw Alkaline Sulfite-Anthraquinone (AS-AQ) Pulp - Evren Ersoy Kalyoncu, Hüseyin Kırcı, Emrah Peşman	706 - A NEW METHOD FOR SOLVING LARGE SCALE DİFFERENTIAL MATRIX RICCATI EQUATIONS - Muhammet Kurulay, Khalid Jbilou, Yaprak Güldoğan	683 - Numerical approach for solving systems of fractional integro differential equations - Ayşe ANAPALI, Yalçın Öztürk, Mustafa Gülsu
14:00	127 - IMPLEMENTATION OF MESSAGE SYMMETRY OBSERVATIONS OF SPECIAL CASES IN RSA ALGORITHM WHERE PLAINTEXT EQUALS TO CIPHERTEXT IN JAVA - Mustafa Kocakulak, Turgay Temel	498 - Effect of the Carbon Black Obtained From Waste Tyres on the Durability of Mortar Mixtures - Özlem Korkut, Morteza Norouzi, Emre Sağsöz, Mohammed Hossein Behesti Germi	791 - Electromagnetic Harvesting Based on Pyramid Metamaterial - Muharrem Karaaslan	617 - Image segmentation with background subtraction using FCM - Seyit Alperen CELTEK, Mesut Ersin Sönmez, Kadir Sabancı
14:10	138 - Metasurface Polarization Converter Designed by Horizontal and Cross lines in C Band - Olcay ALTINTAŞ, Emin ÜNAL, Oğuzhan Akgöl, Muharrem Karaaslan	509 - INVESTIGATION of CRYSTALLIZATION BEHAVIOR of TALC FILLED PP POLYMER AND FOAMS - Salih Hakan YETGİN, Hüseyin ÜNAL	799 - Analysis of the Relationship Between The Aircraft Performance Parameters and The EGT Parameter by Using Multiple Regression Analysis - M. Tülin YILDIRIM, Bülent KURT	630 - The Prediction of Butterworth Type Active Filter Parameters in Low-Pass Sallen-Key Topology by Back Tracking Search Algorithm - Bahadır Hicdurmaz,Burhanettin Durmus,Hasan Temurtas, Serdar Özyön
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14:30	134 - A Novel Tool for Mining Access Patterns Efficiently from Web User Access Logs - Resul Das, Doygun DEMIROL, Gurkan TUNA	539 - A Novel pH-Responsive p(AAm-co-METAC)/MMTComposite Hydrogel: Synthesis, Characterization and Its Absorption Performance on Heavy Metal İons - Necdet Karakoyun, Pınar Ilgın, Aycan Gür	807 - Effect of crown margin design on the stress distribution in mandibular first molar restored by means of IPS E-max: A finite element method - Zafer OZER, Hüseyin YANIK, Oğuzhan OZER	633 - Fault tree analysis for transformers and determination of maintenance strategies - Mustafa Şen YILDIZ, Muğdeşem Tanrıöven
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14:50	137 - A Wide Band Metasurface Polarization Converter Designed by Three Nested Rectangular Resonator - Olcay ALTINTAŞ, Emin ÜNAL, Oğuzhan Akgöl, Muharrem Karaaslan	550 - Tribological Properties of Boron Carbide Reinforced Copper Based Composites - Hüseyin İpek, Hamdullah Çuvalcı, Cemal Çelebi	814 - A NOVEL METHOD FOR REACTİVE POWER CONTROL RELAYS - Hasan Dirik, Cenk GEZEGİN	644 - A vhdl implementation of henon map pseudo-random sequence generator - Zeynep KAYA, Erol Seke
15:00	243 - Metamaterial Based Absorber Design - Muharrem Karaaslan, Mehmet Bağmancı, Zafer Özer	645 - CONSTRUCTION OF DICHROMATE-SELECTIVE ELECTRODE BASED ON A CALIX[4]ARENE DERIVATIVE - Tuğçe Göver, Ayça Demirel Özel, Esin Canel, Serkan Erdemir, Mustafa Yılmaz	857 - Union/Find Based Image Segmentation and Performance Analysis - Serkan PELDEK, Ali Çınar	646 - A New Approach to Swarm based Computational Intelligence: Whale Optimization - Feyza Altunbey Ozbay, Bilal ALATAŞ
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SESSION E	SESSION F	SESSION G	SESSION H
E-2. Session - Chairmain: Assoc. Prof.Dr. Mehmet Alkan	**F-2. Session - Chairmain: Assoc. Prof.Dr. Ahmet Doğan**	**G-2. Session - Chairmain: Prof.Dr. Adnan Parlak**	**H-2. Session - Chairmain: Prof.Dr. Ali Ünüvar**
087 - INVESTIGATION OF CONCRETE STRENGTH BY SIGNAL ANALYSIS OF SEISMIC - Osman UYANIK, Nevbahar Sabbağ, Olcay Çakmak	687 - A STUDY FOR DEVELOPING A GRAVITY BASED TRIP DISTRIBUTION MODEL FOR INTERPROVINCIAL BUS TRAVELS IN TURKEY - Yasar Vitosoglu	335 - Performance Characteristics of a Spark Ignition (SI) Engine Fueled with Liquid Fuels and Alcohols - Guven GONCA, Aykut SAFA, F. Mehmet KALE, Eyup BAL	167 - Aerodynamic Tailcone Shape Optimization for Autonomous Navigation Performance Maximization of Morphing Aerial Robot - TUGRUL OKTAY, METIN UZUN
039 - The Prediction of Passengers at Carsamba Airport - Engin PEKEL, Selin Soner Kara	708 - Experimental investigation of the hydrophobic effects on laminar-turbulent transition - Kaan Gölçek, Ali Han Yıldırım, Bülent Güzel	355 - CFD Analysis of a Divided Combustion Chamber of Single Cylinder Spark Ignition CNG Engine - Yasin Ust, Feyyaz Arslan	176 - Cooling of plastic injection molds using conformal cooling canals - Mustafa GÖKTAŞ, Ömer Bayraktar, Abdülmecit Güldaş
043 - Simulating a network of emergency departments: Providing insights for building an earthquake conditions related multi ED simulation model - Muhammet Gul, Ali Fuat Guneri	832 - Study of Sille and Its Immediate Vicinity within the Framework of the conservatıon-Usage Balance - Elif Gündüz, Neslihan Serdaroglu Sag, Rahmi Erdem	392 - Production of carbon nanotube reinforced polyvinyl alcohol nanomats by electrospinning method - Mürsel Ekrem, Ahmet Avcı	184 - Numerical Investigation On Hydrodynamic Behaviour In 8 MWth Circulating Fluidized Bed - Barış GÜREL, Osman İPEK, Mehmet KAN
565 - Wireless sensor network desıgn for seedlıng productıon - Mehmet Erkan Yuksel, Rüya ŞAMLI	840 - Numerical simulations of composite sandwich panels under low velocity impact - Umut Çalışkan, M. Kemal Apalak	399 - A survey on MPC widely used many areas of the industry - Ibrahim Çelik, Mehmet Polat	203 - Operate With a Gasoline Internal Combustion Engine Evaluation of Different Boron Addition of the Fuel Additive Inside Performance and Emissions Impact - A. Ali Sertkaya, Talip Akbıyık
149 - Effect of self compacting concrete compressive stress properties with different filler materials - Hasan Bozkur, Cenk Karakurt	413 - Hydrologic and Hydrogeological Analysis of Historic Atik Valide Water Way of İstanbul - Ahmet Doğan, Yener Kaya	412 - Study on Surface Roughness of Carbon And Glass Fiber Filled Polytetrafluoroethylene in Turning Process - M. Emre Sancı, Serdar Halis, Yavuz Kaplan	208 - AIR PRE HEATER DESIGN AND OPTIMIZATION - Osman Ipek, Barış Gürel, Mehmet Kan
172 - Prediction of Pull-Out Performance of Chemical Anchors Embedded into Concrete - Mucteba Uysal, Ilker Bekir Topcu, Murat Guler, Harun Tanyildizi	1019- EXAMINATION OF THE LEVEL OF RESIDENT PERCEPTION TOWARDS ENVIRONMENTAL PROBLEMS: BARTIN CITY (TURKEY) - Canan Cengiz, Pelin Keçecioğlu Dağlı	770 - SAFETY MEASURES ON TANKER SHIPS AND ANALYSIS OF INCIDENT ON BOARD - Ersoy Kacmaz, E. Gul Emecen Kara, Murat Yıldız	221 - Enhancing Heat Transfer from a Porous Plate with Transpiration Cooling - Mustafa Kılıc, Tolga Taner
173 - Accuracy Investigation of Scientific and Commercial GPS Processing Software: A case study within European Reference (EUREF) Permanent Network - İbrahim Kalaycı, Bekir Yüksel, Sermet Ogutcu	422 - Fungal Resistance of Hazelnut Husk Flour Filled Recycled High Density Polyethylene Polymer Composites - Mürşit TUFAN	942 - EXPERIMENTAL STUDY ON THE PERFORMANCE OF A WATER-WATER HEAT PUMP - Ali KAHRAMAN, Alaeddin ÇELEBI, Hidayet OGUZ, Rıza BÜYÜKZEREN	224 - Effect of heat input on microstructure and microhardness of Fe-Cr-W-B-C powder coating prepared by plasma transferred arc welding - Turan Gürgenç, Cihan Özel
330 - EVALUATION OF THE COMPRESSIVE STRUT MODEL FOR ANALYTICAL MODELLING OF INFILLED REINFORCED CONCRETE FRAMES - Mehmet Ömer TİMURAĞAOĞLU, Adem Doğangün, Ramazan Livaoğlu	428 - Nonlinear Buckling Analysis of Eccentrically Loaded T-Sections - Mustafa Durmaz, Ayşe Daloğlu	955 - Investigation of modal properties of a plate reinforced by polyurethane foam with different thicknesses - Orhan Çakar, Murat Şen	854 - Predictıve modelling of surface roughness in the electro-discharge machining of die steels - Ali Ünüvar, Murat KIYAK, Orhan CAKIR
932 - Comparison of nano and micro size of CaO and MgO on the physical and mechanical properties of cement paste and mortar - Rıza Polat, Ramazan Demirboğa, Fatma Karagöl	1088 - Soil and water quality, Natural resources, Capakcur microcatchment (CMc), Murat River Watershed Rehabilitation Project (MRWRP) - Ali RIZA DEMİRKIRAN,ALAADDIN YUKSEL, Abdulkadir SÜRÜCÜ, Metin AVŞAROĞLU	523 - The Experimental Investigation of Added the Methanol to Diesel Fuel as a Method for Reducing Diesel Emissions - Murat Ciniviz, Feyyaz CANDAN	1064- Numerical Investigation of Thermal&Hydraulic Performance of Louvered Fin Heat Exchangers with Various Louver Angles and Fin Pitches - Abdulkerim Okbaz, Ali Pınarbaşı
409 - Public Transport Planning: Case Study of İstanbul - İsmail Sevim	533 - Turbulent Boundary Layer with Logaritmic Law in 2-D - Ozgul Ilhan, Niyazi Sahin	771 - EXAMINATION OF THE EFFECT OF CONTAINER PORT LAYOUT PLAN ON THE PORT PERFORMANCE EFFICIENCY - Olgay OKSAS, GOKHAN KARA, E.GUL EMECEN KARA	735 - Optimization of drilling parameters for thrust force in drilling of AA7075 - Nafiz Yaşar, M. Erdi Korkmaz, Mustafa Günay

ORAL PRESENTATIONS

	SESSION A	SESSION B	SESSION C	SESSION D
	A-3. Session - Chairmain: Prof.Dr. Fethi Kamışlı	**B-3. Session - Chairmain: Assoc.Prof.Dr. Murat Alan**	**C-3. Session - Chairmain: Mujo Hodžić**	**D-3. Session - Chairmain: Assoc.Prof.Dr. Sabahattin Sıddık Cindoruk**
15:20	193 - Hydrogenation of Some Olefins with New Furan-2,5-bis(N-acylbenzotriazole) Palladium Complex in [bmim][BF4] - Hakan ÜNVER, Filiz YILMAZ	194 - A Comparison of Smart Grid Technologies and Progresses in Turkey and the World - Mustafa Sacid Endiz, Hasan Basri Altıntas	631 - Defining the Parameters of the High-Pass Active Filter by Using Backtracking Search Algorithm - Burhanettin Durmuş, Bahadır Hiçdurmaz, Hasan Temurtas, Serdar Özyön	210 - DETERMINATION OF POTENTIAL GROUNDWATER POLLUTION BY DRASTIC MODEL AND GIS IN MERSİN,TURKEY - Olcay Gülçiçek, Zeynel A.DEMİREL
15:30	675 - Synthesis and Pharmacological Studies of Novel Hydroxy-, Methoxy- and Benzyloxyimino- Tetradecanoates - Hatice Başpınar Küçük	205 - Gram–Schmidt Based Truncated ULV Block Update - Hasan Erbay, Fatih Varçın, Fahrettin Horasan	653 - An Iterated Local Search Based Algorithm for Curriculum Based Course Timetabling Problems - Mehmet Hacibeyoglu, Kemal Alaykıran	217 - Failure modes and effects analysis for cogeneration unit in a wastewater treatment plant - Nazlı Gülüm MUTLU, Serkan Altuntaş, Ilter Türkdoğan
15:40	371 - Energy Saving in Copper Metallurgy by Addition of Fluxing Agent - Aydin Rusen	209 - Evaluation of Consulting Firms Selection in Construction Projects by Using Fuzzy Logic - Aynur KAZAZ, M. Talat Birgonul, Hakan Kaplan, Turgut Acikara, Bayram Er	664 - IMPROVING THE ISOLATION BETWEEN TWO PORT MICROSTRIP DIPOLE ANTENNAS - Oğuzhan Akgöl	258 - Silica Based Sorbents for Solving Heavy Metal Pollution Problem IN AQUEOS MEDIA - SABAHATTIN DENIZ, ECE KOK YETIMOGLU, MEMET VEZIR KAHRAMAN
15:50	619 - A New CuO Catalyst for Lithium Air Batteries in Nonaqueous Media - Murat Farsak, Gülfeza Kardaş	218 - Multi-Functional Sensor Applications Based on Metamaterial Absorber Designed by Meander-Line Resonator - Elif Eda Dalkılınç, Olcay Altıntaş, Oğuzhan Akgöl, Muharrem Karaaslan	686 - Numerical Scheme for Solving Linear Fredholm Integro Differential Difference Equations - Gül Gözde Biçer, Yalçın Öztürk, Mustafa Gülsu	315 - USE OF A NOVEL BIOREACTOR CONFIGURATION IN THE FORM OF HIGH SOLID DIGESTION FOR MUNICIPAL ORGANIC WASTES AT PILOT SCALE - Kübra Arslan, Tugba Keskin Gundogdu, Duygu Karaalp-Yavuzyılmaz, Nuri Azbar
16:00	454 - Perturbation Method in Gas-assisted Displacement of a Newtonian or a Non-Newtonian Liquid - Fethi Kamışlı	226 - A Mobile Survey Application For Android Devices - Fatih KAYAALP	500 - REMOTE CONTROL OF LIGHTING USING PROGRAMMING LANGUAGE MATLAB, ZIGBEE TECHNOLOGY AND PIC18F452 MICROCONTROLLER - Edin Mujčić, Dženita Nuhić, Mujo Hodžić	483 - Performance Analysis of Time Series Forecasting Models for Short Term Wind Speed Prediction - Alper KEREM, Ismail KIRBAŞ, Ali SAYGIN
16:10	623 - DEVELOPMENT OF FORENSIC ANALYSIS METHODS FOR DIFFERENT FIBERS VIA HPLC– COUPLED WITH DIODE ARRAY DETECTION - Pınar Erdal, Alev YILMAZ, R. Tuğrul OĞULATA, Yüksel BÖLEK	238 - HYBRID CPU/FPGA SYSTEM DESIGN FOR HOG BASED PEDESTRIAN DETECTION - Ahmet Remzi Ozcan	716 - Horizontal and Vertical Balancing for Cloud Environment - Mirsat Yeşiltepe	494 - Equilibrium and kinetic study of bisphenol-A adsorption by bentonite clay from aqueous solutions - Mehtap Tanyol
16:20	639 - Effect of Solvent and Concentration on Coating Quality of Dip Coated Polycaprolactone (PCL) on AZ91E Alloy to Reduce Degradation Rate - Serhat Acar, Serap Derman, Cem akca	1037- Construction of Irreducible Polynomials over Finite Fields with Even Characteristic - Murat Alan, Betül Duman	1080 - Analyzing Total Cost Parameters Priorities in the Catering System by Using Analytical Hierarchy Process - Alev Akpınar Borazan, Reyhan Heycan	869 - Modelling Thermal Conductivity of Cement Composites Containing Waste Expanded Polystyrene - ERCAN AYDOĞMUŞ, AYŞE KAYA, FİLİZ KAR
16:30	738 - Mechanically Alloyed Mg-Ni-Y Powders - Celal Kursun, Musa Göğebakan, Hasan Eskalen	244 - Research on Retinal and Iris Identification Systems - Asaf Varol,Yeşim Ülgen Sönmez	750 - FIRST ORDER INTEGRAL SLIDING MODE CONTROL OF THE MAGNETICALLY LEVITATED 4-POLE TYPE HYBRID ELECTROMAGNET - Hasan Fatih Ertuğrul, Kadir Erkan	911 - Determination of reservoir capacities using design methods - ULKER GUNER BACANLI
16:40	816 - The Production of Polyurethane from Vegetable Oil-Based Polyols and Modelling of Thermal Properties - Ercan Aydoğmuş, Fethi Kamışlı	263 - An experimental platform of sensing data and bluetooth scanning - Cigdem Polat Dautov	761 - ANN-based classification of sound signals using various methods - Yusuf Gürbüz, Yusuf UZUN, Ahmet Afşin Kulaksız, Hüseyin Arıkan	954 - Risk Assessment of Hazardous Waste - Havva Ateş, Mehmet Emin ARGUN
16:50	395 - Effect of abrasive waterjet machining parameters on Inconel 718 nickel-based superalloy - Mustafa Ay, Ahmet Hasçalık	159 - Design and Implementation of a Simple, AES-Based Secure Messaging Platform - Resul Das, Gurkan Tuna	709 - ANALYSIS of CARRIER BASED DISCONTINUOUS PWM METHOD FOR CASCADED H-BRIDGE MULTILEVEL INVERTER ….. - M. Mustafa ERTAY, Ahmet ZENGİN, Murat Kale, Murat Karabacak, Ihsan PEHLİVAN	983 - CHEMICALLY COLOR REMOVAL FROM TEXTILE WASTEWATER WITH OXIDIZING AND REDUCING AGENTS - Mustafa KARABOYACI, Mesut Uysal, Aziz Şencan, Mehmet Kılıç
17:00	BREAK COFFEE / TEA			

SESSION E	SESSION F	SESSION G	SESSION H
E-3. Session - Chairmain: Prof.Dr. Dominique Duhaut	**F-3. Session - Chairmain: Assoc.Prof.Dr. Cem Tokatlı**	**G-3. Session - Chairmain: Assoc.Prof.Dr. Ahmet Doğan**	**H-3. Session - Chairmain: Prof.Dr. Adnan Parlak**
030 - The Truth of "Hijacked Paper" and The Crescive Danger for Academicians: A Survey for Turkey - Can YILMAZ, METİN KONUŞ	022 - Diagnosis of Coronary Artery Disease Using Deep Belief Networks - Novruz Allahverdi, Gökhan Altan, Yakup Kutlu	526 - Motivation as a Tool for Ensuring Productivity Improvement in Turkish Construction Industry - Aynur Kazaz, M. Talat Birgönül, Turgut Acıkara, Bayram Er	1085- Economic Analysis of a Passive House Assisted by a Ground Source of Heat Pump in Karabuk - Mehmet Özalp, Mete Bayraktar, Mutlucan Bayat
459 - OTTOMAN CULTURAL HERITAGES IN BURSA: STRUCTURAL DETERMINATION OF HISTORICAL MINARETS - RAMAZAN LİVAOĞLU, CAVİT SERHATOĞLU	035 - Effects of Different Reaping Periods on Volatile Oil Components of endemic Phlomis leucophracta P. H. Davis & Hub.-Mor. (Lamiaceae) - AYSE GUL SARIKAYA, HUSEYIN FAKIR	532 - REDUCTION OF WAVES MAGNITUDES BY OFFSHORE BREAKWATER UNDER SEA LEVEL IN AKYAZI STADIUM AREA, TURKEY - Fatih Saka, Osman Kara, Emrah Kaplan, Onur Bulut,	476 - The Normal Stress Distribution in an Elastic Body With a Locally Curved and Hollow Fiber - Kadriye Şimşek Alan
1074- Some Problems on Graph Decompositions - Ugur Odabasi	051 - The Determination of the Diabetic Condition With ANN - Ebru Pekel, Engin Pekel	124 - Study on the effect of the mechanical vibration on solidification in process of A356 aluminum alloy casting - Murat ÇOLAK, Murat Balcı	480 - Mammogram classification by using wave atom moments - Nebi Gedik
1089- An Expert System Applications in the Education - Ersin Özdemir, Hasan Kuzu	080 - Investigation of Genotoxic Effects of Myclobutanil Fungicide Using RAPD and ISSR-PCR Techniques - Ismail Poyraz, Mikail Aydın		1020 - Vibrational Spectra of the [MLCl2] (M= Mn(II), Fe(II), Co(II); L= 2,2'-Bipyridine) Complex from Theoretical Calculations - Berna Catıkkaş, Ziya Kantarcı
867 - STUDY OF SERICE DOGS' EDUCATION WITH AN ELECTRONIC COLLAR - Dominique Duhaut, Germain Lemasson, Sylvie Pesty, Marie Chaffraix, Didier Vernay, Philippe Lucidarme	118 - An Application of Cluster Analysis to Evaluate the Trace and Toxic Element Accumulations in Sediments of Meriç, Tunca and Ergene Rivers (Edirne) - Cem Tokatlı, Yasin Baştatlı	824 - Hydrological and Hydrogeological Analysis of Historical Kayışdağı Waters of Istanbul - Ahmet Doğan, Yasin Aktaş	570 - Repeated low-velocity impact behavior of particle-reinforced metal matrix composites - Recep Ekici
1110- Kyrgyz Orthography and Morphotactics with Implementation in Nuve - Zuleyha Yiner, Atakan Kurt, Kalmamat Kulamshaev, Harun Resit Zafer	136 - A NEW MAPPING APPROACH FOR IDENTIFICATION PROTEIN CODING REGIONS IN DNA SEQUENCES - Bihter DAS, Ibrahım Turkoglu	613 - Nonlinear Buckling Analysis of Cold-Formed Channel Sections - Mustafa Durmaz, Ayşe Daloğlu	1065- A Comparison of Thermal and Hydraulic Performance of Louvered Fin Heat Exchangers in Staggered and Inline Tube Arrangements... - Abdulkerim Okbaz, Ali Pınarbası, Merve Ozturk, Mehmet Salih Cellek
129 - WOMEN EDUCATION IN TURKEY - Dilay AYGÜN	142 - Natural antioxidants reduces to oxidative stress in testis of hypertensive rats - MEHMET FUAT GÜLHAN, ZELİHA SELAMOĞLU	626 - The effects of synthetic and steel fibers admixtures on the abrasion resistance of normal and vacuumed concrete - HAKAN BOLAT, MUSTAFA ÇULLU	1081- The effect of temperature on the energy and exergy efficiency of a solar photovoltaic module - Mutlucan Bayat, Mehmet Özalp
462 - The geothermal features of Erzurum and surroundings (TURKEY) - Oya Pamukçu, Çağatay Pamukçu	278 - RECOGNITION OF EXONS AND INTRONS IN DNA SEQUENCES WITH A NEW NUMERİCAL MAPPING APPROACH - Bihter Das, Ibrahım Turkoglu	638 - Potential Use of Nanotechnology in Conservation Applications of Historical Building - Semih Yilmaz, Nilhan Vural	1090- Predictive Perspective on Resonance Problem by Testing with Rotating Elements - Salih Seckin Erol
259 - Stress Changes in Gediz Graben (Western Anatolia) - Ayça Çırmık, Oya Pamukçu	108 - ALTERATION OF VOLUME INCREMENT ACCORDING TO BASAL AREA AND SOCIAL STEM CLASSES ON BRUTIAN PINE (Pinus brutia Ten.) PLANTATIONS IN BURDUR REGION - Serdar CARUS	660 - SPATIAL ANALYSIS OF ASSAULT AND BATTERY CRIME STATISTICS IN TURKEY - Saffet Erdoğan	358 - DETERMINATION OF DIFFUSE SOLAR RADIATION FOR PV SYSTEMS - Selmin ENER RUSEN
783 - Alternatives Routes for Container Vessels Due to Bad Weather; Black Sea Region Study - Kadir IŞIK, Sibel BAYAR	032 - THE MORPHOLOGY, BIOLOGY AND DAMAGE OF THE PINE SHOOT MOTH [RHYACIONIA BUOLIANA (DEN. & SCHIFF.)] IN THE BRUTIAN PINE FORESTS IN THE SOUTH-WESTERN OF TURKEY - Oguzhan SARIKAYA, Abdullah Emrah UNLU	602 - Port State Control Inspections in the Black Sea Region and Its Effect on Maritime Safety - E. Gül Emecen Kara, Olgay Okşaş	654 - ANALYSIS OF SEASONAL SOLAR ENERGY: A CASE STUDY FOR OSMANIYE, TURKEY - Bülent YANIKTEPE, Osman KARA, Coşkun Özalp, Ilyas Aladağ

ORAL PRESENTATIONS

	SESSION A	SESSION B	SESSION C	SESSION D
	A-4. Session - Chairmain: Assoc.Prof.Dr. Halil Kütük	**B-4. Session - Chairmain: Assoc.Prof.Dr. Muhammet Kurulay**	**C-4. Session - Chairmain: Assoc.Prof.Dr. Murat Alan**	**D-4. Session - Chairmain: Assoc.Prof.Dr. Sabahattin Sıddık Cindoruk**
17:20	820 - Automatic Detection and Localisation of Sick Animals by Sound Technology - Arda AYDIN	1001 - AN ALGORITHM TO DETERMINE THE IDEAL HOP LENGTH FOR MINIMUM ENERGY CONSUMPTION IN WSNS - Nükhet Sazak, Ali Soner Kılınç	219 - Pressure and Density Sensor Applications Based on Perfect Metamaterial Absorber - Elif Eda Dalkılınç, Olcay Altıntaş, Emin Ünal, Muharrem Karaaslan	541 - OPTIMIZATION OF AMMONIA REMOVAL FROM LEACHATE BY AMMONIA STRIPPING USING RESPONSE SURFACE METHODOLOGY - Özlem Tepe, Müslün Sara Tunç
17:30	852 - Pests of Olive Fruits and Integrated Pest Management Strategies in Turkey - Gülay KAÇAR	1011 - Computational Investigation of A Gas Cooled, Full Vacuum and Magnetic Beared Flywheel Energy Storage System in Respect of Energy Storage Capability and Efficiency - Metin VARAN	292 - Connected Revisit Path Planning For Flying Ad Hoc Networks in Dynamic Environment - Ilker BEKMEZCI	588 - A review of heavy metal removal in constructed wetlands and most widely used wetland plant varieties - Semra YAŞAR ÇIRAK
17:40	1052- APPROACHES ON BIOLOGICAL CONTROL OF PESTS, INJURIOUS ON VEGETABLE CROPS IN PROTECTED CULTIVATION IN TURKEY - Halil Kutuk	1026 - A Novel S-box Algorithm Based on Physical Entropy Sources - Fatih Özkaynak	322 - Investigation of SIFT, SURF, and GPU-SURF Algorithm for feature detection - Zafer Güler, Ahmet ÇINAR, Erdal ÖZBAY	693 - DECOLORIZATION OF TEXTILE AZO DYES BY HALOPHILIC ARCHAEA - Birgul Ozcan, Evrim Yıldız
17:50	383 - PALAEOVEGETATION OF THE CİHANBEYLİ-YENİCEOBA OLIGO-MIOCENE BASIN - F. Akgün, M. S. Kayseri Özer, E. Tekin, B. Varol, E.I. Herece, I. Gündoğan, K. Sözeri, Ş. Şen, M. Görmüş, Y. Büyükmeriç	1027 - Cryptanalysis of A New Image Encryption Scheme Based on A Chaotic Function - Fatih Özkaynak, Ahmet Bedri Özer	337 - INFLUENCIES OF WINDING TOPOLOGY AND TURN NUMBER ON INDUCTION MOTOR PERFORMANCE AND SPACE HARMONICS - Mehmet Murat TEZCAN, Asim Gökhan Yetgin, Ali İhsan Çanakoğlu	1131- The color removal performance of CSTR reactor treating real textile wastewater: ….. - Abdullah Kizilet, Dilda Gumuscu, M. Ecem Köse, Seda Kundakci, Irem Sepet, Merve Yurdakul, Ozer Cinar
18:00	939 - The Modeling of Groundwater Quality Parameters Used in Agricultural Irrigation - M. Cüneyt BAĞDATLI	1032 - POSITION CONTROL OF SERVO MOTOR BY USE OF MATLAB OPC TOOLS WITH PLC - Ali SAYGIN, Yucel Beşyaprak	340 - INVESTIGATING STUDENTS SUCCESS ON PREREQUISITE CHAIN COURSES - Ulaş Ozan CEYHAN, Murat Karakaya	1050- EFFECTS OF HIGH COPPER CONCENTRATIONS ON PERFORMANCE OF ANAEROBIC PROCESS - Sibel Aslan, Nusret ŞEKERDAĞ
18:10	1022- Effect of thinning on rainfall interception in oriental beech (Fagus orientalis lıpsky) stands in Duzce, Turkey - Faruk Yilmaz, Refik Karagül, Ali Kemal Ozbayram	1033 - IMPROVED GREEDY ALGORITHMS - Sema Kayhan	341 - Design and Development of Wireless Building Lighting Management - Seyit Alperen CELTEK, Hakkı SOY	1143- The effect of operating parameters on energy consumption in the treatment of Pistachio Processing Industry Wastewaters..... - Serkan Bayar, Recep Boncukcuoğlu, Alper Erdem Yılmaz
18:20	1044- Influence of thinning on reducing summer drought stress in oriental beech forest in Duzce, Turkey - Ali Kemal ÖZBAYRAM, Faruk Yılmaz, Şemsettin Kulaç	1051 - PERFORMANCE ANALYSIS OF EXPONENTIAL-HAMMING WINDOW TO IMPROVE THE CONTRAST RATIO IN IMAGING SYSTEMS - Kemal Avci, Mehmet Onur Yıldırım	253 - The Use of Conditional Probability and Expected Value Functions to Maximize Earnings on Betting Games - Nurhayat Varol, Serkan Varol	188 - The Size Distribution of Particulate Matter Emitted from Artificial Fields - Sabahattin Sıddık Cindoruk
18:30	1053- Naturally occurring parasitism with Trichogramma brassicae in Ostrinia nubilalis Hbn (Lepidoptera: Noctuidae) Populations in Düzce, Turkey - Halil Kutuk	1054 - DESIGN OF NEW TWO DIMENSIONAL DIGITAL FILTERS BY USING THE EXPONENTIAL-HAMMING WINDOW WITH APPLICATION TO IMAGE PROCESSING - Kemal Avcı, Mehmet Onur Yıldırım	353 - INVESTIGATON OF STATOR AND ROTOR SLIT EFFECTS ON MIDDLE POWERED INDUCTION MOTOR PERFORMANCE - Asım Gokhan YETGIN, Mustafa Turan, Mehmet Murat Tezcan, Ali İhsan Canakoglu	604 - Pollution Sources from Iron and Steel Industry - Sakine Ugurlu Karaagac, Rahman Calhan
18:40	380 - HSP Genes Expression Profile Analysis Under Boron Toxicity in Tomato - Mehmet Serdal Sakcali, Nihan Semizoğlu, Huseyin Tombuloğlu, Guzin Tombuloğlu	1055 - Using of SVM Sound Recognition Technique in Source Separation of Packaging Wastes: A New Approach for Reverse Vending Machines - Kemal KORUCU, Özgür KAPLAN, M.Kemal GÜLLÜ, Osman BÜYÜK	357 - Classification of Point Cloud Images - Erdal OZBAY, Ahmet CINAR, Zafer GULER	1130- A review on dynamic membrane bioreactors: Comparison of membrane bioreactors and different ….. - Ozer Cinar, Abdullah Kizilet, Onur Isik, Amar Ćemanović, Mehmet Akif Veral, Selin Duman
18:50	1133 - Interdisciplinary healing environment for the ageing population - Niels Taillieu	1061 - The Selection of the Most Suitable Images for Camera Calibration - Özkan Bingol, Murat Ekinci	359 - Discrete Cosine Transform Based Automatic Gender Determination from Face Images - Betül Akkoç, Ahmet Arslan	1023- INVESTIGATION of DRY DEPOSITION FLUXES of ATMOSPHERIC PARTICULATE MATTERS in DENİZLİ, TURKEY by BERGERHOFF METHOD - Sibel Cukurluoglu
19:00		915 - Investigation of Anti-Termite Activity of Wood Treated with Geothermal Fluids from Different Regions of Turkey - Mesut YALÇIN, Çağlar Akçay, Teresa de Troya, Hüseyin Sivrikaya, Hediye Ceylan	260 - Numerical Modeling Studies for different temperatures on extensional region - Ayça Çırmık	451 - USE OF WATER JETS IN MINING AND NATURAL STONE CUTTING - ÇAĞATAY PAMUKÇU
19:30	DINNER IN THE HOTEL RESTAURANT (Only for Blue Package ID Holders)			

SESSION E	SESSION F	SESSION G	SESSION H
E-4. Session - Chairmain: Assoc.Prof.Dr. Ahmet Doğan	**F-4. Session - Chairmain: Assoc.Prof.Dr. Cem Tokatlı**	**G-4. Session - Chairmain: Assoc.Prof.Dr. Mehmet Alkan**	**H-4. Session - Chairmain: Ast.Prof.Dr. Yusuf Uras**
971 - Future Trends in Maritime Training Simulation - Murat YILDIZ, Olgay Oksas, E. Gul Emecen Kara	507 - Calculation of brain ventricles volume using atlas based method in patients with Parkinson - Hikmet Kocaman, Ayşe Sağıroğlu, Niyazi Acer, Serkan Şenol, Emel Köseoğlu	853 - ENVIRONMENT AND COST COMPARISON OF WARM MIX ASPHALT TECHNOLOGY APPLICATION IN TURKEY - Halit Ozen, Kemal Karakuzu, Ibrahim Sel	591 - THE EFFECT OF VARIATION OF PEAK GROUND VELOCITIES OF NEAR FIELD EARTHQUAKES ON MID-RISE REINFORCED CONCRETE BUILDINGS - Serkan ENGİN
086 - DETERMINATION OF CONCRETE PROPERTIES BY SEISMIC VELOCITIES - Osman Uyanık, Nevbahar Sabbağ	739 - Determination of Knowledge Levels for Hydatid cyst in Nursing Students - Mehmet Fatih Aydın, Mehtap Çöplü, Emre Adıgüzel	883 - PHYSICAL, MECHANICAL AND RADIATIONAL PROPERTIES OF HEAVY-WEIGHT CONCRETES USED FOR……. - Süleyman Özen, Cengiz Şengül, Üner Çolak, M. Ali Tasdemir, I. Atila Reyhancan	302 - Compared of Crustal Parameters of Eastern Anatolia Using Different Approaches - Oya Pamukcu, Fikret Doğru
667 - A NUMERICAL INVESTIGATION OF CYCLIC BEHAVIOR OF COUPLED WALL SYSTEMS - Hasan Sesli, S. Istemihan Cosgun, Metin Husem	202 - Inter primer binding sites (iPBS), a novel source of genetic diversity in fungus - Göksel ÖZER, Harun Bayraktar, Faheem Shehzad Baloch, Damla Şen	899 - A Numerical Study on Rock Barriers in Uzungöl Region - Mehmet Tevfik Seferoğlu, S. Istemihan Coşğun, Muhammet Çelik, Ayşegül Güneş Seferoğlu, Muhammet Vefa Akpınar	284 - An Investigation of the Usability of Yavuzeli Basalt Aggregates in Hot Mix Asphalt - Ahmet Ozbek, Yusuf Uras, Murat Gül, Huseyin Semerci, Samime Şener
670 - A Numerical Study on Reinforced Concrete Plates subjected to Impact Loading - S. Istemihan Cosgun, Hasan Sesli	236 - PHENOLIC COMPOSITION OF FIVE SIDERITIS SPECIES ENDEMIC TO TURKEY - Sema Çarıkçı, Turgut Kılıç, Zuleyha Özer Sağır, Sinem Dereli, Demet Açar	903 - INVESTIGATION OF BEARING CAPACITY OF CENTRALLY LOADED STRIP FOOTINGS NUMERICALLY AND EXPERIMENTALLY - Erol ŞADOĞLU, AHMET KUVAT	496 - Determination of earthquake probability by using statistical methods in Turkey - Kaan Hakan Coban, Nilgun Sayıl
711 - THE EFFECT OF LEAD MINE WASTE USED AS CONCRETE AGGREGATE ON SOME PHYSICAL AND MECHANICAL PROPERTIES OF CONCRETE - Mustafa Çullu, Hakan Bolat, Fatih Sultan Semiz	250 - Evaluation of Ascochyta Blight Infection in Chickpea by Real-Time PCR Assay - Harun Bayraktar, Göksel Özer	906 - The Development of Well Information System Using GIS: A Case Study of the Bati Raman Oil Field in Turkey - Bayram ALİ MERT, Emine Avcı	931 - Mechanisms of Isostasic Compensation in Central Anatolian Lithosphere - Bülent Oruç, Oya Pamukçu, Tuba Sönmez, Ergİn Ulutaş, Hamit Haluk Selim
400 - Hydrological and Hydrogeological Analysis of Historic Kayışdağı Spring Waters of Istanbul - Ahmet Doğan, Yasin Aktaş	261 - Boron Alleviates Drought Stress by Enhancing Gene Expression and Antioxidant Enzyme Activity - Mehmet Serdal Sakcali, Mehtap Aydın, Huseyın Tombuloglu, Guzin Tombuloglu	921 - THE EFFECT OF POLYPROPYLENE FIBER ON HORIZONTAL DEFORMATION OF SPLITTING-TENSILE STRENGTH OF CONCRETE - Ilker Bekir Topçu, Hasan Baylavlı	731 - Geochemical and Genetic Characteristics of Manganese Mineralization in Old Gümüşhane (Argyropolis), NE Turkey - Alaaddin Vural, Filiz Erşen
769 - The Effects of High Temperature on Physical and Mechanical Properties of Polymer Modified Cement Mortars - Yusuf Kaya, Ahmet Çavdar, Sedat Sevin	119 - A Socio – Economic Review on Rice Producers Living in Meriç Plain (Edirne, Turkey) - Cem Tokatlı, İpek Atılgan Helvacıoğlu, Tuna Şener	938 - Estimation of the Flow Velocity Effected by Submerged Vanes with Regression Models - Fikret Kocabaş, Ercan Gemici, Mehmet Ardıçlıoğlu	830 - Hydrogeochemical Properties of Ilıca Thermal Spring - Ayla BOZDAĞ
796 - A regression model for the prediction of the minimum cost of reinforced concrete retaining walls - Uğur Dağdeviren, Burak Kaymak	503 - Bark Beetle Species Of Ordu - Yafes Yıldız, Belgen Yiğit	948 - Reducing traffic congestion by optimizing the output of working hours using Genetic Algorithms - Ersin Özdemir, Muhammet Emre Irmak	283 - Grouting Applications in Hacininoglu Hydroelectric Powerplant Energy Tunnel, Kahramanmaras, Turkey - Ahmet Ozbek, Murat Gül, Sinan Kara, Yusuf Uras, Li Yanrong
863 - An improved bacterial foraging optimization with initial position strategy for retaining wall problem - Burak KAYMAK, Uğur DAĞDEVİREN	333 - In Silico Identification of Potential Genes For The Accumulation Of Iron In Tomato Fruits During ….. - MUHAMMAD SAMEEULLAH, Faheem Shehzad Baloch, TURAN KARADENIZ, VAHDETTİN ÇİFTÇİ	957 - Optimum Design of Space Truss Bridges Including Soil-Structure Interaction - Ali İhsan Karakaş, Musa Artar, Korhan Özgan, Ayse Daloğlu	834 - Estimation of uniaxialcompressive strength from point load strength, porosity, dry density and P-wavevelocity - Ali BOZDAĞ, Ismail Ince, Mustafa Fener
749 - A comparative study on the passive house with the standard houses within Karabük climate conditions - Mehmet ÖZALP, Cantekin ULUKAYA, Mutlucan Bayat	336 - Second record of Autogneta (Rhaphigneta) numidiana (Grandjean, 1960) (Acari,Oribatida) from Turkey - Şule Baran	922 - THE EFFECT OF PLASTICIZER ADDITIVE AND POLYPROPYLENE FIBER IN DIFFERENT RATIO ON ABRASION, WATER ABSORPTION AND DENSITY OF HARDENED CONCRETE - Hasan BAYLAVLI, İlker Bekir Topçu	831 - Hydrogeochemical and isotopic investigation of the Seydişehir-Ilıca Thermal Spring, Turkey - Ayla BOZDAĞ
388 - In-Situ Remediation of Chlorinated Solvents in Heterogeneous Porous Media by Cyclodextrine - nihat hakan akyol, sevgi turkkan, TUNA KARATAS, ISMAIL OZBAY, BILGE OZBAY	TOLL-LIKE RECEPTORS AND NON-CODING RNAs IN CANCERS: A POTENTIAL FRONTIER FOR TRANSLATIONAL RESEARCH - Faruk Berat Akcesme		271 - The kinematic structures of Gülbahçe Fault (İzmir, Western Anatolia) - Oya Pamukcu, Ayça Çırmık, Fikret Doğru

ORAL PRESENTATIONS

	SESSION A	SESSION B	SESSION C	SESSION D
	A-5. Session - Chairmain: Assoc. Prof.Dr. Bekir Mumyakmaz	**B-5. Session - Chairmain: Prof.Dr. Ümit Alver**	**C-5. Session - Chairmain: Prof.Dr. Semra Bilgiç**	**D-5. Session - Chairmain: Prof.Dr. Hasan Merdun**
9:00	901 - Investigating the Electromagnetic Shielding Effectiveness Simulations of Metal Composite Fabrics - Ruslan Abdulla, EdiZ DELIHASANLAR, F.Gamze Kızılçay Abdulla, Ahmet H. Yuzer	726 - Identification of Chiroptical, Spectroscopic and Structural Features of Pindolol: A DFT Study - Mehmet ÇINAR, Zeliha Çınar	003 - Performance Analysis of Organic Rankine cycle With R744 and N2O - Fatih Yılmaz, Resat Selbaş, Arif Emre Özgür, Mustafa Tolga Balta	482 - EVALUTION OF RENEWABLE ENERGY SOURCES IN SOUTHEASTERN ANATOLIA REGION IN TURKEY - Gulbahar Bagci, Nuriye Say
9:10	736 - A Non-Linear Model for Optimization of Multiple Responses Using Desirability Function Approach - Ali İhsan Boyacı	719 - Tensile Strength of Double Lap Joints Bonded with a Micro-Particle-Reinforced Adhesive - M.Akif KÜTÜK, Nurettin Furkan Doğan, Omar Al-Dulaimi	662 - SYNTHESIS AND PHOTOLUMINESCENCE PROPERTIES OF Er1.98Gd0.02Ti2O7 PYROCHLORE (A2B2O7) STRUCTURE - Esra ÖZTÜRK	456 - THE EFFECT OF REACTION PARAMETERS ON THE YIELD AND FUEL PROPERTIES OF BIODIESEL FROM ALGAE OIL - Fevzi Yaşar, Şehmus Altun
9:20	806 - A Mathematical Model for Simultaneous Formation of Human-Machine Cell Problem in Cellular Manufacturing Systems - Gokce Kılıc Oger	751 - Synthesis of Green magnetic nanoparticles with Iron (II) ions and natural plant extracts - Macid Nurbas, Asiye Dogan	252 - Development of a New Multi-Residue Method for Determination of Five Pesticides in Water by GC-Mass - Bahar Bayrak	356 - INDUSTRIAL ENERGY EFFICIENCY IMPROVEMENT WITH CASE STUDIES - Selmin ENER RUSEN
9:30	892 - Dielectric Measurements of Cactus Using Arch Free Space Method at X-Band Frequencies - Ediz Delihasanlar, Ahmet Hayrettin Yuzer	286 - RGO / NiO Nano Composite Powder for supercapacitor electrodes - Ümit ALVER, Süleyman Kerli	828 - Dry Sliding Wear Behaviour of Mg–Al–Ti Alloys with Zn Addition - Yunus TÜREN, Harun Cug, Hayrettin Ahlatcı, Yavuz Sun, Engin Çevik	095 - Modeling of pyrolysis products by multiple-linear regression model - Hasan MERDUN
9:40	360 - Some Applications of Matrices Eigenvalues and Eigenvectors - Hasan H.Yurtcu, Ayşe Soyuçok	747 - Analytical Modeling of Solid Particle Erosion of Polymer Matrix Composites, Emine Feyza Şükür, MEHMET BAĞCI, HÜSEYİN İMREK	016 - Performance Assessment of hydrogen production step of boron based thermochemical cycle - Mustafa Tolga Balta, Fatih Yılmaz, Reşat Selbaş	369 - THE DETERMINATION OF BIOGAS PRODUCTION POTENTIAL FROM BANANA WASTE IN TURKEY - Hidayet Oğuz, Kerim Martin
9:50	361 - HEART SOUNDS ANALYSIS BY USING LINEAR PREDICTION CEPSTRAL COEFFICIENTS - Fatma Zehra Gogus, Gülay Tezel	705 - A Simple and Global Physics based Metaheuristic Method: Water Evaporation Optimization - Feyza ALTUNBEY OZBAY, Bilal ALATAŞ	393 - Latent Heat Thermal Energy Storage Characteristics of Kaolin/Capric Acid Composite as a Building Mass with Phase Change-Energy Storage/Release Ability - Ahmet SARI	772 - DETERMINATION OF CRITERIA WEIGHTS FOR RENEWABLE ENERGY ALTERNATIVES BY USING AN INTERVAL TYPE-2 FUZZY AHP METHODOLOGY - Murat ÇOLAK, İhsan Kaya
10:00	366 - MOVING OBJECT DETECTION USING AN ADAPTIVE BACKGROUND MODELING IN DYNAMIC SCENE - Murat Fatih Savas, Huseyin Demirel, Bilgehan Erkal	501 - The Effect of Borax Particles on Bonding and Tensile Strength of Adhesively Bonded Double Lap Joints - Ahmet Erklig, Mehmet Bulut, Yousif Jaber AL-Ani	663 - SYNTHESIS OF Yb3+-ACTIVATED Dy2Ti2O7 PYROCHLORE (A2B2O7) STRUCTURE AND PHOTOLUMINESCENCE PROPERTIES - Esra ÖZTÜRK, Erkul Karacaoglu	1030- Investigatıon of using biofuels in mobile power plants in terms of performance, emission and cost - Hikmet Esen
10:10	403 - Deblurring Images Taken by a Quadrotor Using Artificial Neural Networks - Harun Celik, Ilke Turkmen, Tugrul Oktay	900 - Nutshell as Reinforcing Filler in Thermoplastic Composites - Mürşit TUFAN, Nadir AYRILMIŞ	829 - Effect of Mn Addition on the Corrosion Behavior of Mg5Al1Ti Alloy - Hayrettin AHLATCI, Harun CUG,	457 - Properties of Olive Pomace Oil from the Turkish Industry for Use in Diesel Engines - Fevzi Yaşar, Şehmus Altun, Zülal Arca
10:20	433 - Risk Assessment for Technology Management by using improved Fuzzy-AHP method - Bekir Sahin, Devran Yazir	1135 - Influences of Sb and Zn on Physical and Mechanical Properties of Bi-Sn Eutectic Alloy - FATMA MEYDANERİ TEZEL, NECMİ SERKAN TEZEL, MURAT BOLAT, CİHAN PINARCI, NURLAN QURBANOV	034 - MIXED CONVECTION OF FERROFLUIDS IN A PARTIALLY HEATED LID-DRIVEN CAVITY - Fatih Selimefendigil, Hakan F. Öztop	213 - COMPARISON OF PHOTOVOLTAIC POWER PLANT FEASIBILITIES FOR HOSPITAL BASED ON DIFFERENT LOCATIONS - Rıza Büyükzeren, Ali Kahraman
10:30	1083- PSIM Simulation of Flyback Converter for P&O and IC MPPT Algorithms - Harun Özbay, Akif Karafil, Selim Öncü, Metin Kesler	1140 - A Systematic Approach to Critical Parameter Determination for Wear Testing of Polypropylene/TiO2-Clay Based Composites - Soner Savaş, İmran Seyhan, Lemiye Atabek Savaş	042 - Hydrolysis of Ammonia Borane Catalyzed by PVP-Stabilized Cobalt-Palladium Nanoparticles for Hydrogen Generation - Murat RAKAP, Nİhat TUNÇ	096 - Biofuel production from municipal solid wastes by fast pyrolysis - Hasan MERDUN, Ismail VELİ SEZGİN
10:40	BREAK COFFEE / TEA			

SESSION E	SESSION F	SESSION G	SESSION H
E-5. Session - Chairmain: Assoc.Prof.Dr.	**F-5. Session - Chairmain: Assoc. Prof.Dr. Oktay Hacıhafızoğlu**	**G-5. Session - Chairmain: Ast. Prof.Dr. Ahmet Reha Botsalı**	**H-5. Session - Chairmain: Prof.Dr. Ali Uçar**
036 - Assessment of damage potential of ground motion records for RC buildings - Hayri Baytan Özmen	044 - Determination of bread producers problems and producer solutions - Ferid AYDIN	601 - CUSTOMER ANALYSIS FOR INTER-CITY TRAVEL COMPANIES WITH MARKOV ANALYSIS: AN APPLICATION IN KOCAELİ - CEMİL ÇELİK, ATAKAN ALKAN, ZERRİN ALADAĞ	301 - Prediction of unconfined compressive strength of weathered rocks using P-durability index and porosity - Nurcihan Ceryan, Samet Berber, Sener Ceryan
186 - Investigation of Optimum Asphamin Content for Warm Mix Asphalt - M.Ali ÇOLAK, Sinan Hınıslıoglu, Fatih Hattatoglu, H. Ferit Bayata, Osman Ünsal Bayrak	091 - NUTRITIONAL FACTS AND FIGURES OF ADIYAMAN MOUNTAINOUS COUNTRYSIDE - Çiğdem SABBAĞ	308 - Economical and Social Dimensions of Reclamation in Textile and Clothing Sector: Turkish Case - Seher Kanat, TURAN ATILGAN	559 - Application of Particle Swarm Optimization to Inversion of Multiple Self-Potential Anomalies - Seçil Turan, Ahmet Acar, Gökhan Göktürkler
587 - BEARING CAPACITY DETERMINATION OF SOIL/FOUNDATION SYSTEM FOR A SCHOOL BUILDING BASED ON A DETAILED SITE AND LABORATORY INVESTIGATION - TUFAN ÇAKIR, SERHAT DAĞ	351 - APPLICATIONS OF ULTRASOUND IN FOOD AND ESPECIALLY DAIRY SYSTEMS - Ayhan Duran, Ayca Kuçükcuban	530 - Analysis of Turkey Fuel Prices and International Oil Prices Fluctuation - Uğur Bal, Meryem Yeşilot Kaplan	897 - Effect of Magnetic Field Intensity on The Recovery of Leucite Minerals by Magnetic Seperation - Ali Uçar, Veli Uz, Nihal Derin Coşkun, Sevgi Karaca, Mustafa Akar
718 - EFFECTS OF DIFFERENT GROUND MOTIONS ON SEISMIC RESPONSE OF A CANTILEVER RETAINING WALL CONSIDERING SOIL STRUCTURE INTERACTION - TUFAN ÇAKIR	856 - Effect of Ripening Stage on Phenolic Profile and Antioxidant Activity of Hawthorn (Crataegus orientalis) Fruit - Hacer Çoklar, Mehmet Akbulut	610 - ANALYSIS OF CRITERIA INFLUENCING WEATHER TEMPERATURE WITH AHP AND DEMATEL METHODS - CEMİL ÇELİK, KASIM BAYNAL	833 - THE EFFECT OF HALITE CRYSTALLIZATION ON GEOMECHANICAL PARAMETERS OF GRANITIC ROCKS, TURKEY - Ali Bozdağ, Osman Günaydın
742 - Assessment of Yakutiye Junction by VISSIM - Osman Ünsal BAYRAK, Fatih Hattatoglu, MUHAMMED ALI COLAK, HALIM FERIT BAYATA	1004- DRYING MODEL OF ROUGH RICE BASED ON GENETIC ALGORITHM - OKTAY HACIHAFIZOĞLU, ÇİĞDEM SUSANTEZ, KAMİL KAHVECİ	1071- A DISTRIBUTION NETWORK OPTIMIZATION MODEL FOR REGIONAL BLOOD SUPPLY CHAINS - Esra Ayhan, ALEV TAŞKIN GÜMÜŞ	398 - Factorial design of experiment application and statistical analyse of lignite flotation - Oktay Şahbaz, Cengiz Karagüzel
722 - THE EFFECTS OF AGGREGATE TYPES ON ABRASION RESISTANCE OF HEAVY WEIGHT CONCRETES - Mustafa ÇULLU, Oğuz Burnaz, Hakan Bolat	389 - DETERMINATION OF HEAVY METALS IN POLYPROPYLENE MATERIALS USED IN FOOD PACKAGING BY WDXRF SPECTROMETRY - GÖKÇE BORAND, FARUK DEMİR	720 - MINIMIZATION OF NETWORK CONSTRUCTION COST FOR A GIVEN FAILURE PROBABILITY - Ahmet Reha BOTSALI, Mehmet Aktan	401 - A new sigmoid equation for estimating the point load index of rocks - Zulfu Gurocak
754 - Assessment of Image Fusion Methods - Murat Uysal, Abdullah VARLIK	478 - USAGE OF HYPERSPECTRAL IMAGING TECNIQUE FOR DETECTOIN OF AFLATOXIN: A REVIEW - Ahmet Ünver	309 - Performance Measurement Issue in Clothing Retailing: Turkish Case - Turan Atılgan, Seher Kanat	415 - Geochemical and Mineralogical Properties of zeolites from Gördes (Manisa) and its near vicinity - Alaaddin Vural, Mustafa Albayrak
767 - The Physical Behavior and Repetitive Freeze-Thaw Resistance of Polymer Modified Mortars - Sedat SEVİN, Ahmet Çavdar, Yusuf Kaya	629 - Influence of Degumming Process on the Oxidative Quality of Canola Oil - Ayhan DAĞDELEN, Gulcan Ozkan, AYSE GUL OZAYDIN	773 - ANALYSIS OF CONTAINER TRAFFIC HANDLED IN TURKEY ACCORDING TO TYPES OF CONTAINER - Olgay OKSAS	397 - The effects of particle size on flotation: a short overview - Cengiz Karagüzel, Oktay Şahbaz
187 - A Study On Junction Performance Analysis: Dörtyol Junction Sample (Erzincan,Turkey) - Halim Ferit BAYATA, Osman Ünsal Bayrak, Fatih Hattatoglu, M. Ali Çolak	090 - Medical Situations of the Women Working At Industrial Zones and Satisfaction Situations with Food Service: Adıyaman Case - Çiğdem SABBAĞ, Ismaİl Ukav	1058- Ranking of Brand City Alternatives: A Case Study for Turkey - Melike Erdoğan, Ö. Nalan Bilisik, Ihsan Kaya	299 - A new the weathering classification for rock mass using Rock Engineering System and its application - Samet Berber, Nurcihan Ceryan, Sener Ceryan
597 - ON THE INFLUENCE OF ELASTICITY MODULUS OF CONCRETE ON SEISMIC RESPONSE OF A CANTILEVER WALL - TUFAN ÇAKIR	949 - DESIGN AND MULTIPHASE MODELLING OF A DOUBLE OUTLET CENTRIFUGAL PUMP - Muaz Kemerli, Zekeriya Parlak, Tahsin Engin, Halit Yaşar	528 - STATISTICAL INVESTIGATION OF TURKEY BOSNIA AND HERZEGOVINA ECONOMIC RELATIONS - Davut Buzkıran	896 - The monitoring sediment concentration with ADV backscatter strength for different sediment sizes - Ramazan MERAL, Alaaddin Yuksel

ORAL PRESENTATIONS

	SESSION A	SESSION B	SESSION C
	A-6. Session - Chairmain: Prof.Dr. Hasan Merdun	**B-6. Session - Chairmain: Assoc.Prof.Dr. Bekir Mumyakmaz**	**C-6. Session - Chairmain: Prof.Dr. Ümit Alver**
11:00	151 - Application of the ETHDR Method on Aeromagnetic Data: A Case Study Western of Bitlis, Turkey - Fikret DOĞRU, Oya PAMUKÇU	452 - Airspeed computation for aircrafts with ANFIS using flight parameters - Ilke Turkmen, Harun Celik	775 - Investigation of the aluminum alloy with 304 austenitic stainless steel sheets joined by friction stir spot welding method - Ramazan Samur, Hasan Kaya, Ali Öz, Abdullah Demir, Mehmet Uçar
11:10	405 - Estimating evapotranspiration using adaptive neuro-fuzzy inference system and Hargreaves-Samani method - Yunus Ziya KAYA, Fatih ÜNEŞ, Mustafa MAMAK	479 - NEW GENERATION WIRELESS MICROCONTROLLER BASED MEASUREMENT SYSTEM - Veysel Gokhan Bocekci, Eyup Emre Ulku	788 - The Effect Of Reciprocating Extrusion Pass Number Of Aluminum 6061 Based Composites Microstructure - Fatma Nazlı Sarı, Veysel Erturun, Mehmet Baki Karamış
11:20	468 - SPATIAL VARIABILITY OF ERODED SOILS ON DIFFERENT SHAPED SLOPES: A FIELD STUDY IN TURKEY - Hüseyin Şensoy, Ömer KARA	489 - Control of Power Electronic Interface for a Stand-Alone Photovoltaic System - Evren Isen	803 - Survey for Control Strategies and Application Areas of PWM Rectifiers - BARAN YILDIZ, Mehmet Polat
11:30	040 - Landslide Monitoring with GNSS-PPP on Steep-Slope and Forestry Area: Taşkent Landslide - İsmail ŞANLIOĞLU, Mustafa ZEYBEK, Cemal Özer YİĞİT	964 - OPEN-ENDED COAXIAL PROBE DESIGN FOR DIELECTRIC PERMITTIVITY OF BIOMEDICAL TISSUES - Samet Yalcin, Abdullah Genc, Mehmet Fatih Caglar	836 - Effect of TiCN addition on the microstructure and mechanical properties of PM steels - Mehmet Akif ERDEN, Süleyman Gündüz, Halil Demir, HASAN KARABULUT, DOĞAN ÖZDEMIRLER
11:40	060 - Human-Wildlife Conflict in Turkey, Causes and Solution Proposals - Yasin UNAL, Ahmet Koca, Mevlüt Zenbilci, Tayfun Isa AYGüL	512 - EFFECTS OF THE EJECTOR USAGE ON VAPOUR COMPRESSION COOLING SYSTEM - Bahadır Acar, Alper Ergün, Erdoğan Kılıçaslan	838 - Wear behavior of cryogenically treated TiN carbide cutting tool while face milling of Inconel 718 Superalloy - Bilal Kurşuncu, Halil ÇALIŞKAN, ŞEVKİ YILMAZ GÜVEN
11:50	326 - Solar Powered Wild Animal Detection and Warning System Design for Sustainable Hunting - Muhammet Tahir Guneser, Seda Kırtay, Tuba İşlek, Aslı Asuman Mutlu, Erzat Erdil	525 - Modeling of a Static VAR compensator (SVC) as voltage regulator for a heavy loaded transmission line - Bekir Mumyakmaz	860 - Cross Section Calculations of (n,gamma) and (gamma,n) Reactions of Some Isotopes in Steel Used in Nuclear Reactors - Ömer Faruk ÖZDEMIR, Ali ARASOĞLU
12:00	434 - EFFECTS OF DIFFERENT ORGANIC MATERIAL APPLICATIONS ON ONIONS YIELD AND SOME Yield components of onion UNDER SALINE CONDITIONS - Ercan EKBİÇ, Kürşat Korkmaz, Ayşe Keskin	950 - DESIGN AND MODELLING OF A MAGNETORHEOLOGICAL DAMPER BY CFD - Muaz Kemerli, Zekeriya Parlak, Tahsin Engin, Kenan Genel	861 - Neutron Spectrum Calculations In APEX Fusion Reactor With FLiNaBe Blanket Using MCNPX Program - Ali ARASOĞLU, Güneş AÇIKGÖZ, Ömer Faruk ÖZDEMİR
12:10	514 - Ten-year results of initial spacing trial in ash (Fraxinus angustifolia Vahl.) plantation in Turkey - Emrah Çiçek, Ali Kemal Özbayram, Şemsettin Kulaç, Akın Toprak	574 - Comparison of Power Spectrum and Bispectrum in the Biomedical Signals - Necmettin Sezgin	117 - Forming of carbon fiber reinforced composite materials by using of stretch apparatus - Abdulmecit Guldas, Ömer Bayraktar, Mustafa Goktas
12:20	680 - Crystallization of Apatite - Nihal Derin Coşkun, Veli uz, İskender ışık, Ali Issi	1012- MODBUS/TCP Industrial Protocol Based Diesel Generator Set Controller Design and Evaluations on Power Generation Performances - Metin Varan, Motuma Abafogi	282 - Ultrafast Microwave Welding/Reinforcing Approach at the Interface of Thermoplastic Materials - Selcuk Poyraz
12:30	LUNCH IN THE HOTEL RESTAURANT (Only for Blue, Green and Orange Package ID Holders)		

SESSION D	SESSION E	SESSION F	SESSION G
D-6. Session - Chairmain: Prof.Dr. Ali Uçar	**E-6. Session - Chairmain: Assoc. Prof.Dr. Oktay Hacıhafızoğlu**	**F-6. Session - Chairmain: Ast.Prof. Dr. Ahmet Reha Botsalı**	**G-6. Session - Chairmain: Ast.Prof. Dr. Selçuk Himmetoğlu**
586 - Comparison of the Apparent Porosity and Porosity Values on Different Rock Types (Gümüşhane – NE Türkİye) - Serhat DAĞ	1063- ULTRAVIOLET RADIATION (UV) APPLICATIONS IN MILK INDUSTRY - Ayhan Duran, Halil İbrahim Kahve	634 - MULTI PROJECT SCHEDULING PROBLEMS and THEIR SOLUTION - Aynur Kazaz, Murat Çevikbaş, Cenk Öcal	982 - A New Concept in Maritime Business: Smart Shipping - Murat YILDIZ
298 - The effects of weathering state on the shear strength of discontinuity: A case study on the weathered granitic rock joints, NE Turkey - Sener Ceryan, Samet Berber, Nurcihan Ceryan	986 - PROCESS DESIGN FOR THE RECYCLING OF TETRA PAK COMPONENTS - Mustafa KARABOYACI, Gözde Gizem Elbek, Mehmet Kılıç, Aziz Şencan	652 - A simulated annealing approach for the uncapacitated p-median problem - Kemal Alaykiran, Mehmet Hacıbeyoglu	365 - Proving security of a model automated system - Paul Neumann
437 - FORECASTING OF RESERVOIR LEVEL BY ARTIFICIAL NEURAL NETWORKS - A CASE STUDY OF YARSELI DAM, TURKEY - Mustafa Demirci, Fatih Üneş, Mehmet Murat Çalım	354 - ENRICHMENT WITH ESSENTIAL OILS OF EDIBLE FILMS AND COATINGS IN FRUIT AND VEGETABLES - Ayca Küçükcuban, Ayhan Duran	995 - A Holistic Approach of Sustainability for Economics, Ethics, the Environment, and Quality of Life Cyle Time of Production - Aysenur Erdil, Erturul Tacgın	978 - NUMERICAL ANALYSIS OF SIO2/WATER NANOFLUID FLOW OVER BACKWARD-FACING STEP - RECEP EKİCİLER - KAMİL ARSLAN
685 - CHARACTERIZATION OF ENRICHED LEUCITE FROM AFYON REGION/TURKEY - Sevgi Karaca, Ali Uçar, Veli Uz, Nihal Derin Coşkun, Ali Issi, Yaşar Kibici	795 - DESIGN AND MANUFACTURING OF THE MACHINE PEELING OF WALNUT GREEN SHALL - Abdurrahman Karabulut, Omer Dican, Ozgur Verim	635 - Maximizing and Sustaining the Values Through Project Management Office - Aynur Kazaz, Cenk Öcal, Murat Çevikbaş	651 - Preparation and Stability Analysis of Water Based Al2O3, TiO2 and ZnO Nanofluids - Adnan Topuz, Tahsin Engin, A. Alper Özalp, Beytullah Erdoğan, A. PERUT, S. Mert, S. Yurduseven
307 - Strength properties of Çatalagzı class F fly ash geopolymer mortar activated with different NaOH amount - Okan Karahan, Ismail Isa Atabey	858 - Screening of Probiotic Properties of Food-Borne Yeasts - Ergin Kariptaş, SENER TULUMOGLU, HARUN CIFTCI, Ulas Samdan	1009- Interval Type-1 Fuzzy Set Extension of DEMATEL Method for Analyzing Occupational Risks: A Case Study in Construction Industry - Sukran Seker	27 - Temporal Variation of Organic and Inorganic Carbon Transport from the Southeastern Black Sea (Trabzon Province) Rivers - Sinan NACAR, Adem bayram, uğur satılmış
439 - ESTIMATION OF DAM EVAPORATION LEVEL USING ARTIFICIAL NEURAL NETWORK METHOD - Mustafa Demirci, Fatih Üneş, Koray Mazmancı	917 - Use of Dried Persian Lime (Citrus latifolia Tanaka) as a Flavoring in Food and Medicinal Plant in Iran - Gökhan İPEK, AMİR RAHİMİ, NEŞET ARSLAN	1017- Bank branch operation performance evaluation methodology based on data envelopment analysis - Özge Nalan Bilişik	1010- Effects of cutting parameters on surface roughness of different polymers - Erhan BALCI, Ali İhsan BOYACI, Armağan ARICI, Kasım BAYNAL
321 - Obtaining the ground seismic vulnerability indices using microtremor method - Aykut Tucel, Mustafa Akgun	1062- THE USE OF CHITOSAN AS CLARIFICATION AGENT - Halil İbrahim Kahve, Ayhan Duran	996 - A Perception of Supply Chain Management for Food and Drink Industry: A Case Study for A Business in Turkey - Aysenur Erdil, Hikmet Erbıyık	1038- Ultrasonic Assisted Drilling of Aluminium 7075-T6 - Eser YARAR, SEDAT KARABAY
835 - Reducing motion blur by constrained control of helicopter vibration - HARUN CELIK, TUGRUL OKTAY, ILKE TURKMEN, METIN UZUN	344 - Simulation Modelling for Worker Assignment and Machine Scheduling in a Job Shop Environment: A Case Study - Gül Didem Batur, EMRE CALISKAN	904 - The Relationships among Innovation Components: An empirical study on Turkish SMEs - Eyup Calik, Fethi Calisir	643 - MAPPING WITH THE IMAGE PROCESSING METHOD OF DAMAGE REGIONS WITH RESPECT COMPOSITE LAMINATES SUBJECTED TO LOW VELOCITY IMPACT - Memduh Kara, Yusuf Uzun, Huseyın Arıkan
460 - DYNAMIC CHARACTERISTICS AND SEISMIC BEHAVIOR OF HISTORICAL MINARET OF THE ALTIPARMAK MOSQUE - Cavit SERHATOĞLU, Ramazan LİVAOĞLU	1146 - The selection of flow rate to prevent erosion in furrow irrigation - Ramazan MERAL, Sebahattin kaya, Azize dogan demir, Yasin demir, veysel turan	1070- BLOOD SUPPLY CHAIN MANAGEMENT: A CONCEPTUAL FRAMEWORK - Esra Ayhan, Alev Taşkın Gümüş	647 - Thermodynamics Properties Measurements of Water Based Al2O3, TiO2, and ZnO Nanofluids …….. - Adnan Topuz, Tahsin Engin, A. Alper Özalp, Beytullah Erdoğan, A. PERUT, S. Mert, S. Yurduseven

ORAL PRESENTATIONS

	SESSION A	SESSION B	SESSION C	SESSION D
	A-7. Session - Chairmain: Prof.Dr. Hasan Merdun	**B-7. Session - Chairmain: Assoc. Prof.Dr. Selçuk Erkaya**	**C-7. Session - Chairmain: Assoc. Prof.Dr. Bekir Mumyakmaz**	**D-7. Session - Chairmain: Prof.Dr. Cengiz Özmetin**
13:30	324 - Effects of Kaolin Application on Earliness in Tea Plant (Camellia sinensis L.O. Kuntze) - Keziban Yazıcı	847 - Chaoticaly Initiated Flower Pollination Algorithm for Search and Optimization Problems - Sinem Akyol, Bilal Alataş	447 - A Novel Broadband Single-Layer Reflectarray Antenna Design For X-Band Applications - HANDE BODUR, SİBEL ÇİMEN, GONCA ÇAKIR, SİBEL ÜNALDI	655 - Application of Aquifer Tests to Determine Hydraulic Conductivity of Aquifers in Bursa, Turkey - Serdar Korkmaz, Gökçen Eryılmaz Türkkan
13:40	231 - Evaluation of a Potential Wildlife Crossing in the City of Burdur - Latif Gürkan Kaya, CENGIZ YÜCEDAĞ	461 - PREDICTION OF DAM RESERVOIR VOLUME FLUCTUATIONS USING ADAPTIVE NEURO FUZZY APPROACH - Fatih ÜNEŞ, F. Gökhan GÜMÜŞCAN, Mustafa Demirci	578 - Multi Token Circulation in a Common Channel for Location Information Sharing in Multi-UAV Systems - EYUP EMRE ULKU, ILKER BEKMEZCI	748 - Formation, Occurrence, and Control of Disinfection By-Products in Drinking Water - Sibel Aslan
13:50	270 - Management of stink bugs caused chalky spot on red lentil in Southeast Anatolia Region, Turkey - Çetin Mutlu, Vedat KARACA, Sedat EREN, Musa BÜYÜK, Yunus BAYRAM	912 - A classification method for images containing human using face-body relation - Fatih Aslan, Irfan KOSESOY	701 - Arduino based wall plug control by Android mobile devices - Kubilay Tasdelen, Muhammed Hasan Tanrıöven, Cem Aybey, Sancar KAYALAR	758 - Uncertainty Analysis of Direct GHGs Emissions from Turkey's provinces for 2000-2015 - Ali CAN
14:00	287 - Utilization of Melamine Impregnated Paper (MIP) and Urea Formaldehyde (UF) Adhesives in Different Layers of Particleboard - Fatih Mengeloğlu, I. Halil Başboğa, Kadir Karakuş, Ilkay Atar	916 - DESIGN OF X-KU BAND HORN ANTENNA ARRAY FOR SATELLITE BROADCASTING - Abdullah Genç, Mehmet Fatih ÇAĞLAR	712 - MPPT for PV arrays based on bat algorithm with partial shading capability - HUSEYIN DEMIREL, M. KADIR KARAGOZ, BILGEHAN ERKAL	759 - Evaluation of Marine Pollution Caused by Tanker Ships and Preventing Under Focus of the International Regulations - Gökhan Kara, Ersoy Kaçmaz, Murat Yıldız
14:10	314 - Toxicities of plant extracts to adults of European Sunn Pest, Eurygaster maura L. (Heteroptera: Scutellaridae) - Fatma Nur ELMA, Özdemir Alaoglu	524 - A mechatronic device for preventing the surgical operation in intussusception - Selçuk ERKAYA, Bilal ÖZAK, Selim DOĞANAY, Kazım Ziya GÜMÜŞ	659 - Diagnosis of power transformer incipient faults using electronic nose - Bekir MUMYAKMAZ, Kerim KARABACAK	800 - Dissolved Oxygen and Chlorophyll A Levels in an Urban Stream, Değirmendere, Northeast Turkey - Uğur SATILMIŞ, Adem BAYRAM, Sinan NACAR
14:20	325 - Diversity of Citrus Germplasm in the Black Sea Region in Turkey - Keziban Yazıcı, Mustafa Akbulut, Burcu GOKSU, Nalan BAKOGLU	920 - Emotion recognition from speech signal - Onur Erdem Korkmaz, Ayten Atasoy	385 - Applications For Turkish Text Summarization - Özlem Evrim GÜNDOĞDU, Nevcihan DURU	808 - Biosorption of Cadmium(II) Ions from Aqueous Solutions by Oriental Hornbeam - Betül Tuba GEMICI, Ercan BERBERLER, Handan Ucun Özel, Halil Barış Özel
14:30	573 - Detection of Resistance Sources to Anthracnose in Some Bean Cultivars and Genotypes in Turkey - Harun BAYRAKTAR, Göksel Özer, Gülsüm Palacıoğlu, Damla Şen, Vahdettin Çiftçi	923 - PCA AND ANN-BASED EXPERT SYSTEM IN MEDİCAL DIAGNOSIS SYSTEM - Yusuf Kıraç, Yılmaz Kaya, Yunus Bulut	821 - Route Optimization of Electric Transmission Lines with ABC Algorithm - Hasan EROĞLU, Musa AYDIN	813 - Production of Biodegradable Film, Bioethanol, and Soda Pulp From Corn Stalks - Yalçın Çöpür, Ömer Özyürek
14:40	288 - Proper Mesh Size Determination of Melamine Impregnated Paper (MIP) in Particleboard Manufacturing As an Adhesive Replacement - I. Halil BAŞBOĞA, Fatih Mengeloğlu, Kadir Karakuş, Ilkay Atar	926 - Effect of Channel Estimation in an OFDM System: A Simulation Based Study - Ayfer Babaoğlu, Selva Muratoğlu Çürük	404 - Real-Time Target Tracking Using Fast Object Detection - Muhammed Mustafa Kelek, Muhammet Fatih ASLAN, Akif Durdu	1127- DETERMINATION OF PRIORITY CONTAMINATION FACTORS IN LAKE OF MANYAS (BIRD PARADISE) - Elif ÖZMETIN, Cengiz ÖZMETIN
14:50	625 - The Comparison of Some Physical and Mechanical Properties of Forest Fire Damaged and Undamaged Calabrian Pine Woods - Ibrahim BEKTAŞ, Ayşenur KILIÇ AK, Gonca DÜZKALE SÖZBİR	965 - Schematic Implementations of FIR Digital Filters on Altera FPGA - Oğuzhan Coşkun, Kemal Avcı	421 - An Adaptive Torque Ripple Reduction Method in Hysteresis Current Controlled Permanent Magnet Synchronous Motor - Faruk Erken, Cafer Budak	985 - ADSORPTION OF CERTAIN PESTICIDES IN APPLE JUICE WITH ACTIVATED CARBON PRODUCED FROM PULP OF POMEGRANATE PEEL - Aziz Şencan, Merve Çifçi, Mustafa Karaboyacı, Mehmet Kılıç
15:00	555 - Evaluatıon of Port State Performance of Turkey - E. Gül Emecen Kara, Ersoy Kaçmaz	967 - Performance Analysis of Exponential-Hamming Window Based FIR Filters for Noise Reduction in ECG Signals - Kemal Avcı, Oğuzhan Coşkun	121 - Prediction of Performance and Exhaust Emissions of a Diesel Engine Fueled with Biodiesel by using Linear Regression and Artificial Neural Networks - Ö.Faruk Ertuğrul, Şehmus Altun	1046- A STUDY OF RENEWABLE ENERGY IN A PORT FACILITY BY USING SOLAR ORGANIC RANKINE CYCLE SYSTEMS - Yalçın DURMUŞOĞLU, Selim AKSOY, Cengiz DENİZ
15:10	BREAK COFFEE / TEA			

SESSION E	SESSION F	SESSION G	SESSION H
E-7. Session - Chairmain: Prof. Dr. Cem Şensöğüt	**F-7. Session - Chairmain: Assoc.Prof.Dr. Bülent Yılmaz**	**G-7. Session - Chairmain: Ast. Prof.Dr. Ahmet Reha Botsalı**	**H-7. Session - Chairmain: Ast.Prof.Dr. Selçuk Himmetoğlu**
438 - Usefulness of Slip Predictable Model for Earthquake Occurrence in Turkey - Nilgün Sayıl, Kaan Hakan Çoban	797 - AN OVERVIEW OF NEW ARCHITECTURAL DESIGN TRENDS IN TALL BUILDINGS - Fazilet TUĞRUL OKBAZ, AYŞİN SEV	070 - Forecasting Stock Prices by using The Fuzzy Sets: A Real Case Application in Borsa Istanbul - Melike Erdogan, İhsan Kaya, Cansın Yıldız	977 - HEAT TRANSFER AND ENTROPY GENERATION ANALYSIS OF NANOFLUIDS FLOW OVER BACKWARD-FACING STEP - RECEP EKİCİLER, KAMİL ARSLAN
469 - Assessment of the Mining Accidents from the Stand Point of Occupational Health and Safety - CEM ŞENSÖĞÜT, ÖZER ÖREN	944 - Social and Spatial Resilience in Urban Regeneration; Case Study of Caybasi Neighbourhood Regeneration Project (Konya) - Neslihan Serdaroglu Sag, Aykut Karaman	077 - A stochastic model for humanitarian relief distribution planning - Erkan Celik, Alev Taskin Gumus, Nezir Aydin	378 - EVALUATION of COMMERCIAL TYPE of SPLIT AIR CONDITIONS by USING CONDENSER WASTE HEAT in A BOILER - Alper Ergün, Engin Gedik, Mehmet Özkaymak
435 - Determination of the Relationship between Predominant Frequency and Damping Ratio by Using Single Station Microtremor Recordings - Ozgenc AKIN, Ali ERDEN BABACAN	251 - A Research on Determining the User Satisfaction with the Parks Built for the Disabled: The Sample of the City of Malatya - ATİLLA ATİK, FÜRÜZAN ASLAN, BÜLENT YILMAZ	112 - Analytic hierarchy process extended with internal type-2 fuzzy sets to assess potential environmental impacts of ship recycling process - Erkan Celik, Emre Akyuz	411 - A Comparative Design of the Surface Mounted Permanent Magnet Synchronous Motors - Mümtaz Mutluer
436 - Time Predictable Model Applicability for Earthquake Prediction along the North Anatolian Fault Zone - Nilgün SAYIL, Yasemin BEKER	499 - Evaluation of the Constructability of Architectural Drawings - Aynur Kazaz, Hasan Koyun, M. Talat Birgönül, Bayram Er, Turgut Acıkara	463 - A Case Study for Decision Making and Valuation of Contract Flexibility in Manufacturing Industry - Mehmet Aktan	443 - STATIC ANALYSIS OF A FUNCTIONALLY GRADED HIGHER ORDER SHEAR DEFORMABLE TIMOSHENKO BEAM - Ozgur DEMIR, Gokhan Ceylan, Mustafa Taskın
467 - Comparison of the Oil Agglomeration Results for the Enriched Coals - Selma Duzyol	943 - EFFECT OF URBAN GROWTH ON AGRICULTURAL LAND: THE CASE OF EREGLI CITY - Neslihan Serdaroglu Sag, ELIF GUNDUZ	130 - Black Box Application in Road Transportation - Gül Fatma TÜRKER	444 - Observations on traveling turbulent spots during laminar-turbulent transition - Bulent Guzel, Vusal Orucov
471 - The Role and the Importance of Universities in Establishing the Culture of Occupational Health and Safety - Cem ŞENSÖĞÜT	873 - Historical Battalgazi District Malatya, Turkey; Its tourism potential, problems and solution proposals - BÜLENT YILMAZ, İNÖNÜ UNIVERSİTY, Atilla Atik, Fürüzan Aslan	549 - An Integer Programming Based Heuristic for 3D-Packing Problem - Ahmet Reha BOTSALI	446 - OPTIMIZATION OF LOCKING SCREW POSITIONS OF NOVEL PROXIMAL FEMORAL NAIL IN PERTROCHATERIC FRACTURES USING FINITE ELEMENT ANALYSIS - Ozgur VERIM, Mehmet Nuri Konya, A. Karabulut
495 - Estimation of earthquake occurrences by using Markov Chain approach in Turkey - Kaan Hakan Coban, Nilgun Sayıl	960 - Importance of planning sustainable tourism development in historic towns: Case study The ancient town of Side of Antalya, Turkey - MEHMET AKIF SAG	536 - A Case Study on Exam-Invigilator Timetabling in a University Using Genetic Algorithms - Caner Erden, Abdullah Hulusi Kokcam, Halil Ibrahim Demir	470 - Experimental Assessment of Heat Flux throughout Cylinder Wall in a Compression Ignition Engine - Mehmet Cakir
527 - DETERMINATION OF POROSITY BY THE IMAGEJ ANALYSIS PROGRAM IN THE CARBONATES OF THE HORU FORMATION (OSMANİYE-İSKENDERUN) - Meryem YEŞİLOT KAPLAN, Muhsin EREN, UĞUR BAL	147 - LANDSCAPE PLANNING ON HIGHWAY DESIGN IN BİLECİK REGION - Hasan BOZKURT	113 - Investigatıon of service quality in e-commerce websites with structural equation model - Mehmet Cabir Akkoyunlu, Merve Tütüncü, Zeynep Demirkol, Coşkun Özkan	589 - Low-speed impact behaviour of aluminium tube based honeycomb sandwich panels - Mustafa YILDIRIM
594 - New Ar-Ar age and geochemical determinations for the Sarıcakaya granitoid from Central Sakarya Region (NW Anatolia, Turkey) - Gökhan Büyükkahraman	246 - Determining the Relation between Lighting and Park Security with the Help of Logistic Regression Analysis - Atilla Atik, Fürüzan Aslan, BÜLENT YILMAZ	114 - A NEUROMARKETING APPLICATION FOR THE TELEVISION COMMERCIAL OF A BANK - Mehmet Cabir Akkoyunlu, Erhan Ceylan, Coşkun Özkan	592 - Analysis of temperature distribution between tool and workpiece in AISI304L drilling operations with finite element method - Engin Ünal
567 - DETERMINATION OF SITE CHARACTERISTICS WITH STANDARD SPECTRAL RATIO (SSR) METHOD IN AKÇAKALE (GUMUSHANE) PROVINCE, NE TURKEY - Yasemin Beker, Nilgün Sayıl	349 - Estimating Cuff-Less Blood Pressure from Electrocardiogram and Photoplethysmography signals by Machine Learning Methods - Ömer Faruk Ertuğrul, Yılmaz kaya	212 - A Case Study to Determine the Attitudes of Construction Project Participants Towards Quality Management in Turkey - Aynur Kazaz, Gursel Gürel, Bayram Er, Turgut Acıkara	596 - The Comparison Of Pullout Strength Of Square, Triangle And Circular Screw Threads - Faruk KARACA

ORAL PRESENTATIONS

	SESSION A	SESSION B	SESSION C	SESSION D
	A-8. Session - Chairmain: A ssoc.Prof.Dr. Mustafa İmren	**B-8. Session - Chairmain: Prof.Dr. Arslan Saral**	**C-8. Session - Chairmain: Assoc.Prof.Dr. Selçuk Erkaya**	**D-8. Session - Chairmain: Ast.Prof.Dr. Davut Erdem Şahin**
15:30	733 - Effects of TEMPO, PINO and Periodate on Kraft Pulp Fibers - Ayhan TOZLUOĞLU	934 - Application of Atmospheric Pressure Plasma Treatment in Leather Finishing - Meruyert KOIZHAIGANOVA, Michael Meyer, Frauke Junghans, Ahmet Aslan	614 - IAQ Modeling and Estimating for a Meeting Room - Nesibe Yalçın, Deniz Balta, Ahmet Özmen	289 - Comparison of Classifying Data Mining Algorithms in Orthopaedic Fracture Data - Adnan KARAIBRAHIMOGLU, ONUR BILGE
15:40	763 - Flexural properties of micro-size Oak wood and correlation with standard-size samples - Umit Buyuksari	757 - Analyses of SO2 Index (Is) and SO2 Extreme Value Index (Es) for Karabük Provınce - Ali CAN	846 - Efficiency evaluation of crow search algorithm in benchmark functions for optimization - Sinem Akyol, Bilal Alataş	334 - Genetic characterization of Turkish bread wheat landraces using iPBS retrotransposons markers - FAHEEM SHEHZAD BALOCH, Muhammad Sameeullah, Vahdettin Çiftçi, Muhammad Azhar Nadeem, Rüştü Hatipoğlu
15:50	902 - EARLY BREEDING POSSIBILITIES OF AKKECI FEMALE KIDS - Füsun Coşkun, Mehmet ERTUĞRUL	707 - Performance of Nitrogen and Phosphorus Removal of Moving Bed Biofilm Reactor Operated as Sequencing Batch - Müslün Sara TUNÇ, Ayhan ÜNLÜ	862 - ULTRA-WIDEBAND WAVEFORM DESIGN BASED ON ARTIFICIAL BEE COLONY OPTIMIZATION - Yasin OĞUZ, Hasan EROĞLU	346 - Monthly variation of the oribatid mite species Zetorchestes grandjeani Krisper, 1987 collected from Sakarya province of Turkey - Şule Baran
16:00	941 - Determination of energy usage efficiency of lentil production - Osman GOKDOGAN	093 - Distribution of Absorbed Dose Rate and Annual Effective Dose of Gölcük-Direkli (Southwestern Anatolia - South of Isparta) Region - N. Ayten Uyanık, Ziya Öncü, Osman Uyanık	875 - ACOUSTIC HEATING ON DROPLET-BASED ANALYSIS - Emrah Kaplan	374 - Zinc and Iron Content of Some Turkish Sesame Genotypes - Cemal KURT, Halis ARIOĞLU, Halil BAKAL
16:10	963 - Three New Records of Pluteus Section Pluteus Based on Morphological and Molecular Data for Mycobiota of Turkey - Oğuzhan KAYGUSUZ, Kutret GEZER, Meryem Şeker	318 - Optimization of Basal Medium Composition for Biogas Production from Organic Fraction of Municipal Solid …. - Tuğba K. Gundogdu, Kübra Arslan, Selin Aksoy, Duygu Karaalp-Yavuzyılmaz, Nuri Azbar	391 - A comparative study of joint clearance effects on robotic systems having 2D and 3D motion necessity - Selçuk Erkaya	379 - DEVELOPMENT OF IODIDE-SELECTIVE ELECTRODE AND ITS USE IN PHARMACEUTICAL SAMPLES - Semra MURATOGLU, Ayca Demirel Ozel
16:20	1043- The plant parasitic nematodes associated with potato in Bolu, Turkey - Mustafa İmren	406 - Removal of Chromium (VI) from Tannery Wastewater by Kaolinite - Zürriye Gündüz, Mehmet Doğan	1067- Interference-aware channel assignment for multi-channel multi-radio wireless mesh networks - Safak Durukan Odabasi	848 - Length–Weight Relationships for Some Barbus Species in Turkey - Mustafa Korkmaz, Sedat Vahdet Yerli
16:30	407 - Prediction of evapotranspiration with daily meteorological data using M5 model tree - Yunus Ziya KAYA, Fatih ÜNEŞ, Mustafa MAMAK	924 - Investigation of Odorous Volatile Organic Compounds Released from an Active Landfill Facility and Effects at Close Vicinity Residential Areas - Arslan SARAL, S. Levent Kuzu	1077- Peak Electric Load Prediction for Ankara Using the Neural Networks - Ali CINAR, Serkan PELDEK	POTENTIAL THERAPEUTIC ROLE OF MESENCHYMAL STEM CELLS IN CANCERS: EXPLOITATION OF DELIVERY SYSTEM - Betul Akcesme
16:40	410 - A Hybrid Fuzzy Time Series Forecasting Model for Bearing Olive Trees: A Case Study of Turkey - İsmail Sevim, Ali Karasan, Meih Çınar	605 - River Simulation in GIS Software - Mehmet Kazım YETİK, Mehmet YÜCEER, Erdal Karadurmus	1111- Segmentation improvement for the poorly segmented iris images - Oktay Koc, Albana Roci, Arban Uka	913 - Determination of Optimal Reaction Conditions in the Polycondensation of L-lactic acid under the frame of "Enhanced Microwave Synthesis" - Basak Temur Ergan, Mahmut Bayramoglu, Ahmet Serdar Ergan
16:50	558 - Mechanical Perfomance Evaluation of Salvaged Wood Obtained From Historical Wooden Houses of Western Black Sea Region of Turkey - S. Murat Onat, Yafes Yıldız, Selma Çelikyay, N.Kaan Özkazanç	1136- Hydrogen production by solar and wind hybrid system - Bilal Karabağ, Cenk Çelik, Anıl Can Turkmen	1116- A Comparative Study Of Isotropic And Anisotropic Sky Models To Determine Of Optimum Orientation Angles For PV Arrays - Hüseyin AKDEMİR, Ali AJDER, Hakan AKÇA, Muğdeşem TANRIÖVEN	918 - Determination of the Best Growing Medium in Float System for Improving Germinability and Seedling Production in Tobacco (Nicotiana Tabacum L) - Gökhan İPEK, Amir Rahimi, Sina Siyavash-Moghadam
17:00	688 - Energy Management and Sustainability of Agricultural Systems: Case of Çankırı, Turkey - Bekir Cengil, Gokhan İpek, Mehmet Ali Biberci	449 - A FUZZY LOGIC APPROACH FOR PREDICTION OF SUSPENDED SEDIMENT IN RIVER - Fatih Üneş, Bestami Taşar, Mustafa Demirci	1120- COMPENSATING CORRUPTIVE INFLUENCE OF ANTENNA SYSTEM IN UWB SYSTEMS - Yasin OĞUZ	1069- Enzyme Resistant Starch As a Functional Fiber - Özen Özboy Özbaş, Merve Aribas
17:10	BREAK COFFEE / TEA			

SESSION E	SESSION F	SESSION G	SESSION H
E-8. Session - Chairmain: Prof.Dr. Cengiz Özmetin	**F-8. Session - Chairmain: Ast.Prof.Dr. Selçuk Himmetoğlu**	**G-8. Session - Chairmain: Assoc. Prof.Dr. Bülent Yılmaz**	**H-8. Session - Chairmain: Assoc.Prof.Dr. Murat CINIVIZ**
423 - Numerical estimation of NOx emissions with ANN utilizing fuel properties and combustion indicators in a CI engine - Cafer Budak, Faruk Erken, Huseyin Aydın	327 - INVESTIGATION ON EFFECT OF TOOL GEOMETRY ON THE SURFACE ROUGHNESS IN MACHINING OF AISI D2 STEEL - Metin Zeyveli	265 - Landscape Design Principles of University Campuses: A Case Study in Campus of Alaeddin Keykubat, Selcuk University - Ahmet Tuğrul Polat, Sertaç Güngör, METİN DEMİR	752 - The analysis of the non-linear deflection of beams using Lie symmetry groups - Davut Erdem Sahin, M. Amin Changizi, Ion Stiharu
535 - Flow Estimation by Area-Ratio Method in Two Adjecant Basins in East Black Sea Area, Turkey - Fatih SAKA, Ömer Yüksek, Emrah Kaplan	972 - The Thermal Stress Analysis of One- and Two-Dimensional Functionally Graded Circular Plates For In-Plane Sinusoidal Heat Flux - M. Didem Demirbaş, M. Kemal APALAK	248 - Examining the Intracity Parks in Terms of the Existence and Size of Water: The Example of the City of Malatya - ATİLLA ATİK, FÜRÜZAN ASLAN, BÜLENT YILMAZ	777 - Thermodynamic, heat transfer and fluid analyses of encapsulated ice thermal storage system used in a shopping center - Dogan Erdemir, Necdet Altuntop
029 - Wave Hindcasting for Wave Energy Assessments in the Black Sea - Adem Akpınar, Bilal Bingölbali, Halid Jafali	465 - Defining and Controlling Gait Cycle for Biped Walking in Sagittal Plane - Kenan Müderrisoğlu, Aydın Yeşildirek	427 - CONTRIBUTION OF DAM LAKES TO RECREATION: PALANDÖKEN CAT DAM - METİN DEMİR, AHMET TUĞRUL POLAT, SERTAÇ GÜNGÖR	844 - ADSORPTION OF BORON FROM AQUEOUS SOLUTIONS BY MODIFIED CHITOSAN DERIVATIVES - Ibrahim Doruk, Kadriye ESEN ERDEN, Meruyert KOIZHAIGANOVA, Cem GÖK
1076- Impact of Renewable energy systems on spinning reserve - Ali AJDER, Hüseyin AKDEMİR, Muğdeşem TANRIÖVEN	575 - VIBRATION CONTROL OF A SEMI-TRAILER TRUCK FOR COMFORT WITH AN OUTPUT FEEDBACK H∞ CONTROLLER - OGUZHAN AHAN, D. ONUR ARISOY, KENAN MUDERRISOGLU, HAKAN YAZICI, RAHMI GUCLU	1018- THE USE OF COLOR IN PLANTING DESIGN : THE PREFERENCE OF LANDSCAPE ARCHITECTURE STUDENTS - Pelin Keçecioğlu Dağlı, Gizem CENGİZ GÖKÇE, Ahmet Ergün	871 - Prediction of the dynamic response of repeated low velocity impact on adhesively bonded plates - Umut Çalışkan, Mustafa Yıldırım, M. Kemal Apalak
481 - EVALUATION OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS ON HYDROELECTRIC POWER PLANTS IN TURKEY - Özum AYDINOL, Nuriye Say	760 - Rear Impact Whiplash Test Design by using a Maxwell-Element Based Energy-Absorber - Selcuk Himmetoglu	249 - The Contributions of the Parks and Children's Playgrounds in the City of Malatya to the Green Area and Urban Open Green Area Systems - ATİLLA ATİK, FÜRÜZAN ASLAN, BÜLENT YILMAZ	872 - Exergoeconomic Analysis of A Solar Photovoltaic Panel In Karabuk, Turkey - MUTLUCAN BAYAT
810 - GENERATING HYDROPOWER MAP of TIGRIS RIVER - Abdullah Muratoglu	502 - MINIMIZING HEADING ERROR OF OMNI-DIRECTIONAL WHEELCHAIR BASED ON MECANUM WHEELS BY APPLYING CONTROL ALGORITHM - Ali Ömer Baykar, D. Taha Tayfur, Ayhan Kural	264 - A RESEARCH ON ACCESSIBILITY OF URBAN PARKS BY DISABLED USERS - Sertaç Güngör, Metin DEMİR, AHMET TUĞRUL POLAT	881 - Microstructure and mechanical properties of AlC and TiCN added PM steels - Mehmet Akif ERDEN
345 - Analysis of wind and wave climate along the coasts of the Black Sea - R. Emre Çakmak, Bilal Bingölbalı, Adem Akpinar	561 - Chassis Analysis and Parametric Optimizations of Concept Vehicle - M. Umut Karaoğlan, N. Sefa Kuralay	235 - Architectural Surveying Practices in Urban Conservation Areas: A Case Study of Afyonkarahisar - Abdullah VARLIK, Fırat URAY, AZİM METİN	947 - Numerical investigation of the water entry of a cylinder at various entry velocity - Fatih Cuneyd Korkmaz, Bulent Guzel
477 - OFFSHORE WIND FARM LAYOUT OPTIMIZATION USING MATHEMATICAL MODELING - ILAYDA ULKU, CIGDEM ALABAS USLU	703 - Investigation of the design criteria for a closed-loop high-speed circulation tunnel for maritime applications - Ali Han Yıldırım, Oktay Yılmaz, Bülent Güzel	247 - Examining The Arboreal Taxa used in Landscape Design Works of the City of Malatya - Atilla Atik, Fürüzan Aslan, BÜLENT YILMAZ	951 - INVESTIGATION OF THERMAL, MECHANICAL PROPERTIES AND ABRASIVE WEAR BEHAVIOUR OF PUMICE PARTICLE……. - SİNAN YILMAZ, ALP EREN ŞAHİN, OKAN GÜL, TAMER SINMAZÇELİK, TANER YILMAZ
206 - Energy Strategics planning and renewable energy options in Saudi Arabia for the coming decades - Hani Hussain Sait	727 - Computational Modeling of Wave Interaction with Solid Body in a Numerical Wave Tank - Halil Ibrahim Yamac, Ahmet Koca	Comparing Dynamic Response of an Euler-Bernoulli Beam under a Concentrated Moving Load on Linear Viscoelastic Foundation between FEM and Galerkin Method - Muzaffer Metin , Arif Ulu , Özgür Demir, Rahim Can Peker, Aytaç Arıkoğlu	953 - Experimental Modal Analysis of a Polyurethane Sandwich Panel - Murat Şen, Orhan Çakar
1013- Antifungal and Larvicidal Activities of Some Underground Natural Mineral Water from Gumushane Region of Turkey - Selim Sen	768 - PARAMETERS OF PROPELLER SELECTION AS SHIP'S TYPE - Ersoy Kacmaz	553 - EFFECTS OF TOPOLOGICAL STRUCTURE ON THE SYNCHRONIZED OSCILLATORY WAVES FROM INTERNAL DYNAMICS IN THALAMIC NETWORKS - Ramazan Tekin, Mehmet Emin Tagluk	956 - Free Vibration Behaviors of Wind Turbine Towers for Various Geometrical Characteristic Parameters - Ali İhsan Karakaş, Ayse DALOĞLU

ORAL PRESENTATIONS

	SESSION A	SESSION B	SESSION C
	A-9. Session - Chairmain: Ast.Prof.Dr. Metin Konuş	**B-9. Session - Chairmain: Assoc.Prof.Dr. Mustafa İmren**	**C-9. Session - Chairmain: Prof.Dr. Arslan Saral**
17:30	859 - Separation/Preconcentration of Some Metal Ions in various Biological and Environmental matrixes - Harun Çiftçi, Ergin Kariptas	014 - THE EFFECTS OF HEAVY METAL ON GERMINATION OF SCOTCH PINE (Pinus sylvestris L.) SEEDS - Halil Barış ÖZEL, Handan UCUN ÖZEL, Halil Ibrahim ÇAYLAK, Mehmet EFE	025 - Investigation of the Membrane Fouling Characterization for the Microfiltration Membrane using Ballast Water Treatment - Hüseyin ELÇİÇEK, Adnan Parlak, Mehmet Çakmakcı, Ömer Savaş
17:40	062 - ANTIOXIDANT PROPERTIES OF SYNTHETIC BENZALDEHYDE DERIVATIVES - Metin Konuş	165 - Examination of Partial Resistance Aganist to Leaf Rust on Some Bread Wheat Genotypes - Husnu Aktas	045 - Application on Forest Waste Biosorbent for the Removal of Zinc(II) - Handan UCUN-ÖZEL, Ercan BERBERLER, Halil Barış ÖZEL
17:50	696 - COMPARISON OF DIFFERENT WATER-REPELLENT CHEMICALS DURİNG SIZE PRES in CORRUGATED CARDBOARD - Hülya Varlıbaş, Arif Karademir, Sami Imamoğlu	179 - Molecular mechanism of water uptake in grapevine - Birsen Çakır Aydemir, Güneş Turgay	094 - Distribution of Absorbed Dose Rate and Annual Effective Dose Rate of Ağlasun (Dereköy-Yazır) (South of Isparta Angle) Region - N. Ayten Uyanık, Ziya Öncü, Osman Uyanık
18:00	991 - Application of Deep Eutectic Solvents on Wood Chemistry - Esra Güner, Ayben Kılıç Pekgözlü	059 - Habitat Restoration Planning for Anatolian Wild Sheep (Ovis gmelini anatolica) In Konya-Bozdağ, Turkey - Yasin ÜNAL, Ahmet Koca, Abdulkadir Eryılmaz	115 - A Fuzzy Decision Making Approach in Solid Waste Management - Selman Karagöz, Nezir Aydın
18:10	880 - Electronic, optical and dynamical properties of CsGeCl3 crystal: A first principles study - Bahattin Erdinç	153 - Retrotransposons as molecular tool for molecular characterization of Turkish tobacco population - Gülsüm Yaldız, Mahmut Çamlıca, Faheem shehzad baloch, Göksel ÖZER	154 - Investigating the Effects of Obstructive Sleep Apnea on EEG Signals by Using Bispectral Analysis - Necmettin Sezgin
18:20	232 - Chelate-Induced Phytoextraction Potential of Brassica rapa for Soil Contaminated with Nickel - Aydeniz Demir, Nurcan Köleli	1042- The Effects of Habitat on Calabrian Pine Fiber Dimensions - İbrahim Bektaş, Ayşenur Kılıç Ak	140 - Wind Speed Modeling Using Two-Parameter Weibull Distribution for Potential Analysis - Emrah Dokur, Salim Ceyhan, Mehmet Kurban
18:30	1016- Synthesis and characterization of a new fast swelling poly(EPMA-co-METAC) as superabsorbent polymer for absorbent - Necdet Karakoyun, Pınar Ilgın, Aycan Gür	180 - MDR-like ABC Transporters in grapevine - Birsen ÇAKIR AYDEMİR, Hamed Jalili	150 - Relationships between EC, pH and SAR with cations and anions related to salinity in groundwater: a case study of Amik Plain - Necat AĞCA
18:40	1100- REDUCING THE MASS OF THE LIGHTWEIGHT CONSTRUCTION ELEMENTS WITH SUPERABSORBENT POLYMERS - Aziz Şencan, Mustafa Karaboyacı, Mehmet Kılıç	223 - Effects of Hydrogen Peroxide Spraying on Drought Stress in Soybean Plants - Necla Pehlivan, Neslihan Saruhan Guler	925 - Size Distribution and Ionic Content of Ambient Particles in the Laboratory and in the Process Area of a Composting Facility - Arslan SARAL, S. Levent Kuzu
18:50	618 - An Experimental Investigation of the Rheological Properties of the Geothermal Water Based Drilling Muds - Emine Avcı, Bayram Ali Mert	819 - The Effects of Beak Trimming on the Generated Pecking Sounds and Feed Intake of Laying Hens - Arda AYDIN	152 - USING QGIS SOFTWARE FOR MINERAL EXPLORATION PROJECTS - Fatih Uysal, İlkay Bugdayci
19:00	546 - A Novel dual-band fss reflector for rcs reduction - SIBEL ÜNALDI, HANDE BODUR, SİBEL ÇİMEN, GONCA ÇAKIR	782 - A Survey of Web Service Attacks and Countermeasures - Hatice Çataloluk	168 - Modelling of Cohesive–Sediment Depositional Areas in the Marine Environment - Devran Yazir, Ercan Köse, Ünal Özdemir
20:00	GALA DINNER (Only for Blue Package ID Holders) MEETING IN THE HOTEL LOBBY		

SESSION D	SESSION E	SESSION F	SESSION G
D-9. Session - Chairmain: Assoc.Prof.Dr. Elif Özmetin	**E-9. Session - Chairmain: A st.Prof.Dr. Davut Erdem Şahin**	**F-9. Session - Chairmain: Assoc.Prof.Dr. Murat CINIVIZ**	**G-9. Session - Chairmain: Ast.Prof.Dr. Çiğdem Susantez**
139 - Assessment of Wind Speed Forecasting Models for Wind Energy Conversion System - Emrah Dokur, Salim Ceyhan, Mehmet Kurban	464 - A NEW SPECIES RECORD OF SPHAGNUM L. FROM TURKEY AND SOUTH-WEST ASIA; SPHAGNUM FLEXUOSUM DOZY & MOLK. - Güray Uyar, Muhammet Ören, Merve Can Gözcü, Recep Kara, Tülay Ezer	958 - Energetic and Exergetic Approach to a Geothermal Energy Powered Organic Rankine Cycles - Abid USTAOGLU, Mustafa ALPTEKIN	600 - The effect on the engine performance and exhaust emissions of different proportions boron additives at an internal combustion engine …. - A. Ali Sertkaya, Talip Akbıyık
106 - Evaluation of Various Models Based on Sunshine Duration to Estimate Monthly Average Daily Global Solar Radiation - Ali Etem Gürel, Yunus BİÇEN	504 - The Harmful Insect On Willows In Bartın - Yafes Yildiz, Idris Aşık	966 - TRIBOLOGICAL PERFORMANCE OF SHORT CARBON FIBER AND PUMICE PARTICLE REINFORCED PPS/PA66 BLEND - Alp Eren ŞAHİN, Sinan YILMAZ, Tamer Sınmazçelik, Taner Yılmaz	607 - General view of Pumped Stroged hydroelectricity and assesment of the efficency in microscale - Esra ÇELİK
092 - A Case Study of Installation of a Wind Power Plant in Sinop Province, Turkey - Semih Akin, Yusuf Ali Kara	690 - Selected biochemical and oxidative stress parameters and ceruloplasmin as acute phase protein associated with bovine leukaemia virus infection in dairy cows - Pınar Peker Akalın, Veysel Soydal Ataseven, Fırat Doğan, Yaşar Ergün, Nuri Başpınar, Oğuzhan Özcan	970 - Prioritization of Machine Failures with Pareto Analysis in Panel Radiator Manufacturing Process - FATMA Nur Arslan, Baha Güney, Çağatay TEKE	487 - Thermodynamic and Thermoeconomic Analysis of Split Type Air Conditioners combined with boiler - Engin GEDİK, Bahadır ACAR, Metin Kaya
1126- TREND ANALYSIS IN RESOURCES OF WATER INTENDED FOR HUMAN CONSUMPTION IN BALIKESIR - ELIF OZMETIN, CENGIZ OZMETIN	753 - DETECTION OF GLICOSE LEVEL IN HUMAN BLOOD Droplet BY MICRO-CANTILEVER BEAMS - Davut Erdem Sahin		679 - Automatic detection of the lateral body oscillations to assess the lameness of broilers - ARDA AYDIN, ANIL CAY
876 - Investigation on combining electrochromic devices and organic solar cells and their application areas: A review - Halil Esgin	698 - EXPRESSION OF GENES WHICH WORKS ON DROUGHT, WATERLOGGING AND SALT STRESS INTERACTIONS ON WHEAT (Triticum aestivum L.) SEEDLINGS AND ANTIOXIDANT ENZYME ACTIVITY - Nuray Ergun, Pelin Şengül	737 - Experimental and numerical analysis of cutting forces in machining of hardened X40CrMoV5-1 steel - NAFİZ YAŞAR, Hakan Yurtkuran, MEHMET ERDİ KORKMAZ, MUSTAFA GÜNAY	691 - The Effect of Different Hydrodynamic Parameters in Water Entry of the Objects with Constant Deadrise Angle - Fatih Cuneyd Korkmaz, Bülent Güzel
082 - The Best Site Determination of Solar Farms: A case study - Hasan EROĞLU	1034- Length–Weight Relationships of Cyprinion macrostomus (Heckel, 1843) Populations in The Botan Stream Which Upper Tributaries of The Tigris River, Siirt, Turkey - Mustafa Şimşekli, Cemil Kara	1035- A Review on Vibration Analysis of Carbon Nanotubes Based on Nonlocal Continuum Theory - Necla KARA TOGUN	692 - EXPERIMENTAL AND NUMERICAL ANALYSIS OF CUTTING FORCE IN HARD TURNING OF AISI 52100 - İBRAHİM ÇİFTÇİ
1039 - Growth and Reproduction Properties of Capoeta trutta (Heckel, 1843) Population from Botan Stream, Siirt Region, Turkey - Mustafa Şimşekli, Cemil Kara	1104- Enzyme-Coenzyme Interaction Monitoring by Cellulose Membrane-Based SPR Sensor - Fatma Tambağ, Fatih Bayansal	959 - A parametric Study of a Reheat Organic Rankine Cycles (ORC) - Mustafa ALPTEKİN, Abid USTAOĞLU, Resat SELBAS	1073- SIMULATION AND INVESTIGATION OF TWO DIMENSIONAL MHD LAMINAR FLOW IN PARALLEL PLATE CHANNELS FOR …… - ÇİĞDEM SUSANTEZ, AYŞEGÜL ÖZTÜRK, KAMİL KAHVECİ
585 - The health politics of Environment in Turkey, EU Candidate Country - SONER AKIN, UĞUR YILDIRIM	715 - Main growth parameters of chondrostoma holmwoodii (boulenger, 1896) from tahtalı reservoir - Sedat Vahdet Yerli, Mustafa Korkmaz, Fatih Mangıt	396 - Investigation of wind energy potential using Weibull parameters - Bülent YANIKTEPE, Ilyas Aladağ, Coşkun Özalp, Canan Aladağ	1015- Thermodynamic Analysis of Waste Heat Recovery of Coal Drying Section in Cement Fabric using Organic Rankine Cycles (ORC) - Sedat Ertas, Mustafa ALPTEKIN, Abid USTAOĞLU
628 - ECOLOGY AND TURKISH ECONOMICS - SONER AKIN, CEMİL SERHAT AKIN, UĞUR YILDIRIM	1002- Controlled Release of Heparin from PDPA-b-PDMA-b-PDPA / Heparin Polyelectrolyte Complex Gel - Fulya Taktak, Talip Alnıaçık, Vural Bütün, Cansel Tuncer	510 - Technical, Financial and Environmental Analysis of 1 MW Solar Power Plant by RETScreen - Hasan Basri ALTINTAŞ, Mustafa Sacid ENDİZ	732 - Implementation of cellular manufacturing system in automotive industry: A case Study - Kasım Baynal, Ali Ihan BOYACI
058 - Developing a QFD Methodology to Increase Customer Satisfaction in Public Transport Companies - Muhammet Deveci, Fatih Canıtez, Nihan Çetin Demirel	061 - SETTING THE OPTIMAL TRANSIT FARE IN PUBLIC TRANSPORTATION BY USING ANALYTICAL HIERARCHY PROCESS(AHP): THE CASE OF IETT, ISTANBUL - Muhammet Deveci, Fatih Canıtez, Nihan Çetin Demirel	725 - Particles' Behaviour Analysis in Particle Swarm Optimization - Nihan Kazak, Nesibe Yalçın	734 - Finite Element Modeling of Residual Stresses and Cutting Temperature in Hard Turning - Mehmet Erdi Korkmaz, Nafiz YAŞAR, Mustafa Günay

POSTER PRESENTATIONS

	SESSION 11:00	SESSION 13:30	SESSION 15:30
01A	064 - Optical refracting and birefringent properties of 4-pentyl-4'-oxycyanobiphenyl in thermotropic nematic liquid crystal - Atilla Eren Mamuk, Arif Nesrullazade	672 - SYNTHESIS OF NOVEL ANTHRACENE DERIVATIVES AND THEIR ELECTRO-CHEMICAL AND OPTICAL PROPERTIES - Yasemin TOPAL TORLAK, Mahmut Kus, Mustafa Ersöz, Arif Kıvrak	277 - ANALYSIS OF SUSTAINABILITY CONCEPT ON NATIONAL PARKS WITH RESPECT TO TOURISM AND RECREATIONAL ACTIVITIES Murat AKTEN
01B	178 - Magnetic properties of fcc Fe - 9%Mn alloys: An ab-initio study - Ercan Uçgun, HAMZA YAŞAR OCAK	827 - Synthesis, Characterization and Thermal Decomposition Kinetics of ABC Triblock Copolymer Synthesized by ROP and ATRP - Gulben Torgut, Kadir DEMIRELLI	441 - Age-dependent life table of Myzus persicae (Sulz.) (Hemiptera:Aphididae) on six different Capsicum annuum, capia pepper varieties at the laboratory conditions - Hilmi Kara, Mehmet Salih ÖZGÖKÇE
02A	408 - Improving the performance and antibacterial ability of polysulfone ultrafiltration membranes by using zinc oxide nanoparticles - Adem SARIHAN, Erdal EREN	945 - PRECONCENTRATION OF COBALT IONS IN WATER SAMPLES WITH ACTIVATED CARBON FROM VINE SHOOTS AND ITS DETERMINATION BY HR-CS FAAS - Harun CIFTCI, Cigdem Er, Esin Kiray, Ergin Kariptas	466 - LOPHOZIA OBTUSA (LINDB.) A. EVANS, NEW TO BRYOPHYTE FLORA OF TURKEY AND SOUTH-WEST ASIA - Merve CAN GÖZCÜ, GÜRAY UYAR, Recep Kara, Muhammet Ören, Tülay Ezer
02B	548 - Production and Characterization of Biomimetic Membranes with Low Alcohol Permeability and High Proton Permeability for Direct Methanol Fuel Cells - Serkan Balyimez	889 - A STUDY ON SOLVENT BASED PAINTS INCLUDING BORON CHEMICALS - Nil Acaralı, Hediye İrem Özgündüz, Abdullah Bilal Özturk, Hanifi Sarac	864 - Determination of Vegetation Structure of the Çatoluk Forest Rangeland in Isparta Province (Turkey) - Ahmet Alper BABALIK, İbrahim DURSUN
03A	387 - Determination of Hydration Kinetics on some Pyrimidines Containing Keto and Thioketo Groups - MERAL TEKIN, HASAN KILIC	882 - Investigation of electronic and optical properties of perovskite paraelectric BaTiO3 crystal by DFT under various pressures - Bahattin ERDINC, Mehmet ERZEN, Ferid DORU, Mehmet Nurullah SECUK	116 - MODELLING OF BASAL AREA INCREMENT IN BRUTIAN PINE (Pinus brutia Ten.) PLANTATIONS IN AĞLASUN REGION - Serdar CARUS, Günes Kaban
03B	699 - INHIBITION EFFECT OF THIOL DERIVATIVE INHIBITOR ON MILD STEEL CORROSION IN ACID SOLUTION - Murat Farsak, Gülfeza Kardaş	930 - Synthesis and optical characterization of Eu3+ doped red emitting CdTa2O6 phosphorus - Ramazan SAMUR, Mustafa İlhan	1003 - A Novel Poly[2-(N-morpholino) ethyl methacrylate] Hydrogel: Rapid Deswelling Kinetics and Potential Carrier for Release of Ibuprofene - Fulya Taktak, Talip Alnıaçık
04A	919 - The Synthesis and Characterization of Fe/ZnO Nanorods and Dye Sensitized Solar Cells Applications - SONER ÇAKAR, HANDAN ÖZLÜ TORUN, Mahmut ÖZACAR	1029- STRUCTURAL, ELASTIC, ELECTRONIC, PHONON AND THERMODYNAMIC PROPERTIES OF RuTi - ZEYNEL YALÇIN, Melek Yavuz	100 - Determination of Some Resistance Genes Against Pseudomonas syringae pv. phaseolicola and Xanthomonas axonopodis pv. Phaseoli in Twelve Local Bean Varieties - BERRU ŞAHİN, İSMAIL POYRAZ, EVREN ATMACA
04B	1105- Photoelectrical and electIrical characterization of Ir(III) complex based organic-inorganic devices - Yusuf Selim Ocak, Murat Aydemir, FEYYAZ DURAP, Ahmet Tombak	849 - Reduction of Ketoxime Derivatives by LiAlH4 - Hatice Başpınar Küçük	122 - Observation of Nucleus Anomalies in Allium cepa Root Cells Exposed to Myclobutanil Fungicide - Mikail Aydın, Ismail Poyraz
05A	1106- Temperature Dependent Electrical Parameters of NiO/n-Si Heterojunction - Omer Celik, Savın H. Omar, Sezai ASUBAY, Yusuf Selim Ocak	41 - THE ROLE OF NATURE TRAINING FOR CREATING AWARENESS OF BIOLOGICAL AND CULTURAL DIVERSITY WITH ……. - OGUZHAN SARIKAYA, AHMET ALPER BABALIK, MURAT AKTEN, AYSE GUL SARIKAYA	160 - Investigation of Genotoxic Effects of Penconazole Systemic Fungicide Using RAPD and ISSR-PCR Techniques - Fırat Mercan, Hülya Sivas, Ismail Poyraz
05B	1123- The Effect of Oxygen on Copper surfaces - Arban Uka, Greg Sitz	851 - Synthesis, Characterization and Viscosities of Amphiphilic Polyester Copolymer Synthesized by ROP - Gulben Torgut, Kadir Demirelli	1124- Drug discovery inspired by natural products from endophytic fungi isolated from Turkish higher plants - Mervenur Alparslan, Idris Arslan
06A	1107- Morphological and Structural Properties of Cu(1-x) Li(x)O as a function of Li-doping - Fatih Bayansal, Büyamin Şahin	887 - ENHANCEMENT OF CORROSION RESISTANCE OF DYES INCLUDING SYNTHETIC AND NATURAL ADDITIVES - Abdullah Bilal Ozturk, Hediye irem Özgündüz, Hava Gizem Kandılcı, Hanifi Sarac	933 - Histochemical evidence for copper accumulation in the kidneys of loggerhead sea turtle hatchlings from Dalyan Beach, Turkey - Pinar Ili, Fikret Sarı, NAZAN KESKİN, Yakup Kaska
06B	1118- Ultrasonically Sprayed Sn Doped CdO Thin Films - Omer Celik, Ahmet Tombak, Arife Gencer Imer	132 - SOME MECHANICAL AND PHYSICAL PROPERTIES OF PLUM FRUIT - Selen Alniak Sezer, Mustafa Çetin, Hulya Dogan	1024 - Anesthetic activity of clove oil (eugenol) on the Van Lake Pearl Mullet (Chalcalburnus tarichi (Pallas 1811)) - Ali Sahin, Ertuğrul Kankaya, Orhan Yılmaz, İdris Türel, Ahmet Cihat Öner
07A	052 - Ultrasonic Technical for physicochemical Characterization of a Medium - Said Soudani	047 - Haploidy Role and Importance of Plant Biotechnology - Tansu Uskutoğlu, Cüneyt Cesur, Belgin ÇOŞGE ŞENKAL, Cennet Yaman	1128- In vitro cultivation of marine derived endophytic fungi Preussia sp. - ESMA ÖZÇELİKER, Idris Arslan
07B	056 - The INVESTIGATION OF TRIBOLOGICAL PROPERTIES OF Al2O3 POLYPROPYLENE COMPOSITES - Gürhan Deniz	577 - THE EFFECTS OF PLANT EXTRACTS ON THE SAME CONCENTRATION IN SERUM BIOCHEMICAL AND HEMATOLOGICAL PARAMETERS IN RAINBOW TROUT (Oncorhynchus mykiss) - MEHMET FUAT GÜLHAN, ZELİHA SELAMOĞLU	161 - Observation of Nucleus Anomalies in Allium cepa Root Cells Exposed to Penconazole Systemic Fungicide - Fırat Mercan, Hülya Sivas, Ismail Poyraz
07B	056 - The INVESTIGATION OF TRIBOLOGICAL PROPERTIES OF Al2O3 POLYPROPYLENE COMPOSITES - Gürhan Deniz	577 - THE EFFECTS OF PLANT EXTRACTS ON THE SAME CONCENTRATION IN SERUM BIOCHEMICAL AND HEMATOLOGICAL PARAMETERS IN RAINBOW TROUT (Oncorhynchus mykiss) - MEHMET FUAT GÜLHAN, ZELİHA SELAMOĞLU	161 - Observation of Nucleus Anomalies in Allium cepa Root Cells Exposed to Penconazole Systemic Fungicide - Fırat Mercan, Hülya Sivas, Ismail Poyraz

	SESSION 11:00	SESSION 13:30	SESSION 15:30
08A	182 - The heteroleptic ruthenium(II) complexes of 2-(2-quinolyl)benzimidazoles: A study of catalytic efficiency towards transfer hydrogenation of acetophenone - Rafet Kılınçarslan, Aynur Tatar, Çiğdem Şahin	071 - Seed Germination studies on endemic Salvia cryptantha Montbret & Aucher ex Bentham in Turkey - Cennet Yaman, Güler TOPRAK, BELGİN COŞGE ŞENKAL, FATİH KÖSE	229 - MORPHOLOGY PHYLOGENETIC ANALYSIS OF THE TAXA BELONGING TO THE GENUS PİCRİS L. (ASTERACEAE) IN TURKEY - BERNA SANÖN, BAYRAM YILDIZ
08B	191 - Magnetic Iron Oxide Doped PVDF Catalyst For Benzyl Alcohol Oxidation To Benzaldehyde - HUSEYIN GUMUS, ERDAL EREN	694 - The effects of artificial pasture mixture prepared in Central Anatolia conditions on turkey' s weight - Ugur Ozkan, Nurdan Şahin Demirbağ, Hulya Dogan, Selen Alnıak Sezer	233 - In Vitro Effect of Caffeic Acid and Nicotine on Purified Xanthine Oxidase from Bovine Milk - Serap Beyaztaş Uzunoğlu, Sema Çarıkçı, Oktay Arslan
09A	201 - Study of bulk moduli of Fe(1-x) Al(x) alloys - Hamza Yaşar OCAK, Ercan Uçgun	729 - Effect of Tebuconazole Applications at Different Anthesis Stages on Disease Development of Fusarium culmorum and Head Weight - Gülsüm Palacıoğlu, Figen Mert-Türk	031 - The Investigation of The Potential Into Culture of Cocklebur (Xanthium Strumarium L.) - Cüneyt Cesur, Belgin Çoşge Şenkal, Tansu Uskutoğlu, Cennet Yaman
09B	214 - A NOVEL POLY (METHACRYLAMIDE / MALEIC ACID) COPOLYMERIC HYDROGEL FOR IMMOBILIZATION OF INVERTASE - Hesna Nursevin ÖZTOP, F. Banu Çatmaz, Dursun Saraydın	946 - The damage of the gall midge Resseliella (Clinodiplosis) oleisuga (Targioni-Tozzetti) (Diptera: Cecidomyiidae) on olive trees - Gülay KAÇAR	048 - Study of defective formations and disclinations in textures of thermotropic nematic mesophase by the capillary temperature wedge - Arif Nesrullazade, Atilla Eren Mamuk
10A	866 - Thermal Decomposition of Poly[ε-CL-b-(MMA-comb-BMA)] and Poly(MMA-comb-BMA) Comb-Type Copolymers - Güzin PIHTILI, Kadir Demirelli	1129- The density and distribution of stink bugs, Piezedorus lituratus (F.), Dolycorus.baccarum L. on red lentil in Southeast Anatolia Region, Turkey - Çetin Mutlu, VEDAT KARACA, Sedat Eren, Musa Büyük, Mehmet Duman	352 - CHEMICAL COMPOSITION OF ORIGANUM VULGARE SUBSP. HIRTUM WITH ACTIVITY - Turgut KILIÇ, Merve Öncü, Sema Çarıkçı, Tuncay Dirmenci
10B	293 - Surface PGA Calculations by Using Dynamic Amplification Factor and Synthetic Accelerogram - Özkan Cevdet Özdağ, MUSTAFA AKGÜN, Eren Pamuk	542 - SOME YIELDS VALUE IN TERMS OF ALKALOIDS ON DIFFERENT POPPY TYPES	390 - Potential health benefits of bioactives derived from algae - Canan Yağmur Karakaş, Didem Özçimen
11A	300 - The Impact of Seasonal Changes on Quasi Transfer Spectrums - Özkan Cevdet Özdağ, Aykut Tunçel	050 - Determination of Some Vegetation Properties in Kızılova Forest Rangeland of Southern Turkey - Ahmet Alper BABALIK, NİLÜFER YAZICI, HÜSEYİN FAKİR	049 - Textures and conoscopic images of smectic C, smectic A and nematic mesophases in liquid crystal with multiple phase transitions - Arif Nesrullazade, Atilla Eren Mamuk
11B	386 - Determination of Hydration Constants on some Pyrimidines Containing Keto and Thioketo Groups - MERAL TEKIN, HASAN KILIC	068 - The Importance and Traditional Uses of Sideritis Taxa in Turkey Flora - Belgin Coşge Şenkal, Cuneyt Cesur, Cennet Yaman, Tansu Uskutoğlu	074 - The Combine Effects of Salting and Thyme Oil on Microbiological Properties of Rainbow Trout (Oncorhynchus mykiss) Fillets - PINAR OĞUZHAN YILDIZ
12A	065 - Temperature behavior of optical refracting indices in three homologs of 4-alkyl-4'-cyanobiphenyl liquid crystalline series - Atilla Eren Mamuk, Arif Nesrullazade	677 - Economic and Ecologic Soil Management Practices in Olive Cultivation - ANIL CAY, Arda Aydın	980 - Genotoxicity of micro and nanoparticles of Magnesium oxide (MgO) on root meristem cells of Allium cepa by comet assay - Nuray Kaya, Burçin Yalçın, Merve Güneş, Bülent Kaya
12B	865 - Determination of P(MMA-comb-AN) Comb-Type Copolymer Monomer Reactivity Ratios - Güzin PIHTILI, Kadir Demirelli	072 - Effect of Different Treatment on Germination of Endemic S. dichroantha Stapf in Turkey - Cennet Yaman, Belgin COŞGE ŞENKAL, Ahmet KORKMAZ	990 - Evaluation of Antioxidant Capacity of Paronychia argyroloba Seeds - IDRIS ARSLAN, Ali Zeytunluoglu
13A	674 - Synthesis, characterization and photocatalytic activity of a novel porphyrin–polyoxotungstate hybrid material - Yasemin TORLAK, MAHMUT KUS, Mustafa Ersöz	131 - A study on sustainable agriculture practices in Turkey - Hulya Dogan, Alihan COKKIZGIN, Cuneyt Cesur, Selen Alnıak Sezer	075 - Effect of Chitosan Coatings Enriched with Clove Oil on Microbiological Characteristics - PINAR OĞUZHAN YILDIZ
13B	529 - Determination of Antioxidant Capacities of 5-bromo-2-(prop-2-in-1-iloxy) benzaldehyde and 3,5-d-tert-butyl-2-(prop-2-in-1-iloxy) benzaldehyde with Two ……. - METİN KONUŞ, Selahattİn AYDEMİR	088 - THE EFFECT OF COMPUTER GAMES TO LEARNING PROCESS - Ruya Samli	220 - THE EFFECTS OF MONOMERS USED IN POLYMERIC BIOMATERIALS ON RENAL TISSUE - Serpil ÜNVER SARAYDIN, Dursun Saraydın, Zeynep Deniz, Şahin İnan, Berna Özdenoğlu
14A	537 - Emulsion Templating as a Tool for Hierarchical Macroporous Photocatalyst Preparation - E. Hilal Mert, Peter Krajnc, Elif Yüce, Fatma Nur Parın, Nevim San, Dila Kaya	275 - Investigation of Weak Motion Station's Soil-Engıneerıng Bedrock Conditions by Using Geophysical Methods - Özkan Cevdet Özdağ, Atilla Uluğ	228 - Novel Perylene Based Antimicrobial And Antiproliterative PDI Chromophores - FUNDA YÜKRÜK, Furkan Özçil, Cansu Yılmaz, Hatice Yıldırım
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PERFORMANCE ANALYSIS OF ORGANIC RANKINE CYCLE WITH R744 AND N2O

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Abstract:

In this study, the performance analyses of the supercritical organic Rankine cycles (ORC) have been conducted using carbondioxie (CO2) and nitrous oxide (N2O). Also these refrigeration's are compared with each other based on various performance indicators. The energy and exergy efficiencies of the ORC are calculated at various conditions.

Keywords: Energy, Exergy, Organic Rankine Cycle, CO2, N2O

DESIGN AND IMPROVEMENT OF ROUTE PLANS WITH MULTIPLE AUTOMATED GUIDED VEHICLES FOR MECHATRONIC EDUCATION

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Abstract:

In this study, an automated guided vehicle model which can move freely with wireless control sytem and which compraises the transfering and storing of the items with easily changable direction sytem on the purpose of being used for mechatronics education. In this study, it has been assumed that the item will be transfered with automated guided vehicle model from its position to another position. Besides, this sytem is controlled by computer remotely with wireless control sytem. Thus, apart from the person who controls the sytem, the fully aoutomatic, suitable to needs and fast process of transfering and storing has become easier without the help of any humanbeings. This study whose prototype has been made will be a model for mechatronics education and it has been aimed that it will be a step for the further studies.

Keywords: Automated Guided Vehicles, Mechatronic Education, Route Plans

PRODUCTION AND CHARACTERIZATION OF NI-SI3N4 COMPOSITE MATERIALS

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Abstract:

Nickel matrix composites containing 3,6,9,12,15%Si3N4 has been fabricated by conventional furnace sintering at 1200°C temperature. Compounds formation between Ni and Si3N4 powders are observed after sintering under Ar shroud. XRD, SEM (Scanning Electron Microscope), mechanical testing and measurements were employed to characterize the properties of Ni+12% Si3N4 composite. Experimental results suggest that the best properties as hardness 65,51 HB were obtained for Ni+15% Si3N4 composite.

Keywords: Powder Metallurgy, Sintering, Ceramic-Metal Composites

RELUCTANCE NETWORK MODEL CIRCUIT ANALYSIS AND OPTIMIZATION OF PERMANENT MAGNET BRUSHLESS DC MOTOR

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Abstract:

The main idea of this study is to optimize the performance of brushless DC motor (BLDCM). The originality of this work concerns on the use of a Reluctance Network (RN) method, which furnishes the harmonics of output parameters such as torque and back-emf. Then, precise and very fast optimizations are performed by gradient method as Sequential quadratic programming (SQP) which is an iterative method for nonlinear optimization. The results of the study are also compared to Finite Element Analysis (FEA) and several optimizations are presented. Optimization process has been focused on minimizing weight of BLDCM and ohmic loss. That is why; objective functions of BLDCM have been developed and presented in the paper. The optimal BLDC motor design with slot/pole combinations 24/8 has been obtained. The motor with 24 slots and 8 poles yields the highest torque density with the lowest mass of active parts copper, laminations, and magnets respectively. Finally, the proposed method helps engineers to have a better sense of machines behavior and to quickly optimize the dimensions of their machines during preliminary design process.

Keywords: Bldcm, Fea, Optimization, Gradient Methods, Reluctance Network, Energy Efficiency

AIR GAP OPTIMIZATION OF IRON CORE SHUNT REACTORS WITH DISCRETELY DISTRIBUTED AIR GAPS FOR UHV SYSTEMS

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Abstract:

This paper proposed optimal design of iron core Shunt reactors with discretely distributed air gaps which can suppress over-voltages of high voltage transmission line in various situations, such as, the power frequency over-voltage regulation. It need very hard optimization process to optimizing discretely distributed air gaps in shunt reactors. precise and very fast optimizations are performed by gradient method as Sequential quadratic programming (SQP) which is an iterative method for nonlinear optimization. The results of the study are also compared to Finite Element Analysis (FEA) and several optimizations are presented. Optimization process has been focused on minimizing weight of shunt reactor and ohmic loss. The magnetic circuit structure and working principle of shunt reactor are analyzed as well as the TECHNICAL features in the paper. The proposed method helps engineers to have a better sense of voltage control and reactive power regulation of ultra high voltage transmission line.

Keywords: Shunt Reactors, Uhv, Optimization, Power Systems

THE EFFECT OF FORMING TEMPERATURE ON THE WARM DEEP DRAWING PROCESS OF AA5754-O SHEET METAL

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Abstract:

AA 5XXX series of Al-Mg alloys have found very wide application areas due to their ductility, good weldability and low strength to weight ration properties. However, FORMING these materials is difficult than steel blanks at room temperature doe to microstructure. Warm deep drawing is an effective way to overcome this problem. In this study, the effect of FORMING temperature on the FORMING force, wall thickness was experimentally investigation. A fine element analysis (FEA) was also adopted to study in order to simulate the process. The experiments were conducted at room temperature(RT), 100°C, 175°C, and 250°C. MoS2 was used as lubricant in order to reduce the friction between die and blank material. As a compared to cold drawing, the proposed method gave lower FORMING forces. It is experimentally found that an increase in FORMING temperature lead to more homogeneous distribution of wall thickness. As a consequence, FEA simulation were in a good agreement with experimental findings.

Keywords: Aa5754 Sheet Metal, Warm Deep Drawing, FORMING Force, Fea

THE EFFECTS OF HEAVY METAL ON GERMINATION OF SCOTCH PINE (PINUS SYLVESTRIS L.) SEEDS

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Abstract:

The effects of some heavy metals (Cu, Zn, Ni, Co, Cr and Pb) on germination percentage of Scotch Pine (Pinus sylvestris L.) seeds. In this context was used 1000 items pine seeds per heavy metal various. Later, germination percentage was determined periodical application at 7, 14 and 30 days respectively. In this reason the random experimental design was established in laboratory conditions. On the other hand ANOVA, Duncan Range Test and Correlation analyses for statistical investigation in this research. As a results of ANOVA and Duncan Range Test, the differences the lowest germination percentage was determined by Co and Pb with 8% and 11% at the 99% significant level. The highest germination percentage was determined by Cu, Cr and Zn with 32%, 21% and 16% respectively at the 99% significant level. Furthermore, the high correlation (r=92.6%) was determined between heavy metals variations and germination percentage.

Keywords: Heavy Metal, Germination Percentage, Scotch Pine

PERFORMANCE ASSESSMENT OF HYDROGEN PRODUCTION STEP OF BORON BASED THERMOCHEMICAL CYCLE

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Abstract:

Recently, global warming due to the greenhouse effect, which is widely considered to be a result of emissions of carbon dioxide and other greenhouse gases, has become a serious environmental problem. Consequently clean energy sources are much important. In this regard, hydrogen is currently promoted as a possible future energy carrier.

In the present study, analyzed hydrogen production step of boron based thermochemical cycle. The energy and exergy analyses of the hydrogen production step investigated different reference temperature. The reference environment temperature at 298 K the step of cycle energy and exergy analyses are calculated 11% and 20.34 % respectively.

Keywords: Energy, Exery, Hyrdogen, Boron, Thermochemical

DIAGNOSIS OF CORONARY ARTERY DISEASE USING DEEP BELIEF NETWORKS

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Abstract:

Cardiovascular diseases are very common and have a high mortality rate. In-time diagnosis of Coronary Artery Disease (CAD) is very important for controlling cardiovascular diseases. CAD is dependent on atherosclerosis, a vascular disease which involves the gradual narrowing of arteries that feed the heart.

In this study, a decision-support system is presented to aid cardiologists during the diagnosis and to create a base for a new diagnosis system which separates two classes (CAD and no-CAD patients) using an electrocardiogram (ECG).

24 hour filtered ECG signals from PhysioNet were used. 15 minute short-term ECG segments were extracted from 24 hour ECG signals to increase the number of samples and to provide a convenient transformation in a short period of time. The Hilbert-Huang Transform, which is effective on non-linear and non-stationary signals, was used to extract the features from short-term ECG signals. Instinct Mode Function (IMF) was extracted by applying Empirical Mode Decomposition to short-term ECG signals. The Hilbert Transform (HT) was applied to each IMF to obtain instantaneous frequency characteristics of the signal. Dataset was created by extracting statistical features from HT applied to IMF. Deep Belief Networks (DBN) which have a common use in Deep Learning algorithms were used as the classifier. DBN classification accuracy in the diagnosis of the CAD is discussed. The extracted dataset was tested using 10-fold cross validation method.

The test characteristics (sensitivity, accuracy and specificity) that are the basic parameters of independent testing in the medical diagnostic systems were calculated using this validation method. Short-term ECG signals of CAD patients and no-CAD groups were classified by the DBN with the rates of 98.05%, 98.88% and 96.02%, for accuracy, specificity and sensitivity, respectively.

The DBN model achieved higher accuracy rates than the Neural Network classifier

Keywords: Deep Learning Algorithm, Coronary Artery Disease (Cad), Hilbert-Huang Transform (Hht), Deep Belief Networks (Dbn).

COMPARISON OF MAGNETIC BARKHAUSEN NOISE METHOD AND ERICHSEN CUPPING TEST METHOD FOR DETERMINATION OF THE FORMABILITY OF SHEET MATERIAL

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Abstract:

Erichsen cupping test is a technique, which is used to evaluate the formability of sheet metal materials. The test is performed by pressing a spherical punch on prepared samples until a crack appears. The height of the cup at the moment of crack determines Erichsen Number, which is used to compare the formability of materials. When variable magnetic field is applied on a ferromagnetic material, a signal is generated due to movement of domain walls indirection of the applied magnetic field. This signal is call as Magnetic Barkhausen Noise (MBN). MBN is one of the non-destructive testing methods and it is sensitive to the internal structure of materials. In this study, the characteristics of samples having d,fferent mechanical properties are compared in terms of the Erichsen numbers and MBN properties. Also, the relationship between the magnetic properties and formability of materials are investigated.

Keywords: Barkhausen Noise, Ericsen Cupping Test, Formability

PRODUCTION AND CHARACTERIZATION CERAMIC-METAL COMPOSITE BY USING ELECTROLESS NI COATINGS METHOD

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Abstract:

The microstructure, mechanical properties and metalgraphic characteristics of Ni plated Si3N4-Astaloy Cr-M powders were investigated using specimens produced by tube furnace sintering at 1000-1400°C temperature. A uniform nickel layer on Si3N4 powders was deposited prior to sintering using electroless plating technique. A composite consisting of ternary additions, metallic phases, Ni and Astaloy Cr-M within a matrix of Astaloy Cr-M has been prepared under Ar shroud and then tube furnace sintered. XRD, SEM (Scanning Electron Microscope), Experimental results carried out for composition (%10Si3N4-Astaloy Cr-M)%10Ni at 1400°C suggest that the best properties as 86,12 HB and permittivity were obtained at 1400°C

Keywords: Ceramic Metal Composite, Electroless Nickel Plating, Sintering

INVESTIGATION OF THE MEMBRANE FOULING CHARACTERIZATION FOR THE MICROFILTRATION MEMBRANE USING BALLAST WATER TREATMENT

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Abstract:

Membrane fouling is one of the most undesirable effects on membrane surfaces and it is considered a major problem in most water treatment applications. In this study, the fouling characterization of the micro-filtration (MF) membrane which operated with ballast water and sea water is investigated. The samples, containing various concentration of bacteria and pollution load, are collected from the various points of Marmara Sea Region. The ballast water and sea water samples which is Membrane surfaces were examined using Scanning Electron Microscopy (SEM) and Energy Dispersive X-Ray Spectroscope (EDS) technique to identify the cause of reduction of the MF membrane performance.

Keywords: Ballast Water, Micro-Filtration Membrane, Fouling Characterization, Scanning Electron Microscopy

INVESTIGATION OF SURFACE MORPHOLOGY AND ELECTROCHEMICAL CORROSION BEHAVIOUR OF ALUMINIUM COMPOSITES REINFORCED WITH HIGH ASPECT RATIO BORIDES

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Abstract:

Aluminium and aluminium alloys can have very different corrosion rates in various media. It is very important parameter to determine probable service lifetimes of materials. Aluminium boride-reinforced aluminium matrix composites have been produced by in situ-fabrication techniques. Fabrication of AlB2 reinforcement particles in aluminum matrix are formed with exothermic reaction between aluminum and boron during solidification, and also it is relatively simple and inexpensive. In present study, the corrosion behaviour of 30% wt. AlB2/Al-Cu composites in alkaline media, which used sodium hydroxide as the alkalinity source at the room temperature, has been investigated. The electrochemical parameters were obtained from potentiodynamic polarization curves. The surface morphology was examined using scanning electron microscope (SEM). In addition to, corrosion severity in the alkaline media compared to the specimens exposed to acid medium and seawater using SEM results.

Keywords: Alb2 Composite, Alkaline Media, Corrosion, Scanning Electron Microscope

WAVE HINDCASTING FOR WAVE ENERGY ASSESSMENTS IN THE BLACK SEA

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Abstract:

Assessment of wave energy potential in sea areas is considered to be of great importance all over the world and the number of studies in this way has increased rapidly. For the Black Sea, however, only a limited amount of studies has been carried out so far, providing only a crude estimate of its wave energy potential. This paper summarises performance of the developed nested models to investigate spatial and temporal variability of wave energy potential in the Black Sea within the TUBITAK research project (Akpınar et al., 2015). For this purpose, the third-generation NUMERICAL wave hindcast model SWAN results forcing with CFSR wind data were compared with the buoy measurements at six buoy locations (Hopa, Gelendzhik, Gloria, Sinop, Filyos, and Karaburun). Focusing on the south-western coast of the Black Sea, a set of nested SWAN model with increasing spatial resolutions (a coarse grid, then a fine grid, and then three sub-grids) was established. SWAN model with a coarse grid was calibrated and validated with the measurements at Gelendzhik, Sinop, and Hopa. Then, SWAN model with a fine grid was calibrated and validated at Gloria. And finally, each of SWAN model with three sub-grids was calibrated and validated at Karaburun, Filyos, and Sinop, independently. Thus, the NUMERICAL and physical settings of the SWAN model for Black Sea by calibrating source term settings for deep and shallow water was optimised. The results show that SWAN model hindcasts match very well with the measurements. Therefore, the setting of the nested SWAN models will be applied to the Black Sea during 31 years to obtain a data base including some wind and wave parameters and to correctly assess the wave energy potential of the south western part of the Black Sea.

Keywords: Swan, Wind-Wave Modelling, Wave Energy Potential, Black Sea

THE TRUTH OF "HIJACKED PAPER" AND THE CRESCIVE DANGER FOR ACADEMICIANS: A SURVEY FOR TURKEY

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Abstract:

Unethical issues such as plagiarism, fabrication, dry labbing, desk research, falsification, duplications, slicing, guest/ghost/honorary authorships and many others are highly critisized among the academicians world-wide; and, this is mentioned as the main problem for the reliable and qualified publications (Inci, 2009). However, there is another concept of "hijacked paper" threatening the academics especially of developing countries. A group of cyber crime gangs have already copied lots of webpages of various journals and they could disposed many scientists to submit their researches to those hijacked websites against substantial amount of cash money for rapid publication in any area of study. Since 2013, in the world, more than 100 journals' websites were hijacked and about 10000 studies were published (?!) against more than 3 million US dollars. Most of the victims are still unaware of the fact that they'd been tricked. For Turkish researchers, the number of studies is in hundreds at best but it's been climbing dramatically. Increasing competition and incentive promotions started to be paid by government make Turkish academics a more popular target for those crooks in the near future. In this study, hijacked journals were defined and the most dangerous ones were also listed. Their operating system, overall statistics and the basic way to self-protection for academics were also introduced.

Keywords: Hijacked Journal, Cyber Crime, Academic Ethics, Turkey

THE INVESTIGATION OF THE POTENTIAL INTO CULTURE OF COCKLEBUR (XANTHIUM STRUMARIUM L.)

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Abstract:

Cocklebur (Xanthium strumarium L. - syn. X. sibiricum) belonging to the Asteraceae family is a very common weed in many parts of the world. It is an annual and has brown, hard, woody fruits, 1.0-3.5 cm long, with hooked spines. Each fruit of the plants contains two seeds. The plant has some medicinal properties and has been used in traditional medicine. Also, the researches were shown that X. strumarium has some biological properties such as anti-ulcerogenic, anti-inflammatory, diuretic, antifungal etc. Its seed has high oil content. According to results of studies on biodiesel properties of the oil; X. strumarium is a promising species as renewable resource for biodiesel production.

Keywords: Xanthium L., Weed, Seed Oil, Biodiesel

THE MORPHOLOGY, BIOLOGY AND DAMAGE OF THE PINE SHOOT MOTH [RHYACIONIA BUOLIANA (DEN. & SCHIFF.)] IN THE BRUTIAN PINE FORESTS IN THE SOUTH-WESTERN OF TURKEY

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Abstract:

The biology and damages of the Pine shoot moth [Rhyacionia buoliana (Den. & Schiff.)] which cause significant damages in many pine plantation stands in Turkey, have been investigated in the Brutian pine (Pinus brutia Ten.) forest of Isparta region which is situated in South-western part of Turkey.

For this aim; Isparta, Atabey, Dinar, Bucak experimental sites has been chosen as study areas. In addition to the field works in these stands, as research material the bud with larvae collected and larvae fed in the laboratory and observations were conducted. Also, flying period of moth was determined by using pheromone traps.

According to observations, forewings of the R. buoliana adults are yellowish in color, and they have latitudinal grey-white stripes and brown patterns. Back wings are brownish grey in color. The mean wingspans of female adults were found as 23,1 ± 1,9 mm., also for male as 18 ± 1,4 mm.

Light brown color mature larvae are in colour and have black heads. The lengths of mature larvae vary between 12 and 23 mm. and have been measured as 16,6 ± 1,1 mm. in average. The brown pupae are 7-13 mm. (mean 9,93 ± 1,31 mm.) length and have a width of 3-5 mm. The weight of the female pupae was measured as mean 0,050 ± 0,015 gr. whereas the male pupae have an average weight of 0,031 ± 0,009 gr.

It has been observed that the average daily temperature affects emerging of R. buoliana adults. Studies showed that during the days when the daily temperature is high, there are more R. buoliana adults.

R. buoliana is an univoltine species and overwinter in larval stage. Larvae became visible at the first half of May and passed to pupa stage at the second half of the month. Flying period of R. buoliana was determined as from the middle of June till the end of July by field observations.

Keywords: Rhyacionia Buoliana, Pinus Brutia,Morphology, Biology, Damage, Turkey

ECONOMIC IMPORTANCE OF SOME MEDICINAL AND AROMATIC PLANTS FOR TURKEY

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Abstract:

Turkey is located in the region of the intersection of three phytogeography regions as a bridge between Southern Europe and Southwestern Asia flora. For this reason, very rich plant diversity occurs. This rich flora includes numerous medicinal and aromatic plants. The treatment plants use began with the history of humanity. Today, approximately 20.000 plant species are used as medicinal. 4000 species of them are common drugs and also 2.000 plant drugs are trade.

350 Medicinal and aromatic plant species which is including subspecies has internal and external trade. 150 of them are sold to abroad countries. The number of medicinal plants used in Turkey is uncertain. By the way, it is estimated to be around 500. There are approximately 200 medicinal and aromatic plants have export potential. The demand for medicinal and aromatic plants in the world market is increasing every day a little more. Medicinal and aromatic plants are collected mostly in forest stands in Turkey. Especially; laurel (Laurus nobilis), sage (Salvia spp.) and thyme (Thymus spp. and Origanum spp.) are the most important species for export and also they constitutes a source of income for the forest villagers.

Keywords: Medicinal And Aromatic Plant, Economy, Turkey, Thyme, Laurel, Sage

MIXED CONVECTION OF FERROFLUIDS IN A PARTIALLY HEATED LID-DRIVEN CAVITY

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Abstract:

This study NUMERICALly investigates the mixed convection of ferrofluids in a partially heated lid driven square enclosure. The heater is located to the left vertical wall and the right vertical wall is kept at constant lower temperature while other walls of the cavity are assumed to be adiabatic. The governing equations are solved with Galerkin weighted residual finite element method. The influence of the Richardson number (between 0.01 and 100), heater location (between 0.25 H and 0.75H), strength of the magnetic dipole (between 0 and 4), and horizontal location of the magnetic dipole source (between -2H and -0.5H) on the fluid flow and heat transfer are NUMERICALly investigated. It is found that local and averaged heat transfer deteriorates with increasing values of Richardson number and magnetic dipole strength. The flow field and thermal characteristics are sensitive to the magnetic dipole source strength and its position and heater location.

Keywords: Ferrofluid, Mixed Convection, Partial Heating, Finite Element Method

EFFECTS OF DIFFERENT REAPING PERIODS ON VOLATILE OIL COMPONENTS OF ENDEMIC PHLOMIS LEUCOPHRACTA P. H. DAVIS & HUB.-MOR. (LAMIACEAE)

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Abstract:

Specimens of Phlomis leucophracta P. H. Davis & Hub.-Mor. which is an endemic taxa were collected in 3 different reaping periods that are before flowering, flowering and after flowering periods between 2012 and 2015 in the Lakes District of Turkey.

A total of 70 volatile component were determined by SPME analyses. Among of them, (E)-2-Hexenal, Limonene and β-Caryophyllene were found as main components. In before flowering period, ratios of β-Caryophyllene, Limonene and (E)-2-Hexenal were determined as 22.32%, 13.64% and 7.50% respectively. The ratios were found as 22.45%, 14.56% and 8.74% in flowering period and 20.12%, 10.93% and also 6.10% after flowering period respectively.

Keywords: Phlomis Leucophracta, Volatile Oil, Reaping Period, The Lakes District, Turkey

ASSESSMENT OF DAMAGE POTENTIAL OF GROUND MOTION RECORDS FOR RC BUILDINGS

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Abstract:

Many parameters indicating the destructiveness of ground motion records are defined in literature. Even if damage of earthquakes on structures depends on the intensity, frequency and energy content of the records, the correlation studies generally highlight intensity parameters. Frequency content parameters seem to have low correlation despite the above fact. Some criticism on this subject is also present in literature. This makes someone wonder that if the combination of the present parameters may improve the results. In order to investigate this subject, a study is conducted. This study investigates the feasibility of using combination of ground motion parameters to have a hybrid parameter that is more correlated with damage. As it constitute a major portion in building stock of earthquake prone countries, low and mid-rise reinforced concrete buildings are focused. Displacement demand is assumed to represent the seismic damage. Nonlinear displacement demands of 1056 SDOF systems are analysed for 466 earthquake records from 28 different seismic events. Also, 20 different parameters of these earthquake records are determined. Then an optimization study using Genetic Algorithms is conducted to select and weight the commonly used ground motion parameters to have high correlation with displacement demands. This way, an equation for a hybrid parameter is defined. It is observed that by combining the ground motion parameters, better results reaching %15 to 28% may be achieved depending on the compared factors and cases. This approach may be applied to other types of structures, as well. This way, better indicators of seismic damage may be obtained which are specialized for the considered case.

Keywords: Displacement Demand, Genetic Algorithm, Ground Motion Parameter, Reinforced Concrete, Seismic Damage

LANDSLIDE MONITORING WITH GNSS-PPP ON STEEP-SLOPE AND FORESTRY AREA: TAŞKENT LANDSLIDE

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Abstract:

Landslide area occurs on steep-slope and forestry. Generally, investigations are pursuing on the difficult topographical area for monitoring a landslide. GNSS measurements and analysis are providing very accurate, large content, scope and reliable information to monitoring movements on ground surface. Most techniques are not possible produce safe results for stability of the slope in forestry area. GNSS measurement techniques are the most reliable technique to monitoring slopes. This paper is aimed to present landslide monitoring with Global Navigation Satellite System (GNSS) measurements and to compare performance of Precise Point Positioning(PPP) method and rapid-static GNSS solution. Study area is located on the Middle of Taurus mountain chains. Three epoch GNSS campaigns for monitoring were performed on the study site from 2011 to 2012. For the purpose of detecting surface movement, ground monitoring points conducted on reachable areas and clean sky view in complex and dense forestry topography. In this study, GNSS data were processed by post-processed PPP method and rapid static GNSS solution for the purpose of comparison. Abrupt heavy rainfalls in area resulted 4m displacement top-scarp of landslide area. The landslide toe moved forward averagely 1-2 m between campaigns. Processing results show that differences between PPP-derived and rapid-static-derived displacement are within dm level. As a conclusion, in case of limited GNSS receiver, post-processed static PPP method can be used as an efficient alternative to the rapid-static GNSS method to detect displacement caused by landslide.

Keywords: Landslide Monitoring, Gnss, Slope Stability, 3D Deformation

THE ROLE OF NATURE TRAINING FOR CREATING AWARENESS OF BIOLOGICAL AND CULTURAL DIVERSITY WITH A CASE NATURE TRAINING PROJECT IN ANTALYA , TURKEY

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Abstract:

Today, significant damages occur on natural resources, biological diversity and cultural heritages by technological developments, population growth and excessive usage. This destruction brings with it major environmental problems. The education which is given during primary and secondary education has very big importance for training new generations who are respect to nature and conservator. Children can learn information about nature and live species via visual sources like internet or books, documentaries. Despite these sources of information are very important for people, it is definitely not taking to learning in open air and in nature with observing, touching, hearing and feeling.

In this study, the role of nature training for creating awareness of biological and cultural diversity was discoursed by a case project which was held in 2013 and 2014. This project was supported by TÜBİTAK (The Scientific and Technological Research Council of Turkey), Science and Society - 4004 programme and applied for Regional Boarding Secondary School that was selected as target audience. Project activities were held in Nature Protected Areas which reflect biological diversity and also cultural heritage of Antalya province in Turkey. The aim of this project is providing to recognize of nature in natural conditions to selected target audience and educating for nature and historical conservations and gain awareness of sustainable usage and also supplying widespread impact for reaching of this education to large mass society

Keywords: Nature Training, Turkey, Antalya, Project

HYDROLYSIS OF AMMONIA BORANE CATALYZED BY PVP-STABILIZED COBALT-PALLADIUM NANOPARTICLES FOR HYDROGEN GENERATION

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Abstract:

In order to overcome energy related environmental global problems, hydrogen is regarded as the best solution [1]. But, there has been a big problem: storage of hydrogen [2]. Lightweight boron containing compounds (sodium borohydride, ammonia borane, hydrazine borane, and so on) with high density of hydrogen have been extensively studied as promising solid chemical hydrogen storage materials over the last fifteen years [3]. Among those, ammonia borane (H3NBH3, AB) has 19.6 wt % of hydrogen that surpasses the US DOE targets [4].

In this study, PVP-stabilized cobalt-palladium nanoparticles have been prepared by co-reduction of cobalt and palladium ions in the presence of PVP as a stabilizer. They are characterized by TEM, UV-Vis spectroscopy, XRD, and XPS techniques. They provide average turnover frequency of 30 min-1 and activation energy of 48.6 ± 2 kJ/mol in the hydrolysis of ammonia borane.

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Keywords: Ammonia Borane, Cobalt, Palladium, Hydrolysis

SIMULATING A NETWORK OF EMERGENCY DEPARTMENTS: PROVIDING INSIGHTS FOR BUILDING AN EARTHQUAKE CONDITIONS RELATED MULTI ED SIMULATION MODEL

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Abstract:

Emergency Departments (EDs) are the main point of entry into hospitals and they face problems such as remarkable increase in demand due to disaster events. In order to overcome these problems, Discrete Event Simulation (DES) is a most widely used Operational Research technique. Studies related to modelling of EDs in the literature are mostly focused on analysis and improvement of only one ED unit operations. However, scalability of one single ED model to a network model can gain ED executives a collaborative work and decision making mechanism whilst struggling with bottlenecks. If one ED has no capacity to provide service, are arrived patients or medical staff be dispatched to another ED? This is a challenging issue to be discussed especially in extreme events in big cities, such as Istanbul. Istanbul is a metropolitan city with approximately fourteen million inhabitants and is in earthquake zone. EDs in Istanbul have to meet patient demand both in normal and earthquake times. In this study, we aimed to build DES models of five public hospital EDs as a network. First, each ED was modeled independently in a relevant level of detail. Then, we made an effort to model the relations between EDs. Scenario designs after building and validating the simulation model investigates impacts of patient arrival distribution to the EDs in the network on the key performance indicators. The study aims to find out additional capacity requirements (in terms of medical staff and beds) to meet future volumes or surge in a possible earthquake. Besides individual operations of EDs, this model is able to evaluate collaboration modes between EDs. This study can also provide insights for building earthquake conditions related multi ED simulation model for a district in Istanbul which is estimated to have the highest injured rate in a possible major earthquake.

Keywords: Discrete Event Simulation, Ed Network, Earthquake Conditions, Experimental Scenario Analysis

DETERMINATION OF BREAD PRODUCERS PROBLEMS AND PRODUCER SOLUTIONS

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Abstract:

Today, many surveys were made by asking questions to consumers about bread waste. However, there is a limited number of surveys conducted about the situation and problems of producers. Therefore, we have performed this survey due to the lack of surveys made in this area. In our study, we have included bakery owners and employees working in Erzurum province. In this research face to face survey working has been done with the bread manufacturers.

In this study, we prepared 36 different questions about education status of producers, their status of enjoying their professions, duration in the business, educational status of the bakery workers, sales of breads in the bakery, the frequency of making employee health checks and applied these questions in 75 bakeries. We tried to interpret our questions in accordance with the answers received and statistical data presented in tables and graphs. The responses were subjected to statistical analyses and results were subjected X2 test. The results are interpreted by subtracting the frequency table into tables and graphs.

According to the survey results; Most of the bakeries are satisfied with their professions and they stated that the need for trained staff. It is a rising trend in the educational level of bakery workers was found to cause an increase in product sales.

Keywords: Bread, Consumer, Producer, Bakery, Worker

APPLICATION ON FOREST WASTE BIOSORBENT FOR THE REMOVAL OF ZINC(II)

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Abstract:

The removal of heavy metals from aqueous effluents so as to avoid their toxic and bioaccumulation effects to environment is usually realized by means of physical, chemical treatment and biological processes. Zinc may be found in wastewater discharges from acid mine drainage, galvanising plants, as a leachate from galvanised structures and natural ores, and from municipal wastewater treatment plant discharges. Zinc is not biodegradable and travels through the food chain via bioaccumulation. Therefore, there is significant interest regarding zinc removal from wastewaters and its toxicity for humans at levels of 100–500 mg/day. The aim of this study is to evaluate the potential of forest waste as a biosorbent for removal of Zn(II) ions from aqueous solution. Biosorption is a widely used technology to remove of heavy metals. Biosorption by inexpensive biomaterials promises to be an excellent alternative. With this purpose, used of forest waste were obtained from Oriental Beech (Fagus orientalis Lipsky.) Forests. The biosorption properties of zinc(II) onto forest waste was investigated by using batch techniques. Biosorption studies indicated that the biosorption efficiency decreased with increasing initial concentration of zinc(II), but the biosorption capacity increased. The biosorption efficiency of Zn(II) from solution with forest waste dose of 3 g L−1 varied from 41,9 % to 33,2% for an increase of the zinc ion concentration from 10 to 50 mg L−1. It is said that The results of this study indicate the possibilities that exist in the clean-up of the environment with the use of natural resources. Forest waste was screened as a potent candidate for biosorbent capable of removing zinc ions efficiently.

Keywords: Zinc(İi), Forest Waste, Biosorption, Heavy Metal, Biosorbent

HAPLOIDY ROLE AND IMPORTANCE OF PLANT BIOTECHNOLOGY

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Abstract:

Agricultural activities are the basis of life throughout the history of mankind. People have spent their time hunting and gathering before they entered to settled life. After they entered to settled life, agricultural production has started to resume their lives. They grown plants which is located around after that they made observation based on some criteria such as some of the plant grows better or animals prefer to grazing with some of them so the most basic step of plant breeding emerge which is defined to selection. It is a fact that the human population is constantly increasing. This increase parallel with the increase in urbanization and industrialization occurring on the agricultural field as a result of these activities fertile lands reduction occurs. Therefore, it is insufficient to feed people with declining fertile land. Even today, while malnutrition and hunger is a serious matter ıf these condition continue it will show effect much more serious. For that reasons agriculture should focus on increasing plant yield. Plant biotechnology has emerged in the light of these objectives. In addition to conventional breeding methods, in the 1920s first haploid plant was discovered and then realized that the importance of this plants and it can used on breeding program. Due to decrease in the frequency of their occurrence in the nature of these plants has prevented their use in practice and has encouraged scientists to create plants which is haploid. The foundation of plant biotechnology was created with this studies. Especially cross-pollinated species, obtaining pure lines takes 8-12 years. If that species have self-incompatibility ıt will take more. One of the biotechnology technique which name is haploidy %100 homozygote line can obtain within 1-2 years. This study provide information about haploid technique and in recent years saved stages of haploid technique will be investigated.

Keywords: Biotechnology, Plant Breeding ,Haploidy

STUDY OF DEFECTIVE FORMATIONS AND DISCLINATIONS IN TEXTURES OF THERMOTROPIC NEMATIC MESOPHASE BY THE CAPILLARY TEMPERATURE WEDGE

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Abstract:

Liquid crystals are very important materials from both fundamental and application points of view. These materials exhibit smectic, nematic and cholesteric mesophases, which have different structures, exhibit various types of the point-like symmetries and display unusual physical properties. Liquid crystals exhibit various types of the aligned and non-aligned textures. In such textures different types of defective formations and disclinations appears simultaneously or by influences of various external effects.

Topics connected with physics of defects are sufficiently important from application and fundamental points of view. Study of defects and non-homogeneities in liquid crystals allow determining peculiarities of structures, dynamics of structural transformations under external influences, and also examining and controlling various critical effects in these materials.

In the present work, the morphologic and structural peculiarities of defects, inversion walls, singular points and disclinations, which appear in region of phase transitions between nematic mesophase and isotropic liquid, have been studied. Liquid crystals, which exhibit smectic A (SmA) and nematic (N) mesophases were objects of our investigations. The polarizing optical microscopy, method of temperature gradient and the capillary temperature wedge device have been used in this work.

Inversion walls of the first and second order have been observed in the heterophase regions of the SmA – isotropic liquid and N – isotropic liquid phase transitions. Investigations showed that, the break of the optical continuity in aligned textures of SmA and N mesophases leads to appearance of the singular points with the disclination of the strength as S=±1 and S= ±½. Distribution of the vector lines near the inversion walls and singularities has been determined; disclination of the strength of various singular points have been estimated.

Microphotographs of textures with defective formations and disclinations, schematic representation of the vector lines for the point-like defects and inversion walls will be given. Results of this study will be presented.

Keywords: Liquid Crystals, Textures, Phase Transitions, Disclinations, Singular Points, İnversion Walls

TEXTURES AND CONOSCOPIC IMAGES OF SMECTIC C, SMECTIC A AND NEMATIC MESOPHASES IN LIQUID CRYSTAL WITH MULTIPLE PHASE TRANSITIONS

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Abstract:

Liquid crystalline materials are very important objects for liquid crystalline displays (LCD), multimatrix elements (ME), systems of optoelectronics and microelectronics, devices for registration of optical information. One of the important peculiarities of liquid crystals is availability of specific, non-specific and aligned textures. Such textures of are sufficiently variously and are characterized by different morphologic, structural, topological and orientational properties. Types of textures and their properties allow to makes the classification, systematization and identification of liquid crystalline mesophases, and estimate structural peculiarities of these mesophases.

In this work, the orthoscopic and conoscopic studies of mesophases, and analyses of types of aligned textures in liquid crystals have been carried out. Liquid crystalline materials with multiple enantiotropic phase transitions were objects of our investigations. The polarizing optical microscopy and thermo-optical set-up have been used in this work.

The conoscopic images for the aligned optically biaxial (smectic C) and optically uniaxial (smectic A and nematic) mesophases have been obtained. Character of orientation of liquid crystalline molecules, orientation degree in the homeotropic, planar and tilted textures and homogeneity of the aligned mesophase have been estimated. Specific textures of the non-aligned polycrystalline textures of smectic C, smectic A and nematic mesophase have been obtained. Character of packing of molecules in textures of liquid crystal under investigation has been studied. Schematic representation of obtained textures was elaborated.

Results of this study will be presented and discussed.

Acknowledgement

This work has been partially supported by the Research Foundation of Mugla Sitki Kocman University, Grant No. 15/124.

Keywords: Liquid Crystals, Thermo-Physics, Optics, Conoscopy, Phase Transitions, Textures.

A NEURAL NETWORK APPROACH FOR INVERSE KINEMATIC OF A 4-DOF LIGHTING ROBOT ARM

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Abstract:

Inverse kinematic is a challenging problem of robots. The inverse kinematics in robotic is the determination of joint angles for a desired position of the end effector. This paper proposes an Artificial Neural Network (ANN) model to find Inverse kinematic solution of a 4 DOF robot, which is designed instead of a manually lighting system that is used in surgery rooms. After obtaining forward kinematic equations, this equations were used to derive training data of ANN. Robot was designed in a computer aided design (CAD) program and this CAD model transferred to Simulink environment for a realistic and visual simulation purpose. To evaluate the trained ANN performance visually, this Simulink model were used. A test input set is introduced to the trained ANN. Results are discussed and demonstrated graphically. It was observed that obtained results are satisfactory, and the error of ANN for a reference position is acceptable.

Keywords: Robotic, Artificial Neural Network, İnverse Kinematic, 4-Dof Lighting Robot Arm.

DETERMINATION OF THE CASTING COST USING FONDWEB ERP SOFTWARE

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Abstract:

Nowadays, the enterprises need to optimize continuous growth, quality, efficiency, and cost elements in the best way, since they maintain their presence in the market. Because of this each company has its own specific critical success factors to grow and to improve. These factors may vary depending on sectors and a companies. The one constant is the necessity of keeping up with new technology, the expectation of high quality for the production and the providing efficient information management.The software industry has showed a growth for the providing knowledge management in recent years, as a result of this growth one of the greatest contributions to the industry is the Enterprise Resource Planning software

ERP (Enterprise Resource Planning-ERP), covers all processes of the organizations,that allows all business processes to be managed through an integrated information technology system from supplying to distribution. ERP is comprehensive software package due to its modular structure, it can be adapted to different sectors. Since all data is located in a single database, the departments which has different objectives and aims, work in harmony. In this study, after ERP software information is given, suitability of the Fondweb ERP software for foundry industry, and its necessity and benefits are evaluated. The casting cost is calculated using two different ways for a sample which is manufacture in medium-sized cast enterprise in Turkey, to compare classical method results and results are obtained from ERP software.

Keywords: Enterprise Resource Planning, Foundry İndustry, Account Of Casting Cost

DEVELOPING A QFD METHODOLOGY TO INCREASE CUSTOMER SATISFACTION IN PUBLIC TRANSPORT COMPANIES

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Abstract:

As understanding peoples' expectations from public transport services and providing a people-centered mobility become more and more indispensable for liveable cities; the need for passenger-oriented service improvement methods also becomes necessary for public transport sector. With the implementation of Quality Function Deployment (QFD) methodology, IETT, the public bus operator and authority of Istanbul, is currently able to translate passenger expectations into service quality characteristics for every category of process development. Both the strategic plan which gives direction to IETT about strategies and policies and Integrated Management System (IMS) necessitate the implementation of such a customer-oriented approach for continuous service improvement. Since effectively and immediately responding to passenger demands is the guiding principle of IETT, QFD methodology is the most efficient way to enable that the expectations of passengers are rightly taken into consideration when providing public transport services. QFD methodology provides a priority list of passenger demands and TECHNICAL requirements so that the necessary actions are taken according to this list, ensuring minimum cost while providing what the passengers exactly need.

Keywords: Public Transport, Customer Satisfaction, Quality Function Deployment (Qfd)

HABITAT RESTORATION PLANNING FOR ANATOLIAN WILD SHEEP (OVIS GMELINI ANATOLICA) IN KONYA-BOZDAĞ, TURKEY

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Abstract:

Anatolian wild sheep is a species of Bovidae family and just still exists Konya-Bozdağ Wildlife Development Course in the world. In 1966, from the past to the ongoing illegal hunting, habitat destruction and so on reasons survived a herd consisting of 35 individuals. On top of that same year by the Ministry of Agriculture and Forestry, it has been declared 42000 ha as a field protected area. 3429 ha portion of this area fence with wire mesh, generating station was established in 1989. Following this period, located in generating station population fitted to steppe habitats and the number has increased to 2000 in 2005. In the study area, due to the carrying capacity of the increasingly exceeds optimum wild sheep tended to the lower nutritional value of plants. But this time the malnutrition, illness, stress, etc. leads to death and population size declined up to 600.

Given the based on this information, there are two main ways to make deteriorated habitat structure suitable for accommodation, growth and proliferation of Anatolian wild sheep individuals. The firstly, placement work to bearing capacity of the members have put into practice to other natural areas with various Ministries and university partnership projects since 2005 and successful placement studies were conducted on various natural areas. But, It is seen that a habitat restoration (protection of the natural structure of the existing living environment, development) work is needed for bring a livable level of the remaining individuals habitats.

In this study, we have emphasized to wild sheep that located in Bozdag wildlife development generating station, restorate to be done to ensure a better quality distribution, firstly, including Medicenal and Aramotic Plants, methods of other important vegetation elements brought back to area / seed additional and a restoration plan supported by other studies conducted worldwide examples.

Keywords: Anatolian Wild Sheep (Ovis Gmelini Anatolica), Konya Bozdag, Habitat Restoration

HUMAN-WILDLIFE CONFLICT IN TURKEY, CAUSES AND SOLUTION PROPOSALS

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Abstract:

In Turkey, increasing human population growth (habitat loss, deterioration and fractures, etc.) and technological development for the use of renewable energy, wildlife and their habitats intervention are increasing at this rate. Areas that protect the natural qualities also reduce at this rate. Thus, habitats of wild animals are shrinking and too difficult to find suitable shelter habitats. Therefore, in many animal species face the threat of extinction. For example, wild boar (Sus scrofa), bear (Ursus arctos), wolf (Canis lupus), coyote (Canis aureus), fox (Vulpes vulpes), deer (Cervus elaphus), etc. wild animal types have to go to feed to the human settlement. The result of this is emerging as human-wildlife conflict. Environmental, economic and social costs, and also for the welfare, health and security losses are emerging, hostilities to wild animals are increasing.

Counted among these species, wild boar are seen as common in most of the country. Especially in recent years damage to livestock, trees, agricultural products, taking the road that cause accidents and it is known that threatens human health and safety due to biting and disease transmission. These negative factors are indicator of how important an issue to be resolved in the long term and as soon as reducing of the wild boar damages. People living in rural areas, there are constantly complaints to the relevant institutions due to the wild boar damage, forced to take drastic measures in their own way but they complain about that could not find the solution yet.

In this study, we are focused on; the causes and consequences of wild boar damages in Turkey, causes of wild boar populations increase steadily with each passing day, biotic and abiotic factors that led to this increase and presented several examples applied wild boar problem in the world, short and long term suggestions for solutions.

Keywords: Wild Boar (Sus Scrofa), Human Wildlife Conflict, Turkey

SETTING THE OPTIMAL TRANSIT FARE IN PUBLIC TRANSPORTATION BY USING ANALYTICAL HIERARCHY PROCESS(AHP): THE CASE OF IETT, ISTANBUL

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Abstract:

Setting the optimal fare in public trasnportation is an important issue not just for passengers but also for public transport providers. The objective should be ensuring both the user satisfaction and sustaining the financial balance of the public transit agencies at the same time. This paper examines the process of specifying the optimal fare by utilizing Analytical Hierarchy Process (AHP) methodology in IETT, the public transport authority and operator of Istanbul. AHP is used to provide a through and robust framework for this decision problem by determining and quantifying the elements of this problem and connecting them with the overall objective of an optimal fare selection. In other words, this technique is used to structure the decision hierarchy and quantifying the effect of decision factors on optimal fare. A public transport authority takes into account a number of criteria when deciding on the transit fares. While these criteria are mainly the passenger satisfaction and financial balance of the transit provider, the constraints primarily include inflation rate, labor costs (drivers, administrative staff, maintenance staff etc.) and fuel costs. In this paper, how to implement AHP methodology step by step in deciding on optimal transit fare in public transportation is analyzed and supported with a case example.

Keywords: Public Transportation, Optimal Transit Fares, Analytical Hierarchy Process (Ahp), Decision Making.

ANTIOXIDANT PROPERTIES OF SYNTHETIC BENZALDEHYDE DERIVATIVES

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Abstract:

Benzaldehyde derivatives are quietly effective biological compounds. Some of these effects are anti-inflammatory effect, phospholipase D inhibition, neutrophil superoxide anion degeneration and anticancer activity. Although they are quite common in nature, they are not structurally stable. Therefore, synthesizing structurally stable and biologically effective benzaldehyde derivatives are so important for new drug development. In this study, antioxidant properties of synthetically synthesized benzaldehyde derivatives were analyzed by two different antioxidant assays.

Antioxidant capacity of synthesized benzaldehyde derivatives were determined with DPPH and ABTS assays, according to the modified Blois (1958) and Re et al. (1999) methods, reciprocally. Trolox was used as a standard for determining antioxidant capacities of synthesized benzaldehyde derivatives.

According to the DPPH assay that 1 mg 5-bromo-2-(prop-2-in-1-iloxy) benzaldehyde had an 0,7 µg trolox equivalent antioxidant capacity. Besides, it was determined that 1 mg that 3,5-d-tert-butyl-2-(prop-2-in-1-iloxy) had an 2,9 µg trolox equivalent antioxidant capacity.

In addition, it was determined that while 1mg 5-bromo-2-(prop-2-in-1-iloxy) benzaldehyde had an 3,21 µg trolox equivalent antioxidant capacity, 1 mg that 3,5-d-tert-butyl-2-(prop-2-in-1-iloxy) had an 16,7 µg trolox equivalent antioxidant capacity in ABTS assay.

According to the results of DPPH and ABTS assays that 3,5-d-tert-butyl-2-(prop-2-in-1-iloxy) benzaldehyde had exhibited higher antioxidant capacity than 5-bromo-2-(prop-2-in-1-iloxy) benzaldehyde.

Keywords: Benzaldehyde Derivatives, Dpph Assay, Abts Assay, Antioxidant Capacity

OPTICAL REFRACTING AND BIREFRINGENT PROPERTIES OF 4-PENTYL-4'-OXYCYANOBIPHENYL IN THERMOTROPIC NEMATIC LIQUID CRYSTAL

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Abstract:

Liquid crystals are new technological materials, which exhibit unusual structural, physico-chemical and physical properties. These materials are extremely important for the liquid crystalline displays (LCD), multimatrix indicators (MMI), different types of detectors and various optoelectronic and microelectronic systems.

In this work we are interested in the connection between the optical refracting and optical birefringent properties in thermotropic nematogen. 4-pentyl-4'-oxycyanobiphenyl (5OCB) was object of our investigations. The monocrystalline and polycrystalline textures of 5OCB have been obtained and used in our investigations. Investigations have been carried out for large temperature interval and in regions of the nematic mesophase – isotropic liquid phase transitions.

Temperature dependences of the mean refractive index, average refractive index, refractive indices for the ordinary and extraordinary rays, and also the birefringence have been determined. Linear behavior of the mean and average refractive indices, and non-linear behavior of the ordinary and extraordinary refractive indices and for the birefringence have been found. Sharp jumps of anisotropic optical parameters in the region of nematic – isotropic liquid phase transition have been observed.

Theoretical Landau- de Gennes model is applied for analysis of our experimental results. Specific textures of nematic mesophase of 5OCB and temperature dependences of the the mean, average, ordinary and extraordinary refractive indices and birefringence will be presented in this work. Discussion, connected with thermotropic and thermo-optical properties of 5OCB will be also given in this work.

Keywords: Liquid Crystals, Nematic, Optical Properties

TEMPERATURE BEHAVIOR OF OPTICAL REFRACTING INDICES IN THREE HOMOLOGS OF 4-ALKYL-4'-CYANOBIPHENYL LIQUID CRYSTALLINE SERIES

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Abstract:

Optics of liquid crystals is important part of solid state optics and soft matter optics. Rich optical properties of liquid crystalline materials make these materials important objects for the optoelectronics, microelectronics, quantum optics and complex systems of registration of optical information.

In this work the mean refractive index and refractive indices for the ordinary and extraordinary rays have been investigated. Investigations have been carried out for large temperature interval and especially in region of the phase transitions. Three thermotropic monomorphic liquid crystalline compounds with enantiotropic nematic mesophase were object of our investigations. For the temperature dependences of the refractive indices for the ordinary and extraordinary rays, the monocrystalline homeotropic and planar aligned textures have been obtained and used; for the temperature dependences of the mean refractive index, the polycrystalline schlieren textures have been obtained and used. The linear behavior for the mean refractive index and the non-linear behavior for the ordinary and extraordinary refractive indices vs. temperature have been observed for liquid crystals under investigations. Investigations showed that an increase of the length of the alkyl chain leads to a decrease of values of the refractive indices for the ordinary and extraordinary rays.

The temperature dependences of the mean refractive index and the refractive indices for the ordinary and extraordinary rays and discussion of obtained results will be presented.

Keywords: Liquid Crystals, Nematic, Refractive Parameters

THE IMPORTANCE AND TRADITIONAL USES OF SIDERITIS TAXA IN TURKEY FLORA

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Abstract:

The genus Sideritis L. (Lamiaceae) is comprised by more than 150 species which are distributed in temperate and tropical regions of the world. For all that, most species are mainly found in the Mediterranean area. Turkey is Turkey is one of the countries having the highest number of Sideritis species. The genus Sideritis is represented in the Flora of Turkey by 45 species and 55 taxa, of which 37 taxa are endemic to Turkey. The rate of endemism is 82%.

Sideritis species are known as “dag cayı, yayla cayı or adacayı”, and the aerial parts of them are used in the preparation of traditional herbal medicines and teas. The tea is widespread for stomach ache, indigestion, and common colds such as fever, flu, sore throat and bronchitis. According to some recent researches, extracts and essential oils obtained from some Sideritis species were shown to have antifeedant, antimicrobial, antioxidant, anti-inflammatory, and analgesic. In recent years, the interest in and the demand for these species have increased particularly due to their high antioxidant effect.

Keywords: Sideritis L., Herbal Tea, Antioxidant Capacity

FORECASTING STOCK PRICES BY USING THE FUZZY SETS: A REAL CASE APPLICATION IN BORSA ISTANBUL

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Abstract:

To being predictable of returns and prices of financial assets such as stocks, bonds, foreign currency within a certain probability can provide over-normal winnings or at least an opportunity to make up the financial loss. In this paper, one of well-known forecasting methods named Exponential Smoothing Method (ESM) is used to forecast the variability of Borsa Istanbul-30 index (BIST-30). It is aimed to estimate the BIST-30 Index prices for a month of January 2015. These estimates are conducted separately for the first and second sessions and fuzzy forecast values are calculated for each day. After that, the estimated values of these fuzzy forecasts are converted to crisp values. Finally, cumulative sum control chart (CUSUM) and exponentially weighted moving average chart (EWMA) have been used to analysis of variability in BIST-30.

Keywords: Bist-30 İndex,Cusum, Defuzzification, Ewma, Forecasting, Process Variability

SEED GERMINATION STUDIES ON ENDEMIC SALVIA CRYPTANTHA MONTBRET & AUCHER EX BENTHAM IN TURKEY

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Abstract:

Turkey flora has 97 species of Salvia genus belonging to Lamiaceae, which is found naturally. 51 of them are endemic, one of which is S. cryptantha Montbret & Aucher ex Bentham (synonym S. absconditiflora) located in LC categories of danger. To cultivated of S. cryptantha is the most important because it is endemic specie and also it have commercial properties. Most of Salvia species have problems of seed coat dormancy and cutting propagation. In this study, germination application was made both coated seeds and uncoated seeds of S. cryptantha. It was observed that most of Salvia species hadn't endosperm and embryo. Therefore, most of applications were carried out in vitro and seed coat removed. For germination application, agar, agar+%20 sucrose, agar+%20 sucrose+MS ve agar+GA3 concentration were used. The best germination frequency was observed in medium containing agar+500 ppm GA3.

Keywords: S. Cryptantha, İn Vitro, Germination, Ga3

EFFECT OF DIFFERENT TREATMENT ON GERMINATION OF ENDEMIC S. DICHROANTHA STAPF IN TURKEY

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Abstract:

Turkey flora has 97 species of Salvia, which is found naturally. 51 of them are endemic, one of which is S. dichroantha Stapf located in LC categories of danger. Most of Salvia species have cutting propagation problem. Therefore, It was examined germination frequency of S. dichroantha. Seeds for germination application were/weren't waited three day at +4 0C. Then, the seeds were taken to germination both between blotter papers and in vitro conditions. The best germination frequency was observed to obtained from cold applications.

Keywords: S. Dichroantha, İn Vitro, Germination, Cold Application

AN İNVESTIGATION OF THE EFFECT OF ZEOLITE ON PHYSICAL AND MECHANICAL PROPERTIES OF AUTOCLAVED AERATED CONCRETE

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Abstract:

Autoclaved aerated concrete is the construction material that is contained in lightweight concrete class. Zeolites are raw materials which has a puzzolanic properties. The new generation of building materials production, it is important for scientists working in this field. For this purpose, in this study it is investigated that the effect of zeolite additive in autoclaved aerated concrete production. Zeolite are main raw material use in this study. Samples are produced 7cm cubic shape and ın order the determine for physical and mechanical properties subjected to the bulk density, ultrasound pulse velocity and compressive strength. As a result, compressive strength and bulk density value of samples are same to commercial autoclaved aerated concrete that were observed.

Keywords: Zeolite, Autoclaved Aerated Concrete, Physical And Mechanical Properties

A STOCHASTIC MODEL FOR HUMANITARIAN RELIEF DISTRIBUTION PLANNING

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Abstract:

The main objective of the humanitarian relief logistics is to supply and distribute the requested supplies and services at the places and times they are needed. These critical supplies are essential in post-disaster activities for survival, such as food, water, temporary shelter and medicine, among others. Location and allocation models aims to optimize the location of distribution centers (warehouses) and allocating demand point to the centers for preparedness to disaster. Efficient and effective preparedness and response planning can significantly decrease the social, economic and environmental impact of disasters. In this paper, a two-stage stochastic programming model is proposed using humanitarian relief organizations' resources under demand uncertainty for preparedness and response to a disaster. In this model, total cost of fixed opening, transportation, and penalty of unmet demand are considered. The mathematical model is validated by generating a base case scenario using data for possible earthquake.

Keywords: Humanitarian Relief, Stochastic Model, Demand Uncertainty

A CONCEPTUAL DESIGN OF A ROTARY CUP ATOMIZER AND A FLUIDIZED BED FOR DRY GRANULATION OF MOLTEN SLAG IN IRON-STEEL INDUSTRY

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Abstract:

Iron-steel industry, the milestone of the international economy, has showed tremendous improvements in energy efficiency in the last decades especially developing new methods for heat recovery. Notedly, molten slag as kind of by-product during iron steel making process, has attracted the attention since it is exhausted critically high temperature (1450-1550°C) and seen a potential resource of energy and raw material. However, traditional heat recovery methods like water quenching, effects heat recovery efficiency negatively, and also it consumes a huge amount of water and harms to environment. Due to these reasons, different heat recovery technologies based on dry granulation have been proposed in many researches. These technologies divide into two groups as physical methods and chemical methods. In this study, rotary cup atomizer (RCA) technology as a physical method is evaluated, its mechanism is revealed and a RCA design for dry granulation is performed. In addition, a conceptual design of a fluidized bed is proposed in order to provide a sensible heat recovery from molten slag by using RCA granulation method.

Keywords: Dry Granulation, Energy Efficiency, İron-Steel İndustry, Molten Slag, Rotary Cup Atomizer, Waste Heat Recovery

INVESTIGATION OF GENOTOXIC EFFECTS OF MYCLOBUTANIL FUNGICIDE USING RAPD AND ISSR-PCR TECHNIQUES

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Abstract:

Myclobutanil (2-(4-chlorophenyl)-2-(1,2,4-triazol-1-ylmethyl)hexanenitrile) is a chemical substance extensively used in production of greenhouse pepper, grape and apple as fungicide. Myclobutanil is very effective against Venturia inaequalis, Uncinula necator and Leveillula taurica, but genotoxic effects of this fungicide on plants has not investigated with any PCR (Polymerase Chain Reaction)-based techniques. We aimed to investigate potential genotoxic effects of Myclobutanil fungicide on genome of Allium cepa (onion) root cells as a plant model organism using RAPD (random amplified polymorphic DNA) and ISSR (inter simple sequence repeat)-PCR techniques. Using dose of Myclobutanil in user manual is recommended among 20-75 ppm. We performed different doses (10, 25, 50, 75, 100, and 150 ppm) of fungicide on germinated A. cepa roots during 24, 48 and 72 hours. DNA isolation from root samples was carried using classic CTAB method. DNA fragments from A. cepa genome were amplified by PCR technique using RAPD and ISSR primers. When electrophoresis profiles of RAPD and ISSR-PCR were analyzed, it clearly indicated that there are apparent changes such as the appearance of new bands or disappearance of bands as compared to the control. RAPD and ISSR-PCR analyses revealed that Myclobutanil causes some DNA sequence changes on A. cepa genome depending on the increase in the fungicide dose and exposure time.

Keywords: Myclobutanil, Fungicide, Genotoxicity, Allium Cepa, Rapd And İssr-Pcr.

THE BEST SITE DETERMINATION OF SOLAR FARMS: A CASE STUDY

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Abstract:

Today, renewable energy sources are one of the most important and indispensable part of our lives. Especially the number of solar energy applications are raising every day all over the world. With the increasing of the solar energy farms' applications around the world, the site selection problem of the solar energy farms is gaining importance every day. In some cases ignoring an important criteria will negatively affect environment, social life or cost of the project.

The objective of this research is determining the best place for solar farms by proposing some crucial criteria, weighting these criteria and making all the data processing of the criteria on a sample study area. The weighting of the criteria is made via Fuzzy Analytical Hierarchy Process. The Geographical Information Systems are used for processing the maps of determined criteria.

For the purpose 12 main criteria and their sub criteria are determined from the opinion of experts, surveys and studies in literature. Finally the new proposed criteria are APPLIED to the study and a suitability map for solar farms on the study area is obtained. This map shows the most suitable places, low suitable places and disallowed places for solar farms on the study area. The proposed criteria, their weights and the suitability map will help researchers to determine more environmental, social and economic sites for solar farms.

Keywords: Solar Farm Siting, Geographic İnformation Systems, Fuzzy Analytical Hierarch Process, Suitability Map.

EARTHQUAKE RISK ASSESSMENT IN CENTRAL NORTH ANATOLIAN FAULT ZONE, TURKEY

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Abstract:

North Anatolian fault zone (NAFZ) which similar in many ways to the San Andreas Fault in California is one of the most active strike-slip faults in the world. It has been many devastating earthquakes occurring throughout NAFZ from past to present. Length and width of NAFZ reach up to 1500 km and 40 km; respectively. North Anatolian fault zone (NAFZ) is a unique example for continental plate-boundary transform fault zone which separate between Eurasian and Arabian plates and fault plane solutions indicate a typical right-lateral strike slip fault. In this study; we investigate distribution of big earthquakes and effect of Central North Anatolian Fault zone (CNAFZ) surrounding. Besides; we analysed a and b value for CNAFZ (especially Tokat, Samsun, Ordu). We observed a seismic gap in the study area and possible devastating earthquake may be affected some important settlement.

Keywords: North Anatolian Fault Zone, Seismic Risk, Zmap

DETERMINATION OF CONCRETE STRENGTH BY ELECTRICAL AND SEISMIC METHODS

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Abstract:

In this study, determination of concrete strength was investigated by Electrical Resistivity and Seismic Ultrasonic P and S wave velocities. For this purpose, 150x150x150 mm sizes of 3 different concrete designs of having low, medium and high strength properties were prepared for 9 of each reinforced and unreinforced cubic sample. Water cure and air cure were APPLIED on prepared samples. Seismic Ultrasonic P and S wave and Electrical resistivity measurements were taken on samples in specific time periods for 90 days. Also, strength of the 3 sample was determined by Uniaxial Compressive Strength test on 7th, 28th and 90th days. Multi-parameter relationships were established among to obtained strength results, seismic velocities and electrical resistivity. In addition, Electrical Resistivity, Seismic velocities of obtaining from P and S waves measurements at specific time intervals and concrete strength changes of different designs depending on the time were tried to put forward.

*This study was supported with OYP05277-DR-14 Project No. by SDU.

Keywords: Electrical Resistivity, Seismic Ultrasonic Method, Concrete Strength

RELATIONSHIP BETWEEN CHANGE OF WATER CONTENT AND ELECTRICAL RESISTIVITY METHOD IN THE CONCRETE

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Abstract:

In this study, determining of changes of water saturation of concrete was investigated by electrical resistivity method. For this purpose, 3 different concrete designs as low, medium and high strength 9 for each design unreinforced and including 20mm diameter of reinforcement of reinforced concrete cubic samples were prepared. After measuring the weight of the prepared samples, they were dried at 105 ° C for 24 hours in oven and then the dry weights were measured. Electrical Resistivity measurements were performed on samples on 7th, 28th, 41st, 56th, 65th, 72nd and 90th days and water contents were determined by measuring of weight. In addition to, strength of each of 3 samples was determined by Uniaxial Compressive Strength, and then arithmetic average of these samples was taken. Relationships were obtained among to the resistivity values, water content and compressive strength. In addition, Electrical Resistivity and concrete strength of obtaining from measured at specific time intervals and calculated water content values of changes in different designs depending on the time were tried to put forward.

*This study was supported with OYP05277-DR-14 Project No. by SDU.

Keywords: Concrete, Water Content, Electrical Resistivity Method, Strength, Time

THE EFFECT OF COMPUTER GAMES TO LEARNING PROCESS

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Abstract:

Computer games are special applications that are played against computer or another competitor(s) and need quick thinking, problem solving ability, practical intelligence, quick calculation, behaving logical etc. With all these properties, it is known that computer games are not only fun software but also they help people's learning, developing intelligence and affecting behaviours. Some computer games have contributions about people's developing learning abilities, learning about mathematics, foreign languages, computer languages, science, health applications and social sciences, economical concepts, cultural entities and physical behaviours.

Another important property of the computer games is its ability of developing intelligence. It cannot be denied computer games's contribution to think practically and quickly, making mathematical processes quickly and setting efficient algorithms. 2048, Sudoku, Tetris, Sokoban, chess, pelmanism games are applications who can develop linguistic and computational intelligence. There are many literature studies that investigate the occurrences in a human brain when he/she is playing/not playing a computer game and the effects of computer games to his/her brain. The usage of computer games with brain-computer interfaces – the neuropsychologic way who makes a direct connection between human brain and a similar external device – provide different results. Of course the effect of computer games on human is not limited with intelligence or learning but also it has some effects to human body with the hormones it provide to excrete.

In this study, these effect of computer games are investigated and some results are given about them.

Keywords: Computer Games, Learning

IMPLEMENTATION OF SPECIAL CASES FOR RSA ALGORITHM WHERE PLAINTEXT IS EQUAL TO CIPHERTEXT IN JAVA

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Abstract:

RSA is an asymmetric key cryptographic algorithm which is named after its inventors, Rivest, Shamir and Adleman. It is widely in use and it has an indisputable importance in cryptography. The security of this algorithm depends on the difficulty of factoring a big composite number where this composite number is the multiplication of two or more prime numbers. In this study, RSA Algorithm is introduced. The special cases, where plaintext is equal to ciphertext despite the enciphering process, are examined and implemented in Java by using graphical user interface. Thus, the unexpected cases, where RSA Algorithm cannot provide expected confidentiality of enciphering, are clearly indicated for the set of chosen prime number couples. With Java implementation of the cases of equality of plaintext and ciphertext, the importance of working with long prime numbers is also seen and the need for padding in such cases is proven Java.

Keywords: Rsa, Plaintext, Ciphertext, Prime, Enciphering

A CASE STUDY OF INSTALLATION OF A WIND POWER PLANT IN SINOP PROVINCE, TURKEY

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Abstract:

World energy demand is increasing very rapidly, and environmental issues such as the greenhouse effect and pollution are growing in importance. This situation incites the developing countries to benefit more efficiently from alternative energy sources. In parallel to this policy, Turkey as a developing country, is promoting the incentives and investments to the wind power conversion systems. Thanks to these investments, number of wind power plants (WPP) has been increasing in the country each passing day. In this study, Sinop Province in which has a remarkable wind power potential, is analyzed in terms of establishment of the WPP. Four years of hourly average wind speed data of the selected region is APPLIED to the Windsim software: annual energy production, capacity factor and also power and energy curves of selected wind turbines are obtained as output. The study shows that with 5 Vestas V90 commercial wind turbines, establishment of a WPP which has approximately 25 GWh/y annual energy production and %30 capacity factor is feasible.

Keywords: Renewable Energy Sources, Sinop Province, Wind Energy, Windsim, Wind Power Plant

MODELING OF PYROLYSIS PRODUCTS BY MULTIPLE-LINEAR REGRESSION MODEL

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Abstract:

Pyrolysis is probably the most commonly APPLIED conversion process in which biomass is heated to moderate temperatures in an oxygen free atmosphere to yield solid (biochar), liquid (bio-oil) and gaseous (gaz mixtures) products. The yield and quality of pyrolysis products depend on several parameters such as feedstock properties and pyrolysis process parameters. The particle size, porosity, humidity, ash and mineral content are typical feedstock properties while pyrolysis temperature, heating rate, residence time, sweeping gas flow rate, and catalyst type are process parameters. Modeling pyrolysis products by using the feedstock and pyrolysis process parameters as input through multiple-linear regression technique is relatively easy, produces acceptable results, and offers trying several scenerios at short time. In this study, after collecting 140 pyrolysis data from the literature, pyrolysis products (bio-oil, biochar or gas) were modeled by multiple linear regression using different feedstock and pyrolysis process parameters (particle size, temperature, sweeping gas flow rate, bio-oil, biochar, gas) as input. The 75% of the data were used for the model derivation and the remaining 25% were used for the model validation. The performances of the derivation and validation models were evaluated by using coefficient of determination (R2) and root mean square error (RMSE). Some of the models had higher performances compared to the others and some of the independent model parameters were significant, whereas the others were not in the modeling processes

Keywords: Pyrolysis, Bio-Oil, Biochar, Gas, Modeling, Multiple-Linear Regression

BIOFUEL PRODUCTION FROM MUNICIPAL SOLID WASTES BY FAST PYROLYSIS

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Abstract:

Municipal solid wastes (MSW) are problematic directly for surface and subsurface waters and indirectly for climate change because of the decomposition of biodegradable part of them, leading to the emission of greenhouse gasses. Nowadays, avoiding negative environmental impacts of biodegradable wastes and evaluate them as an energy source either for the protection of the environment and producing fuel / biofuel are widely discussed in the scientific researches. For this purpose, in this study, food with crop and forest wastes were used as the biodegradable waste material in the fast pyrolysis experimental system in order to investigate the effect of different parameters (biomass particle size, catalyst type, temperature, and reaction / pyrolysis time) on bio-oil yield and quality. GC-MS analyses were made to determine the compounds of the obtained bio-oil samples. Based on the study results, different experiments produced different amounts of bio-oil and biochar. The highest bio-oil yield was obtained in the experiment in which the biomass particle size was 1-1.5 mm, the temperature was 500oC, and reaction time was 15 minutes. Besides, it was observed that bio-oil yield increased incase of dolomite usage as a catalyst. GC-MS analysis results showed that bio-oil contained levoglucosan compound in the highest amount. Allose, which is a kind of sugar, was in the second highest amount in bio-oil. Heptanoic acid, butiric acid, and the other acids were observed in bio-oil.

Keywords: Energy, Renewable Energy, Fast Pyrolysis, Biomass, Bio-Oil, Bioenergy

STUDY OF TURKEY'S CRUSTAL STRUCTURE BY USING THE 3D SEISMIC TOMOGRAPHY METHOD

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Abstract:

In this study, a seismic tomography technique was APPLIED to arrival time data generated by 141889 crustal earthquakes in Turkey recorded by local seismic networks in order to study the 3-D velocity structures and their relation with seismic activities occurring in the study region. The relatively equal and large number of both P- and S-wave arrival times comprising a total of 500,000 arrivals and the uniform distribution of the recording stations imply that the obtained velocity anomalies are reliable features down to a depth of 50 km. The inversion results indicate the existence of strong lateral heterogeneities in the crust and uppermost mantle beneath along Turkey. Low-velocity anomalies are imaged the existing volcanoes and the active fault segments beneath the study area. Higher-than-average Poisson ratio are widely distributed indicating the possible existence of over-pressurized fluids that may be responsible for the triggering of the large crustal earthquakes along the tectonic zones. With obtained results, it is revealed the potential field caused deformation energy in the region. The obtained the velocity and Poisson ratios' values are consistent with previous geophysical measurements conducted beneath central Anatolia and give understanding of the current seismotectonic activities in this region.

Keywords: Crustal Structure, Seismic Tomography, Seismic Velocity Structure, Turkey, Poisson Ratio.

MOBILE PHONE BASED DRIVER INFORMATION SYSTEMS

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Abstract:

Intelligent Transportation Systems find solutions to provide the flow of resulting traffic with the increasing number of vehicles. Transportation arrangements and routing studies are supported by information, communication, automotive, electronic, computer etc. technologies. Monitoring of the environment, road and vehicle information are quite essential to ensure safe and regular a traffic flow. Mobile technology advancing rapidly in traffic communication systems being preferred in driver information system about the traffic environment with its developable and integratable features. In this study, mobile technology used in ITS is classified and researched the usage in driver information systems. iPhone and Android based applications are investigated. Drivers can obtain vehicle status information via the OBD-II with mobile device, can access road condition information through traffic management and control centers and can follow environmental information with internet and electronic road warning systems. Thus, early warning against the possible traffic accidents will be provided thanks to tracking many variables, such as condition of the car, road and information of the environment, by the driver with mobile phone.

Keywords: Dsrc, İntelligent Transportation System, Mobile Technology, Obd-İi, Smartphone, Traffic,Vanet.

DETERMINATION OF SOME RESISTANCE GENES AGAINST PSEUDOMONAS SYRINGAE PV. PHASEOLICOLA AND XANTHOMONAS AXONOPODIS PV. PHASEOLI IN TWELVE LOCAL BEAN VARIETIES

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Abstract:

Bean (Phaseolus vulgaris) is an important food and source of vitamin in the worldwide. It is preferred by people as different cooking forms in different cultures. Some bacterial and fungal diseases cause seriously losses in bean production and impend as nutrition and economical. In this study, we aimed determination of some resistance genes against two plant diseases (Pseudomonas syringae pv. phaseolicola and Xanthomonas axonopodis pv. phaseoli)in twelve local bean varieties (Aslan, Elinda, İstanbul, Bursa, Flash, Belluga, White cordinal, Beryl, Yunus 90, Göynük 98, Önceler 98, Eskişehir 855). We scanned four resistance genes (SR13, ST8, SH11 and SB10) for P. syringae pv. phaseolicola and six resistance genes (SAP6, BAC6, SU91, BC420, R7313 and R4864) for X. axonopodis pv. phaseoli. PCR amplifications were performed with specific SCAR markers for each resistance gene. PCR-amplified fragments were separated on 1.3% agarose gel containing ethidium bromide (0.5 µg/ml). Gels were visualized under UV light and digitally photographed. The obtained DNA bands were scored as present or absent for detection of resistance genes. For comparison, the virulence rates of two plant diseases against twelve bean varieties were obtained from our field results. We especially observed that two bean varieties (Aslan and Beryl) including four resistance genes against P. syringae pv. phaseolicola are more resistant to this disease in field. We showed analysis results for all resistance genes in twelve bean varieties and compared with resistance rates in field. The Data obtained from this study will seriously be conduce to improvement of resistant varieties against pathogens in bean production.

Keywords: Bean, Plant Diseases, Resistance Genes, Pcr, Scar Markers.

PERFORMANCE ANALYSIS OF GRAVITY CONCENTRATION METHODS AT NARROW PARTICLE SIZE FRACTIONS

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Abstract:

We investigated effects of the particle size distribution on the performance of gravity concentration methods used in mineral processing and measured the recovery differences between a whole size distribution and narrow size fractions. Three different gravity concentration methods (jig, spiral, and shaking table) were tested using two different artificial feed samples comprising Hematite (Fe2O3) and Quartz (SiO2) (Sample A), and Calcite (CaCO3) and Lignite (Sample B). The operational conditions followed typical INDUSTRIAL operational limits. The performance of the three methods was compared at narrow particle size fractions. The findings showed that the performance of all three methods increased with narrow size fractions. However, the jig method showed the strongest effect for both artificial samples, with recovery increases of 16.94% for Sample A and 21.60% for Sample B.

Keywords: Particle Size Effect, Performance Analysis, Gravity Concentration

ACCURACY ASSESSMENT OF COMMERCIAL GPS PROCESSING SOFTWARE AS A FUNCTION OF BASELINE DISTANCE AND OCCUPATION TIME: A CASE STUDY IN TURKEY

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Abstract:

This study investigates the accuracy of constrained adjustment of the two commercial GPS processing software with different length of baselines and occupation time. National Continuously Operating Reference Stations (CORS) also known as TUSAGA-Aktif was used to determine five different networks. Each network consists of four CORS stations. For each network, the same CORS station was taken as an unknown point and the others were taken as control points, and the unknown point's three-dimensional coordinates were determined with respect to the other three CORS stations (control points). The different networks provide the baseline distances, 50 to 465km, from control points to the unknown point. Five different occupation time were determined for the unknown point and three days of GPS data were processed for each network. Two commonly used commercial processing software, Trimble Spectra Precision Survey Office and Leica Geo Office, were used to perform the constrained adjustment to obtain final coordinates of the unknown point for each network. The difference between the Earth Centered Earth Fixed (ECEF) Cartesian coordinates (obtained after the constrained adjustment) and the already established ECEF coordinates of the unknown point were transformed to topocentric coordinates (north, east, up). The results show that three-dimensional millimeter level accuracy, up to 100km baseline, is possible for each commercial software. For the baselines more than 100km, several centimeter and in some cases decimeter level accuracy is obtained. The results also show that the longer occupation time does not always improve the accuracy especially for the baselines longer than 200km. The authors strongly recommend that in static relative positioning in Turkey, baseline distances between stations should not exceed the inter-station distances (~50-130km) of national CORS network if surveyors prefer to use commercial GPS processing software.

Keywords: Constrained Adjustment, Gps, Static Relative Positioning, Post-Processing

PVP-STABILIZED COBALT-PALLADIUM NANOPARTICLES-CATALYZED HYDROLYSIS OF HYDRAZINE BORANE FOR HYDROGEN RELEASE

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Abstract:

Due to the energy related environmental global problems, hydrogen is regarded as the best solution [1]. But, there has been a big problem: storage of hydrogen [2]. Lightweight boron containing compounds (sodium borohydride, ammonia borane, hydrazine borane, and so on) with high density of hydrogen have been extensively studied as promising solid chemical hydrogen storage materials over the last fifteen years [3]. Among those, hydrazine borane (N2H4BH3, HB) has 15.4 wt % of hydrogen that surpasses the US DOE targets [4].

In this study, PVP-stabilized cobalt-palladium nanoparticles have been prepared by co-reduction of cobalt and palladium ions in the presence of PVP as a stabilizer. They are characterized by TEM, UV-Vis spectroscopy, XRD, and XPS techniques. They provide average turnover frequency of 45 min-1 and activation energy of 50.6 ± 2 kJ/mol in the hydrolysis of hydrazine borane.

This study is supported by Research Fund of Yuzuncu Yil University (Project No: BAP-2014-DNZ-B202).

Keywords: Hdyrogen, Hydrazine Borane, Cobalt, Palladium, Nanoparticle

GROUNDED AND FLOATING REAL INDUCTOR SIMULATIONS AND EXPERIMENTATIONS USING SECOND GENERATION CURRENT CONVEYORS

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Abstract:

Current Conveyors (CC) are active circuit elements which perform analog signal processing. CCs were developed as an alternative to the classical Operational Amplifiers (OPAMP). Unlike OPAMPs, CCs are current-based and they operate according to the principle of 'current conveying' from one terminal to another. As a modified version of the First Generation Current Conveyor (CCI), Second Generation Current Conveyors (CCII) is versatile and useful in designing analog circuits such as filters, amplifiers, inductor simulators etc. In this paper, one grounded and one floating inductor simulator designs are given. These simulator designs are based on CCII's and passive elements like resistors and capacitors. Both inductor simulator designs are lossy and simulate real inductors that have internal resistance. The simulators simulate an inductance in series with an internal resistance. Since inductors are non-ideal, noisy, bulky circuit elements, it is reasonable to simulate their behavior under certain frequency range using CCII's as active elements. In this study, inductor simulators are created first by BJTs & passive elements in SPICE environment and created inductor simulators are tested in a Low Pass Filter (LPF) for a frequency range up to 10MHz. Moreover, both simulators are realized for experimentation using commercially available Analog Device's AD844's which can perform as a CCII & using resistors and capacitors. Realized inductor simulators are tested in the same LPF. The gain of the filter is measured for 15 different frequency values which are located between 10 Hz-10MHz. Finally, both SPICE simulation and experimental results are compared for the same LPF which is constructed using ideal inductor. It is concluded that a lossy, real inductor can be simulated up to certain frequencies by using CCIIs both in simulation environment and experiment.

Keywords: Second Generation Current Conveyors, İnductance Simulation, Current Conveying, Analog Design

USING CLUSTER ANALYSIS METHOD FOR MULTIVARIATE MAPPING

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Abstract:

Multivariate mapping is the graphic display of more than one variable or attribute of geographic phenomena. Multivariate mapping integrates computational, visual, and cartographic methods to develop a visual approach for exploring and understanding spatiotemporal and multivariate patterns. More than one attribute can be visually explored and symbolized using numerous statistical classification systems or data reduction techniques. In this sense, clustering analysis methods can be used for multivariate mapping. Cluster analysis is the process of grouping information in a data set according to specific proximity criteria. Similarity of element in the same cluster should be high and similarity between clusters should be low. Agglomerative Hierarchical Clustering method which is one of the clustering analysis methods was analyzed in this study. This hierarchical clustering method follows bottom-up strategy. In the beginning each object is accepted as a separate cluster. In each step of algorithm, similar clusters are agglomerated until they are producing a single cluster or allowing expected properties. Most of the hierarchical clustering methods are included in this category. In this study, classes and multivariate maps created with this method from traffic accident data of two different years in Turkey were presented. In addition usability of such maps in risk management and planning was discussed.

Keywords: Multivariate Mapping, Data Mining, Cluster Analysis, Visualization

EVALUATION OF VARIOUS MODELS BASED ON SUNSHINE DURATION TO ESTIMATE MONTHLY AVERAGE DAILY GLOBAL SOLAR RADIATION

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Abstract:

In this study, some empirical models based on sunshine duration in literature were evaluated for estimating monthly average daily global solar radiation on horizontal surface in Rize, Turkey. Data provided by Turkish State Meteorological Service relating to the time period of 2004-2009 were employed in the study and regression coefficients were determined for the used models. Selected models were compared by using the statistical methods of mean bias error (MBE), root mean square error (RMSE), mean absolute percentage error (MAPE) and coefficient of determination (R^2). The cubic model which proposed by bahel et al. showed high performance in estimating monthly average daily global solar radiation on horizontal surface in Rize, Turkey.

Keywords: Solar Radiation, Sunshine Duration, Empirical Models

ALTERATION OF VOLUME INCREMENT ACCORDING TO BASAL AREA AND SOCIAL STEM CLASSES ON BRUTIAN PINE (PINUS BRUTIA TEN.) PLANTATIONS IN BURDUR REGION

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Abstract:

In even aged stands, some trees may be higher crown layer, and others may be lower crown layer. Thus, social classes between trees were resulted in a stand. The distribution of trees for social tree class affects the quantity and quality of tree stock diversity, and the determination of this distribution is important for forest management. In this study, the distribution of social tree classification in Schadelin (1931) was obtained and also the effect of this distribution on thinning severity (light, moderate and heavy) and years (2007-2010) and stand volume increment was examined for an artificial and thinning Brutian pine (Pinus brutia Ten.) stands in 2006. The material was obtained from Ağlasun Forest Enterprise, Burdur Forest District Directorship. The results showed that better tree attributes in Shadelin gived higher average stand volume increments for artificial Brutian pine stands. Dominant and co-dominant trees constitute the largest part of the volume increment in a stand.

Keywords: Brutian Pine, Thinning Heavy, Volume İncrement, Social Stem Class.

INVESTIGATION OF RELATIONSHIP BETWEEN VACUUM LEVEL AND THERMAL CONDUCTIVITY IN VACUUM INSULATION PANEL

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Abstract:

In Vacuum Insulation Panels, the effect of vacuum level on thermal conductivity is known fact. However, the number of studies examining the relationship between the vacuum level and thermal conductivity in detail is limited.

In this study, the thermal conductivity coefficients of a uniform VIP core were investigated at 11 different levels of vacuum. Fumed silica, glass fiber and silicon carbide were used in the core production. The core was individually vacuum-packed at 11 different levels of vacuum, ranging from 10000 Pa – 0.1 Pa. Thermal conductivity measurements of VIP were carried out according to heat flow meter by Lasercomb Fox 314. As a result, the change in thermal conductivity of nano powder filled core was about 0.5 mW/mK at 100-0.1 Pa levels of vacuum.

Keywords: Vacuum İnsulation Panel, Vacuum Level, Thermal Conductivity

ANALYTIC HIERARCHY PROCESS EXTENDED WITH INTERNAL TYPE-2 FUZZY SETS TO ASSESS POTENTIAL ENVIRONMENTAL IMPACTS OF SHIP RECYCLING PROCESS

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Abstract:

Ship recycling is one of the core topics in maritime industry since the process has a great impact on the environment. Overage ships may contain environmentally hazardous substances that may severely affect human life and marine environment. Therefore, researchers have been perFORMING utmost effort by seeking creative solutions for protection of environment and improvement of safety standards in ship recycling industry. The purpose of this paper is to evaluate potential environmental impacts in the process of ship recycling. Thus, potential hazards which may seriously affect marine environment are analysed to enhance safety control level in ship recycling industry. To achieve these purposes, the paper takes benefit of analytic hierarchy process (AHP) extended with interval type-2 fuzzy sets (IT2FSs). Since AHP method is used for prioritizing the potential hazards that may impact on environment, the IT2FSs deal with more uncertainty and vagueness in the process of obtaining expert decision. Hence, the potential environmental impacts of ship recycling process can be evaluated. In conclusion, the paper outcomes encourage the maritime safety researcher and environmental protection agency to focus on the main points in terms of pollution prevention.

Keywords: İt2Fss, Ahp, Decision-Making, Ship Recycling, Maritime Safety, Environment Protection

INVESTIGATION OF SERVICE QUALITY IN E-COMMERCE WEBSITES WITH STRUCTURAL EQUATION MODEL

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Abstract:

This study examines the relationship between service quality and customer loyalty in electronic commerce websites. In this study, perceived service quality of customer who uses electronic commerce websites was determined according to the SERVQUAL scale. The purpose of the study is sorting the perceived quality factors and examinig the relationship between perceived quality factors and customer loyalty related to the usage of electronic commerce websites. Therefore, a survey consisting of 40 questions with four dimensions (activity, system compliance, operation realization and privacy) was applied.

The results of research show that there is a relationship between customer loyalty and customer satisfaction. Four dimesions of survey affect customer loyalty. Result of improvement has been demonstrated factors that influence customer loyalty and customer satisfacion.

Keywords: E-Commerce, Customer Loyalty, Service Quality.Sem

A NEUROMARKETING APPLICATION FOR THE TELEVISION COMMERCIAL OF A BANK

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Abstract:

In this study it was intended to apply a well known neuroscience technique into marketing, which is started to become commonly known as the field of Neuromarketing. The focus of the study is on how brain responds during the visualization of advertising movies. Using the electroencephalography (EEG) we will study the main brain regions being used during the presentation of the stimulus, and also the frequency bands to understand consumer's brain.

Keywords: Neuromarketing, Tv Commercial, Consumer Behaviour.

FORMING OF CARBON FIBER REINFORCED COMPOSITE MATERIALS BY USING OF STRETCH APPARATUS

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Abstract:

At shaping of composite materials that are obtained from woven fiber, except for filament winding method, all the techniques are carried out by the way fiber fabric is laid on a surface diagonally and then it is shaped. At the products produced with the method of laying fabric layers on a surface, a non-uniform structure between fiber and matrix material may occur. Long fibers that are laid freely cannot be placed is matrix material lineally. Therefore, when pressure is (loads are) APPLIED on the composite, force is not distributed to all fibers evenly. Thus, as some fibers exposed to more stress than others they are broken or deformed primarily. This situation results lower mechanical features for composite material than expected. Woven fabrics produced from the fibers will be formed by stretching fabric instead of laying on a surface freely. This stretching process will be performed by a stretching tool which is designed and manufactured. When the woven fabric is stretched by stretching apparatus, sealing problems has occurred in the vacuum bagging process. This problem solved by applying vacuum on leaking areas. In this way, when pressure (load) is APPLIED to composite material, pressure distributed evenly to all fibers.

Keywords: Composite, Woven Fabric, Stretching Fabric, Design Of Stretching System, Vacuum Bagging

AN APPLICATION OF CLUSTER ANALYSIS TO EVALUATE THE TRACE AND TOXIC ELEMENT ACCUMULATIONS IN SEDIMENTS OF MERIÇ, TUNCA AND ERGENE RIVERS (EDIRNE)

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Abstract:

The Meriç River is the most important aquatic ecosystem in Thrace Region of Turkey. Tunca and Ergene Rivers that are known to be exposed to an important organic and inorganic pollution are the most important branches of this significant lotic ecosystem. In this study, sediment qualities of these three important rivers were evaluated by using Cluster Analysis (CA). For this purpose, a total of 25 trace and toxic element levels (lithium, boron, sodium, magnesium, aluminum, potassium, calcium, vanadium, chromium, manganese, iron, cobalt, nickel, copper, zinc, gallium, arsenic, selenium, strontium, silver, cadmium, antimony, barium, titanium and lead) in sediment samples of Meriç, Tunca and Ergene Rivers were investigated. According to the results of element accumulations, the pollution levels of investigated aquatic ecosystems were found to be as; Ergene River > Meriç River > Tunca River in general. According to the results of elemental CA, 5 statistically significant clusters were formed, which were named as "most intense elements", "second most intense elements", "moderate intense elements", "second rarest elements" and "rarest elements". According to the results of locational CA, 2 statistically significant clusters were formed, which were named as "high contaminated location" and "moderate contaminated locations".

Keywords: Meriç River, Tunca River, Ergene River, Sediment Quality, Trace Elements, Toxic Elements, Cluster Analysis

A SOCIO – ECONOMIC REVIEW ON RICE PRODUCERS LIVING IN MERIÇ PLAIN (EDIRNE, TURKEY)

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Abstract:

The Meriç River is the most important aquatic ecosystem and water supply in Thrace Region of Turkey. Meriç Plain, which is being irrigated from Meriç River, is the largest and most productive agricultural land in Thrace Region. In the present study, social and economic structures of rice producers living in İpsala, Karpuzlu and Meriç regions were investigated by using some systematic data collection techniques and in accordance to the data obtained, a socio – economic assessment for the rice producers of the region was provided. According to the answers given by the agriculturalists, it is understood that there is a lack of confidence between the producers and governmental institutions or personalities. In the agricultural sector in Turkey, farmers mostly choose to sell their products to governmental institutions, but in Meriç Plain, we see that rice producers prefer to sell their products to private sector, like factories or traders in general. It was also determined that, they desired to see producers in cooperative managements, not any governmental personalities. And producers in Meriç Plain do not trust governmental institutions, they even mostly choose not to consult anyone. According to demographic results of the study, 90% of the producers are educated less than high school, so it can be thought by all the detected data that the general problem in the region is not only about the lack of confidence, but also about exaggerated self – confidence which causes from inadequate education.

Keywords: Rice Producers, West Thrace Region Of Turkey, Socio – Economic Assessment

A WEB BASED COMPLEX NETWORK SIMULATOR WITH TRANSITION FEATURES BETWEEN WELL-KNOWN NETWORK MODELS

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Abstract:

Complex networks present a remarkable framework for understanding the evolution of real complex systems. Modeling complex networks helps capturing the generic properties taking role in most of these real systems. Well-known network models capture some of the real network properties but imitating a real network completely is only possible with real ingredients like node-aging, fitness, linking cost etc. On the other hand, defining transitions between the well-known models may generate these ingredients like small-world property that outlined by Watts-Strogatz model. Inspiring from this exploration, we developed a web based modeling framework providing transitions between three well-known models as regular, random and Barabasi-Albert networks. Beyond giving opportunity of educating these models online, this software also outlines the transitional properties between this models, providing the outputs of clustering coefficient, average separation and degree distribution metrics.

Keywords: Complex Networks, Modeling, Scale Free Networks, Random Networks, Regular Networks.

PREDICTION OF PERFORMANCE AND EXHAUST EMISSIONS OF A DIESEL ENGINE FUELED WITH BIODIESEL BY USING LINEAR REGRESSION AND ARTIFICIAL NEURAL NETWORKS

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Abstract:

Recently, the use of biodiesel in diesel engines is intensively investigated due to its increasing share among the renewable energies and its TECHNICAL and environmental benefits making it attractive as an alternative renewable fuel for using in diesel engines. Therefore, a large number of experimental works, which are time-consuming and costly, have been performed to evaluate the behavior of biodiesel fuels in diesel engines. Alternatively, the machine learning (ML) methods can be used instead of a large number of experiments to predict engine parameters. Therefore, in this study, the prediction of the performance and emissions of a diesel engine fueled with biodiesel was performed by using ML methods such as linear regression (LR), which is polynomial characteristic, and artificial neural network (ANN), which is an iteration-based method. The experimental test results were obtained by using conventional diesel, biodiesel and their blends in a direct-injection diesel engine at constant engine speed under different load conditions. The fuel type, engine speed and load are taken as the input parameters, while the values of brake specific fuel consumption and emissions were used as the outputs. Fourth degree LR was APPLIED and the results were calculated by 7-folds cross-validation while generalized regression type ANN was employed. Mean R2 values were obtained as 0.70 and 0.92 by LR and ANN, respectively. Also, the mean absolute errors (MAE) were about 0.15 for LR and 0.23 for ANN. Although higher R2 values were obtained by ANN, MAE results showed that LR performed better than ANN in case of using less experimental data. This may be attributed to the ANN characteristic which needs much more samples to obtain better performance.

Keywords: Linear Regression, Artificial Neural Networks, Diesel Engine, Biodiesel

OBSERVATION OF NUCLEUS ANOMALIES IN ALLIUM CEPA ROOT CELLS EXPOSED TO MYCLOBUTANIL FUNGICIDE

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Abstract:

Myclobutanil (2-(4-chlorophenyl)-2-(1,2,4-triazol-1-ylmethyl)hexanenitrile) is a fungicide extensively used against Venturia inaequalis, Uncinula necator and Leveillula taurica. Myclobutanil is a chemical substance extensively preferred in production of greenhouse pepper, grape and apple. In tis study, we aimed to investigate potential nucleus anomalies on nucleuses of Allium cepa (onion) root cells exposed to Myclobutanil fungicide. We carried out different fungicide doses (10, 25, 50, 75, 100, and 150 ppm) on germinated A. cepa roots. Exposure times to fungicide were adjusted as 24, 48 and 72 hours. A. cepa root terminuses were prepared with squash preparation method. Root terminus cells were stained with 2% orcein dye and morphologies of cell nucleuses were investigated using light microscope with digital camera. The detected nucleus anomalies were digitally photographed for each doses and exposure time. Photograph analyses revealed that Myclobutanil causes some nucleus anomalies on A. cepa root cells depending on the increase in the fungicide dose and exposure time.

Keywords: Myclobutanil, Fungicide, Nucleus Anomaly, Allium Cepa

OBJECT-ORIENTED PROGRAM CONTROLLED ELECTROANALYTICAL BIOSENSING

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Abstract:

Biosensing devices which are made by the application of electronics to BIOLOGY and medicine are used in various areas such as medicine, agriculture, food and advocacy. As a prominent member of the biosensing family, electroanalytical sensors have the advantage of being able to operate in opaque mediums.

The minimal requirements to operate electrochemical sensors are a potentiostat and a PC with a particular software installed. However, the parameters of the APPLIED signal and the results are restricted by the limits of the hardware and the software. The system structure can become more flexible and capable by using a custom circuit design instead of a commercial potentiostat device. However, it will require a signal generator and an oscilloscope to supply the triggering signal and measure the resulting current flow through the sensor. Such a complex system cannot be a practical and cost-effective solution.

In this paper, a system designed to control an ultra-sensitive electroanalytical sensor is explained. The software, programmed in LabVIEW platform, controls the potentiostat circuit via the acquisition device and presents the relevant data on the PC screen. The design which has a graphical interface gives the data in a ready to use format thanks to the additional analytical units.

The system, which improved the controllability and usability, made it possible to run more efficient and faster tests on new sensor designs with less cost. Monitoring both input and output data on a single screen enables to perceive the errors during the experiments instantly and eliminates the frequently encountered time losses. In the following stage, the design will be modified to control the surface acoustic wave (SAW) unit which works as an effective sensitivity enhancing unit.

Keywords: Biosensor, Electroanalysis, Labview

STUDY ON THE EFFECT OF THE MECHANICAL VIBRATION ON SOLIDIFICATION IN PROCESS OF A356 ALUMINUM ALLOY CASTING

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Abstract:

Metal and almost all of its alloys are liquid in a phase. Materials can be APPLIED in cases of solidified, heat treatment or mechanical processing. Therefore, the materials working performance and the solidification process in physically relevant time are very important.

The design resulting of the Cast aluminum-based alloy solidification process affects all of the mechanical properties and also needs other process to obtain the desired properties. In particular, the design in any particle size and shape can be controlled by solidification. Once reactant liquid aluminum alloys generally melting pot the grain refining thinners make heterogeneous nucleation centers and play a role in creating the design in a more fine-grained one. It has been long known that grain refining process increase the fluidity of the aluminum alloy, provides better nutrition, provides a more porous formation of a structure, improve the mechanical properties, provides a better fatigue resistance, which increases the leakage resistance and also has a better nutrition. Additionally to Grain refining under casting aluminum alloys many other methods are available to such as; mechanical vibration casting, electromagnetic interference during solidification and curved cooling plate casting.

In this study, it is going to be aimed to make available the A356 aluminum casting alloy solidification under varying intensities of vibrations. So without vibration and changing intensities vibration A356 alloy is going to be characterized and all the features will be determined both microstructures and mechanical aspects after the casting. This study includes sand mold casting, microstructure analysis, density measurement, analysis and mechanical testing methods and SEM images. At the and of this research it is expected that with the increasing rate of the vibration and with also the breaking of the dendrites structure inside the aluminum alloy, a more fine - grained structure will be occur.

Keywords: Aluminium Casting, Grain Refinement, Mechanical Vibration.

COMPARISON OF GPS-TEC MEASUREMENTS WITH IRI-PLAS AND IRI-2012 MODELS OVER A MID-LATITUDE STATION, MADR, SPAIN

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Abstract:

The International Reference Ionosphere (IRI) is an empirical model for specifying ionospheric parameters such as electron density, total electron content (TEC), electron and ion temperature, etc. IRI model specifies the ionosphere only up to 2000 km. In order to extend the IRI for the plasmasphere, IRI PLAS model was proposed by the researchers. Besides such empirical models TEC values can be generated using GPS measurements. In this study TEC prediction performance of IRI model, IRI-PLAS model and GPS over a mid-latitude station (MADR) in Spain, was examined for the magnetically active (09.03.2012) and quiet (02.06.2015) ionospheric days. The results exhibit good agreement among GPS-TEC, IRI-PLAS and IRI-2012 models for the quiet day. However, they are not relatively high in most part of the active day, in some part of the day (e.g. 13 UT) differences reached 13 and 15 TECu levels for GPS-TEC / IRI-PLAS and GPS-TEC / IRI-2012 respectively.

Keywords: Gps, Total Electron Content, İri-2012, İri-Plas

IMPLEMENTATION OF MESSAGE SYMMETRY OBSERVATIONS OF SPECIAL CASES IN RSA ALGORITHM WHERE PLAINTEXT EQUALS TO CIPHERTEXT IN JAVA

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Abstract:

RSA is an asymmetric key cryptographic algorithm which is named after its inventors, Rivest, Shamir and Adleman. The security of this algorithm depends on the difficulty of factoring a big composite number where this composite number is the multiplication of two or more prime numbers. In this study, the special cases in RSA Algorithm, where plaintext is equal to ciphertext despite the enciphering process, are briefly introduced and implemented in Java by using graphical user interface. With Java implementation of the cases of equality of plaintext and ciphertext, observations of the occurance of message symmetry are indicated for the set of chosen prime number couples and implemented in Java. Beside implementing the cases of equality of plaintext and ciphertext, this study focuses on the symmetry between message values of these special cases in RSA.

Keywords: Message, Plaintext, Ciphertext, Equality, Symmetry, Enciphering

WOMEN EDUCATION IN TURKEY

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Abstract:

Women has a significant role in society that should not be omitted as women are the ones who gives birth, educate the children and provide the nations' ongoing future. However, in some societies women are thought to be the second-class citizen and have no right to have the same education standards as men.Although, some steps were taken in Turkey to educate women, women education was not appropriately possible until after the foundation of Turkish Republic. Today, thanks to the foundation of Turkish Republic women can receive a good education.However, there is a long way for Turkey to provide and support equality in education between men and women. Thus, in this study, women education during Ottoman Empire period and legal arrangements about Turkish women by Atatürk's modernization will be emphasized.

Keywords: Ottoman Empire, Society, Turkey, Women Education.

BLACK BOX APPLICATION IN ROAD TRANSPORTATION

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Abstract:

Traffic accidents occurring in the world is getting increased every year. As a result of these accidents, the number of people killed and injured is quite a lot and property damages are emerging as well. The systems that are used in aircraft and on ships are called data recorder or black box record the required data which is needed to expose the reasons of an accident. However, applications which are recorded in the road vehicle in case of possible accidents are not available. In this study, black box application is performed at vehicles used in road transportation. Vehicle data are monitored by providing access to electronic Control Unit of vehicle through the OBD-II diagnostic device. In order to record data, camera that is placed in the vehicle and GPS systems can be used in addition to ECU data. It is possible for a driver to follow the vehicle's ECU data and also it is possible to record the data which comes from standart OBD-II port that provides access to engine, sensor and chassis data, compulsory in all the vehicles 1995 model and upper. It is foreseen that vehicle faults, cause a possible accident, can be predicted beforehand and may enlighten unidentified traffic accident.

Keywords: Dsrc, İntelligent Transportation System, Mobile Technology, Obd-İi, Smartphone, Traffic,Vanet.

A STUDY ON SUSTAINABLE AGRICULTURE PRACTICES IN TURKEY

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Abstract:

In recent years, AGRICULTURAL sector has mainly been affected by the rapid improvement of technological change, and hence, the use of intensive technology in agriculture raised AGRICULTURAL productivity. Moreover, AGRICULTURAL land is decreasing due to industrialization and urbanization. Another problem is soil erosion. This AGRICULTURAL land is decreasing day by day. There are a total of 13 003 million hectares of land in the world, and 4 911 million hectares agriculture area. On the other hand Turkey has 77 million hectares land area and 38.3 million hectares agriculture area. To avoid the problem of hunger and poor nutrition, AGRICULTURAL lands should be protected both for the World and Turkey. In this study, the sustainable agriculture is taken in hand the agriculture land on the problems and solutions are discussed for Turkey.

Keywords: Sustainable Agriculture, Soil Pollution, Environment

SOME MECHANICAL AND PHYSICAL PROPERTIES OF PLUM FRUIT

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Abstract:

Exploration in the determination of physical and MECHANICAL properties of plum fruit; a total of 18 Da, built in an area and plum of fruit in (Prunus cerasifera Ehrh.) situated manufacturer in the garden in the town of Aydın in Umurlu three different harvest period (April 15 May 15 to May -1) was carried out. This study aimed to determining the physical and MECHANICAL properties of plums, during different harvest period moisture content, fruit length, width, thickness, geometric mean values of diameter, sphericity, shape index, bulk density, true density, mass, porosity, projection area, and some physical features detachment force compression behavior under load and damage in different situations, such as falls from heights on different surfaces were some of the MECHANICAL properties. The first harvest from the last harvest until the fruit weight and size were generally tends to increase. Plum of fruit mass of 5.491 g with 20.028 g for (throughout) the harvest period, fruit length of 22.92 - 30.01 mm, fruit width 20.84 - 28.88 mm, thickness 20.28 - 27.54 mm, shape index were found between 1.11 - 1.09. Moisture range is 15.22% with 20.86% of the range, bulk density during the harvest period 359.30 mm3 with 278.88 mm3 decreases from and true density increased during the harvest period. Plum of fruit in different harvest periods 0.5 m -1.5 m - 2.5 m in height when he was thrown from injury volume was measured respectively, 0186 mm3, 0.452 mm3, 0.836 mm3. With the increasing height of fall generally have increased sensitivity to shock damage. According to this study the deformation of the second harvest period (1 May); the other two harvest period (April 15-May 15) was determined to be less than.

Keywords: Plum, Harvest Period, Physical Properties, MECHANICAL Properties

EXPERIMENTAL STUDY ON EFFECTS OF DIE GEOMETRY AND TEMPERATURE ON LIMIT DRAWING RATIO

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Abstract:

Accurate determination of process parameters are important in deep drawing. The aim is to draw faultless and HIGHER cups in one step. Thus, the Limit Drawing Ratio (LDR) is very important parameter for deep drawing process. The objective of the present study is to determine the effects of the die face angle and FORMING temperature on the Limit Drawing Ratio (LDR) and wall thickness of AA5754-O Al-Mg alloy in deep drawing dies. For this, die surfaces were formed in four different angles -- 0°, 5°, 10° and 15° -- and experiments were conducted at room temperature, 100°C, 175°C, and 250°C. In experiments, the die cavity was kept stable at 1.35 mm, MoS2 of HIGH temperature, HIGH compressive strength, and low friction coefficient was used as lubricant. As a result, it was determined that LDR increased from 2.14 to 2.80 when at optimum temperature and die geometry was used. It was observed that the effect of die geometry on wall thickness is limited and the effect of temperature is relatively more significant.

Keywords: Warm Deep Drawing, Limit Drawing Ratio, Die Geometry, Wall Thickness

A NOVEL TOOL FOR MINING ACCESS PATTERNS EFFICIENTLY FROM WEB USER ACCESS LOGS

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Abstract:

Almost all computer and information systems keep the records of transactions performed. These records can be utilized for many purposes such as detecting a web based attack, solving juridical cases, reconstructing electronic commerce web sites to develop product pages according to user behavior, and improving web APPLICATION performance. On the other hand, log files store a great deal of information and it is not easy to process them. In this regard, the purpose of this study is to develop a new software tool which shows HIGH performance in pruning web user logs stored in different forms on web servers. Using this tool, access log files can be quickly processed and unnecessary data can be removed. In this way, useful data can be obtained from access logs for information extraction and pattern analysis. Using this useful data, web designers and web administrators can improve their websites.

Keywords: Web Usage Mining, Log Analysis, Web User Access Logs, Software Development, İnformation Extraction.

SPECTRUM OCCUPANCY MEASUREMENTS FOR TERRESTRIAL TV BANDS IN TURKEY

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Abstract:

Wireless communication APPLICATIONs which demand broadband have increased intensively. This situation has revealed that the electromagnetic spectrum has been a very valuable and finite resource. Cognitive Radio (CR) is seen as a solution to provide growing requirement and eliminate spectrum scarcity. Especially, determination of CR standards such as Wireless Regional Area Network (WRAN), IEEE 802.19 has boosted interest in the VHF and UHF TV bands. This paper presents spectrum occupancy measurement results for VHF (174-230 MHz) and UHF (470-790 MHz) frequency bands in an outdoor environment both suburban and urban locations in Konya, Turkey. Average occupancy results for urban areas for VHF and UHF bands are 18.07 %, and 11.17%. On the other hand, these results for suburban area are 9.80%, 10.84% respectively. The obtained results show that TV bands are leading candidate for implementation of CR.

Keywords: Spectrum Occupancy Measurement, Spectrum Monitoring, Cognitive Radio, Uhf-Vhf Tv Bands

A NEW MAPPING APPROACH FOR IDENTIFICATION PROTEIN CODING REGIONS IN DNA SEQUENCES

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Abstract:

Symbolic signals such as DNA sequences cannot be directly processed with digital signal processing (DSP) TECHNIQUES. The only way to apply DSP in genomic FIELD is the mapping of DNA symbolic sequences to NUMERICAL sequences. In literature many TECHNIQUES have been developed for NUMERICAL representation of DNA sequences. They can be classified into two types, Fixed Mapping (FM) and Physico Chemical Property Based Mapping (PCPBM). Combinations that occur by the joining together of the bases of a DNA sequence, correspond to a gene in the DNA sequence and RNAs are synthesized from these genes. Each amino acid in protein synthesis is encoded by three nucleotides. These trinucleotide in the DNA are called “Code”, that are encoded amino acids. If they in the RNA are called “Codon”. There are 64 types of codons in the RNA.

In this paper, a new mapping approach has been proposed for converting string to NUMERICAL values. Each codon is mapped by improved fractional derivative of Shannon equation in this approach. Our approach has showed significant improvement in identification protein coding regions as compared with the existing TECHNIQUES.

Keywords: Codon, Exons, İntrons, Dna Sequence, NUMERICAL Mapping, Entropy

A WIDE BAND METASURFACE POLARIZATION CONVERTER DESIGNED BY THREE NESTED RECTANGULAR RESONATOR

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Abstract:

In this study, we design a wide band polarization converter metasurface (MS) structure to convert linearly polarized signal into circularly polarized signal. We calculate the results at C band microwave regime both NUMERICALly and experimentally. The proposed MS structure is periodically designed by using planar technology. The unit cell of MS consist of three nested rectangular resonator which has two metallic patches at its crossed corners. NUMERICAL results are achieved by full wave a commercial electromagnetic solver simulation software. And this results are confirmed by experimental results by using a vector network analyzer and two microwave antennas. S-parameters are obtained by co-polar and cross-polar responses and the axial ratio (AR) calculated by division of these two responses. AR is kept in below 3 dB to obtain effective polarization conversion activity. Proposed MS has two dip points which occur perfect polarization activities at about frequencies of 4.7 and 4.8 GHz. Axial ratio bandwidth (ARBW) is about 800 MHz between frequencies of 4.60 GHz and 5.40 GHz. Since circularly polarized signals are not affected by weather conditions or ionosphere effects abnormally, the proposed structure can be used by some weather radars and satellite communication APPLICATIONs. In addition, The MS can be fabricated easily, configurable for desired frequency range and integrated antennas which is compatible its surface.

Keywords: Metasurface, Polarization Conversion, Axial Ratio, Axial Ratio Bandwidth

METASURFACE POLARIZATION CONVERTER DESIGNED BY HORIZONTAL AND CROSS LINES IN C BAND

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Abstract:

We present a metasurface (MS) polarization converter to transform linearly polarized signal to circularly polarized signal at a certain frequency range both NUMERICALly and experimentally. The unit cell consists of horizontal and cross lines placed in a rectangular loop. Simulated results are performed by a commercial full wave electromagnetic (EM) solver simulation software and these results are in a good agreement with experimental results which are achieved by a PNA-L vector network analyzer and two microwave horn antennas. The axial ratio (AR) is main parameter to determine polarization conversion quality in reference to AR < 3dB. AR is calculated by division of transmission ratios which are co-polar and cross-polar responses. Frequency range of effective polarization conversion activity is about at 600 MHz (i.e. axial ratio bandwidth (ARBW) is 600 MHz) from 3.8 GHz to 4.4 GHz and within this frequency band AR is below 3 dB. Also, at about frequencies of 4.10 GHz and 4.22 GHz, perfect polarization conversion is obtained. It is more reliable to use a circular polarization than a linear polarization because linear polarized signals are affected negatively from Faraday rotation force in the ionosphere, but circularly polarized signals are not affected from this anomalies directly. Thus, the suggested MS polarization converter can be used for some weather and airport surveillance radar and satellite APPLICATIONs. In addition, the proposed structure is reconfigurable for any desirable frequency bands.

Keywords: Metasurface, Polarization Conversion, Axial Ratio, Axial Ratio Bandwidth

ASSESSMENT OF WIND SPEED FORECASTING MODELS FOR WIND ENERGY CONVERSION SYSTEM

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Abstract:

In recent years wind power generation has experienced a very fast development in the whole world. The wind speed and wind generation forecasting are of extreme importance to aid in the planning studies and scheduled operation of wind energy conversion systems. Consequently, the wind speed forecast for the wind energy sector is essential due to the following reasons, wind farms unit maintenance , for electricity bidding, to schedule the power generators, to plan and schedule energy reserves and storage. Several methods have been proposed for wind speed prediction. One them is statistical models concentrate on capturing the relationship between historical measurements and future outputs with statistical models, whose parameters have to be estimated from available data. These models rely on the previous wind patterns over time and extrapolate the future patterns. Many statistical models have been proposed in recent years, such as autoregressive, moving average, and autoregressive moving average algorithms, and the persistence approach, time series analysis, artificial neural networks, hybrid models which are wavelet artificial neural network and emprical mode decomposition-artificial neural network. In this paper, time series analysis, artificial intelligent methods and hybrid methods for wind speed forecasting are explained.

Keywords: Wind Speed, Forecasting, Wind Energy

WIND SPEED MODELING USING TWO-PARAMETER WEIBULL DISTRIBUTION FOR POTENTIAL ANALYSIS

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Abstract:

Globally fossil resources have very wide APPLICATION area. The reason that fossil fuels used for meeting the energy need shall run short together with the fact that they are harmful for the environment leaded the path for a search of new energy sources worldwide and renewable energy sources have gained importance in this respect. Wind energy conversion systems are chosen based on wind speed potential analysis of a region. Wind speed modeling plays a critical role in wind related ENGINEERING studies. Frequency distribution of wind speed can be displayed different distributions such as Gamma, lognormal, Rayleigh and Weibull. Two-parameter Weibull distribution is used to model of many regions of the world wind speed in recent year. The reason of using this method is very good fit wind distribution. In this study is presented assessment of wind speed modeling for wind energy conversion system based on two parameter Weibull distribution. Fitting of wind distribution is shown sample wind speed data.

Keywords: Weibull Distribution,Wind Energy, Potential Analysis

NATURAL ANTIOXIDANTS REDUCES TO OXIDATIVE STRESS IN TESTIS OF HYPERTENSIVE RATS

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Abstract:

There is an association between hypertension and reproductive dysfunction. Angiotensin II (Ang II) is involved in the pathogenesis of hypertension and the regulation of reproduction. The present study aimed to determine whether effects to reproductive function through natural antioxidants like propolis, CAPE and pollen of hypertension induced by No-nitro-L-arginine methyl ester (L-NAME) in male rats. In the testis of hypertensive rats were examined catalase (CAT) activity, malondialdehyde (MDA), Total protein and Total RNA levels. L-NAME for 28 days and the propolis, CAPE and pollen for the last 14 days with L-NAME together were given to rats. L-NAME (40 mg/kg, intraperitoneally), NOS inhibitor for 28 days to produce hypertension, propolis extract (200 mg/kg/days, by gavage), CAPE (50 µM/kg/days, intraperitoneally) and pollen extract (100 mg/kg/days, by gavage) the lastest 14 of 28 days were given to rats. L-NAME led to a significant increase in blood pressure (BP) compared to the control group. BP of rats with propolis, CAPE and pollen treatment to L-NAME-administrated rats statistically significantly reduced compared to L-NAME group. BP levels in plus to pollen group were determined at lower levels compared to plus to CAPE and propolis groups ($P<0.05$). CAT activity of L-NAME group significantly decreased ($P<0.05$), but these levels were HIGHER found in L-NAME plus to propolis, CAPE and pollen groups compared to L-NAME group. MDA, Total protein and Total RNA levels in L-NAME group increased ($P<0.05$), but these parameters were lower ($P<0.05$) in propolis, CAPE and pollen treated groups plus to L-NAME compared to L-NAME group ($P<0.05$). These findings have potential implications for adverse effects to reproductive function during hypertension. But, seem to contribute to decreasing of spermatogenic and sexual dysfunctions with administrating of natural agents.

Keywords: L-Name, Propolis, Pollen, Cape, Testis, Cat, Mda, Total Protein. Total Rna

PREDICTION OF SURFACE ROUGHNESS IN MILLING COMPACTED GRAPHITE IRON WITH ARTIFICIAL NEURAL NETWORK AND REGRESSION ANALYSIS

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Abstract:

In the present study, it was investigated machinability of compacted graphite iron by using various lead angles and chip thickness and cutting speeds. Analytical models were developed for the prediction of surface roughness (Ra) values after face milling process. Experimental results have been modeled by using artificial neural networks and variance (ANOVA) analysis results and developed a prediction model. A comparison of ANN model with regression model is also carried out. Variance analysis results showed that a strong correlation between the lead angle, chip thickness and surface quality. The surface roughness values were improved while increasing the lead angle value from 45° to 88° in dry and wet milling of compacted graphite iron. The experimental results showed surface quality was improved between 3.0% - 38% at the all lead angles when cutting oil was used in the experiments.

Keywords: Compacted Graphite İron, Lead Angle, Face Milling, Surface Roughness, Artificial Neural Network, Regression Model.

COMPARISON OF EGM08 BOUGUER GRAVITY WITH GROUND SURVEY: A CASE STUDY IN WESTERN ANATOLIAN REGION, TURKEY

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Abstract:

In this study, using some predictions, the EGM08 Bouguer Gravity data were evaluated with the Bouguer gravity data which were ground survey of Western Anatolia. The study FIELD includes graben, fault systems and various GEOLOGICAL units. Topographic height is so changeable and terrain is so hilly over the FIELD land. Firstly, the upward continuation method was APPLIED on EGM08 Bouguer gravity data for different level. Thus it was determined that the EGM2008 Bouguer gravity data came close to ground Bouguer gravity data. After, it was obtained horizontal derivative (y-directional derivative) of APPLIED upward analytical continuation EGM08 Bouguer gravity data. According to the derivatives, the grabens and faults were more visible. As the last step, the graben boundaries, faults and information of different GEOLOGICAL units were determined using tilt angle method. Consequently, all APPLICATIONs for EGM08 Bouguer gravity data and ground survey Bouguer gravity data were compared.

Keywords: Egm2008, Upward Continuation, Bouguer Gravity Data, Fault.

LANDSCAPE PLANNING ON HIGHWAY DESIGN IN BILECIK REGION

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Abstract:

The negative affects of technology that grows rapidly is emerging that's irresponsible consumption of natural resources and in the form of pollution or degradation of nature.In this study we focussed landscpe planning about HIGHway design parameters in BILECIK region. BILECIK has a Mediterranean climate near the borderline of the continental climate with cold and often snowy winters and hot and dry summers. In developing countries, tourism, cultural and socio-economic structure in terms of HIGHway is too important. HIGHways pass through without disturbing the landscape, in harmony with it, can respond to the needs of modern traffic and tourism must be in order.

After the HIGHway opened to traffic, HIGHway landscape, but with the route selection process should be addressed. In this reason construction of HIGHways, the landscape is considered to be an important element of the visual and environmental values in terms of taking into account the driver must be provided. Moreover, HIGHway and slope planting work (type selection and planting method) to the principles of landscape planning should be exercised. As a result of this study, we examined studies conducted in HIGHway landscape design in BILECIK region and there have been proposed about these designs in BILECIK region.

Keywords: BILECIK Region; HIGHway Design; Landscape Planning

AN INVESTIGATION OF THE USABILITY OF CURCUMIN-LOADED SOLID LIPID NANOPARTICLES RADIOLABELLED WITH TC-99M AS IMAGING AGENT

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Abstract:

Recently nanotechnology has come up with the most promising approaches in the struggle against various diseases, especially cancer. SLN is one of the colloidal drug delivery systems that have been developed to deliver anticancer drugs as well as liposomes and polymeric nanoparticles. The aim of the present work was to prepare drug loaded SLN (C-SLN) with use of curcumin as a model drug and to investigate the feasibility of using as imaging agent of these particles in scintigraphy.

Curcumin-loaded solid lipid nanoparticles (C-SLNs) were prepared using micro emulsion and ultrasonication methods in the first stage of this study. It was concluded that the curcumin that was encapsulated in solid lipid nanoparticles had a β' polymorph structure according to the X-ray diffraction (XRD) analysis. İt was concluded that these particles were at nano scale according to the laser diffraction (LD) analysis. Fourier transform infrared spectroscopy (FT-IR) analysis suggested an interaction between the curcumin and the solid lipid matrix, and the curcumin was loaded on the solid lipid nanoparticles. Moreover, the particles were concluded to be spherical and at nanoscale according to the scanning electron microscopy (SEM) and transmission electron microscopy (TEM) images.

C-SLNs were labeled with Technetium-99m (99mTc) radioisotope in the second stage of the study and then using scintigraphic methods in-vivo studies were performed on New Zealand rabbit. After analyzing the images and the biological distributions obtained from the experiments, uptake was observed in the liver and the spleen.

Following from the experiment results, 99mTc-labeled C-SLNs was concluded to be a possible imaging agent. In particular, it could be a new radiopharmaceutical alternative to 99mTc-labeled compounds that are used in liver and spleen imaging in colloid scintigraphy.

Keywords: İmaging, Curcumin, Solid Lipid Nanoparticles, Radiolabelling, Scintigraphy

EFFECT OF SELF COMPACTING CONCRETE COMPRESSIVE STRESS PROPERTIES WITH DIFFERENT FILLER MATERIALS

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Abstract:

Self compacting concrete is the production of technological type of concrete. Different conditions effect the variable changeable values of self-compacting concrete. In this study it has been researched effect of strength with filler MATERIALS on self-compacting concrete.

Mainly, in this research has been worked on effects of different filler MATERIALS on compressive strength. Experiments studies have been prepared three type of concrete mixes which are contained marble powder, fly ash and stone dust. IN addition the same concrete mixes have been prepared and in these mixes spreading in slump flow time in 50 cm diameter give significant values on fresh concrete.

Finally, we determined effect of self-compacting concrete compressive strength with different filler MATERIALS and is worked to research the HIGHest strength mix for the mixes of self-compacting concrete

Keywords: Marble Powder,Fly Ash, Self Compacting Concrete, Pozzolanic Fillers And Porosity

RELATIONSHIPS BETWEEN EC, PH AND SAR WITH CATIONS AND ANIONS RELATED TO SALINITY IN GROUNDWATER: A CASE STUDY OF AMIK PLAIN

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Abstract:

In this research, Relationships ELECTRICAL conductivity (EC), pH and sodium adsorption ratio (SAR) between cations (Na, K, Ca, Mg) and anions (CO3, HCO3, SO4 and Cl) related to salinity in the groundwater of Amik Plain. For this purpose, EC, pH, Na, K, Ca, Mg, CO3, HCO3, SO4 and Cl were determined in a total of 94 groundwater samples. Then SAR values calculated from Na, Ca and Mg values. Afterwards, the relationships EC, pH and SAR between Na, K, Ca, Mg, CO3, HCO3, SO4 and Cl values were examined by simple and multiple linear regression analyses and regression equations were developed between these data. In the most regression analyses, intercept values and coefficients of regression equations which were determined between the above mentioned groundwater were found to be significant at 0.01 levels. In Some multiple regressions, 95-97% of variation of dependent variable results from independent variables. This has shown that those equations can be used in the APPLICATION. In other words, once one of these properties is determined, the other property can be calculated using those equations. In Some multiple regressions, 15-25% of variation of dependent variable results from independent variables. These equations cannot be used in the calculations. In addition, according to ANOVA test results, relationships between variables were found to be statistically significant ($p<0.01$).

Keywords: Groundwater, Regression, Use Of Regression Equations, Groundwater Salinity

APPLICATION OF THE ETHDR METHOD ON AEROMAGNETIC DATA: A CASE STUDY WESTERN OF BITLIS, TURKEY

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Abstract:

Edge detection and edge enhancement TECHNIQUES play a crucial role in interpreting potential FIELD data. There has been various edge detection TECHNIQUES APPLIED to magnetic data in order to delineate the edges of subsurface structures in geophysics. The edge detection methods comprise analytic signal, total horizontal derivative (THDR), theta map, tilt angle, hyperbolic of tilt angle (HTA), normalized total horizontal gradient (TDX) and normalized horizontal derivative (NTHD). This paper applies an enhanced total horizontal derivative of the tilt angle (ETHDR) method for comparison results with the other edge detection filters. The sufficiency of the ETHDR method is indicated using theoretical models and FIELD study. Compared with the formal methods, the ETHDR filter more detailed outcomes for buried models and is less sensitive to noise. Aeromagnetic anomaly of Bitlis Zagros suture zone (BZSZ) and its surroundings was used for FIELD data. In first stage, the discontinuities were not found to be recognizable in the results of boundary analysis methods. Then, pole reduction and upward continuation (5 km) were APPLIED to the aeromagnetic data for revealing the deeper effects on data. The same boundary analysis methods were APPLIED after pole reduction and upward continuation. The results were compared to each other and the anomalies were associated with the GEOLOGICAL units and faults.

Keywords: Edge Detection, Pole Reduction, Upward Continuation, Ethdr, Bzsz.

RETROTRANSPOSONS AS MOLECULAR TOOL FOR MOLECULAR CHARACTERIZATION OF TURKISH TOBACCO POPULATION

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Abstract:

Landraces of tobacco represent valuable genetic resources for breeding new varieties with better adaptation and HIGHER yield. To date, tobacco genetic resources have not been characterized using molecular markers in Turkey and negligible efforts have been done to use local landraces in TURKISH tobacco breeding program. Therefore, it is utmost important to identify diverse parents for hybridization program. Transposable elements, particularly the retrotransposons, comprise much to most of plant genomes; their replication generates genomic diversity and makes them an excellent source of molecular markers. In this study, we used iPBS retrotransposons markers for genetic diversity assessment of 96 tobacco landraces representing various geographical plateaus of Turkey. Very low genetic diversity was harbored by tobacco landraces using retrotransposons markers. A total of 112 bands were amplified with 11 retrotranspons primers with an average of 10.18 bands per primer. PIC value ranged from 0.23 to 0.89 with an average of 0.42 per primer. It was evident that tobacco landraces from the same geographical region were often placed in different groups in the neighbor joining analysis, indicating that grouping based on genetic parameters was not closely related to the geographical origin. The population structure was determined by using STRUCTURE software, and three populations at K = 3 were identified among landraces. Our data also suggested a role of iPBS-retrotransposons as 'a universal marker' for molecular characterization of tobacco germplasm.

Keywords: İpbs Retrotransposons, Genetic Diversity, Landraces, Turkey, Population Structure

INVESTIGATING THE EFFECTS OF OBSTRUCTIVE SLEEP APNEA ON EEG SIGNALS BY USING BISPECTRAL ANALYSIS

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Abstract:

This paper describes a new technique to analyze the EEG signal and recognize the EEG signal characteristics of obstructive sleep apnea (OSA) by using bispectral estimation before, during and after an OSA. The polysomnograms of 44 OSA patients were analysed. Identified 9000 OSA signal samples were used for the experiment. Bispectral analysis is an advanced signal processing technique that quantifies quadratic nonlinearities (phase – coupling) among the components of a signal. Results show that after an OSA the delta, theta, alpha, beta and gamma waves of EEG exhibit HIGHER degree of phase coupling phenomena than during and before OSA. The results could be useful in detecting OSA events or OSA related arousals to characterize sleep fragmentation from EEG signals.

Keywords: Bispectral Analysis, Quadratic Phase Coupling, Eeg Signals, Obstructive Sleep Apnea.

INVESTIGATION OF GENOTOXIC EFFECTS OF PENCONAZOLE SYSTEMIC FUNGICIDE USING RAPD AND ISSR-PCR TECHNIQUES

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Abstract:

Penconazole (1-[2-(2,4-Dichlorophenyl)pentyl]-1H-1,2,4-triazole) is a chemical substance extensively used in production of tomato, tobacco, rose, grape, eggplant and cucumber as fungicide. Penconazole is systemically very effective molecule against Leveillula taurica, Sphaerotheca pannosa, Sphaerotheca fuliginea, Uncinula necator, Golovinomycates cichoracearum and Erysiphe cichoracearum. We aimed to investigate potential genotoxic effects of Penconazole fungicide on genome of Allium cepa (onion) root cells using RAPD (random amplified polymorphic DNA) and ISSR (inter simple sequence repeat)-PCR TECHNIQUES. Using dose for Penconazole fungicide in user manual is recommended among 25-50 ppm. We carried out different doses (100, 200, 250, 500, 750 and 1000 ppm) of fungicide on germinated A. cepa roots during 24, 48 and 72 hours. DNA isolation was performed with classic CTAB isolation method. PCR technique was carried with RAPD and ISSR primers. The amplified DNA fragments from A. cepa genome were separated on 1.3% agarose gel containing ethidium bromide (0.5 µg/ml). Gels were visualized under UV light and digitally photographed. This study for Penconazole fungicide is first research investigated genotoxic effects of on plants using PCR (Polymerase Chain Reaction)-based TECHNIQUES. The electrophoresis profiles of RAPD and ISSR-PCR observed that there are apparent changes such as the appearance of new bands or disappearance of bands as compared to the control. These analysis results revealed that Penconazole causes some DNA sequence changes on A. cepa genome depending on the increase in the fungicide dose and exposure time.

Keywords: Penconazole; Fungicide; Genotoxicity; Allium Cepa; Rapd And İssr-Pcr

OBSERVATION OF NUCLEUS ANOMALIES IN ALLIUM CEPA ROOT CELLS EXPOSED TO PENCONAZOLE SYSTEMIC FUNGICIDE

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Abstract:

Penconazole (1-[2-(2,4-Dichlorophenyl)pentyl]-1H-1,2,4-triazole) is a systemic fungicide used against Leveillula taurica, Sphaerotheca pannosa, Sphaerotheca fuliginea, Uncinula necator, Golovinomycates cichoracearum and Erysiphe cichoracearum. Penconazole is a chemical substance extensively used in production of tomato, tobacco, rose, grape, eggplant and cucumber. In tis study, we aimed to determine potential nucleus anomalies on nucleuses of Allium cepa (onion) root cells exposed to Penconazole fungicide. We performed different fungicide doses (100, 200, 250, 500, 750 and 1000 ppm) on germinated A. cepa roots. It was carried 24, 48 and 72 hours as exposure times to fungicide. A. cepa root terminuses were prepared with squash preparation method and were stained with 2% orcein dye. Morphologic anomalies in cell nucleuses were investigated using light microscope with digital camera. The detected nucleus anomalies were digitally photographed for each doses and exposure time. We observed that Penconazole causes some nucleus anomalies on A. cepa root cells depending on the increase in the fungicide dose and exposure time.

Keywords: Penconazole; Fungicide; Nucleus Anomaly; Allium Cepa

SYNTHESIS AND DETERMINATION OF SPECTRAL CHARACTERISTICS OF 1-[4-(PROP-2-YN-1-YLOXY)PHENYL]ETHANONE-O-METHACRYLOYLOXIME MONOMER

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Abstract:

Methacrylate polymers are among the most important commercial polymers, with a very wide range of APPLICATIONs in products as diverse as glazing, lighting housings, bath tubs and structural adhesives. The success of these polymers in many of the APPLICATIONs is dependent on the versatility of the acrylic monomers in copolymerizing to produce a wide diversity of structures, which can be tailored to produce the desired properties. Of particular interest is the synthesis of copolymers with specific functionality, which can act as a locus for further reactions, or furnish the copolymer with specific chemical and/or physical characteristics. In this study, the 1-[4-(prop-2-yn-1-yloxy)phenyl]ethanone-O-methacryloyloxime (PEOMO) which is a novel functional methacrylic monomer with side chain alkynes was synthesized as reported [I. Erol, S. Kolu, J. App. Polym. Sci. 120 (2011) 279-290] and structural and spectroscopic features were evaluated using experimental TECHNIQUES and quantum chemical calculations. The equilibrium structure, vibrational transitions, electronic excitations and magnetic properties namely proton and carbon isotropic chemical shifts were predicted by using density functional methods. Experimentally, the FT-IR spectrum of monomer was recorded in KBr, the 1H, 13C, DEPT 135 and the heteronuclear 2D-NMR (HETCOR) spectra of compound were observed in DMSO-d6 solution. Additionally, the UV absorption spectrum was recorded in ethanol. Based on the experimental, theoretical and the comparison of these results, the ground state conformational and spectral characteristics of PEOMO were identified.

Keywords: Methacrylic Monomer, Dft, Molecular Spectroscopy

EXAMINATION OF PARTIAL RESISTANCE AGANIST TO LEAF RUST ON SOME BREAD WHEAT GENOTYPES

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Abstract:

Leaf rust, caused by Puccinia recondita Roberge. Ex. desmaziiformis f. sp. tritici is the most serious disease of wheat globally including southeastern Anatolia of Turkey. Twelve spring wheat genotypes were artificially inoculated and protected in GAP International AGRICULTURAL Research INSTITUTE, DIYARBAKIR during 2010-11 season, to investigate yield losses and yield components. Artificial inoculation was with a collection of mixed inoculum of urediniospores from different locations of southeast Turkey. Inoculation was started at Zadoks-29, tillering stage and disease severity and infection type were recorded four times every 8 days. Genotypes were evaluated for adult plant stage by two partial resistance parameters: final disease severity and area under disease curve. The area under disease progress curve (AUDPC) ranged from 80 to 1400. Yield losses ranged from 18% to 40% , while TKW loss ranged from 0.68 to 23 %. Genotypes G1, G5, G7, G10, and G11 lost less yield while G3, G4, G6, and G9 did more. According to regression analysis, yield loss and AUDPC had a positive significant relationship. Three major clusters, based on AUDPC, final disease severity, and yield loss percentage, formed for 12 wheat genotypes. Partially resistant genotypes lost less grain yield and seemed appropriate against severe stripe rust pressures.

Keywords: Leaf Rust, Audpc, Yield Loss, Tkw

AERODYNAMIC NOSE SHAPE OPTIMIZATION FOR PERFORMANCE MAXIMIZATION OF MORPHING AUTONOMOUS AERIAL ROBOT

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Abstract:

The aim of this paper is to improve flight performance of an autonomous aerial robot by applying aerodynamic nose shape optimization both experimentally and computationally. Aerodynamic performance criteria (i.e. maximum fines) of a scaled model of our autonomous aerial robot called as Zanka-II produced in ERCIYES UNIVERSITY Faculty of Aeronautics and Astronautics Model Aircraft Laboratory is first observed in sub-sonic Wind Tunnel. Results obtained are validated using a computational fluid dynamics software (i.e. Ansys). Nose cone of fuselage is optimized in order to maximize maximum fines of our autonomous aerial robot by using Ansys. A novel scaled model using optimum data is then produced and placed in Wind Tunnel in order to validate Ansys results with experimental results. By using geometrical data of eventual aerodynamically optimized aerial robot, better autonomous flight performance is found both in simulation environment (i.e. Matlab) and real time flights.

Keywords: Aerial Robots, Autonomous Performance, Aerodynamics, Nose Shape Optimization

AERODYNAMIC TAILCONE SHAPE OPTIMIZATION FOR AUTONOMOUS NAVIGATION PERFORMANCE MAXIMIZATION OF MORPHING AERIAL ROBOT

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Abstract:

The purpose of this paper is to advance flight performance of an autonomous aerial robot via benefiting aerodynamic tailcone shape optimization experimentally and computationally. For this intention aerodynamic performance criteria (i.e. maximum fines) of a scaled model of our autonomous aerial robot named as Zanka-II manufactured in ERCIYES UNIVERSITY Faculty of Aeronautics and Astronautics Model Aircraft Laboratory is first examined in sub-sonic Wind Tunnel. Results found in this wind tunnel are validated using a computational fluid dynamics software package (i.e. ANSYS). Tailcone of fuselage is optimized in order to maximize maximum fines of our autonomous aerial robot via applying ANSYS. A novel scaled model using optimum data found by ANSYS is then produced and placed in Wind Tunnel in order to validate computational results with experimental results. By using geometrical data of ultimate aerodynamically optimized aerial robot, improved autonomous flight performance is found both in simulation environment (i.e. Matlab and Simulink) and real time flights.

Keywords: Aerial Robots, Autonomous Performance, Aerodynamics, Tailcone Shape Optimization

MODELLING OF COHESIVE–SEDIMENT DEPOSITIONAL AREAS IN THE MARINE ENVIRONMENT

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Abstract:

In this study, cohesive sediment depositional areas carried by the Solaklı River to the Eastern Black Sea are examined in the marine environment. Affects of changes in the amount of cohesive sediment entering the sea from Solaklı River, sediment drift velocity, direction and magnitude of wind-stream components are observed. For HIGH sediment drift velocity, it is found that the affects of wind-stream components on deposition areas of cohesive sediment are very little. According to the results of the study, entrance angle of the stream mouth effects the deposition areas of sediment in the marine environment. Cohesive sediment depositional areas are examined on the charts by changing one of the parameters in the sediment transport model while keeping others constant. According to this study, measures can be taken in the short time that occur in coastal areas against erosion and accumulation.

Keywords: Cohesive-Sediment, Deposition Flux, Settling Velocity, Sigma Coordinate System

PREDICTION OF PULL-OUT PERFORMANCE OF CHEMICAL ANCHORS EMBEDDED INTO CONCRETE

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Abstract:

This paper summarizes the results of experimental research and prediction model focused on determination of the behavior of pull-out performance limits of what embedded into currently the most widespread concrete type of Turkey as C25/30. Rebars having 14, 16 and 18 mm diameters have been selected as the anchor rod in this study. Epoxy based three component chemical adhesive has been used for the connection between concrete and anchor bar. The depth of holes was in the range of 140 - 220 mm which had been selected various for 14, 16 and 18 mm bar diameters. The effect of the anchor depths, bar diameters and reinforcement diameter on the pull-out capacity of adhesive anchors is product dependent. Moreover, an attempt to predict the pull-out capacity of chemical anchors embedded into concrete using artificial neural networks (ANNs) is presented. The problem is proposed to network models by means of three inputs and one output parameter. A multilayered feed-forward neural network trained with the different algorithm is constructed using 3 design variables as network inputs and the pull-out strength of adhesive anchors as the only output. Experimental results showed that increasing the anchor diameter and the depths of hole have increased pull-out performance of anchors. The best algorithm for collapse load of concrete is the Levenberg-Marquardt backpropagation with R2 of 0.9837. The results indicated that ANNs are useful technique for predicting the pull-out capacity of adhesive anchors.

Keywords: Anchor; Pull-Out Performance; Rebar Diameter; Depths Of Holes; Artificial Neural Networks.

ACCURACY INVESTIGATION OF SCIENTIFIC AND COMMERCIAL GPS PROCESSING SOFTWARE: A CASE STUDY WITHIN EUROPEAN REFERENCE (EUREF) PERMANENT NETWORK

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Abstract:

This paper deals with the accuracy comparison of scientific and commercial GPS processing software for varying length of baselines. European Reference (EUREF) Permanent Network Stations were used for the processing. GAMIT/GLOBK scientific GPS processing software (version 10.6) and Leica Geo OFFICE (version 8.4) commercial GPS processing software were chosen for the experiment. TUBO EUREF station was taken as a known station whose three-dimensional (3D) coordinates are known before the processing and the other stations were taken as unknown points whose 3D coordinates are calculated after the processing. In this way, minimally constrained adjustment was performed for each unknown station and their coordinates were calculated w.r.t. TUBO station with using each software. Only independent (non-trivial) baselines are formed between known station and unknown stations. Processing was conducted for 10 different days with 24 hours rinex data of the stations. After the processing, difference between the calculated 3D coordinates of stations and the published true coordinates of the stations were resolved to topocentric coordinates (north, east, up) to observe the error direction more conveniently in 3D space. Results show that vertical accuracy obtained from commercial software is significantly low comparing with the scientific software. There is no significant difference observed for horizontal accuracy between the software but the horizontal accuracy obtained from the scientific software is slightly better than commercial one. There is no deterministic correlation is found between the baseline distance and accuracy for each software. Calculated RMS errors for the farthest (BZRG) and nearest (BIST) station w.r.t. control station (TUBO) for each software as follows; 5mm (north), 5mm (east), 48mm (up) for Leica Geo OFFICE and 3mm (north), 2mm (east), 5mm for GAMIT/GLOBK software and 2mm (north), 3mm (east), 70mm (up) for Leica Geo OFFICE and 2mm (north), 2mm (east), 6mm (up) for GAMIT/GLOBK software respectively.

Keywords: Gps, Static Relative Positioning, Post-Processing

OPTIMISATION OF RIB DIMENSIONS DURING PLASTIC PART MODELLING

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Abstract:

In this study, the effects of rib dimensions on the strength of PLASTIC parts have been studied for improving PLASTIC part endurance. The parameters of the rib such as width (0.4, 0.6, 0.9, 1.35, 2.025), height (2, 3, 4.5, 6.75, 10.125), Radius of end of the rib (0.001, 0.2, 0.4, 0.8, 1.6), draft angle (0.5, 1, 2), according to the thickness (2mm) of PLASTIC parts have been studied. According to the results of the static analysis, the rib height and thickness have an important effect on the decrease of deformation such as an increase of 5 times on the height and thickness reflects a decrease on the deformation value of 28% and 18%. It has been noticed that rib degree and radius of end of the rib have a very small affect in the part endurance.

Keywords: Optimization Of Rib Of PLASTIC Parts, Ribs Dimension, Strength Of PLASTIC Parts, Radius Of End Of The Rib, Draft Angle Of Rib

COOLING OF PLASTIC INJECTION MOLDS USING CONFORMAL COOLING CANALS

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Abstract:

This study has been done to increase the effect of the cooling stage which is one of the most critic stages during PLASTIC injection molding. A practical way for conformal cooling canal has been presented to increase production quality and reduce on the production time. Firstly, an adaptive surface to the cavity surface has been created to produce this system. The roots which have been created by offsetting the edge of surface have been converted to cooling canals. An algorithm has been developed to preserve the distance between the canals and the distance between mold canals for the PLASTIC parts which have a complicated geometry. The cooling performance of these cooling canals has been examined by conducting NUMERICAL analysis. It has been noticed that the cycle time has decreased by increasing the cooling effect with conformal cooling canals.

Keywords: İnjection Molding, Conformal Cooling, Canal Design, HIGH Speed Molding

MAGNETIC PROPERTIES OF FCC FE - 9%MN ALLOYS: AN AB-INITIO STUDY

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Abstract:

We examined the magnetic properties of the fcc Fe – 9% Mn alloys by using the EMTO-CPA program. We compared the experimental lattice constants with the theoretical equilibrium lattice constants for magnetic and non-magnetic situations. We have also studied the changes of the magnetic moments with the lattice constants.

Keywords: Femn Alloys, Ab-İnitio

MOLECULAR MECHANISM OF WATER UPTAKE IN GRAPEVINE

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Abstract:

Aquaporins are membrane proteins present in the plasma and intracellular membranes of plant cells, where they facilitate the transport of water as well as small solutes and gases. They are involved in cellular and physiological processes such as adjusting the water balance and the plant photosynthesis. Grapevine (Vitis vinifera L.), a perennial species, is economically very important crop in terms of wine and food sector. In this report, we performed a complete inventory of Aquaporin gene family in Vitis vinifera, the whole genome of which has been sequenced. By comparison with Aquaporin members of Arabidopsis thaliana, we identified 20 Aquaporin proteins in V. vinifera. In addition, we constructed a phylogenetic tree including 20 individuals of Vitis vinifera L. Aquaporin family with aquaporins from other plants .Finally, we examined their expression profile in different organs such as berries, leaves, tendrils and young shoots at different developmental stages by Real-time PCR. Interestingly, the expression of V. vinifera Aquaporin genes in the grape berry decreased during the ripening indicating their involvement in ripening process. The present study provides information for physiological functions of these proteins in V. vinifera.

Keywords: Vitis Vinifera, Aquaporins, Gene Expression. Abiotic Stress

MDR-LIKE ABC TRANSPORTERS IN GRAPEVINE

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Abstract:

The ATP binding cassette (ABC) superfamily are present in several genera representing prokaryotes and eukaryotes. Several members of this large superfamily function in the transport of cytotoxic agents across biological membranes and help maintain a reduced intracellular level of toxins or metabolites. The multidrug resistance (MDR) subfamily is one of the best characterized subfamily that may transport essential compounds and metabolites in addition to toxins. Indeed, plant MDR transporters are implicated in the transport of compounds including auxins, flavonoids, glutathione conjugates, metal chelators, herbicides and antibiotics. The Vitis MDR subfamily consists of 19 putative MDR-type proteins. In the present study, we report for the first time, expression pattern of VvMDRs in different organs, especially in grape berries at different stages of development by Real-Time PCR analysis. The results showed that the members of Vitis MDR subfamily are regulated during the development in berries suggesting their involvement in ripening. This study may contribute to our further understanding of the molecular mechanism in the transport of the secondary metabolites in grapevine.

Keywords: Abc Transporters. Mdr Subfamily, Grapevine, Stress

THE HETEROLEPTIC RUTHENIUM(II) COMPLEXES OF 2-(2-QUINOLYL)BENZIMIDAZOLES: A STUDY OF CATALYTIC EFFICIENCY TOWARDS TRANSFER HYDROGENATION OF ACETOPHENONE

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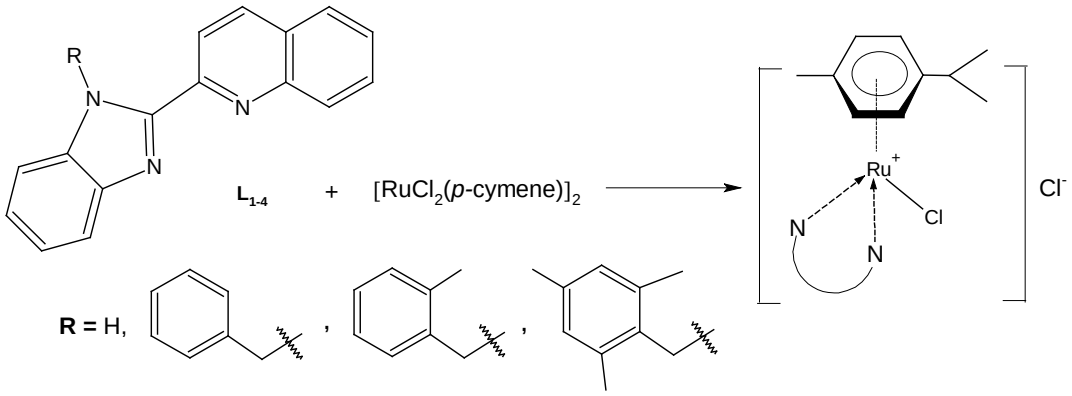
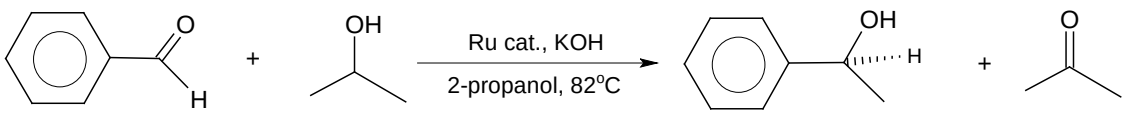
Abstract:

Nitrogenous donor multidentate ligands are very attractive in coordination chemistry because of their simplicity and availability.[1] The steric and electronic properties around metal center easily changed with these ligands. By the way, catalytically active metal complexes having special properties have been synthesized.



In our study, four ruthenium(II) complexes {[$RuCl_2$(*p*-cymene)(L_{1-4})]} (L_{1-4}: bidentate quinolyl-benzimidazole ligands) were synthesized from [$RuCl_2$(*p*-cymene)]$_2$ dimer and bidentate quinolyl-benzimidazole ligands. The compounds were characterized by elemental analysis, IR, UV-Vis, NMR and X-ray difraction. The synthesized Ru(II) complexes were tested as catalysts for the catalytic transfer hydrogenation (TH) of acetophenone to secondary alcohols in the presence of KOH using 2-propanol as a hydrogen source at 82°C. All complexes were active catalysts for TH of acetophenone with good yields under mild conditions (after 20 min, yields of up to 92%).



References:

[1] A. Togni, L.M. Venanzi, Nitrogen donors in organometallic chemistry and homogeneous catalysis, Angew. Chem., Int. Ed. 33 (1994) 497.

Keywords: Benzimidazol, Ruthenium

SYNTHESIS AND CHARACTERIZATION OF NANOSIZED COBALT CHROMITE PIGMENT PREPARED BY MICROWAVE-ASSISTED POLYOL METHOD

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Abstract:

This study addressed the production of nano-sized CoCr2O4 pigment which has HIGH chemical and thermal stability, by microwave-assisted polyol method. For this, Co(OAc)2 and Cr(OAc)3 metal salts were synthesised in microwave oven at 180°C for 2 hours by using diethylene glychol (DEG). The as-obtained precursor powders were characterised by XRD, TG-DSC, DLS and FESEM methods to find out phases, thermal behaviour and particle size. The results indicated that the as-prepared powders were amorphous form with 50-60 nm average particle size. Upon calcination of this product, CoCr2O4 phase start froming at 400°C and stable spinel phase formation was completed at 700°C as evidenced by XRD. The pigment calcined at 700 °C for 3 hours showed bluish-green hue by UV-visible spectra. In additon, the particle size distribution remained unchanged after calcination. As a result, it was found that nano-size spinel type cobalt-chromite pigment can be produced at lower calcination temperatures than solid-state synthesis and Sol-gel methods.

Keywords: Nano-Pigment, Microwave, Polyol Synthesis, Spinel

NUMERICAL INVESTIGATION ON HYDRODYNAMIC BEHAVIOUR IN 8 MWTH CIRCULATING FLUIDIZED BED

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Abstract:

Multi-Phase flow is one of the types of flow which is frequently observed in natural phenomena and ENGINEERING APPLICATIONs. Circulating Fluidized Beds(CFB) constitute an important APPLICATION of multi-phase flow. The combustion and emission behaviours in CFB's are determined by hydrodynamic of bearing. The most appropriate combustion can be provided with the hydrodynamic structure of bearing; taking innto account fuel and operating parameters. Therefore, the hydrodynamic structure of CFB should be displayed with mathematical/physical modelling and simulation approach for its analysis and synthesis. Mathematical analysis in today's conditions is very diffucult or impossible because of excessive turbulence, unstable and two-phase flow characteristics of the bed. Therefore, the most effective way to do this is the use the physical modelling and simulation approach. In this study, 8 MWth CFB hydrodynamic analysis are made by ANSYS-FLUENT R14 commercial CFD code. This analysis results show that sand volume fraction was respectively, %5-8 in combustion chamber, %6-9 in dip-leg pipe and %15-18 in loop-seal.

Keywords: Circulating Fluidized Bed, Hydrodynamic Analysis, Multi-Phase Flow.

INVESTIGATION OF HEAT TRANSFER PERFORMANCE FOR DIFFERENT MASS FLOW RATE IN COMPACT PLATE HEAT EXCHANGER

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Abstract:

In this study, thermal treatment in different well angles and flow rates of a compact heat exchanger by Direct Metal Laser Sintering technique instead of a sealed and soldered one used in many areas has been investigated. Channel angles have been examined according to a sealed plate heat exchanger experimental set available in the laboratory. 3D designs of the compact heat exchanger in 60°,channel angle have been made. By using ANSYS-FLUENT software, inflow, outflow and thermal treatment of liquids circulating in the system have been analyzed according to boundary conditions in three different flow rates relatively 0,2 kg/s, 0,3 kg/s and 0,43 kg/s . Heat transfers occurring between heat channels and walls of heat exchangers in different flow rates of heat exchangers have been calculated. In this analysis,

hot fluid inlet temperature is 60 °C and cold fluid inlet temparature is 15 °C. As a result of the analysis, 0,43 kg/s mass flow rate conditions is shown maximum performance for heat transfer rate.

Keywords: Heat Exchangers, Compact Heat Exchangers, Micro Channel Heat Exchanger

INVESTIGATION OF OPTIMUM ASPHAMIN CONTENT FOR WARM MIX ASPHALT

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Abstract:

Warm mix asphalt (WMA) technology has become increasingly popular in pavement construction because of its environmental benefits and its ability to improve the ENGINEERING properties of asphalt binders and mixtures. Several new processes have been developed to reduce the mixing and compaction temperatures of hot mix asphalt without sacrificing the quality of the resulting pavement. Asphamin which is the most used additive MATERIALS for WMA plays a significant role on decreasing the temperatures. Asphamin contains approximately 21 percent water by mass and is released in the temperature range of 85-182°C. When Asphamin is added to the mix at the same time as the binder, water is released. This water release creates a volume expansion of the binder that results in asphalt foam and allows increased workability and aggregate coating at lower temperatures.

In this study, 5% of optimum asphalt content is determined for chosen gradation by the Marshall Design method. The optimum asphamin content is tried to determine at temperatures of 110, 120, 130, 140 and 150oC by adding the asphamin to the asphalt of 4, 5, 6, 7 and 8% by weight of asphalt for each temperature using optimum asphalt content. The appropriate rate for optimum asphamin content for mixing temperature at 110oC, 120oC, 130oC, 140oC and 150oC can be suggested as 8%, 7%, 6%, 6% and 4%, respectively, according to Marshall Quotient.

Keywords: Warm Mix Asphalt, Marshall Mix Design, Asphamin

A STUDY ON JUNCTION PERFORMANCE ANALYSIS: DÖRTYOL JUNCTION SAMPLE (ERZINCAN,TURKEY)

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Abstract:

Erzincan city located in northeast Anatolia of Turkey has annual average daily traffic of 5250 and the road of D-80 transit interurban road pass here. 2015 central population of Erzincan is 135.000. The number of registered vehicles in traffic is about 48.166 according to the TURKISH Statistical INSTITUTE. The city with HIGH vehicle density (a vehicle per three people) is located in an earthquake zone. Therefore, settlement grow up through east to west direction. Moreover, current rural and arteries are insufficient for vehicle intensity. Thus, queue length, delay and travel time increase in junction which are more effective on capacity. It will be a rational approach to design junctions balancing the comfort expectations of drivers and safety requirements.

In this study, Dörtyol junction located on the Halit Paşa Street and intersection of Ordu St. - 13 Şubat St.- Fevzi Paşa St. was investigated. For this junction, the peak traffic value is reached at noon and approximately 3500 vehicles use the intersection during the peak hours. Due to queue lengths at this intersection, negative situations and other problems for drivers occur. It is expected that this problem will increase in the coming years and solutions would be difficult. Revision of the existing signal program, roundabout junctions, new by-pass roads in south and north side and graded junctions was proposed as a solution for the traffic problems. In this study, the junction was modeled with a microsimulation technique and compared with the proposed solutions in terms of delay, travel time, queue length, fuel consumption, CO emissions, level of service and volume/capacity. VISSIM and VISTRO programs were used for simulations and optimum solution was proposed according to the simulation results.

Keywords: Erzincan, Dörtyol Junction, Microsimulation, Traffic Management

THE SIZE DISTRIBUTION OF PARTICULATE MATTER EMITTED FROM ARTIFICIAL FIELDS

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Abstract:

Particulate matters (PM) are of great importance in terms of air pollution and public health. They can be discharged to ambient air from various sources such as forest fires, industries, vehicles, mining processes and re-suspension of dusts by wind effect. PM can carry lots of pollutants including ORGANIC and inORGANIC contaminants adsorbed by porous structure. The size of PM is a major parameter for environmental pollution and public health. As it is known, PM smaller than 2.5 µm size can be inhaled by upper respiratory system and cannot be captured. It was determined that PM smaller than 2.5 µm leads to HIGH plaque deposits in arteries, causing vascular inflammation and reduces elasticity, which can lead to heart attacks and other cardiovascular problems. However, a great deal of health problems related to PM exposure was well documented in the literature. The exposure level is related to personal activity and ambient air concentration level. Normal respiration rate is about 12 breaths/min (6 L/min) and this can increase up to 40-50 breaths/min (20-25 L/min) during activity (i.e. sports). This means that PM exposure increases during activity.

This study reports the result of a research performed in artificial FIELDs which are mostly used for football matches. The PM size distribution was measured in ambient air during football match and in blank FIELD. The results showed that a significant difference was determined before and during match activity. The material used in artificial FIELDs in order to protect players from slipping is commonly made by synthetic fibers (Styrene-Butadiene Rubbers). The toxic effects of these MATERIALS have been reported several of times (Cardiovascular diseases, a carcinogen and neurotoxin).

Keywords: Particle Size Distribution, Artificial FIELDs, Rubber, Health Effect

PRODUCTION OF THE BIO-OIL BY SLOW PYROLYSIS OF HORNBEAM SAWDUST

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Abstract:

We report the characterization of bio-oil obtained from slow pyrolysis of hornbeam (Carpinus betulus L.) sawdust. Final pyrolysis temperature of 550 ˚C, heating rate of 30 ˚C min-1 and nitrogen flow rate of 100 cm3 min-1 were the APPLIED pyrolysis parameters to produce the bio-oil. These pyrolysis conditions resulted in bio-oil with yield of 35.28%, HIGHER heating value of 23.22 MJ kg-1, density at 15 ˚C of 1289 kg m-3 and kinematic viscosity at 40 ˚C of 0.6 cSt. Elemental analysis was APPLIED to determine the elemental composition of the bio-oil (C, H, N, O) and FTIR spectra was used to analyze the functional groups of the bio-oil. The slow pyrolysis of hornbeam sawdust can be useful not only production of low viscosity bio-oil, but also in HIGH value utilization of renewable biomass wastes.

Keywords: Energy, Biomass, Pyrolysis, Bio-Oil, Characterization

MAGNETIC IRON OXIDE DOPED PVDF CATALYST FOR BENZYL ALCOHOL OXIDATION TO BENZALDEHYDE

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Abstract:

Polymer supported catalyst was synthesized by blending of magnetic Fe3O4 powder with casting solution of polyvinylidene fluoride (PVDF) in dimethyl formamide (DMF). The mass percentage of PVDF, solvent and Fe3O4 was adjusted as 14, 86-78 and 0, 2, 4, 6, 8% to total mass respectively. Flat sheet Fe3O4-PVDF was obtained by immersing of homogeneously dispersed solution onto glass plate at 300 µm thickness to water bath for phase separation. Samples were characterized with thermal analysis (TG, DTA), fourier transform infrared spectroscopy (FTIR), X -ray diffraction (XRD) and scanning electron microscopy (SEM) TECHNIQUES. From IR results it was observed that alpha-phases of PVDF disappeared with increasing amount of additives. Due to catalytic effect of solid, decomposition of polymer fastened with increasing temperature. Catalytic activities of samples sized 1x1 cm were investigated for the benzyl alcohol oxidation with H2O2 at the microwave oven (8 min, 500W) with 1/1 alcohol/peroxide ratio. Products were analyzed with Gas chromatography (GC). The conversion of alcohol for 2, 4, 6 and 8% Fe3O4-P were recorded as 51, 77, 66 and 63% respectively.

Catalyst were separated magnetically and used several times after washed with acetone. ORGANIC nature of polymer facilitated to transferring of substrate to active sites of catalyst. Easily separable polymer supported catalyst which has activity at solvent free area were prepared.

Keywords: Magnetic İron Oxide, Polymer Supported Catalyst, Pvdf, Benzyl Alcohol Oxidation

HYDROGENATION OF SOME OLEFINS WITH NEW FURAN-2,5-BIS(N-ACYLBENZOTRIAZOLE) PALLADIUM COMPLEX IN [BMIM][BF4]

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Abstract:

Low vapor pressure and large thermal stability are one of the most significant properties of ionic liquids which are alternative reaction systems compared with traditional solvents. These systems are defined as liquid ORGANIC salts that melts below 100oC, are mostly used chemicals especially in catalytic reactions that provides reusability of activity proofed catalysts. In this study, we newly synthesized and characterized furan-2,5-bis(N-acylbenzotriazole) ligand and its palladium complex for catalytic hydrogenation of styrene, 1-octene and cyclohexene in [bmim][BF4]. 100% product formation was observed both styrene and 1-octene at 363 K and 353 K in one hour, respectively. Hydrogen pressure effect, catalyst amount effect, solvent effect and catalyst reusability tests were also studied. Synthesized catalyst can be reused up to five times with any loss of its activity.

Keywords: İonic Liquid, Hydrogenation, Furan, Benzotriazole, Palladium

A COMPARISON OF SMART GRID TECHNOLOGIES AND PROGRESSES IN TURKEY AND THE WORLD

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Abstract:

With the continuous increasing of the energy production costs, the importance of the energy efficiency increases day by day. Today the term of the energy efficiency has become very popular and significant due to the reduction of the oil supply, running out of the fossil fuels in near future, technological innovations in relation to the increased demand for the industral developments, and the population growth around the world. For the energy efficiency some work samples are supported in order to create awareness such as the productivity-increasing projects in the industry, more efficient use of energy in villages, low-volume and HIGH torque engine APPLICATIONs in motor vehicles etc. In this study the smart grid technology which is a new digital way that allows for two-way communication between the utility and customers, and the sensing along the transmission lines infrastructure was regarding historical and TECHNICAL events explained. The efficiency of the smart network systems implemented in different parts of the world and Turkey are reviewed. The advantages of the smart grid technology on the traditional network were presented with the related Figures and Tables. This performed study will be useful for the next smart grid APPLICATIONs in terms of information exchange and will help to understand for further researches in relation to the smart grid issue.

Keywords: Smart Grid, Smart Metering, Energy Generation, Efficiency, Sustainability

THE SIGNIFICANCE OF IMPEDANCE SPECTROSCOPY ANALYSIS AND MODELING ON LICOO2/C BATTERIES

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Abstract:

Due to their HIGH energy density, Lithium-ion batteries are the preferred system for electronic devices and even large-scale energy storage, particularly in automobiles. It is very important to evaluate the performance or diagnose any failure of these batteries. Impedance spectroscopy in particular is a very powerful and non-invasive electrochemical technique that can provide a unique insight into the electrochemical performance of Li-ion batteries. However, the models used to interpret the impedance response should account for the CHEMISTRY and physics of the device. In this work, a process model for impedance analysis was developed in the context of reactions and transport processes that were hypothesized to govern the performance of LiCoO2/C batteries. At the carbon electrode, lithium ions participate in creating the solid-electrolyte interphase (SEI) and intercalate into the graphene layers. As these two processes involve an addition of current, the corresponding impedances are considered to be in parallel. At the LiCoO2 electrode, anomalous diffusion of lithium ions was invoked to account for the low-frequency line that had a slope steeper than that predicted by ordinary diffusion. The model provided a good description for impedance of batteries under operating conditions.

Keywords: İmpedance Spectroscopy, Lithium-İon Batteries, Anomalous Diffusion

BIOCOMPATIBLE CERAMIC-BASED MICROELECTROD FABRICATION FOR DIAGNOSIS AND TREATMENT OF BRAIN DISORDERS

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Abstract:

In this study, it is aimed to produce biocompatible microelectrodes which can be used in the detection of neurotransmitters that are related with brain disorders such as Parkinson, Epilepsy, and Schizophrenia and that exist in the central nervous system (CNS). For this purpose, a new four-channel Ceramic-based microelectrode was fabricated by using photolithographic methods and it is tested in hydrogen peroxide. The time-current graphic response against the addition of H2O2 the produced microelectrode is analyzed in the calibration test. It is observed that the response is in stepwise form. We observed significant improvements in terms of Limits of detection (LOD) and linearity (R2) values, which are the parameters that determine the quality of the microelectrode. The value of R2 and LOD are obtained about 0.999 and between (0.1 - 0.5) respectively, which are the desired values for detection APPLICATIONs. The value of R 2 which is very close to one shows that the response of the microelectrode against to peroxide is very good, and the value of LOD which is being in between (0.1 - 0.5) denotes that the fabricated microelectrode is robust against the environmental noise and it produce stable response.

Keywords: Microelectrode; Biosensor; Fabrication; Voltametry

DEPTH ESTIMATION FROM THE MAGNETIC ANOMALIES OF THE NORTHERN END OF THE FETHIYE-BURDUR FAULT ZONE (FBFZ), SW TURKEY

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Abstract:

The Fethiye-Burdur Fault Zone (FBFZ) in SW Turkey, a complex GEOLOGICAL structure, is an active plate boundary connecting different tectonic provinces. Collision tectonic regime is reign between the Eurasian and African plates. The zone formed by northward movement of the African Plate and westward escape of the Aegean-Anatolian block. The FBFZ is about 300 km in length characterizing as a combination of a number of normal faults in SW Turkey. Our study focuses on depth estimation of magnetic anomalies of the northern end of the FBFZ. Obtaining of the source depths could contribute to understanding underground causative bodies, tectonic and GEOLOGICAL structures of the area. The power spectrum TECHNIQUES were APPLIED to the residual aeromagnetic data which was reduced to the north magnetic pole (RTP) before. One block of 100 km dimensions has been used to estimate deepest magnetic source. Depth to bottom of deepest magnetic source in the study area reaches a maximum depth of 15.94 km. This value corresponds to the Curie point. Then the power spectrum method was also APPLIED to the RTP data in two places in and around the Burdur Lake to estimate the average depth of magnetic sources which are caused to the magnetic anomalies. At the conclusion of the power spectrum of the magnetic data, two different bottom depths for the causative magnetic bodies in underground are calculated such as 6.8 km in the north and 2.1 km in the south. It is interpreted by looking at the shape of the anomalies, which are adjacent anomalies, that the causative body is two-headed structure and places in the sediment accumulation of the Burdur graben in SW Turkey. It can also be suggested that the magnetized body gained its magnetization during a normal polarity time, oriented in about N-S direction as inclined to the north.

Keywords: Aeromagnetic Data, Power Spectrum, Burdur Basin

GEOTHERMAL INVESTIGATIONS IN SANDIKLI (AFYON) CITY, SW TURKEY

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Abstract:

Turkey is one of the most geothermal area in the World. Sandıklı located in western Anatolia is affected Hellenic subduction zone and characterized by back-arc structure. Therefore, Western Anatolia impressed extension has many thermal springs. The tectonic activity in study FIELD is characterized by volcanic/plutonic rocks including calc-alkaline. Since the ages of GEOLOGICAL units located in study FIELD give rise to thought that heat source is volcanic origin and the system is still in the heat phase. Many hot water spring of which average temperature changes between 50 and 85oC with the depths of 300 - 1250 m has been drilled since 1994 in the Afyon Sandıklı geothermal FIELD. The FIELD study performed in Afyon-Sandıklı geothermal area the coordinates of hot water springs are determined and physical measurement are identified. Five boreholes were drilled with the longitudes of 24o-25o E and the latitudes of 38o -39o N. The first well is Akturkler borehole and its depth is 1250 m with 85oC. Yasarlar borehole has 270 m depth, 150 flowrate and 78oC. Aldosan-1 borehole is in the depth of 1230 m and has 30 flowrate with 80oC. The depth of Aldosan-2 borehole is 1100 m and its temperature is 61oC. Sanjet borehole, which is the last borehole, has 700 m depth and 76oC temperature. Study FIELD showed that Sandıklı area has a HIGH geothermal potential with measured well bottom temperatures varies between 60 and 87 ºC with EC 2050-2340 (µS/cm) and theirs pH 6.52-6.91.

Keywords: Geothermal, Sandıklı, Borehole

INTER PRIMER BINDING SITES (IPBS), A NOVEL SOURCE OF GENETIC DIVERSITY IN FUNGI

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Abstract:

Methods for use in diagnostics and detection of plant pathogens need to be quick, simple, reliable, and cost effective. Therefore, we need a cheap sources of universal markers to differentiate various plant pathogens. Hence, the utility of iPBS retrotransposons marker system first time reported to study the genetic diversity of 96 isolates belonging to 16 different phytopathaological fungal species. All the studied fungal species were distinguished using iPBS retrotransposons markers. Thus, the validity of iPBS retrotransposons method was demonstrated for species discrimination, identification of isolates belonging to different species and within species. Intra- and interspecific polymorphisms among 16 fungal species were investigated using 6 iPBS retrotransposon markers. The 6 iPBS-retrotransposon primers generated a total 389 scorable bands, and 387 of these were found to be polymorphic (99%), with an average of 64.83 polymorphic fragments per primer. UPGMA (unweighted pair group method with arithmetic average) based clustering using Jaccard coefficient differentiated all fungal isolates from each other and revealed considerable genetic variability among isolates. The grouping of accessions and species within clusters were almost similar when iPBS based cluster was compared with ITS sequences based clustering. Our data also suggested the role of iPBS-retrotransposons as 'a universal marker' for molecular characterization of different fungal species and could be concluded that only one or few iPBS retrotransposons primers are more than enough for discrimination of fungal species and could be further utilized in genetic mechanism of fungal species. This study was supported by Scientific Research Projects Unit of ABANT IZZET BAYSAL UNIVERSITY (Project No:2016.10.06.995).

Keywords: Taxonomic Classification, Retrotranspososn, Fungi, Genetic Diversity

OPERATE WITH A GASOLINE INTERNAL COMBUSTION ENGINE EVALUATION OF DIFFERENT BORON ADDITION OF THE FUEL ADDITIVE INSIDE PERFORMANCE AND EMISSIONS IMPACT

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Abstract:

When used in today's car engines and fuels used mostly given that use fossil fuels will run out and they are expressed in a period of 50-60 years. Scientists are also researching ways to improve the performance of existing fuels and reduce emissions to the environment on the one hand while trying to provide an alternative to petroleum-based fuels on the one hand. They come from gasoline and diesel fuels to reduce harmful emissions to the environment and one of the most studied subject of increasing fuel efficiency values. In this study, boron additives, gasoline-powered internal combustion engine comprising adding to the engine fuel temperature, fuel consumption, engine performance and analyzed the effect on emissions. In the laboratory internal combustion engines (Lombardini LGW 523) gas by attending different board material 1500/min - 5000/min up to 500/min increased engine performance (power, torque and fuel consumption) and in emissions (HC, CO, CO2 O2 and λ) experimental studies were conducted to determine whether a change. At the same time reduce the environmental pollution caused by petroleum-based fuels and engine performance has been increased.

Keywords: Keywords: Fuel Additives, Boron, Exhaust Emission.

EFFECT OF PYROLYSIS TEMPERATURE ON CHARACTERISTICS OF BIOCHARS OBTAINED FROM SLOW PYROLYSIS OF HORNBEAM SAWDUST

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Abstract:

The biomass waste is a renewable resource that can potentially be used to produce absorbents and fuels through pyrolysis. Biochars obtained from pyrolysis have equal importance both at INDUSTRIAL and ecological point of views. In this study, biochar was produced from slow pyrolysis of hornbeam (Carpinus betulus L.) sawdust in a fixed bed reactor under the following conditions: a heating rate of 40 °C/min, final pyrolysis temperatures of 400 and 600 °C. The biochar obtained at 600 °C, as produced, was a valuable solid fuel with a heating value of 37.45 MJ/kg HIGHER than that of sub-bituminous coal (24.78 MJ/kg) and that of bituminous coal (30.35 MJ/kg). As pyrolysis temperature increased, ash content, pH, and fixed carbon content of the biochars increased while biochar yield, and ELECTRICAL conductivity decreased. The biochars were also characterized by proximate anaylsis, scanning electron microscopy (SEM), thermogravimetric analysis (TGA), and fourier transform infrared spectroscopy (FTIR). The experimental results showed that the biochar has potential as a renewable fuel that also contributes to the preservation of the environment.

Keywords: Energy, Renewable, Biomass, Pyrolysis, Biochar

GRAM–SCHMIDT BASED TRUNCATED ULV BLOCK UPDATE

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Abstract:

The truncated ULV decomposition of an m n matrix X of rank k is of the form X = U_1LV_1^T

1 + E, where U_1 and V_1 are left orthogonal matrices, L is a k by k non–singular lower triangular matrix and E is the error matrix. In this decomposition, only U_1,V_1, L, and ||E||_F are stored to minimize computational workload and storage requirements. Herein, we propose a BLAS–3 compatible block updating the TULV algorithm based upon Block Classical Gram–Schmidt algorithm. We use the refinement algorithm to reduce ||E||_F, to detect rank degeneracy and correct it and to sharpen the approximation, in short, to improve the accuracy of the decomposition. NUMERICAL results presented show that the block update algorithm is robust and promising.

Keywords: Truncated Ulvd; Block Classical Gram–Schmidt; Block Update

AIR PRE HEATER DESIGN AND OPTIMIZATION

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Abstract:

Air pre-heater is used all boiler systems. Boiler systems is very important for energy production. In this study, author have investigated on air pre heater with analytical method by using EES software. And then air pre heater have been designed by author dependent on analytical results. In the last stage of this study, designing air pre heater geometry have been optimized by Ansys-Fluent R14. Designing air pre heater will be used for 5 MWth INDUSTRIAL boiler APPLICATION. This air pre heater separate 5 stage. Author has been analysed for only first stage. In this study, mass flow inlet of flue gas is 2.52 kg/s and inlet temperature of flue gas is 463.15 K, mass flow inlet of air is 2.26 kg/s and inlet temperature of air is 303.15 K. In the study results have been shown outlet temperature of flue gas is 423.15 K and outlet temperature of air is 348.15 K.

Keywords: Air-Pre Heater, Analytical Method, Ees Software, Ansys Fluent-R14, Optimization

EVALUATION OF CONSULTING FIRMS SELECTION IN CONSTRUCTION PROJECTS BY USING FUZZY LOGIC

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Abstract:

Construction industry brings different specialization-required disciplines together in a common project. This circumstance complicates finishing a project within a desired time, cost and quality. In recent years, especially non-sector investors have started to employ consulting firms for the design and management of the projects to overcome this problem. Unlike contractor selection process, consulting firm selection process is too complicated for a cost-oriented evaluation. In this sense, different organizations such as International Federation of Consulting Engineers (FIDIC) developed new bidding systems for contractor selection. "Quality and Cost Based Selection" (QCBS), which allows to evaluate quality and cost of the bids concomitantly, is one of the widely used system in construction industry. In this study, it was aimed to determine which criterions are prioritized in QCBS system by using fuzzy logic. In this context, data of 65 bids belonging to 13 different tenders were investigated and a fuzzy model consisting of 3 input and 1 output variable was developed. The results revealed that, in general consulting firms, which are invited to the tenders, ensures the quality criterions and cost criterion determines the selection.

Keywords: Consulting Firm Selection, Fuzzy Logic, Fuzzy Set Theory, Construction Management

DETERMINATION OF POTENTIAL GROUNDWATER POLLUTION BY DRASTIC MODEL AND GIS IN MERSİN,TURKEY

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Abstract:

Mersin is situated in the Mediterranean region of Turkey. The study area is located between latitude 37° 0' 13'' - 36° 43' 27'' and longitude 34° 29' 44'' - 35° 0' 13''. Mersin is one of the rapidly growing and industrializing coastal city. Depending on the rapid growth and industrialization; the demand for drinking and irrigation water is increasing day by day. Mostly water required for INDUSTRIAL facilities and AGRICULTURAL activities are obtained from the wells. The DRASTIC model is developed by US-EPA and NWWA to determine potential for water contamination in 1987. The DRASTIC model that based on the GEOLOGICAL and hydroGEOLOGICAL information, is used to determine the potential contamination of groundwater against pollutants.

In this study between in the region Mersin and Tarsus, potential of groundwater pollution were detected using DRASTIC model with Geographic Information System (GIS) . As a result of DRASTİC model , the coastal areas were identified as HIGH potential for contamination. DRASTIC index was HIGHER in coastal regions. The HIGH drastic index indicates a HIGH sensitivity to contamination. In the areas that have HIGH DRASTİC index ; intensive land use, industrialization, AGRICULTURAL activities and fuel storage areas are available. Accidents that may occur in these regions, the extreme use of AGRICULTURAL chemicals, lack of infrastructure, would be inevitable groundwater contamination.

Keywords: Drastic, Groundwater Pollution, Mersin, Gis

COMPARISON OF PHOTOVOLTAIC POWER PLANT FEASIBILITIES FOR HOSPITAL BASED ON DIFFERENT LOCATIONS

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Abstract:

The aim of the present work is to investigate the effects of location and solar irradiation for hospital solar power plants. The current study contributes to our knowledge by addressing three important issues. First, the study explores TECHNICAL, environmental and financial feasibilities of photovoltaic power plant. Second, the work illustrates the comparison of the hospital energy demand and power plant production. And last, contrasting solar power capacity and its feasibility results for different locations, Konya and London, has done.

First hospital is the UNIVERSITY hospital namely Meram MEDICAL Hospital located in Konya, Turkey, and the other is public hospital located in Kent, UK, Darent Valley Hospital. The annual electricity demands of hospitals are 9646.2 MW and 11263.9 MW respectively. The average daily radiation of Konya which is 4.65 kWh/m2/d is quite HIGHER than London where it is 2.82 kWh/m2/d. The power capacities of both solar plants are sized with RETScreen software as 700 kW. Whereas the feasibility of Meram MEDICAL hospital figured out acceptable results, Darent Valley Hospital feasibility has worse results such as longer payback period, lower energy output, lower emission saving etc. The most striking feasibility result to emerge from the data is that while payback period of hospital in Konya is 6.4 years, hospital in London's is quite a change, 10.2 years. This study indicates that the annual power generation of previous plant is 1,227.88 MW which supply 12.7% of energy demand and power generation of latter plant is 791.7 MW which produce 7% of electricity demand yearly. The result of the present study also demonstrates that the annual emission savings of Meram MEDICAL Hospital and Darent Valley Hospital are 564.3 tCO2 and 362.1 tCO2, respectively.

Keywords: Renewable Energy, Photovoltaic, Feasibility

A NOVEL POLY (METHACRYLAMIDE / MALEIC ACID) COPOLYMERIC HYDROGEL FOR IMMOBILIZATION OF INVERTASE

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Abstract:

In this study, preparation and characterization of a novel composite hydrogel poly (methacrylamide/maleic acid) copolymer for immobilization of invertase (β-fructofuranosidase E.C.3.2.1.26) which is important enzyme for food industry was aimed. Poly(methacrylamide) PM and poly(methacrylamide/maleic acid) PM/MA hydrogels were prepared. Spectrophotometric and thermal analysis methods were used for characterization of hydrogels. These hydrogels were used in experiments of swelling and diffusion. It was observed that the swelling of PM/MA was greater than the swelling of PM in water at 25 °C and 60 °C. Diffusion of water within hydrogel was found to be non-Fickian in character. Invertase was immobilized onto PM and PM/MA, so PM-I and PM/MA-I were prepared. In the experiments of immobilized invertase, optimum pH values were found to be; 6.0, 5.0 and 5.5 for free invertase, PM-I and PM/MA-I respectively. Optimum temperatures were found to be; 30 °C, 35 °C and 40 °C for free invertase, PM-I and PM/MA-I respectively. It was found as Km: 11,75 mM, Vmax: 1,95 µmol min-1 for free invertase, Km: 67,24 mM, Vmax: 60,6 µmol min-1 for PM-I and Km: 74,55 mM, Vmax: 18,12 µmol min-1 for PM/MA-I. After 25 consecutive cycles, PM-I and PM/MA-I retained 45-55% of their initial activity. The invertase immobilized hydrogels showed excellent temperature, storage and operational stability. These results showed that poly (methacrylamide / maleic acid) composite hydrogel is suitable support for immobilization of invertase.

Keywords: İmmobilization, İnvertase, Hydrogel, Methacrylamide

FAILURE MODES AND EFFECTS ANALYSIS FOR COGENERATION UNIT IN A WASTEWATER TREATMENT PLANT

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Abstract:

Wastewater treatment plants (WWTPs) are established to clean wastewater for reuse. WWTPs are energy production facilities and compose of sub-systems such as the cogeneration system. Accidents occurred in these plants affect HIGHly system efficiency, effectiveness and employee health. Therefore, risk analysis in WWTPs is quite important to detect and prevent possible accidents in the manufacturing process. Failure Modes and Effects Analysis (FMEA) is one of the well-known risk analysis methods in the literature. In this study, a real life case study is conduced to show the APPLICATION of the FMEA to the cogeneration system in a wastewater treatment plant in Istanbul, Turkey. At the beginning of this study, failures are identified by a group of works composed of engineers and technician in the cogeneration system. Then, a risk priority number is assigned to each failure to sort the failures with respect to their risky. The results of this study show that the potential accidents can be decreased by the successful APPLICATION of FMEA in the cogeneration system in a wastewater treatment plant.

Keywords: Wastewater Treatment Plant, Cogeneration Unit, Fmea, Risk Analysis

MULTI-FUNCTIONAL SENSOR APPLICATIONS BASED ON METAMATERIAL ABSORBER DESIGNED BY MEANDER-LINE RESONATOR

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Abstract:

In this study, we present multifunctional sensor APPLICATIONs based on metamaterial absorber at microwave regime. The proposed structure consists of a meander line type resonator (MLR) topology. Pressure, density and humidity sensing APPLICATIONs are achieved by proposed metamaterial absorber. These APPLICATIONs NUMERICALly examined in a full wave commercial simulation software. Since linearity of the sensor depends on resonance frequency shifts, operating frequency band of the structure are chosen carefully. X band is very suitable for sensing ability of proposed structure and it provides linearity depending on pressure, density and humidity. The proposed structure is obtained by placing a sensor layer between two dielectric layers and it is also called sandwich model. Back layer is covered by the metallic plate and front layer is designed by MLR. So, we observed sensing ability of the proposed structure due to dielectric changes of the sample placing sensor layer. Moreover, proposed model has wide range APPLICATION areas such as MEDICAL, biological, AGRICULTURAL in microwave frequency band.

Keywords: Sensors, Absorber, X Band

PRESSURE AND DENSITY SENSOR APPLICATIONS BASED ON PERFECT METAMATERIAL ABSORBER

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Abstract:

In this study, we present a NUMERICAL study of pressure and density sensor APPLICATIONs based on perfect metamaterial absorber at microwave regime. The proposed structure consists of three resonators having a split ring resonator topology (SRR) placed in an FR4 dielectric substrate. NUMERICAL studies have realized by a commercial full wave simulation program for pressure and density sensing APPLICATIONs. Linearity is the key factor for sensor APPLICATIONs to measure sensitivity of the sample properly. Linear results for pressure and density sensor and perfect absorption activity are obtained by adjusting resonators sizes of proposed structure. The best suitable frequency range for proposed metamaterial absorber is determined as X band due to linearity factor. The sensor layer is placed between two dielectric layers which is called sandwich layers. The back of the structure is covered by a metallic layer to eliminate transmission signal. We observed sensing ability of proposed structure due to constant changes at the resonance frequency and also investigate perfect absorber ability at different frequencies. In addition, proposed model has lots of APPLICATION areas such as chemical, agricultural, MEDICAL in X band.

Keywords: Sensors, Absorber, X Band

THE EFFECTS OF MONOMERS USED IN POLYMERIC BIOMATERIALS ON RENAL TISSUE

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Abstract:

BioMATERIALS are mostly polymers and are used in artificial organ production in contemporary medicine. They are prepared by the polymerization reaction of many monomers. The areas for biomaterial usage are artificial tendon production, as bioadhesives in wound repair, as artificial kidney membranes, as artificial skin and biomaterial in PLASTIC surgery. There are many monomers used in biomaterial production. In this study, we investigated whether acrylamide, methacrylamide, N-isopropylacrylamide and acrylic acid used in polymeric biomaterial production had histopathological effects on renal tissue.

In the present study, Wistar albino rats weighing ~ 250-300g were used. Following the intramuscular injections of 1 mL aqueous monomer solutions at 50 mg/kg concentrations, acrylamide group animals were sacrificed at 1st, 2nd and 3rd weeks, the other monomer group animals were sacrificed at 1st, 2nd, 4th and 6th weeks. One mL serum physiologic were injected intramuscularly to the control group animals at the same time intervals with the experimental group animals. After histological follow-up, serial sections were prepared for evaluation under light microscope.

Acrylamide and its derivatives cause to damage glomerular, arteriolar and tubulointerstitial area in the renal tissue. The narrowing glomeruli space, increasing diffuse mesangial matrix and tubular dilation was observed in the some groups. In addition, dilatation, dissociation of tubular epithelium, thickening basement membranes and glycogenic vacuolization has attracted attention.

In addition, the diameters of glomeruli and Bowman's space are measured, and the changes of the values of all groups with the exposure time were investigated.

There should be no monomer residue in the polymer used as bioMATERIALS.

Keywords: Monomer, Renal Tissue, Glomeruli, Bowman'S Space

ENHANCING HEAT TRANSFER FROM A POROUS PLATE WITH TRANSPIRATION COOLING

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Abstract:

The present study is focused on developing structural solid surface geometry to improve heat transfer by cooling of air with transpiration cooling. Effects of flow rate of water ($\dot{m}_{water}$= 0.000083, 0.000116, 0.000166, 0.000249 kg/s) and particle diameter of porous plate (Dp= 40, 50, 100, 200 µm) on local wall temperature and cooling efficiency of porous plate and the system inside a rectangular channel with air as a hot gas stream and water as a coolant were investigated experimentally. HIGH performance polyethylene as a porous media was used not only to form a thermal barrier but also an active cooling plate by evaporating water from the surface of porous media to cool air. Temperatures were measured by T-type thermocouples. Two electric heaters were used to support enough power to the system. It was observed that increasing water flow rate did not cause a prominent decrease on surface temperature and cooling efficiency of porous plate. The HIGHER injection rates result in further increase of the cooling effectiveness. Cooling efficiency of porous plate changed from 38 to 90 %. Increasing water flow rate as a coolant causes a prominent increase on cooling efficiency of the system. Increasing water flow rate three times causes an increase of 26.4 % on cooling efficiency of the system. Decreasing particle diameter causes a significant decrease on surface temperature. Difference of cooling efficiency of porous plate from Dp=40 to Dp=200 µm decreases from 12% to 2 % from inlet region to end of porous plate.

Keywords: Heat Transfer, Porous Plate, Structured Surface, Transpiration Cooling

ACCURACY AND PRECISION ANALYSIS OF PRECISE POINT POSITIONING (PPP) USING ONLINE-PPP SERVICES

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Abstract:

Precise Point Positioning (PPP) is a Global Positioning System (GPS) based positioning technique which enables HIGH positioning accuracy for static and kinematic APPLICATIONs using precise orbit and clock information. Combining the precise satellite positions and clock information with a dual frequency geodetic GNSS receiver, centimeter level accuracy is possible for three-dimensional positioning. Several online PPP services are available which provides reliable positioning. These services become ubiquitous thanks to the continuing improvement and user friendly interface from organizations and universities. Among these services, CSRS-PPP (Canadian Spatial Reference System), magicGNSS, APPS (Automatic Precise Positioning Service) and GAPS (GPS Analysis and Positioning Software) have an important place in the literature in terms of accuracy. In this study, 6 IGS (International GNSS Service) stations in different latitudes were used in order to investigate positioning performance of CSRS-PPP, magicGNSS, APPS and GAPS. The results were examined in terms of both accuracy and precision. The accuracy analysis was performed by comparing the estimated coordinates of the stations with the published true ones (ITRF 2008).

Keywords: Precise Point Positioning (Ppp), Gps, Online-Ppp Service, İnternational Gnss Service (İgs)

EFFECTS OF HYDROGEN PEROXIDE SPRAYING ON DROUGHT STRESS IN SOYBEAN PLANTS

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Abstract:

Drought is a hazardous phenomena that limits AGRICULTURAL production worldwide. Today, environmental pollution and global warming originated from population explosion caused severe climate fluctuations and increased the effects of drought stress especially in agro-economically important crops. Soybean is one of the most important crop being cultivated and consumed at large scale dates back to years. Therefore, it is vital to analyze and try to enlighten tolerance mechanisms and create effective strategies for the AGRICULTURAL sustainability of crop plants like soybean to feed overpopulated world in current era. In this context, H2O2 might be a great candidate alleviating drought stress induced damages mainly due to its role in complex signal transduction. Therefore, the role of exogenous H2O2 in improving drought tolerance in two soybean cultivars (Glycine max L. Merrill) differing in their tolerance capacity to drought was evaluated in present study. Results suggested that low dose (1 mM) H2O2 foliar pre-treatment alleviated water loss and endogenous H2O2 content and increased drought stress tolerance by modulating reactive oxygen species (ROS) detoxification. Further studies will investigate whether exogenous H2O2 modifies up or down regulation of the key genes that encode well known transcription factors as RD29A or RD29B in response to drought stress.

Keywords: Hydrogen Peroxide, Gylcine Max L, Drought Stress, Stress Tolerance

EFFECT OF HEAT INPUT ON MICROSTRUCTURE AND MICROHARDNESS OF FE-CR-W-B-C POWDER COATING PREPARED BY PLASMA TRANSFERRED ARC WELDING

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Abstract:

In this study, FeB, FeW and FeCrC powders with about 38 µm size were blended in chemical composition of (wt.%) 80FeCrC -10FeW-10FeB. Surface of AISI 1020 was coated by using these powder composition with Plasma Transferred Arc (PTA) welding process To achieve different heat inputs, experimental samples were coated at three different currents (120A, 140A, 160A) and two different travel speeds (0.1 m/min, 0.15 m/min). The microstructure of the coated samples was characterized and analyzed by OM, SEM/EDS, XRD and spectral analysis. For determining the MECHANICAL properties of coating micro-hardness tester was used. Results show that the coating layers consists of dendritic microstructure in HIGH heat input. The maximum microhardness is 1458 HV and maximum coating depth is 2522 µm.

Keywords: Pta Coating, Fe-Cr-W-B-C Powders, Microstructure, Microhardness, Heat İnput.

WHAT SUSTAINABILITY AND SUSTAINABLE DEVELOPMENT MEAN FOR MINING

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Abstract:

Mineral productions and processing are important economic activities in many parts of the world. Growth in world population, together with improvements in standards of living in many countries and development of new uses for minerals has fueled the pace of exploitations. This has been facilitated by advances in technology that allows lower-cost and more-efficient extraction along with increased recycling.

Sustainability requires collaboration and communication with the local and the wider community. Strategic partnerships with communities should be fostered to optimize social and economical benefits from its activities. The wisdom of sustainable development requires optimal outcomes for the industry, economy, society and the environment. Sustainable development for the mineral sector is broad and it encompasses for both public and private property, the sustaining of natural resources, ecosystem, communities and economies as they relate to the processes and products of the sector. For mineral sector, it involves minimizing rather than optimizing the negative effects of production and maximizing the potential benefits of the sector's current capacity.

Keywords: Sustainability, Sustainable Development, Mining, Mineral İndustry

A MOBILE SURVEY APPLICATION FOR ANDROID DEVICES

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Abstract:

Mobile communication is a world wide used communication method and has a large ratio over all alternative communication methods. And today's technology gives us the opportunity to use smart mobile phones with many functions like internet access, calling functions, mobile APPLICATIONs, and etc.

One of the properties of mobile phones is the operating system. By the operating systems of these phones, we are able to run many softwares that have been designed and coded for different purposes like ELECTRONICS shopping, ELECTRONICS banking, social media communication and also EDUCATION. Mostly used operating system on smart mobile phones is Android.

A new survey system aimed to use on EDUCATION to run on smart mobile phones with Android operating system is presented in this paper. It allows both the teacher and the students meet on the same APPLICATION. The students are wanted to answer the questions on the survey that have been inserted into the question database through web or mobile access. Each student answers the questions one by one in a given period of time. At the end of the answering stage, the teacher can analyze the answers on different views. For example how many students have chosen each answer for each question, the correct and wrong answers ratio to evaluate the results of the class in general, the answers of a specified student to evaluate the performance of that student.

This mobile survey system is faster, easier, more useful and more technological than classical survey systems on paper. As the answers of the students and answering times are inserted into a database with the user name, it also provides the teacher to analyze the results in many ways that can be wanted.

Keywords: Survey, Android, Mobile, EDUCATION

PRELIMINARY GEOPHYSICAL APPLICATION FOR INVESTIGATION OF THE CONTINUITY OF FE-RICH EMERY HORIZONS IN KAYABAŞI AREA ON THE SOUTHERN MENDERES MASSIF (TURKEY)

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Abstract:

The Menderes Massif bears several Fe-rich emery bodies and is also rich in metallic and non-metallic minerals. Many geoscientists, therefore, have been interested in the Menderes Massif for its special tectonic and GEOLOGICAL characteristics and various mineral deposits. To determine the continuity of known Fe-rich emery horizons and to explore new deposits in the study area located at southern Kayabaşı village (Milas/MUGLA), a geophysical survey was carried out using magnetic method. Magnetic measurements were taken at two different target areas named as region_A and region_B covering an area of ~ 400*200 m2 in size for each one. The preliminary magnetic survey results of both target areas show clear indication of continuity of emery horizons which show a wide distribution all over the both study areas. The statistical depth results obtained from spectral analysis of the magnetic data provide depth values in the range of 5-10 m for the bottom level of the magnetic sources. However it is suggested that MECHANICAL excavation/drilling activities or geophysical methods such as vertical ELECTRICAL sounding (VES) would be more effective to obtain a vertical resolution to the source depths. According to the magnetic survey results, further exploration activities may be conceivable to determine further probable continuities of the emery deposits at this study region.

Keywords: Emery, Magnetics, Menderes Massif

NOVEL PERYLENE BASED ANTIMICROBIAL AND ANTIPROLITERATIVE PDI CHROMOPHORES

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Abstract:

The main goal of the study was to monitor the antimicrobial and antiproliferative activity of two novel perylenediimides which were synthesized and characterized. Antimicrobial activity was investigated against Mycobacterium tuberculosis strains (Mt-H37Rv, Mt-H37Ra and two clinical isolates) and Staphylococcus aureus strains. Minimal inhibitory concentrations (MICs) and minimal bactericidal activity (MBCs) were determined. Both compounds exhibited bactericidal effects against the bacteria resistant to the medicine. MICs were changing in the range of 48-96 µg/mL for four Mycobacterium strains. Compounds were also effective on Staphylococcus strains at MIC = 96 µg/mL. Antiproliterative activity was determined by MTT test against the prostatic cancer cell line PC3, osteosarcoma cell line Saos2, hepatoma cell line Hep3B and pancreatic cancer cell line Panc1. Both of the compounds were found significantly cytotoxic to PC3, Panc1 and Saos 2 cells however similar effect was not observed on Hep3B cells. Compound 2 reduced the proliferation of PC3 cells more drastically compared to other cell lines, with the lowest IC50 value 40,88 µg/ml.

Keywords: Perylenediimide, Antimicrobial Activity, Mycobacterium Tuberculosis, Methicillin Resistant Staphylococcus Aureus, Mic, Mbc, Anti

MORPHOLOGY PHYLOGENETIC ANALYSIS OF THE TAXA BELONGING TO THE GENUS PICRIS L. (ASTERACEAE) IN TURKEY

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Abstract:

Study material under consideration, PICRIS L., is a member of the Hypochaeridinae subtribe of the tribe Lactuceae which belong to Cichorioideae subfamily of the Asteraceae.

The traditional classification it can be divided into 3 subtribes (Barnadesiodeae, Cichorioideae ve Asteroideae). The genus PICRIS is represented by the species in The Flora of Turkey and The East Aegean Island as P. hieracioides , P. olympica, P. strigosa , P. pauciflora , P. cyprica , P. campylocarpa , P. altissima , P. kotschyi , P. amalecitana.

Relationships among the 9 taxa of the genus PICRIS L. distributed in Turkey were analysed using 29 morphological. For this analysis, as outgroup Helminthotheca echioides, Hypochoeris radicata, and Leontodon asperrimus. Phylogenetic analysis was performed using the PAUP 4.0b10 sofware. Analysis of the data set utilising maximum parsimony criterion is made using the link algorithm with Branch-and – Bound data set analysis of 95(most parsimonious) 11trees that parsimony. This tree is made up of 1topology. Bootstrap analysis with the majority rule consensus algorithm generated a consensus tree supporting some branches. As a result of this analysis 1. klad is supported by the 69. In studies done before PICRIS, Leontodon, Helminthotecha and Hypochoeris has taken Hypochaeridinae subtribus. The work of resulting data support it.

Keywords: PICRIS, Morphology, Parsimony, Phylogenetic

A GENERAL OVERVIEW OF COGENERATION SYSTEMS IN TURKEY

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Abstract:

This study is to present a general overview of cogeneration systems in Turkey. Cogeneration is one of the most significant subjects for industry of Turkey. Heavy and food industries have many problems for their production processes. Therefore, our study is focusing on solution of the cogeneration case in Turkey. The aim of this study is presenting these cogeneration problems with solution cases. Location of Turkey is in the Middle-East. So there are many turmoil areas around Turkey. Energy is a big problem for Turkey too. In order to solve energy problem, Turkey must take her care to all of these misfortunes. Cogeneration systems can be a key solution for energy problems. Particularly, heavy and food industries use more energy than other sectors of industry. In this study, it was presented a general perspective of usage of cogeneration systems in Turkey. It was compared with previous similar studies. This study also indicates significant subject to the renewables energy and fossil resources.

Keywords: Cogeneration, Cost, Energy, İndustry

EVALUATION OF A POTENTIAL WILDLIFE CROSSING IN THE CITY OF BURDUR

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Abstract:

Especially HIGHways and expressways affect populations in numerous ways, from habitat loss and fragmentation, to barriers to animal movement, and wildlife mortality. Hence, the effects of roads on wildlife populations have been the focus of many studies in the last decade and increasing concern for transportation and natural resource management agencies. For this reason, wildlife crossing has been established on the roads to protect the wild animals and them to breed, feed and to meet water needs in recent years. Wildlife crossing is a habitat combining wildlife populations fragmented especially by HIGHways. Namely, it has facilitated the living of wild animals by providing a connection between two fragmented areas. In this study, a wildlife crossing is designed for two fragmented areas (Mehmet AKIF Ersoy Urban Forest and 607th Burdur Forest Compartment) located in the City of Burdur. For this purpose, computer software has been used to maintain a map that has been supported with photographs. This wildlife crossing is supported by samples established in the developed countries. The research team also reviewed studies that assess the efficacy of crossings and in doing so, learned what was working well. It has been thought that such a crossing is essential for the living in these areas. Moreover, this kind of crossing should be established in the whole fragmented areas in Turkey. On the other hand, the sitting of wildlife crossing structures is equally as important as their design. Identifying the proper location of crossing structures is critical for designing effective mitigation of the barrier effect caused by roads. To better identify potential mitigation measures for wildlife along transportation corridors, it is necessary to identify not only collision-prone zones, but also areas where landscape permeability can be addressed for suites of species.

Keywords: Burdur, Fragmentation, PROTECTION, Roads, Turkey, Wildlife Crossing

CHELATE-INDUCED PHYTOEXTRACTION POTENTIAL OF BRASSICA RAPA FOR SOIL CONTAMINATED WITH NICKEL

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Abstract:

The aim of the present study is to induce for phytoextraction of Ni by Brassica rapa from contaminated soil by APPLICATION of EDTA. Brassica rapa seeds were planted in pots with Ni concentrations ranging from 0 to 2000 mg/kg in the absence or presence of 10 mg/kg EDTA. After 60 days of growth, Ni concentration of plants were observed. Brassica rapa showed the remarkable resistance to Ni toxicity with no visual toxic symptoms as chlorosis and necrosis. The addition of 10 mg/kg EDTA significantly increased both the plant growth and the Ni concentration, compared with the control. Especially the addition of 10 mg/kg EDTA and 500 mg/kg Ni produced fertilizer effect and maximum dry matter achieved to 1.96 mg/plant from 0.82 mg/plant. While Brassica rapa accumulated 3763 mg/kg Ni in the absence of EDTA, the addition of 10 mg/kg EDTA increased Ni accumulation to 3942 mg/kg Ni at Ni APPLICATION dose of 2000 mg/kg. Experimental results indicated that Brassica rapa is Ni hyperaccumulator plant (>1000 mg/kg in shoots) both in the absence or presence of EDTA. The bioaccumulation coefficient (BAC) for Ni by Brassica rapa was greater than 1, providing further evidence for the transport of Ni from Ni contaminated soils.

Keywords: Edta, Hyperaccumulator, Nickel, Phytoextraction, Brassica Rapa

IN VITRO EFFECT OF CAFFEIC ACID AND NICOTINE ON PURIFIED XANTHINE OXIDASE FROM BOVINE MILK

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Abstract:

Xanthine oxidoreductase is a 300 KDa dimer and contains binding sites for molybdopterin, iron and flavin cofactors. In mammals xanthine dehydrogenase is the predominant form of the enzyme in vivo; however, mammalian xanthine dehydrogenase can be converted to xanthine oxidase by sulfhydryl oxidation or proteolytic action. One of the primary biological functions of xanthine oxidoreductase in mammals is purine degradation where the enzyme catalyzes the rate-limiting step in the oxidation of xanthine and hypoxanthine to uric acid. HIGH levels of the xanthine oxidase form have been associated with tissue injury and certain diseases and are believed to contribute to oxidative damage of cells through the generation of cytotoxic oxygen metabolites.

Caffeic acid and nicotine are widely used in food and living conditions from people. These compounds were evaluated for inhibitory and activator activity on xanthine oxidase for the first time. Enzyme was purified from bovine milk which is a rich source of the xanthine oxidase. Xanthine oxidase was developed using two-step procedures, namely ammonium sulphate precipitation and affinity chromatography. SDS polyacyrilamide gel electrophoresis of the enzyme indicates a single band. The results show that caffeic acid and nicotine exhibit activator effects on xanthine oxidase at low concentration.

Keywords: Xanthine Oxidase, Caffeic Acid, Nicotine, İn Vitro Effect, Purification.

PHENOLIC COMPOSITION OF FIVE SIDERITIS SPECIES ENDEMIC TO TURKEY

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Abstract:

Sideritis L. belongs to the family of Lamiaceae (Labiatae), one of the most common and diverse plants of the world, is mainly found in the Mediterranean area especially Spain and Turkey. There are 44 Sideritis species (55 taxa) in Turkey and, endemism rate of this genus is HIGH (almost 80%). A derivate of the Greek word "Sideron" was used to name the genus Sideritis, due to its alleged ability to aid in curing wounds caused by iron blades. In addition to this vulnerary property, Sideritis species have been popularly used for centuries for their anti-inflammatory, anti-ulcerogenic, digestive and antimicrobial properties.

Antioxidant compounds play important roles in the scavenging and inhibition of free radicals. The PROTECTION against oxidative damage is one of the most widely described attributes of plant polyphenols, and is connected with their antioxidant activity. Phenolic compounds are found in plants that consist of simple phenols, benzoic acid derivatives, cinnamic acid derivatives, coumarins, tannins, lignins, lignans and flavonoids, among others. They mainly have been attributed strong antioxidant properties.

The aim of the present study was to investigate the phenolic composition of the five endemic Sideritis species: Sideritis pisidica Boiss&Heldr apud Bentham, S. phrygia Bornm, S. brevibracteata P.H. Davis, S. bilgerana P.H. Davis, S. hispida P.H. Davis. For this purposes, the shade-dried powdered plant was extracted with hexane, acetone and methanol. The phenolic profile of the extracts was analyzed by LC-MS/MS.

Chlorogenic acid and Quercetagetin-3,6-dimethylether were mostly detected in the extracts.

The authors thank TÜBİTAK for supporting this study as a part of the project 113Z710.

Keywords: Sideritis Pisidica, S. Phrygia, S. Brevibracteata, S. Bilgerana, S. Hispida, Phenolic

HYBRID CPU/FPGA SYSTEM DESIGN FOR HOG BASED PEDESTRIAN DETECTION

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Abstract:

APPLICATION areas of image processing based systems have increased with the development of recent image processing studies. By using computer vision systems, object recognition APPLICATIONs such as face recognition, license plate detection, pedestrian detection etc. are frequently encountered. In recent years, pedestrian detection systems have started to be used in AUTOMOTIVE technologies to prevent fatal traffic accidents. In this study, a pedestrian detection APPLICATION is developed by using Histogram of the Oriented Gradients (HOG) algorithm and Support Vector MACHINE (SVM) classifier. HOG algorithm, which is frequently used as a feature extraction method in pedestrian detection APPLICATIONs, is implemented in FPGA. The classification of extracted features and pedestrian detection are done by SVM classifier on the microprocessor. In this work, in order to achieve real-time pedestrian detection on low-power and low-cost embedded systems, hybrid FPGA-CPU based hardware design is proposed. In this design, an FPGA cape board is designed for VHDL implementation of HOG algorithm and it is used on BeagleBone embedded platform. As a result, it is able to be processed 100 VGA frame per second on FPGA for HOG feature extraction. However, SVM classification process indicates a bottleneck to the system performance with 4 frames per second.

Keywords: Pedestrian Detection, Histogram Of Oriented Gradients, Computer Vision, Suppport Vector MACHINE, Fpga

PLANNING MULTIPLE UAVS TO VISIT POINTS OF INTEREST CONSIDERING FLIGHT RANGE AND SERVICE TIME CONSTRAINTS

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Abstract:

Recently using Unmanned Aerial Vehicles (UAVs) either for military or CIVILian purposes is getting popularity. Unfortunately, UAVs have their own limitations such as flight range due to UAV's scarce energy resource. For the APPLICATIONs, there could be many customers or Points of Interest (PoI) to be serviced for the given service time periods. Moreover, the number of UAVs which are owned by the APPLICATIONs could be also limited. Therefore, in real life APPLICATIONs, we face with an optimization problem such that for a given number of UAVs with a specific flight range, they should service maximum number of PoIs in the predetermined time windows. We name this problem the Covering Maximum PoI by Multiple UAVs Problem (CMP/MUP.) As CMP/MUP can be classified as a combinatorial optimization problem, we employ a greedy approach to reach a reasonable solution in an acceptable time period. Thus, we design a heuristic solution based on the Nearest Neighbor (NN) heuristic. In generic NN heuristic, one can create a route planning of a UAV by selecting the nearest PoI to the current UAV location as the next one as long as UAV can return to the base. However, in the present problem, there is an important Time Window constraint which defines when a UAV visits any PoI. Therefore, we adopted the NN method into the CMP/MUP such that NN-MP/MU first selects three nearest PoIs whose Time Windows can be satisfied by the UAV considering the UAV's current location, remaining range, speed along with the base location. Then, out of these PoIs, the one with the earliest service time is picked as the next PoI. The results of extensive simulation show the effectiveness of the proposed heuristic for different flight ranges, PoI topologies, and time windows.

Keywords: Unmanned Aerial Vehicles, Route Planning, Nearest Neighbor (Nn) Heuristic , Optimization, Simulation

METAMATERIAL BASED ABSORBER DESIGN

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Abstract:

In this study, a new type of metamaterial absorber composed of gammadion and square inclusions are NUMERICALly investigated in microwave range by using finite integration technique based EM solver. This absorber can be easily fabricated and has good absorption characteristic at two different frequency band. This resonance frequencies are around 3GHz and 6 GHz which are important for telecommunication technologies. The absorption level at these frequencies are around %90. Incident angle and polarization effects on absorption ratios are also investigated for the same resonance frequencies. The proposed structure performance can be used for stealth technology and new generations of solar cells.

Keywords: Absorber Design, Metamaterial, Solar

SUPERCAPACITOR BEHAVIOUR OF BORON DOPED COBALT OXIDE FILMS

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Abstract:

Co3O4 and boron doped Co3O4 films were produced by airburh spray deposition. All films were obtained onto glass and ITO substrates at 400 °C and annealed at 550°C. We present detailed analysis of the morphological, ELECTRICAL and optical properties of films. Morphologies of the films were examined by using a scanning electron microscopy (SEM). Optical measurements show that the band gap energies of the films vary with boron concentrations. The electrochemical supercapacitor performance test have been studied in aqueous 6 M KOH electrolyte. Electrochemical capacitive behavior of synthesized thin films are investigated by cyclic voltammetry and electrochemical impedance spectroscopy.

Keywords: Cobalt Oxide, Supercapacitor

DETERMINING THE RELATION BETWEEN LIGHTING AND PARK SECURITY WITH THE HELP OF LOGISTIC REGRESSION ANALYSIS

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Abstract:

The purpose of this study is determining the relation between the lighting and park security in parks, which are one of the most important elements of urban open green area systems. In the scope of the study, a questionnaire has been prepared and APPLIED to determine the viewpoints of the users on security and lighting in Abdullah Gul Park, which is one of the biggest and the most developed parks in the city center of Malatya in Turkey. The logistic regression method has been used to determine the relation between the lighting and park security. According to the logistic regression model, which has been established with the data obtained in the questionnaire study, the effects of the lighting on the viewpoints of the users on park security is 61.8%.

Keywords: Lightning, Security, Urban Park, Malatya

EXAMINING THE ARBOREAL TAXA USED IN LANDSCAPE DESIGN WORKS OF THE CITY OF MALATYA

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Abstract:

In the scope of this study, the arboreal plant taxa which are used in open urban area landscape design in the city center of Malatya in Turkey, have been examined. In the light of the data received from the Parks and Gardens Management of Malatya Metropolitan Municipality, the types that were purchased by the relevant units of the municipality to be used in landscape design like the city parks, children's playgrounds, roadside planting, square designs for the years 2011-2012-2013 and 2014 have been determined. According to the data obtained, it was observed that 83 strains belonging to 29 families and 50 stocks were used in these design works. 25 out of these 83 strains were gymnosperm and 58 were angiosperm. Again, among these 83 strains, 37 were shrub species and 46 were tree species.

Keywords: Urban Green Area, Plant Material, Biological Diversity, Malatya.

EXAMINING THE INTRACITY PARKS IN TERMS OF THE EXISTENCE AND SIZE OF WATER: THE EXAMPLE OF THE CITY OF MALATYA

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Abstract:

The services and benefits of the open and green areas in cities for the residents of the city have been examined and revealed with a great number of studies conducted by authors from various disciplines. Parks, on the other hand, are accepted as the most important elements of this open and green area systems. Especially in the designs of the parks in hot climate areas the issue of water has a wide area of use. In this study, the existence and size of water element in the 94 parks located in the city of Malatya, which has the half-dry climate type in Thornthwaite Climate Classification, and which is a transitional area between the Eastern Anatolian and Southeastern Anatolian Regions and the contributions of the parks to the city as a surface of water have been examined.

Keywords: Open Green Area, Urban Park, Water, Malatya.

THE CONTRIBUTIONS OF THE PARKS AND CHILDREN'S PLAYGROUNDS IN THE CITY OF MALATYA TO THE GREEN AREA AND URBAN OPEN GREEN AREA SYSTEMS

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Abstract:

Parks located in cities are accepted as one of the most important elements of the intracity open and green area systems. The green areas of the parks and children's playgrounds in a city have an important role on urban green areas. In this study, the size of the green areas in the 94 parks located in the city of Malatya, the influence of the green areas per capita, and the distribution of green areas in neighborhoods have been examined. According to the data obtained in the study, the total area of the 94 units consisting of parks and playgrounds in Malatya city center is 573519.82 m2, the total green areas are 264781 m2 and average green area of each units is 46.2%. In this context, active green area amount per capita in the city stemming from these two units has been determined as 0.45 m2.

Keywords: Urban Green Area, Urban Park, City, Malatya.

EVALUATION OF ASCOCHYTA BLIGHT INFECTION IN CHICKPEA BY REAL-TIME PCR ASSAY

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Abstract:

This manuscript describes the use of real-time polymerase chain reaction for the detection and quantification of Ascochyta rabiei growth in chickpea tissues and assesses the capability of this technique as a rapid and reliable alternative strategy to visual symptom scoring for monitoring host susceptibility of chickpea genotypes. Assays were designed to the amplify translation elongation factor 1 alpha gene based on SYBR Green I technology. Primers were designed to amplify an A. rabiei specific 82-bp fragment. The fungal biomass in chickpea tissues inoculated with different inoculation assays was quantified using the standard curves constructed with known concentrations of DNA. Standard calibration curves showed linear correlation between the fungal genomic DNA and the threshold cycle values. The melting curve analysis produced a single peak with a melting point of 83°C, demonstrating the presence of only one product in the reaction. The results revealed a good correlation between visual assessments of disease severity and quantification of pathogen biomass in infected chickpea tissues at different time intervals after inoculation. This method should be suited for the detection of the pathogen prior to the development of disease symptoms and the quantification of disease infection in different chickpea genotypes with a varying degree of resistance.

*This work was supported by TÜBİTAK Project 113O074 (Turkey)

Keywords: Ascochyta Blight, Chickpea, Disease Reaction, Real-Time Pcr

A RESEARCH ON DETERMINING THE USER SATISFACTION WITH THE PARKS BUILT FOR THE DISABLED: THE SAMPLE OF THE CITY OF MALATYA

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Abstract:

In the city center of Malatya are a total of 94 parks providing active service in accordance with the figures pertaining to the year 2015. Among these parks is only the one referred to as ''The Park of the Disabled'', which was designed to be used by disabled individuals in particular.

In this study, it was aimed on the basis of the participatory approach that the view, wish and satisfaction levels of the disabled individuals regarding '' The Park of the Disabled in Malatya'', which was constructed for the purpose of being used by the disabled individuals living in the City of Malatya, be determined. Within this context, a survey study was conducted on the disabled individuals living in this city. According to the data obtained from the survey study, it was determined that 69.5% of the disabled individuals living in the city center of Malatya had found The Park of the Disabled insufficient in terms of its areal size. 51.4% of the participants found the number of equipments insufficient, whereas 32.4% of them found the equipment qualities insufficient; on the other hand, 58.1% of them expressed the view that the park was in an inconvenient location in terms of transportation. Accordingly; in Malatya, almost 13.9% of the population of which consist of disabled individuals, it is necessary to develop the Park of the Disabled in terms of its areal size, the number and the quality of the equipments as well as easy transportation. Separately, the fact that there is only one park designed to be used solely by the disabled individuals in the city impairs the urban quality of life in terms of disabled individuals.

Keywords: The Disabled, Urban Park, Design, Participatory Approach

DEVELOPMENT OF A NEW MULTI-RESIDUE METHOD FOR DETERMINATION OF FIVE PESTICIDES IN WATER BY GC-MASS

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Abstract:

The intensive use of pesticides and the persistence of these compounds, residue of pesticides is getting into the environment, including groundwater and surface water. It is necessary to develop faster and more selective analytical methodologies that determine the trace levels of pesticide residues sensitively in waters. In the present work, multi-residue methods were developed for the determination of pesticides by liquid-liquid extraction (LLE) and followed by gas chromatography-selected ion monitoring (SIM) mass spectrometry (GC/Mass). The method was evaluated with respect to the limit of detection (LOD) and quantification (LOQ), linearity and accuracy. For GC/MS, LODs were between 1.269 µg/l and 2,5 µg/l and LOQs were between 4.231 µg/l and 8,35 µg/l. Recoveries were obtained over 96% in HIGH concentration and 94% in low concentration. Repeatabilities were varied from 4,131 to 13,74 and reproducibilities (RSD%) were varied from 7,36 to16,05. The method provides sensitivity, selectivity; detection limits in the parts-per-billion level and good repeatability for the simultaneous analysis of residue of pesticides in water samples.

Keywords: Gas Chromotography, Pesticide,Multi Residue Method

BIOSORPTION OF TH(IV) IONS BY USING MODIFIED POWDERED WASTE SLUDGE (PWS) FROM AQUEOUS SOLUTION: AN EXPERIMENTAL DESIGN APPROACH

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Abstract:

The removal of radionuclides such as thorium from aqueous solutions is an important topic in environmental pollution. In this study, the biosorption of thorium (IV) ions onto modified powdered waste sludge (PWS) adsorbent from aqueous media was studied by the aim of the Box- Behnken Experimental Design (BBED). The ventilation pool powder sludge samples were provided from municipal wastewater treatment plant. The gathered powdered waste sludge was chemically modified for activating metal bind sites. SEM and BET surface area methodologies were APPLIED to powdered waste sludge for determining the active functional groups which can be adsorbed thorium ions.

The thorium concentration, shaking time, biosorbent content and temperature were investigated and the optimum conditions were determined on the basis of Box-Behnken Experimantal Design by using Powdered Waste Sludge (PWS) from aqueous solutions. To achieve the HIGH percentage Th(IV) removals, the experimental time and PWS concentration should be kept HIGH and low, respectively. To obtain nearly 90% Th(IV) removal, the experimental time and PWS concentration should be kept 360 minute and 1g/L, respectively.

To reach the HIGH Th(IV) biosorption amounts, the experimental time and PWS concentration should be kept HIGH and low, respectively. To access nearly 27 mg/g Th(IV) biosorption amount, the experimental time and PWS concentration should be kept 360 minute and 1g/L, respectively.

Keywords: Thorium (İv), Biosorption, Experimental Design, Batch, Activated Sludge, Powdered Waste Sludge (Pws).

PERMEATION PROPERTIES OF SELF COMPACTING LIGHTWEIGHT CONCRETE WITH SCORIA AGGREGATE

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Abstract:

Durability is one of big problem of concrete effecting service life. The durability of concrete is greatly influenced by the permeation properties of the material for potentially aggressive substances. SCLC's (self-compacting lightweight concrete) durability properties are different in comparison with traditional concrete types. This paper presents an experimental study on accelerated carbonation, capillary water absorption and permeability of a range of different SCLC mixes in comparison with those of selected traditional vibrated lightweight concrete (LC) and self-compacting concrete (SCC). Seven different concrete compositions are considered: four SCLC, two SCC and one LC mixtures. All of SCLC, one of the SCC and LC mix with a constant powder dosage of 550 kg/m3 was designed containing cement of 440 kg/m3 and fly ash of 80 kg/m3. The other SCC mix was designed lover cement dosage for similar characteristic strength. Scoria aggregate of the SCLC was replaced with expanded perlite aggregate by 10, 20 and 30%. The results showed that the use of scoria and expanded perlite seems to be possible to produce SCLC mixture. The unit weights of SCLC with scoria and expanded perlite was about 1900 g/dm3, while the unit weight of SCC was 2300 g/dm3. Generally, permeation properties of SCLC decreased since porous aggregate was used. However, SCLC's compressive strength per unit weight was more efficient than SCC.

Keywords: Self-Compacting, Lightweight Aggregate, Carbonation, Capillary Water Absorption

KINETIC INVESTIGATION OF SOME OPIOID ANALGESICS BY THERMOGRAVIMETRY

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Abstract:

Opioid analgesics are prescribed for moderate to severe pain, particularly of visceral origin, and are used in step two and step three of the analgesic ladder. Dependence and tolerance are well-known features with regular use although this should not inhibit prescribing in palliative care. Some chronic non-malignant conditions benefit from analgesic control with opioids, but patients should be reviewed regularly. Opioids are increasingly prescribed for non-cancerous conditions but it may be appropriate to involve a specialist in the decision to prescribe long-term opioids for such conditions.

Natural opioids occur in two places: a. in the juice of the opium poppy (morphine and codeine), b. as endogenous endorphins. All other opioids are prepared from either morphine (semisynthetic opioids such as heroin) or they are synthesized from precursor compounds (synthetic opioids such as fentanyl).

Thermal analysis TECHNIQUES cover all methods in which a physical property is monitored as a function of temperature or time. Thermogravimetry are useful TECHNIQUES that have been successfully APPLIED in the pharmaceutical industry to reveal important information regarding, the physicochemical properties of drug and excipient molecules such as polymorphism, stability, purity, formulation compatibility among others, and assessing the drug degradation kinetics. There are definitive advantages to employing thermal analysis methods to attain varying views of the physicochemical properties of pharmaceuticals. The determination of the key physical and chemical properties of a new material is essential. Therefore, the aim of this study was to evaluate the kinetic investigation of codeine, morphine, ethyl morphine, heroin and dextropropoxyphene using thermogravimetry. The search of thermal degradation and kinetics, were carried out to help understanding the solid-state characterization, evaluate the quality control and stability for opioid analgesics.

Keywords: Kinetic İnvestigation, Opioid Analgesics, Thermogravimetry

SILICA BASED SORBENTS FOR SOLVING HEAVY METAL POLLUTION PROBLEM IN AQUEOS MEDIA

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Abstract:

Many industries discharge toxic aqueous effluents to natural resources which contain HIGHly toxic metals ions. They are HIGHly toxic and non-degradable even at low concentrations for living organisms. Moreover they have negative side environmental and economic impact . Thats why heavy metal ions existence in aqueous media is one of the biggest environmental pollution, as a result of that removal of heavy metals is a very important procedure.

A lot of methods have been employed for removal of toxic and polluting heavy metal ions from INDUSTRIAL effluents. Presently, there is a growing interest in using modified silica-gel that has a great importance as a solid support. The silica-gel is chosen for being to prepare its modified products, because of its HIGH surface area, HIGH MECHANICAL endurance and thermal stability and they can be prepared easily for adsorption of desired heavy metal(s).

In this work a new silica based, environmental friendly and tough adsorbent was synthesized by modifying of 3-aminopropyl-functionalized silica gel with thiamine (vitamin B1) and characterized. The influence of the uptake conditions such as pH, contact time, initial feed concentration and FOREIGN metal ions on the binding capacity of thiamine functionalized silica gel adsorbent (M3APS) were investigated. Maximum adsorption capacities for Pb(II), Hg(II) and Cd(II) were obtained; 39.4 ± 0.2, 30.9 ±0.5 and 9.54 ±0.4 mg g-1 M3APS respectively at pH 5.0. The selectivity of M3APS for these metal ions was observed as having the follows: Pb(II)>Hg(II)>Cd(II). Adsorption isotherm models were also APPLIED to the adsorption process. The Gibbs Free Energy (ΔG) for the adsorption of Pb(II), Hg(II) and Cd(II) were calculated to predict the nature of adsorption process. Having that much satisfactory adsorption results, M3APS became a potential candidate adsorbent for Pb(II) and Hg(II) from aqueous media

Keywords: Heavy Metal İons, Adsorption, Thiamine, Aas, Adsorption İsotherms

STRESS CHANGES IN GEDIZ GRABEN (WESTERN ANATOLIA)

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Abstract:

Western Anatolia is one of the most seismically active and rapidly extending regions in the world and is currently experiencing an approximately N–S continental extension since at least Miocene time. In this study the stress changes on best known graben of Western Anatolia, namely Gediz graben, was investigated. Therefore, northern normal fault of Gediz Graben was examined for calculating static displacements (at GNSS stations), strains, and stresses at any depth caused by fault slip by using Coulomb 3.3 graphic-rich stress change software. As the first step, the GNSS data were processed relative to the stations which were located on opposite sides of the fault by GAMIT/GLOBK (GG) software. Secondly, by taking into account the GNSS velocities which were obtained by GG and by using the fault and elastic parameters of the graben, the faults were modeled by Coulomb 3.3 software. Then the coulomb stress changes were calculated for different depths by using the best fitting fault parameters. At the last step, the coulomb stress changes were compared with the occurred earthquakes between the years 1970 and 2014. Consequently, the occurred earthquakes were found as coherent with the coulomb stress change regions.

Keywords: Gediz Graben, Gnss, Stress Changes, Western Anatolia

NUMERICAL MODELING STUDIES FOR DIFFERENT TEMPERATURES ON EXTENSIONAL REGION

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Abstract:

NUMERICAL modeling by using finite elements can be used for determining forces, deformations, stresses and strains throughout a dependent structure. These can be made at any point in the structure including within the related layer. Besides, the element mesh can accurately describe the geometry of the bond line so the influence of geometrical features, such as the shape of model and boundaries. The spatial discretization of the medium finite element associated with the time discretization is used to give a digital nature to equations. The deformation modeling on the lithosphere as a continuous medium is mainly based on the equilibrium equations of the environment, the laws of behavior of this medium, the boundary conditions of the environment as well as some initial conditions. In this study, NUMERICAL modeling was used to investigate the deformation during the GEOLOGICAL scales by using the finite elements. In this scope, a theoretical structure was modeled from south to north for modeling the extension. The topography and crust-mantle interface values which were represented the Moho depth of the study area were used as surface and subsurface limits of the boundary conditions on the model. Therefore, the models were created for different temperature values, GEOLOGICAL scales, therefore, deformed areas were occurred. Consequently, the NUMERICAL models how effected by these parameters were determined.

Keywords: Deformation, Extensional Region, Finite Elements, NUMERICAL Modeling.

EXPERIMENTAL STUDY ON PERFORMANCE AND EXHAUST EMISSIONS OF A DIESEL ENGINE FUELLED WITH BLENDS OF SAFFLOWER BIODIESEL AND DIESEL FUEL

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Abstract:

An objective of this study was to investigate the effect of adding biodiesel to diesel fuel on performance and emission characteristics in a diesel engine. Diesel fuel and blend fuels were tested in a CI engine with direct injection and water cooled. The prepared test fuels are coded as Euro Diesel (ED), safflower oil biodiesel (B), B3 (97% ED + 3% B), B20 (80% ED + 20% B). Engine tests were performed at different engine speeds (1000 min-1 – 3000 min-1, ranges of 200 min-1) at full throttle condition. Test results showed that the engine torque increased on average of 3.4% for B3 fuel and it decreased on average of 11% with using of B20 fuel. The thermal efficiency values for B3 fuel were lower on average 3.36% than that of diesel fuel at low engine speed, although they were HIGHER on average 3.8% than that of diesel fuel at HIGH engine speed. In addition, thermal efficiency values decreased on average 9.56% for B20 fuel when compared to with diesel fuel. CO emissions decreased on average about 22.7% and 50% with using B3 and B20 fuels, respectively. With using biodiesel, NO emissions increased on average %5.7 for B3 fuel and on average 31.3% for B20 fuel when compared with diesel fuel. HC emissions of B3 and B20 decreased were lower average 9.5% and 39% respectively than that of diesel fuel. Smoke opacity values decreased on average 2.5% for B3 fuel and decreased on average 6.5% for when compared with diesel fuel.

Keywords: Safflower Biodiesel, Engine Performance, Exhaust Emissions

AN EXPERIMENTAL PLATFORM OF SENSING DATA AND BLUETOOTH SCANNING

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Abstract:

The constantly increasing number of smart devices used in every aspect of humans' life made the Internet of Things (IoT) possible. IoT raised many challenges in various different FIELDs including wireless communication and networking. In order to adequately address these challenges, efficient experimental tools are vital. This paper proposes BlueScan, a powerful experimentation platform which brings rich functionality to researches in the FIELD. The platform is meant for gathering Received Signal Strength Indicator (RSSI) estimates from multiple devices along with hardware/software sensor data. BlueScan allows tracking values visually in real time and saving data for post processing. The platform is based on Android OS version 4.2 or HIGHER and employs Bluetooth technology for communication. BlueScan is the first platform of its kind available on Google Play for free. This study explains technology used for developing the proposed software, the platform itself and gives suggestions for its possible use.

Keywords: İnternet Of Things; Experimental Platform; Received Signal Strength Indicator; Bluetooth

A RESEARCH ON ACCESSIBILITY OF URBAN PARKS BY DISABLED USERS

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Abstract:

The availability and accessibility for people with disabilities in their social environment as parking is extremely important. Therefore, the planning of the park accessible format in order to continue living as a barrier of all individuals with disabilities must be designed and implemented. In the case of individuals with disabilities feel helpless and hopeless and care that leads to restless against them. Therefore, designers need to be sensitive to a barrier-free design will offer the possibility of life on equal terms with everyone. Thus, all disabled people will be fully and be able to easily access social life.

Thanks to technological developments and design diversity in recent years. It became easier for all individuals are equal in area to access. Thus, it aims to seamlessly participate in social life of people with disabilities.

In this study, one of the largest parks in Konya for disabled people were examined and evaluated. Parking available in the area, walking paths, plantings and urban equipment of the appropriateness of the disabled, has tried to expose the problems occurring in use. Design measurements were compared with data obtained from space for the disabled, suitable for those determined unsuitable for proposals has been required.

Keywords: Obstacle, Handicapped People, Parks, Accessibility

LANDSCAPE DESIGN PRINCIPLES OF UNIVERSITY CAMPUSES: A CASE STUDY IN CAMPUS OF ALAEDDIN KEYKUBAT, SELCUK UNIVERSITY

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Abstract:

The outside areas on UNIVERSITY campuses plays a significant role for the daily campus life and activities. For a comfortable and safe life of the TEACHING staff, students and other employees, UNIVERSITY campuses should be built on the basis of landscape planning and design criteria. This case will also affect the quality of the EDUCATION system and scientific researches positively. Selcuk UNIVERSITY with its 6 INSTITUTEs, 6 colleges, 22 VOCATIONAL schools, 1 state conservatory and close to 90,000 students is one of the largest EDUCATIONal institutions in Turkey. Selcuk UNIVERSITY Alaeddin Keykubat Campus has been serving nearly 30 years. Due to the process which developed very rapid and unplanned, especially spatial problems emerged. In this study, planning, design, development and sustainability principles for UNIVERSITY campus landscapes have been revealed. Also, supporting the regeneration of the Selcuk UNIVERSITY campus landscape in terms of aesthetic and functionality was puposed.

Keywords: Landscape Design, Landscape Planning, Selcuk UNIVERSITY, UNIVERSITY Campus

A STUDY ON PERFORMANCE CHARACTERISTICS OF A SOLAR-ASSISTED EJECTOR COOLING SYSTEM

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Abstract:

Performance of solar-assisted ejector cooling system (SAECS) was experimentally investigated with different ejector area ratios (Ar) such as 6.56, 7.17 and 7.86. In experiments single glazed selective type collectors with 4.6 m2, 6.9 m2, 9.2 m2 and 13.8 m2 collector areas (Ac) were used for different ejector area ratios. Experiments were performed between 10:00- 16:00 o'clock on different days of June, July and August in Konya, Turkey. For all experiments condenser temperatures (Tc) were at a range of 26 °C and 28 °C while evaporator temperature (Te) was kept at 8 °C. R123 was used as the working fluid. As the results, maximum coefficients of performance (COP) values corresponding to optimum generator temperatures (Tgopt)) were determined 33.5% for 70 °C and 37% for 73.5 °C and 38.8% for 76 °C, and average cooling capacities (Qe) were found as 758 W, 921W and 1027 W,after ejectors chocked, for ejector area ratios of 6.56, 7.17 and 7.86, respectively. An equation was defined between the generator temperatures (Tg) and collector areas to find optimum collector areas for different ejector area ratios at the APPLIED operating condition.

Keywords: Ejector Cooling, Cop,Solar Energy

MANAGEMENT OF STINK BUGS CAUSED CHALKY SPOT ON RED LENTIL IN SOUTHEAST ANATOLIA REGION, TURKEY

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Abstract:

The stink bugs, Piezedorus lituratus (F.) and Dolycorus.baccarum L. feeding on developing lentil seeds caused chalky spot damage is a serious problem in red lentil production in Southeast Anatolia Region of Turkey. The purpose of this research was to determine susceptible lentil stages for the stink bugs through control potential with different harvesting time and methods in FIELD conditions. The studies were carried out in DIYARBAKIR, Mardin and Sanliurfa provinces in Southeast Anatolia Region of Turkey in 2011-2012 years. The most susceptible plant stage for chalky spot damage was determined by starting the spraying against the stink bugs at different growth stages (R5, R6, R7 stage) of lentil. Effects of early and on time harvesting on chalky spot damage were found out by using two different harvesting time (7-10 days early harvest, on time harvest) and two different harvesting type (traditional or combine harvester).

Damage to lentil seeds was approximately twice as severe when allowed to stink bugs feeding at growth stages R7 compared with stages R5 and R6 in trial carried out in DIYARBAKIR and Sanlıurfa provinces (f (3,16)=10,423, p=0.000; f (3,16)=20,12 p=0.000, respectively). Early harvesting significantly reduced chalky spot damage in DIYARBAKIR and Mardin provinces (t (18) =-3.69, p=0.002; t (18) =-3.78, p=0.001, respectively). Additionally, harvesting by combine considerably decreased chalky spot damage in DIYARBAKIR and Sanliurfa provinces (t (18) =4.392, p=0.000; t (18) =3.00, p=0.008, respectively). It can be concluded that PROTECTION of lentil plants should be initiated at the growth stages R6, as new generation adult of stink bugs were seen when the lentils reach in that stage. Red lentil can be harvested one-week early by combine, instead of traditional harvesting in which plants were cut by small knife or sickle before plants are fully dry.

Keywords: Red Lentil, Chalky Spot, Management Of Stink Bugs, Piezedorus Lituratus, Dolycoris Baccarum

THE KINEMATIC STRUCTURES OF GÜLBAHÇE FAULT (IZMIR, WESTERN ANATOLIA)

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Abstract:

In this study, the kinematic structures of Gülbahçe fault (IZMIR, Western Anatolia, Turkey) were examined by using GNSS data. The southern side of N-S directional Gülbahçe fault is located in Sığacık Bay which is seismically active region. It has emerged the necessity to investigate the structure, features and continuity of this fault for determining its contribution to seismic activity on its southern region. In the scope of this study, for examining these mentioned subjects, GNSS data obtained from the measurements realized in IZMIR between the years 2009 and 2011 were used. The GNSS stations located near to the fault were chosen and relatively GNSS solutions were done by using GAMIT/GLOBK software. Then, Gülbahçe fault was modeled within Coluomb 3.3 software by using the velocities obtained from relatively solutions. The fault parameters of model given best fitting between the obtained and calculated velocities were reached and compared with the GEOLOGICAL knowledge. Consequently, the structural features of Gülbahçe fault parameters which have not been known so far were discussed within this study in the literature as the first time.

Keywords: Coulomb, Fault Parameters, Gnss, Gülbahçe Fault, Western Anatolia

INVESTIGATION OF SURFACE ROUGHNESS IN TURNING OF CO-BASED SUPER ALLOY HAYNES 25 UNDER CRYOGENIC COOLING

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Abstract:

Haynes 25 alloy (also known as L-605 alloy) is cobalt based super alloy which has widely APPLICATIONs such as aerospace industry, turbine and furnace parts, power generators and heat exchangers and petroleum refining components due to its excellent characteristics. However, the workability of this alloy is more difficult compared to normal steels or even stainless. In present work, an experimental investigation was performed under cryogenic cooling to determine surface quality and then to obtain optimal cutting parameters in turning of cobalt based super alloy Haynes 25. In experiments, uncoated carbide tool was used and cutting speed (V) and feed rate (f) were considered as test parameters. Average surface roughness (Ra) were measured for process performance indicators. Analysis of variance (ANOVA) was performed to determine the importance of machining parameters on surface roughness.

Keywords: Co-Based Super Alloy; Cryogenic Machining; Surface Roughness, Statistical Analysis

INVESTIGATION OF WEAK MOTION STATION'S SOIL-ENGINEERING BEDROCK CONDITIONS BY USING GEOPHYSICAL METHODS

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Abstract:

In earthquake resistant building design; effects from nature must be determined for the structure location. This value is peak ground acceleration (PGA) which defined horizontal maximum value in time domain. If the Structures is built on bedrock, recorded on the bedrock PGA value is used directly. If the structure is on the ground, the bedrock of earthquake data must be moved to the ground surface. In practice, the PGA values are assumed to be known in the bedrock. It is found the effect of enlarging the ground transfer function. The two values are multiplied by each other and PGA values on the ground surface are reached. The most important event in this stage is defined to value of the bedrock PGA at the working area. When bedrock is on the surface, not showed bedrock effect. For this reason, the stations must be checked. If the station is on the bedrock, it must be made preliminary work as described above. In this study, It aimed to define the soil-bedrock models with the environment in which the broadband weak ground motion stations at IZMIR/Balçova (BLCB).

Keywords: Weak Motion Station, ENGINEERING Bedrock, Masw

RECOGNITION OF EXONS AND INTRONS IN DNA SEQUENCES WITH A NEW NUMERICAL MAPPING APPROACH

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Abstract:

Recognition exons and introns are very difficult in genomic research. The most important stage to solve this problem is map the DNA sequences into NUMERICAL values. This paper introduces a new mapping approach for converting string to NUMERICAL values. Each codon is mapped by improved fractional derivative of Shannon equation in this approach. The aim of this paper is to estimate position of exon in the DNA sequence used filter approach based Fourier by a new mapping approach. Time frequency domain of numeric DNA sequences is obtained by Fourier method and 3-period signal is filtered using antinock filter. Exon regions of filtered signal are defined successfully according to the specified percentile threshold.

Keywords: Dna Sequence, Exon, Antinotch Filter, Fourier Transform, Biostatistics

EFFECT OF HIGH DOSAGE AIR-ENTRAINING ADMIXTURE USAGE ON MICRO CONCRETE PROPERTIES

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Abstract:

In concrete production, because of air entraining admixtures (AEA) are used for a small percentage by weight of cement (in the range from 0.06% to 0.2 %), there is a possible risk adding more admixture in concrete than calculated from personnel or equipments sensitivity errors. In this situation concrete's strength and durability performances are diminishing. In this work, it was investigated the effect of HIGH dosage air entraining admixture usage on mortar properties. It was carried out unit weight, flowability, setting time, air content, compressive strength, flexural strength, ultrasound velocity tests and microstrucural inspections on specimens which were produced with 5 different dosages including control. As a result of experiments, in case of using admixtures with overdose, there would be loss of quality of physical and MECHANICAL properties of concrete, for this reason it is concluded that, there must be some legal regulations using chemical admixtures sensitively.

Keywords: Air-Entraining, Overdose, Sodium Salt, Sem, Xrd, Bet.

ULTRAFAST MICROWAVE WELDING/REINFORCING APPROACH AT THE INTERFACE OF THERMOPLASTIC MATERIALS

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Abstract:

As an attempt to address the needs and tackle the challenges in welding of thermoPLASTIC MATERIALS (TPMs), a novel process was performed via short-term microwave (MW) heating of a specific composite, made up of conducting polypyrrole nanogranule (PPy NG) coated carbon and catalyst source precursor (ferrocene) fine particles, at substrate polypropylene (PP) dog bone pieces' interface. Upon vigorous interactions between MWs and electromagnetic absorbent PPy NG coating, the energy was transformed into a large amount of heat leading to a drastic temperature increase that was simultaneously used for the instant carbonization of PPy and the decomposition of fine ferrocene particles, which resulted in multiwalled carbon nanotubes (CNTs) growth at the interface. Meanwhile, the as-grown CNTs on the surface conveyed the heat into the adjacent bulk PP and caused locally molten surface layers' formation. Eventually, the light pressure APPLIED at the interface during the heating process squeezed the molten layers together and a new weld was generated. The method is considerably advantageous compared to other alternatives due to (i) its fast, straightforward, and affordable nature, (ii) its applicability at ambient conditions without the need of any extra equipment or chemicals, and also (iii) its ability to provide clean, durable, and functional welds, via precisely controlling process parameters, without causing any thermal distortion or physical alterations in the bulk TPM. Thus, it is believed that this novel welding process will become much preferable for the manufacturing of next-generation TPM composites in large scale, through short-term MW heating.

Keywords: ThermoPLASTIC Material, Conducting Polymer, Microwave Energy, Welding, Reinforcing

GROUTING APPLICATIONS IN HACININOGLU HYDROELECTRIC POWERPLANT ENERGY TUNNEL, KAHRAMANMARAS, TURKEY

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Abstract:

A contact and consolidation injections are used for reinforcing the various ENGINEERING structures. The parent rock structure where the ENGINEERING constructions built is very important in determining the injection mixture type. Joints and fractures of host rock affect the amount of injection. The Hacınınoğlu Hydropower Plant Energy Tunnel (HHPT) was built to supply water from regulator to plant. The HHPT is 5586 m long (670 m part was taken into consideration in this study), 7.10 m wide, internal diameter of 6.0 m, and horseshoe-shaped concrete lined tunnel. The tunnel was excavated in the crystallized limestone of Taşdökümü Formation, calc schist and dolomites of the Dedeardıçgediği Formation. Horizontal and near horizontal discontinuities that evolved due to natural causes and excavation were identified at the crown of tunnel. Those discontinuities are most commonly seen in the calc schist unit, thus the maximum injection volume was observed in this unit. The lowest injection quantity was observed in massive limestones. If the rock mass classification and discontinuity characteristics of the host rocks of HHPT are well determined, and if injection mixture ratio set according to those data; time wasting and cost increasing should be prevented. First stage injection planning without the consideration of discontinuities of host rock was unsuccessful. The complete injection was supplied, after the second stage APPLICATION in HHPT. Cement/water ratio was increased; additional bentonite, freeze accelerator and sand were used during second stage.

Keywords: Contact Grouting; Consolidation Grouting, Hacınınoğlu Hydropower Plant Energy Tunnel, Tunnelling.

AN INVESTIGATION OF THE USABILITY OF YAVUZELI BASALT AGGREGATES IN HOT MIX ASPHALT

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Abstract:

Recently, crushed stone aggregate demand is increasing around the world. This demand are going to increase due to consuming of reserves of quarry established in riverbeds. In addition, extracting MATERIALS from river beds is significantly harmful to the environment. Thus, usage FIELD of crushed stone aggregate are quite rising. The rocks used as aggregates in Kahramanmaras is mostly obtained from Yavuzeli basalt in Karatas town (GAZIANTEP). These rocks are mainly used as aggregate in asphalt and road construction.

Aim of this study is to determine the availability of a basalt of Karataş for hot asphalt mix aggregates with examining the geoCHEMISTRY and the physico-MECHANICAL properties of it. For this purpose, basalt aggregate samples collected in the FIELD, geochemical properties of them including major elements contents were determined with using ICP-MS method. Petrographic properties of aggregates were revealed by thin sections of samples. In order to determine the physico-MECHANICAL properties of the aggregates, specific gravity, Los Angeles abrasion test, water absorption by weight, flatness and shape index, MgSO4 frost loss, the amount of ORGANIC matter, sieve analysis and Marshall experiments were done. According to the test results, Marshall-flow value was providing required standards, while water absorption, asphalt filled void ratio and filling/bitumen ratio were not supplying the desired standards. If all of these parameter are taken into consideration, it is thought that the basalt samples can be used as asphalt aggregates after determination of Marshall Parameters that captured the required standards by trial and error

Keywords: Basalt, Bitumen, Hot Mix Asphalt, Marshall Stability

UTILIZATION OF MELAMINE IMPREGNATED PAPER (MIP) AND UREA FORMALDEHYDE (UF) ADHESIVES IN DIFFERENT LAYERS OF PARTICLEBOARD

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Abstract:

In this study, various amount of waste melamine impregnated paper (MIP) and urea formaldehyde (UF) adhesives were used both in surface and core layers of the three layer particleboard. Four types of particleboard were manufactured. First panel had 9% UF on the surface layers and 15% MIP in the core layer while second panel had 12 % UF on the surfaces and 20% MIP in the core. In the third panel 15 MIP was used on the surfaces and 9% UF in the core layer while 20% MIP was on the surfaces and 12% UF in the core layer. MECHANICAL and physical properties including flexural strength, modulus of elasticity, internal bond strength, surface stability, thickness swelling and water absorption of the samples were determined according to EN 310, EN 319 and EN 317 standards, respectively. As results of this study, amount of adhesives and where they used had significant effect of panel properties. Utilization of UF adhesives on the surface layers and MIP in the core layer improved flexural strength and modulus of elasticity of the panels. For other properties, enhanced panel properties were achieved with the use of MIP on the surface layers and UF in the core layer.

Keywords: Particleboard Layer, Melamine İmpregnated Paper Waste, MECHANICAL And Physical Properties

PROPER MESH SIZE DETERMINATION OF MELAMINE IMPREGNATED PAPER (MIP) IN PARTICLEBOARD MANUFACTURING AS AN ADHESIVE REPLACEMENT

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Abstract:

In this study, proper mesh size of waste melamine impregnated paper (MIP) to be used in particleboard manufacturing was investigated. First, waste melamine impregnated paper (MIP)-waste granulated in Pulverizator with cooling capabilities into the flour form. Three different sizes (small (passed from 0,1mm sieve), medium (between passed from 0,6mm and stayed on 0,1mm sieve) and large (between passed from 4mm and stayed on 0,6mm sieve)) and four different rates (%10, 15, 20, 25) of MIP were used for this study. MECHANICAL and physical properties including tensile strength, modulus of elasticity, internal bond strength, surface stability, thickness swelling and water absorption of the samples were determined according to EN 310, EN 319 and EN 317 standards, respectively. Based on the results, mesh size and rate of MIP had statistically significant effect on all MECHANICAL and physical properties investigated. The best result was obtained when 25% small size MIP was used. As a result, small size MIP might be utilized as an adhesive replacement in particleboard manufacturing providing economic and environmental benefits.

Keywords: Melamine İmpregnated Paper Waste, MECHANICAL And Physical Properties, Mesh Size

COMPARISON OF CLASSIFYING DATA MINING ALGORITHMS IN ORTHOPAEDIC FRACTURE DATA

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Abstract:

Data mining is widely used to determine interesting patterns or to predict valuable relations between the variables. The aim of this descriptive study is to evaluate the fracture data in data mining manner. Because our data consists of over eight thousand patients info and this amount can be considered as "big data" in healthcare.

Method: Following the approval of the local ethical committee, 8585 patients who were diagnosed with at least a fracture related with orthopaedics and traumatology in a level-one reference trauma center between January2010 - December2014 were included in this retrospective study. The fractures were examined according to the current AO/OTA fracture classification. We used three well-known algorithms CART, CHAID and QUEST to classify the fracture types with several variables like age, duration from admission to surgery, gender, year and season of admission, fracture info and clinical result.

According to three decision tree algorithms, we got similar results between CART and QUEST, but the results of CHAID was different. The variable importance rate of QUEST algorithm was (0.705). Age and mechanism of injury yielded significant contributions in all TECHNIQUES. Regarding the decision trees, in QUEST and CART, two main rootnodes headed with age were obtained; however in CHAID, there were eight main rootnodes with other attributes majority of which included hand, distal forearm and vertebral fractures.

As a comparison, CHAID algorithm gave us more detailed decision tree than the others. Therefore, the decision trees or clusters of this training dataset should be examined carefully by orthopaedic surgeons to predict the incidence and associations among the patient's info. We conclude also that such data mining approach to orthopaedic data would be helpful for reducing governmental costs.

Keywords: Data Mining, Decision Tree, Classification Algorithms, Fracture, Mechanism Of İnjury

PREPARATION AND SOLAR CELL APPLICATIONS OF ZNO/NIO COMPOSITE PARTICLES

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Abstract:

ZnO/NiO composite particles were produced by hydrothermal method. The particles produced were annealed at 500 oC for 1 hour. Crystal structure and morphological properties of particles were examined by XRD and SEM. Dye sensetized solar cells were fabricated by using ZnO/NiO particles and N-719 (Ruthenium) dyes. Solar cell measurements were measured using the solar simulator. In this measurement, the mixture of ZnO and NiO effect solar cell have been investigated.

This study was supported by Scientific Research Projects Unit of KAHRAMANMARASSUTCU IMAM UNIVERSITY (Project code: BAP-2014/4-32M), (KSU-Turkey)

Keywords: Zinc Oxide, Nickel Oxide, Solar Cell

LIGHTWEIGHT DESIGN OF VEHICLE ENERGY ABSORBERS USING STEEL, ALUMINUM AND MAGNESIUM ALLOYS

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Abstract:

Nowadays, lightweight vehicle component designs are very important for fuel efficiency and low emissions in AUTOMOTIVE industry. The carmakers need to develop innovative safety systems to meet new international crash test regulations like ECE, Euro NCAP, NHTSA. Energy absorbers are one of the passive safety systems used in the vehicles. In this study, crash performances of the energy absorbers with different MATERIALS like SPC 440 steel, Al 7108 – Al 7003 aluminum alloys and AM60 magnesium alloys are investigated NUMERICALly. According to finite element analysis results, crash performance parameters such as total energy absorption, specific energy absorption and reaction forces are compared for the mentioned MATERIALS. Although energy absorption capability of the steel energy absorber is better than aluminum and magnesium absorbers, the energy absorbers made of lightweight MATERIALS can absorb more energy per unit mass of material than the SPC steel. This advantage of the lightweight alloys has been encouraging automakers to use them in designing of structural vehicle components.

Keywords: Crash Analysis, Energy Absorbers, Lightweight Design

CONNECTED REVISIT PATH PLANNING FOR FLYING AD HOC NETWORKS IN DYNAMIC ENVIRONMENT

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Abstract:

Flying ad hoc networks (FANET) is one of the most important communication designs for multi-UAV systems. It can relay real time data from the UAVs to the ground station even if the UAV is outside of the UAV-to-ground station communication range. By the help of infrastructreless structure of FANET, it can be ideal especially for disaster or military scenarios. Connectivity is a hard constraint to be able to function properly in FANETS, and path plans must satisfy this constraint during the mission. On the other hand, in the most of the planning algorithms for multi UAV systems, minimization of total route length or total elapsed time to visit all targets once by an UAV, are used as an objective function. Single visit problem formulation is adequate for many APPLICATIONs like aerial mapping. However, single visit at each task may not be enough for an effective mission execution in which the task states change frequently, as in a forest fire or military operation. In order to collect the most updated information, the goal points must be revisited as frequent as possible. Another aspect of realistic multi-UAV missions is dynamic environment. The parameters of the mission can change instantly. For example, a UAV may fail during the mission or a target may be added into the mission. A proper path plan algorithm should be able to adapt itself against dynamic environment conditions. In this paper, connected revisit path plan problem is introduced for FANETs to collect the most updated information from the target points on the terrain and relay the collected data to a command center in dynamic environment. Because of the NP-complete structure of the problem, a polynomial time heuristic algorithm is proposed. Simulation studies show that the proposed algorithm is effective for FANETs operates on HIGHly dynamic environments.

Keywords: Flying Ad Hoc Networks, Ad Hoc Networks, Muti-Uav, Path Planning, Revisit Problem, Dynamic Environment

SURFACE PGA CALCULATIONS BY USING DYNAMIC AMPLIFICATION FACTOR AND SYNTHETIC ACCELEROGRAM

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Abstract:

Quasi Transfer Spectrums (QTS) and Dynamic soil amplification factor (DAF) defining which ratio earthquake acceleration will reach the soil surface by changing is one of the most important factors in seismic risk studies. When computing the value of DAF at a point without a strong motion station, peak horizontal acceleration values at the bedrock and soil transfer function are needed. PGA value at the bedrock can be obtained by using either real seismic records or the earthquake scenario. However, the soil transfer function can be computed observationally and theoretically. Observational soil transfer function is defined by microtremor horizontal/vertical spectral ratio. In case of theoretical computation, the density belonging to the soil layers between the bedrock and the soil surface is used together with the change of P-S wave rates with the depth and the damping factor. In this study, the dynamic amplification factor has been computed for 57 points by using observational QTS obtained by microtremor horizontal/ vertical spectral ratio as well as the earthquake scenario. Also, theoretical soil transfer function at 1 point was obtained through spatial autocorrelation method study and determined to be compatible with observational result.

Keywords: Synthetic Accelerogram, Dynamic Amplification Factor, Pga.

SHALE GAS DRILLING AND ITS EFFECTS ON OIL MARKETS

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Abstract:

Nowadays the world is experiencing critical days in the energy market and shale gas increased its importance. USA, the prominent country in terms of shale gas is started its first shale gas export to Brazil in February 2016 and USA is enthusiastic for exportation to Asia and Europa. Russia, one of the actors in oil market is living critical days because of low oil prices so shale gas has become important. Due to HIGH drilling costs and environmental problems drilling is prohibited in most European countries. It is obvious that shale gas will be the biggest issue of interest in coming days. In this research the drilling methods of shale gas, environmental concerns and the predictions for the future attempted.

Keywords: Shale Gas, Oil Market, Energy

THE EFFECTS OF WEATHERING STATE ON THE SHEAR STRENGTH OF DISCONTINUITY: A CASE STUDY ON THE WEATHERED GRANITIC ROCK JOINTS, NE TURKEY

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Abstract:

In mining, CIVIL, and petroleum ENGINEERING, engineers often face problems associated with jointed rock mass. The MECHANICAL behavior of rock masses and the stability conditions of natural or excavated slopes are mostly controlled by the discontinuity network and the MECHANICAL behavior of the discontinuities. And, it is important to study a single joint for comprehensively evaluating the MECHANICAL behavior of jointed rock mass. The shear mechanism of discontinuity is strongly affected by loading conditions and discontinuity surface conditions including roughness, filling material, discontinuity wall compressive strength It is known that discontinuity surface conditions mainly depends on the weathering state.

The aim of the study is that effects of the weathering state on shear strength of discontinuities are investigated. In order to determine the shear strength of discontinuities which have various weathering degrees and roughness, pull tests, tilt test, and in laboratory direct shear test were carried and empirical approach was APPLIED on the samples from Kurtun Granatoid NE Turkey.

Before these testing, weathering conditions, weathering depth, roughness and strength and filling of the discontinuities surface were defined. And weathering state of discontinuity surface was determined by macroscopic observation, simple MECHANICAL tests and thin section taking from discontinuity wall. Moreover, weathering deepness was compared to surface roughness.

According to the study, basic friction angle on discontinuity surfaces depends on surface mineralogy. And peak friction angle of discontinuities surfaces found out by means of pull depends mainly on surface roughness, wall strength and the filling material type. The properties were greatly determined by the weathering stage for the samples investigated

Keywords: Shear Strength, Discontinuity, Weathering, Direct Shear Test, Pull Test, Granitic Rock, Ne Turkey

A NEW THE WEATHERING CLASSIFICATION FOR ROCK MASS USING ROCK ENGINEERING SYSTEM AND ITS APPLICATION

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Abstract:

Description and classification of weathered rocks are necessary to obtain the changes of its ENGINEERING properties. The degree of weathering of rock MATERIALS may be reflected by changes in index properties such as dry density, void ratio, clay content and seismic velocity. It can be said that weathering grades will often provide a framework within which test results can be interpreted and linked to ENGINEERING performance. In the same, clearly defined weathering grades allow samples to be grouped for description and for the creation of a geoTECHNICAL model of the rock mass. These systems, qualitative classification of weathered rocks, are mainly based on the visual definition of the GEOLOGICAL properties, the index properties and the basic MECHANICAL test that can be APPLIED also in the FIELD.

In this study, a new approach suggested to evaluate rock masses was suggested to determine weathering degree of rock mass. For this, Rock ENGINEERING System (RES was APPLIED to evaluate of weathering state of rock mass. In geoTECHNICAL practice, understanding the most effective parameters in ENGINEERING system and their relationships is important in order to obtain an optimum design for the ENGINEERING system The APPLICATIONs of Rock ENGINEERING System (RES) an approach to quantifying the intensity and dominance of parameters, method in the analysis of complicated ENGINEERING processes have been widespread. In the new approach, reduction in unconfined strength of rock material, the rock/soil ratio, weathering state of the discontinuity surfaces, PROTECTION of the rock mass structure, roughness amplitude / thickness of infilling material ratio, frequency of discontinuity and water condition was used as input parameter. In this study, the new classification system suggested was APPLIED to volcanic rocks from NE Turkey and the result of the APPLICATION was compared to the other classification system of weathered rock mass used commonly in literature.

Keywords: Rock Mass, Weathering, Classification, Rock ENGINEERING System, Ne Turkey

THE IMPACT OF SEASONAL CHANGES ON QUASI TRANSFER SPECTRUMS

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Abstract:

Parameters, showing changes in earthquake spectrum, must be investigate where structure will build for earthquake resistant building design. This changes defined as Quasi transfer spectrums (QTS) and because of soil layers between surface and bedrock. Changes in physical parameter's of soil layers effect QTS directly. Because of that reason, S-Wave Velocity which is the most important parameter in soil parameters should be monitored as seasonal changes. The static ground-water level should be noted that the effect on S-Wave Velocity. It is recommended to ensure that the examination of amplitude-frequency changes of QTS depends on time. This study aimed to investigate the effect of seasonal changes on QTS. Microtremor data's were used for calculate seasonal changes (between 2012-2014) on QTS where recorded BLCB (IZMIR/Balçova) broadband weak motion station.

Keywords: Ground-Water Level, Qts, Monitoring

PREDICTION OF UNCONFINED COMPRESSIVE STRENGTH OF WEATHERED ROCKS USING P-DURABILITY INDEX AND POROSITY

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Abstract:

Uniaxial compressive strength (UCS) of intact rocks is an important and pertinent property for building stone durability, characterizing rock mass and assessment of ENGINEERING behavior of rock mass. This parameter is widely used in rock mechanic ENGINEERING. A UCS test requires HIGH-quality core samples with regular geometry. Standard cores cannot always be extracted from weak, HIGHly fractured, thinly bedded, foliated and/or block-in-matrix rocks. Therefore, careful execution of this test is difficult, time-consuming, and expensive, as well as involving destructive tests. To overcome this difficulty, various predictive models based on index tests, including mineralogical-petrographic analyses, physical properties, an elastic wave velocity test and basic MECHANICAL tests have been developed by many researchers. Most investigations involve determining the individual correlation between one index and the UCS, while certain studies have used models that relate the indices simultaneously with the UCS. In addition to these conventional methods, new TECHNIQUES, soft computing TECHNIQUES, for estimating the UCS have also garnered considerable attention.

In this study, the applicability and capability of Fuzzy Interface System, multiple regression and artificial neural network system for predicting the uniaxial compressive strength. It is known that the slake durability of a rock is an important property and is closely related to its mineralogical composition. Ultrasonic tests, which are among the most important non-destructive tests. In the early study, considering the advantages of these said indices, P-durability index was defined as the slake durability index multiplied to P-wave velocity in the solid parts of rock MATERIALS. Porosity is the index widely used to estimate rock material strength, because it is an important physical property that aids in governing physical attributes of rocks. For this, P-durability index and porosity were used in the soft-computing models for the prediction of UCS of rock MATERIALS with different weathering grade from the literature.

Keywords: Uniaxial Compressive Strength, Weathered Rocks, Fuzzy İnterface System, Multiple Regression, Artificial Neural Network

COMPARED OF CRUSTAL PARAMETERS OF EASTERN ANATOLIA USING DIFFERENT APPROACHES

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Abstract:

The tectonics of the Eastern Anatolia is dominated by the collision between the Arabian and Eurasian plates. The region, demonstrates a very complicated tectonic structure, because marine and continental basins seem to have played a very significant role in the evolutionary process of the region. These processes presented different crustal structures and physical parameters. The crustal thickness and isostatic model of Eastern Anatolia are very important subjects for discuss crustal form. The actual isostasy studies are related with loads and their compensations with strong part of lithosphere. Thus compensation type and strong layer of crust play very important role to interpret the crustal structure and isostatic model of the region. Under the guidance of these, in this study, using Global Crustal Model, the crustal thickness and isostasy of Eastern Anatolia were investigated. As a result, it was found that the moho depth of East Anatolian region was not coherent with Airy theory crustal model which was obtained from Global Crustal Model. The crustal thicknesses which were obtained from Global Crustal Model and ground gravity data compared with each other. In addition, the effective elastic thickness as one of the isostatic model parameter was determined from ground gravity data and compared with the result of Airy theory crustal model.

Keywords: Crustal Depth, Eastern Anatolia, Gravity, İsostasy

USING THE PUMICE IN CONSTRUCTION AS AN INSULATION MATERIAL

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Abstract:

Pumice is a natural insulation and very light material. Because of pumices lightweight and insulation properties, pumice is used in wide range in construction industry. Thermal insulation properties of pumice are considerable and it has been shown that heat losses can be reduced about 50% if lightweight concrete is substituted. Same time, it has been shown that lightweight concrete for construction is 25% lighter than common concrete without any loss in compressive strength. The pumice concrete has very little expansion and contraction with temperature increase. It is known that, using the thermal insulation MATERIALS have speed up recently. The aim of this research is to examine the suitability of pumice extracted from Pasinler as an insulation and lightweight material.

Keywords: Pumice, Lightweight Material, İnsulation

DEVELOPMENT OF BIOACTIVE PVA FILM WITH GRAPEFRUIT PEEL EXTRACT FOR PACKAGING

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Abstract:

In recent years, use of synthetic petroleum based packaging films caused serious environmental problems due to their difficulty in recycling and poor biodegradability. Grapefruit peel is a solid waste produced by vegetable and fruit industry that is often used to feed animals or thrown away directly. Like the grapefruit juice, grapefruit peels contain HIGH amounts of antioxidant compounds which have anti-inflammatory, antiseptic, antioxidant benefits. Present study was aimed to develop natural polymer-based antimicrobial and antioxidant packaging films as an alternative for the synthetic packaging films by incorporation of grapefruit peel extract (GPE) into PVA; non-toxic and biodegradable synthetic polymer. Naringenin (predominant flavanone in grapefruit) and BHT also incorpareted in PVA (as model compounds) in order to compare with bioactive grapefruit peel extract. The extraction of phenolics from dried and ground grapefruit peel performed by autohydrolysis. It was performed at 175°C for 1 h in a Parr 4590 model 100 ml stainless steel micro bench top reactor equipped with magnetic drive stirrer and a temperature controller system (Parr Instrument Co., Moline, IL) using deionized water as the solvent. The resulting extract was assayed for yield, phenolic content and antioxidant capacity. The TECHNIQUES used for characterization were performed using Fourier transform infrared (FTIR) spectroscopy, thermo-gravimetric analysis (TGA), differential scanning calorimeter (DSC). The antimicrobial activity of films was evaluated against Gram-positive bacteria (Staphylococcus aureus) and Gram-negative bacteria (Escherichia coli) commonly found in human pathogenesis. The total phenolic contents of dried grapefruit peel extract is 38,64 mg gallic acid equivalent (GAE)/g. GPE incorporated composite films showed inhibitory activity against various pathogens. Conclusively, GPE/PVA composite films can be used as an efficient antimicrobial biodegradable packaging film to extend the shelf-life of packaged foods instead of PLASTIC films (polyethylene, polypropylene etc.).

Keywords: Autohydrolysis,Bioactive Packaging, Grapefruit Peel, Pva.

THE EVALUATION OF NUTRITIONAL STATUS IN HOME-CARE PATIENTS WHO LIVE IN KARAMAN PROVINCE OF TURKEY

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Abstract:

The aim of the study was the evaluation of nutritional status in home-care patients. A cross-sectional study was performed in Karaman province of Turkey. The Mini Nutritional Assessment (MNA) was used for the evaluation of nutritional status of home-care patients. Fortynine patients, 53.1% of whom were women and 46.9% of whom were men, were visited and face to face interview research method was used. The mean age of the patients was 78.1±13.36 (Male: 80.1±14.72, Female: 76.2±12.03). The most common diseases were hypertension (n=25), cerebrovascular events (n=14) and alzheimer (n=12), respectively. We questioned if food intake had declined over the past three months due to inappetency, digestive problems. 36.7% of patients stated that there was a severe decrease in food intake. The choices of "moderate decrease" and "no decrease" were answered with the percentages of 28.6% and 34.7% respectively. 81.6% of patients stated that they consume at least one serving dairy products per day. 61.2% of patients stated they consume two or more servings of legumes or eggs per week. 8.2% of patients stated that they consume meat, fish or poultry every day. 49.0% of patients stated that they consume two or more servings of fruits or vegetables per day. When we asked how much fluid they consume per day, they answered "less than 3 cups", "3-5 cups", "more than 5 cups" with the percentages of 10.2%, 28.6% and 61.2% respectively. 40.8% of patients stated they are unable to eat without assistance. According to the MNA scores we concluded that the patients were at "risk of malnutrition" or "malnourished" with the percentages of 42.9% and 55.1%. Also 2.0% of patients had normal nutritional status. It's observed that malnutrition is a major nutritional problem in home-care patients. Malnutrition must be regularly assessed and arranged nutritional therapy by a dietician for home-care patients.

Keywords: Home-Care, Nutrition, Mna

STRENGTH PROPERTIES OF ÇATALAGZI CLASS F FLY ASH GEOPOLYMER MORTAR ACTIVATED WITH DIFFERENT NAOH AMOUNT

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Abstract:

In this study, compressive strength and flexural tensile strength of alkali activated fly ash geopolymer mortars were presented. Class F Çatalağzı fly ash was used in this study. NaOH concentration amount as the main influencing factors on the compressive strength and flexural tensile strength were investigated. Mortar mixture parameters were 3 and 0.35 for sand-binder ratio, and water-binder ratio, respectively. Na concentrations in mortar mixture were chosen as 6%, 9%, 12%, 15% and 18% in weight basis. Heat curing temperature and heat curing duration were chosen as 100°C and 24 hours respectively. For each NaOH concentration, three prismatic specimens with 40×40×160 mm dimensions were prepared using a three-cell mortar cast. After heat curing period in a laboratory oven, the samples were left to cool down to room temperature, then the compressive and flexural strengths were measured according to TS EN 1015-11. HIGH compressive strength and flexural tensile strength, as HIGH as 80 MPa and 10 MPa respectively, were obtained from the geopolymer mortar made with the current fly ash.

Keywords: Fly Ash, Geopolymer, Alkali-Activated

ECONOMICAL AND SOCIAL DIMENSIONS OF RECLAMATION IN TEXTILE AND CLOTHING SECTOR: TURKISH CASE

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Abstract:

TEXTILE and clothing sector has been maintaining TURKISH economy's locomotive sector position for approximately forty years. Also, sector is one of the leading sectors of Turkey in terms of HIGH international competitiveness. Almost one third of the sixty thousand TEXTILE and clothing enterprises operate in international markets especially by exportation. Reclamation constitutes one of the most significant dispute subjects in TEXTILE and clothing trade which enterprises have encountered. Reclamation, which occurs as a result of contrarian attitudes and behaviors towards contract terms, has serious negative social and economical effects on enterprises.

According to the World Trade Organization's data, TURKISH TEXTILE sector is the fifth biggest supplier in the world whereas TURKISH clothing sector is the seventh biggest supplier. With respect to Euratex data, TURKISH TEXTILE sector is the second biggest supplier of European Union whereas TURKISH clothing sector is the third biggest supplier. Reclamation is very important for TURKISH TEXTILE and clothing sector which is one of the most significant suppliers of world's most important TEXTILE and clothing brands.

This study involves a FIELD research in order to determine the dimensions and reasons of reclamation which TURKISH TEXTILE and clothing enterprises experience during international trade. Besides, the study aims to specify precautions and solutions for reclamation.

Keywords: Reclamation, TURKISH TEXTILE And Clothing Sector, Retailing İn Clothing Sector, Merchandising

PERFORMANCE MEASUREMENT ISSUE IN CLOTHING RETAILING: TURKISH CASE

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Abstract:

The clothing sector possesses a market structure which is significantly and rapidly affected by economical and socio-cultural developments and alterations. Too many enterprises with different sizes operate in clothing retailing area because clothes are one of the basic consumption expenditures of people. These enterprises basically operate in three different market segments which are intended for low-income group, middle income group and luxury consumption. The clothing retailers, which operate in clothing market that shows too much variability and property, differ from each other in terms of enterprise properties and standards.

Clothing retailers, whose numbers and properties are rapidly increased and altered, confront with store performance measurement problem as a serious issue. Retailing, which constitutes the ultimate ring of added value chain for clothing enterprises, strengthens brand value and power as well as increasing profitability by providing brand awareness and customer loyalty. In this context, store performance measurement is as important as store location selection and store atmosphere design and management because retailing is a prestigious activity with HIGH costs. Poor store performance damages enterprises financially. Besides, it negatively affects enterprise goodwill by damaging brand image.

This study, analyzes the retail performance measurement methods and their effects in clothing sector. The research is based on FIELD research which involves significant clothing enterprises that operate in TURKISH clothing sector.

Keywords: Retailing, Clothing Retailing, Performance Measurement, TURKISH Clothing Sector

MINERAL CONTENTS OF LEMON BALM (MELISSA OFFICINALIS L.)

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Abstract:

Medicinal herbs and their preparations (infusion, decoction, tinctures) are widely used by human beings all over the World. The popularity of herbal medicines is connected with their ease access, therapeutic efficacy, relatively low cost and the assumption for absence of side toxic effects.

Lemon balm (Melissa officinalis L.), a member of the family Lamiaceae (formerly Labiatae), is one of the important medicinal plant species. Today, it is used in different branches of industry (such as medicine, perfume, cosmetic, and food etc.) in many countries of the Worl.. It is native to the eastern Mediterranean Region and western Asia.

In the study, mineral contents of M. officinalis L.. were investigated. Two methods were used: infusion and decoction. The following elements were determined: Al, Ca, Cd, Co, Cr, Cu, Fe, Mg, Mn, Ni, Pb, Sn, Be, Ba, Mo, B, V and Zn. The determinations were performed using inductively coupled plasma optical emission spectra (ICP-OES). The HIGHest levels were observed in Ca and Mg.

Keywords: İcp-Oes, Melissa Officinalis L., Mineral Contents

CHEMICAL CONSTITUENTS OF SIDERITIS BREVIBRACTEATA P.H. DAVIS

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Abstract:
Introduction

Sideritis L. belongs to the family of Lamiaceae (Labiatae) which is one of the most common and diverse plants of the world. Over 150 species of the genus Sideritis are mainly found in the Mediterranean area. There are 44 Sideritis species (55 taxa) in Turkey and, endemism rate of this genus is HIGH (almost 80%). Sideritis brevibracteata P.H. Davis., named as Dağ çayı in vernacular, is an endemic species for Turkey and grown in Middle Anatolia especially Alanya region. In the present study, we have reported the essential oils contents, isolation and characterization of the diterpenic compounds of extracts of S. brevibracteata.

MATERIALS and Methods

The shade-dried plants were subjected to hydrodistillation method for obtain the essential oil, and the oil was analyzed by GC-MS. The shade-dried powdered plant was extracted with hexane, acetone and methanol. For purifying the diterpenoids, the extracts were subjected to column and thin layer chromatography. The structures of the isolated compounds were determined by using 1H-NMR, 13C-NMR spectroscopy.

Results and Discussion

The chemical composition of the essential oil of S. brevibracteata was consisted of twenty-six compounds, accounted for 98.6% of the total oil with 0.084% oil yield. The main constituents of the essential oil were determined as Caryophyllene (43.3%), Germacrene-D (10.6%) and α-cadinene (10.3%). The structures of the isolated diterpenes were identified as: Siderol (Ent-7α-asetoksi,18-hidroksi-kaur-15-ene), Sideridiol (ent-7α, 18β-dihidroksi kaur-15-en), Linearol (ent-3β, 7α-dihidroksi-18-asetoksikaur-16-en, Athanolone (ent-7α,17,18-trihidroksi-9,11-(en)-12-on), Eubotriol (ent-7α,15β,18-trihidroksikaur-16-en). Besides diterpenoids, a steroid Stigmasterol (3S,8S,9S,10R,13R,14S,17R)-17-[(E,2R,5S)-5-ethyl-6methylhept-3-en-2-yl]-10,13-dimethyl2, 3,4,7,8,9,11,12,14,15,16,17-dodecahydro-1Hcyclopenta[a]phenanthren-3-ol) was isolated.

The authors thank TÜBİTAK for supporting this study as a part of the project 113Z710.

Keywords: Sideritis Brevibracteata P.H. Davis, Diterpenoids

ON THE SELF-BALANCED NORMAL STRESSES IN AN ELASTIC BODY WITH A LOCALLY CURVED AND HOLLOW FIBER

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Abstract:

An Analysis is made of studies on the self-balanced normal stress state in unidirectional fibrous composite with locally curved and hollow fiber. The investigations carried out within the framework of the piecewise homogeneous body model with use of the three dimensional geometrically nonlinear exact equations of elasticity. For simplicity, a small fiber concentration is considered and the interaction between the fibers is not taken into account . The boundary form perturbation method is employed for the investigations. Relevant problem formulations and solution methods are considered and some typical results on the influence of the problem parameters on these stresses are given.

Keywords: Geometric Nonlinearity, Locally Curving, Self-Balanced Normal Stress State

TOXICITIES OF PLANT EXTRACTS TO ADULTS OF EUROPEAN SUNN PEST, EURYGASTER MAURA L. (HETEROPTERA: SCUTELLARIDAE)

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Abstract:

In this research, methanol extracts of eight plants; Foeniculum vulgare Miller (Umbelliferae), Lavandula angustifolia Miller (Lamiaceae), Cuminum cyminum L. (Umbelliferae), Thymus vulgaris L. (Lamiaceae), Achillea millefolium L. (Asteraceae), Artemisia absinthium L. (Asteraceae), Hypericum perforatum L. (Hypericaceae), Pimpinella anisum L. (Umbelliferae), were tested on adult stage of the European Sunn pest, Eurygaster maura L. (Heteroptera: Scutellaridae). Toxicities of the extracts were investigated on adults of the pest by using topical and spraying methods (using a Potter Spray Tower). Mortalities were recorded after 24, 48 and 96 h of exposure. All plant extracts tested showed a toxic effect in varying degrees. F. vulgare, L. angustifolia and C. cyminum showed the HIGHest insecticidal effects on adult stage of the European Sunn pest. The results exhibited that some of these plant extracts were toxic to the sunn pest adults and may be used in integrated sunn pest management but should be evaluated for FIELD activity.

Keywords: Plant Extract, Sunn Pest, Eurygaster Maura L., Toxic Effect.

USE OF A NOVEL BIOREACTOR CONFIGURATION IN THE FORM OF HIGH SOLID DIGESTION FOR MUNICIPAL ORGANIC WASTES AT PILOT SCALE

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Abstract:

Municipal solid waste generation exceed 30 million tons per year in Turkey. Turkey is required to comply with EU 27 targets for landfilling of solid wastes and should gradually reduce the amount of solid waste landfilled. Anaerobic digestion seems to be more attractive due to the HIGH methane content of the solid waste, which is also beneficiary for TURKISH renewable energy production targets in the frame of Kyoto protocol.

In this study, a novel anaerobic digester configuration which employs dry fermentation of municipal solid wastes was tested. For this purpose, a solid state anaerobic digester (100 L) with percolation system (200 L) was designed at pilot scale. Municipal solid wastes were fed into the dry fermentation unit and system was operated with intermittent recycling of leachate through percolation unit back to the dry fermentation unit twice a day. Gas production in both unit was recorded daily and gas content and leachate analysis were carried out twice a week. A batch feeding of solid waste (17.5 kg waste) having less than 5 cm particle size with a dry matter of 13% and ORGANIC dry matter of 85% was carried out and process was operated for 60 days. Results indicated that 560 L methane per kg ORGANIC dry matter was produced. This corresponds to biogas production 119 m3 per ton of wet solid waste. It was also observed that he main gas production took place in percolation tank and the solid digester acted as a hydrolysis and acid reactor indicated by the low gas production and acidic leachate characteristics. There were also almost no digestate generation which eliminates costly post treatment units before the discharge of digestate, which is a critical problem for wet digestion counterpart. In conclusion, HIGH solid fermentation was demonstrated to be a feasible option.

Keywords: Municipal Solid Waste, Anaerobic Digestion, HIGH Solid Fermentation

DETECTING MOVING OBJECTS FROM UNMANNED GROUND VEHICLES USING HYBRID IMAGE REGISTRATION METHOD

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Abstract:

In this study, a global positioning system-aided model was developed to detect moving objects located on the route of unmanned ground vehicles by using computer vision systems. Before implementing a real-time APPLICATION, a reference model representing a default background (no extra object) image was generated on all geographical coordinates of the determined route. 64x52 pixel blocks are used to produce the models. Each model was stored in the APPLICATION database associating with its coordinate information. This model is a type of a feature matrix consist of gradient vector which are the first and second derivatives of each block. The model is much smaller than the pure image matrices. During the real time movement of the vehicle a number of snapshots are captured and modelled using the same method when the vehicle reached the specified coordinates. Then, modelled instant snapshots were aligned with the reference model of the associated coordinates by using the 2D image registration method. The location of the object was detected on the instant image frame by subtracting aligned models. In the developed approach, moving objects can be detected by the camera on the spatially moving platform using recorded models per specified coordinates. There is no need for complex and costly process to compensate for the noise generated by the moving camera. In the experimental study, the object detection accuracy in the instant background image frame of the developed system is observed between 100% and 77.5%, also It was determined that low-cost computer system can be used with 0.024 Sec processing time per frame and 5% CPU load.

Keywords: İmage Processing, Unmanned Ground Vehicle, Moving Object Detection, İmage Registration

OPTIMIZATION OF BASAL MEDIUM COMPOSITION FOR BIOGAS PRODUCTION FROM ORGANIC FRACTION OF MUNICIPAL SOLID WASTES (OFMSW) BY PLACKET-BURMAN STATISTICAL METHOD

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Abstract:

AThe interest in development of alternative renewable energies has increased during past years because of the increasing energy costs and the necessity for reduction of fossil fuel consumption. OFMSW (ORGANIC Fraction of Municipal Solid Wastes) is a valuable source for biofuel production by anaerobic digestion. Apart from other operational parameters such as temperature, pH and the inoculum type the concentrations of trace elements seem to be crucial for the successful operation of biogas plants especially for anaerobic digestion of OFMSW. In this study, the optimum basal medium composition was studied by usingPlacket-Burman Statistical Analysis and the effects of main trace elements for anaerobic digestion were also determined. 2 levels of 11 parameters were used for basal medium composition optimization.Biochemical Methane Potential assay (BMP) was used to monitor the effect of trace elements on biogas production from OFMSW. 12 runs with two replicates were carried out during 110 days. The statistical model was significant with R2=0.9999 and the Fe, Cu, Mn, B and Se were suggested as the significant factors. The optimum basal medium concentration was suggested as follows; %5 DM; 112 mg Fe/g DM; 6.85 mg Co/g DM; 16.94 mg Cu/g DM; 3.60 mg Mn/g DM; 2.01 mg Mo/g DM; 9.99 mg Ni/g DM; 3.62 mg Se/ g DM; 3.08mgW/gDM; 52.45 mg Zn/gDM; 0.33 mg B/g DM and 8.62 mgAl/gDM for 503 mL CH4/g DM. BMP studies resulted in 162-502 mL CH4/g DM and a kinetic study by using Gompertz Equation showed that the theoretical biogas production was between 182-366 mL CH4/gDM with a R2 of 0.9999. A comparison study was performed with the optimum basal medium composition suggested by Plackett-Burman Analysis and Vanderbilt Media.

Acknowledgement

The authors wish to thank TUBITAK-CAYDAG-113Y534 and COST ES1302 for the financial support of this study. We also thank to IZSU for their kind supports.

Keywords: Biogas, ORGANIC Fraction Of Municipal Wastes (Ofmsw), Biochemical Methane Potential (Bmp)

COMPARISON OF THE BOREHOLE LOGS DRILLED IN ÇAĞLAYAN DAM RESERVOIR AREA AND IN-SITU SEISMIC VELOCITIES

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Abstract:

The investigation of relationship between seismic velocities and GEOLOGICAL units, variation of seismic velocities with depth in order to estimate the underground GEOLOGICAL structures are commonly performed in dam reservoir area surveys. In this context, the relationship between seismic data derived from MASW method on 6 profiles and the data derived from core drillings located in Çağlayan Dam upstream and downstream areas was investigated. This study aims; a) To obtain the seismic velocities of GEOLOGICAL units and to compare the geopyhsical profiles with borehole logs b) To estimate the depth and size of the embedded rock blocks which were moved towards the stream bed by landslides occurred on left and right banks of the dam site and afterwards were covered by stream sediments. Thus, the presence of rock blocks which fell into the stream bed from the slopes where landslides were occurred in the past will be verified.

As a consequence of geophysical survey, the shear velocities of GEOLOGICAL units are found to be between 300 and 1200 m/s. According to the velocity-depth graph, shear velocities are between 300 and 400 m/s for the first 10 m from the ground surface level whereas allluvial units are intersected in the first 6 m in drillholes. Therefore, the mean shear velocities of alluvial units are 350 m/s. The Vs values of 400-1200 m/s are well matching with the borehole logs and local GEOLOGICAL units consisting of Neogene aged conglomerate, sandstone, siltstone and limestone intercalations. The HIGHly heterogeneous rock units are the reason for deriving wide variety of seismic velocities.

Keywords: Çağlayan Dam, Heteregeneous Rock Units, Masw Method, Landslide

OBTAINING THE GROUND SEISMIC VULNERABILITY INDICES USING MICROTREMOR METHOD

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Abstract:

It is important to have an idea about the damages of an earthquake at any place. Vulnerability indices called K values for ground (Kg) give a chance to estimate the earthquake damage before the earthquake occurs. K values have been proposed by Nakamura (1996) for estimating earthquake damage of surface ground. Here in this study, Kg will given as an example of APPLICATION of microtremor method. Main goal of this study is to obtain the Kg values and the distribution of the values at the study area additionally to determine the zones may be damaged after an earthquake. The parameters to calculate Kg values are obtained using microtremor method. Microtremor measurements were collected using Guralp CMG-6TD sensor model seismograph equipped with a three component HIGH sensitive seismometers, which have a flat instrument response between 0.02 and 30 seconds. At each site, microtremor measurements were recorded for 30 minutes within 100 Hz sampling interval at 112 different locations in order to identify predominant frequency of the ground. Microtremor measurements were estimated according to Nakamura (1989) HVSR technique. Kg values were calculated using the predominant frequency and amplification values obtained by using HVSR technique. Nakamura proposed the use of a Kg to identify sites where seismic hazards and damage may be expected. The study after the 1989 Loma-Prieta Earthquake offers pretty big ground deformations where Kg values are bigger than 20 and no damages where Kg values are very small (Nakamura, 1997). Consequently, southern parts of the study area have Kg values bigger then 20. It is expected less earthquake damage at the northern parts of the study area because this part produces smaller Kg values.

Keywords: Vulnerability İndex, Microtremor Method, Hvsr

INVESTIGATION OF SIFT, SURF, AND GPU-SURF ALGORITHM FOR FEATURE DETECTION

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Abstract:

Automatic, accurate and robust feature detection is critical task in image matching and processing. This paper compares the three different feature detection algorithms in terms of execution time, feature size and matching size for image matching and processing APPLICATION. These methods are Scale Invariant Feature Transform (SIFT), Speed up Robust Features (SURF) and Graphics Processing Unit (GPU) based SURF.

We use ETH Zürich object dataset which is being accepted in academics area for all the experiments of the feature detection methods. At first, for 53 object image SIFT algorithm has found 220 features on average. However SURF and GPU-SURF algorithms have found only 100 and 82 features respectively. After feature matching we have achieved in average 31 features for SIFT 13 features for SURF and 10 features for GPU-SURF algorithm for 53 objects. Experiments show that, in most situation SIFT algorithm is more stable than other methods. These results show SIFT's stability but it is slow because of computational cost. For execution time, GPU based SURF algorithm 2.5 – 3.5 times faster than SURF algorithm and 8 – 9 times faster than SIFT algorithm. APPLICATIONs are implemented on a MACHINE equipped with an Intel Core i7-3770 CPU at 8GB RAM and a GeForge GTX 660 Ti GPU which is has 7 streaming multiprocessor (SM) and each SM has 192 CUDA processor. As a future work, the authors are planning to make mentioned three methods on real time or half real time video images.

Keywords: Feature Detection, Sift, Surf, Gpu-Surf

HEAT TRANSFER ENHANCEMENT WITH A FREE PULSATING TURBULENT IMPINGING JET

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Abstract:

In this study is presented convective heat transfer characteristics to a planar heated surface by impinging pulsating jets under turbulent flow conditions. In investigations, the effects of the jet Reynolds number, pulsating frequency and pulsating amplitude on heat transfer are analyzed. The Nusselt numbers are obtained at stagnation points and away from the stagnation regions on the impinging surface. The heat transfer performance of the impinging pulsating jet is compared with the conventional steady flow jets for the same geometry. The pulsating flow leads to the periodic disruption of the boundary layer. Also, it observed that the heat transfer enhancement is effected the pulsating frequency and pulsating amplitude. The results demonstrated that both pulsating amplitude and pulsating frequency must be sufficiently HIGH to influence heat transfer conditions at the stagnation region, as well as in the away from the stagnation regions. The obtained results are given as a function of dimensionless parameters.

Keywords: İmpinging Jet; Pulsating Flow; Heat Transfer Enhancement; Nusselt Number

EFFECTS OF KAOLIN APPLICATION ON EARLINESS IN TEA PLANT (CAMELLIA SINENSIS L.O. KUNTZE)

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Abstract:

Tea plant is only cultivated on The Black Sea Region in Turkey. There are four harvest time in equatorial regions where tea plant is grown extensively. Unlike world tea cultivation area there are 6 months rest period and three harvest time in Turkey. Four harvest can be made in some years when climatic conditions are suitable in these area. The goal of this research was to determine the effects of kaolin (M-99-099) on earliness in tea plant (Camellia sinensis L.O. Kuntze). This trial was conducted in experimental orchards of Recep Tayyip Erdogan UNIVERSITY, Faculty of AGRICULTURE and Natural SCIENCE, Department of Horticulture. The Effects of kaolin APPLICATION on earliness were determined by applying 6% of kaolin with two APPLICATIONs at weekly intervals with the last APPLICATIONs at three weeks ego before harvest time. The results indicated that the APPLICATION of Kaolin increased shoot length and provided a week earliness in tea plants.

Keywords: Kaolin, Tea Plant, Earliness, Shoot Length

DIVERSITY OF CITRUS GERMPLASM IN THE BLACK SEA REGION IN TURKEY

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Abstract:

Black Sea AGRICULTURAL region possess 12,59% of Turkey fruit production and particularly East Black Sea Region ranked as 3rd on citrus fruit production after Mediterranean and Aegean regions. Due to properties of climate, soil and geographical features, main production is focused on hazelnut and tea. In Turkey, citrus fruit production in Mediterranean and Aegean regions is economical because of ecological conditions. However, Satsuma mandarin which has the HIGHest export found its best ecolgy in East Black Sea Region. In addition to mandarin, local citrus friut species produced also includes orange, lemon, citron and grapefruit. However, due to increasing rate of tea production in this region, citrus fruit orchards are being destroyed and gene sources are threatening each day. In this paper Citrus Germplasm in East Black Sea region is evaluated and PROTECTION approaches are discussed.

Keywords: Citrus, Germplasm, Orange, Mandarin, Lemon

INVESTIGATION ON EFFECT OF TOOL GEOMETRY ON THE SURFACE ROUGHNESS IN MACHINING OF AISI D2 STEEL

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Abstract:

In this study, machining tests were carried out surface quality on AISI D2 steel. The machining tests were performed through single point turning using coated cemented carbide tools with traditional nose radius and wiper nose radius at four different cutting speeds (70, 130, 190, 250 m/min), four different feed rates (0.05, 0.1, 0.15, 0.20 mm/rev) and 1 mm constant depth of cut without using coolant. The influences of nose radius, cutting speed and feed rate on surface roughness and chip formation were investigated. Cutting speed significantly affected the MACHINEd surface roughness values. Surface roughness was most sensible to changes in cutting tool geometry from the other parameters. Wiper geometry were provided lower surface roughness at HIGHER cutting speed and third feed rate value, according to the standard geometry.

Keywords: Machining, Wiper Tool, Surface Roughness, Aisi D2

FINITE ELEMENT ANALYSIS OF INFILLED RC FRAMES UNDER LATERAL LOADS

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Abstract:

The effects of infill wall on the dynamic behaviour of reinforced concrete (RC) buildings have been studied experimentally and analytically since 1950s by different researchers. Since they are widely used for different purposes in all over the world and it is known that they enhance the global behaviour of structures including stiffness, rigidity and strength, infill walls are accepted as non-structural elements. Since infill walls consist of different MATERIALS such as mortar and brick having different MECHANICAL properties, it becomes more difficult to clarify the behaviour of infilled RC frames.

The purpose of this study is to investigate and explain the behavior of brick and gas concrete infilled RC frames analytically. For this reason, full scaled, one bay and one storey RC frames with and without infill wall are constructed and tested experimentally under static pushover analysis and NUMERICALly by using non-linear finite element analysis. Furthermore, three different equivalent compressive strut models, commonly used in literature to describe the influence of masonry walls on the RC frames, is used to model the wall and analyzed under horizontal loads.

In conclusion, the results of finite element analysis and compressive strut models were evaluated of whether these numeric and analytical approaches can estimate the behavior of infill wall on the RC frame and wall-frame interaction or not. The study showed that infilled RC frame, compared with bare frame, improves the global behaviour of the structure considering rigidity, stiffness and strength.

Keywords: Finite Element Method, Compressive Strut, İnfill Wall, Rc Frame

EVALUATION OF THE COMPRESSIVE STRUT MODEL FOR ANALYTICAL MODELLING OF INFILLED REINFORCED CONCRETE FRAMES

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Abstract:

Masonry infill walls have been largely used for various reasons in reinforced concrete (RC) frames for a long time. Several buildings suffer damage and many of them collapse due to failure of infill walls in earthquakes in all over the world. The effects of infill wall on the frame under lateral loads have been studied by researchers for over fifty years. Despite the wide usage of infill walls in RC frame buildings, the effects of them on the frame are not included in analysis of the system because of the fast degradation in strength, stiffness and energy dissipation capacity of infill wall. In consequence of broad experimental studies, it is approved by the researchers that the behaviour of infill walls under lateral loads can be represented by replacing the wall with a diagonal compression strut.

In the present study, a full scaled, one bay and one storey RC frames, which are tested experimentally previously under lateral loads, are simulated and analyzed using finite element method by replacing the wall with a compressive strut model in order to investigate the efficiency of the strut model. The analysis results show that compressive strut model is a simple, easy and effective way of represent the global behaviour of infill wall.

Keywords: Compressive Strut, Finite Element Method, İnfill Wall, Rc Frame

A COMPARISON OF THE TRAFFIC ACCIDENT HOTSPOTS DEDECTION METHODS ON THE TURKISH HIGHWAY ROAD NETWORK

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Abstract:

Traffic accidents are very serious problem in terms of their potential of harm for our country and all over the world. According to statistics of relating to traffic accidents, about 1.3 million people died and 45 million people are injured in the traffic accidents around the world each year. In Europe, approximately 42 000 people lose their lives due to traffic accidents, while approximately 3.5 million people are wounded each year (ETSC). In Turkey, according to statistics from the General Directorate of Police, the number of accidents has increased from 440000 in 2002 to 1199016 in 2015. Traffic accidents have become a problem in terms of public health in Turkey as in the world.

The sections/points/zones that have HIGH number of traffic accidents are generally called black spots. To reduce traffic accidents it is necessary to know the places of black points and to modify those in terms of traffic safety. In the international efforts to determine the traffic accident blackspots, different TECHNIQUES such as crash frequency, crash rate, and crash severity are used as well as Turkey.

We suggested a project aiming a new model to determine the traffic accident blackspots including different hotspot identification methods to the Scientific and Technological Research Council of Turkey. The final target for the project is to develop a GIS-based model to determination of accident black spots by comparing different spatial statistical TECHNIQUES. In order to understand the situation and to obtain the model different spatial hotspot detection methods will be used and compared. At this stage of the project, we used and compared eight hotspot detection methods. In this paper the results of project will be presented so far.

Keywords: Gis, Traffic Accidents, Hotspots,Spatial Analysis

IN SILICO IDENTIFICATION OF POTENTIAL GENES FOR THE ACCUMULATION OF IRON IN TOMATO FRUITS DURING DEVELOPMENT AND MATURATION STAGES

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Abstract:

Tomato (Solanum lycopersicum) is both a major horticultural crop and a model for the development of fleshy fruits. Iron is an important nutrient for human, plants and animals. Tomato as a model plant to study the accumulation of iron into fruits. We have identified potential candidate gene families based on transcriptome database expression. The gene families belong to natural resistance-associated macrophage protein (NRAMP), vacuolar iron transporter (VIT) and Zrt and Irt-like protein (ZIP). NRAMP gene family members are 4, VIT consists of 9 and ZIP with 13 genes. Among NRAMP gene family, expression of SlNRAMP4 is more specific to tomato fruit developmental and maturation stages. Among, VIT gene family members, SlVIT1, SlVTL4 and SlVTL1 expressed more specifically to fruits developmental stages while rest of VIT members' expression was specific to root, shoot or flower and few did not show any expression in any organ. While, ZIP family members, SlZIP10.3, SlZIP10.4 and SlZIP12 were expressed specifically to fruit developmental and maturation stages while others were expressed negligible in fruits or HIGHly expressed in root, shoot and flowers. The specificity of the NRAMP, VIT and ZIP gene families could be a cue for accumulation of iron in fruit during the developmental stages. Since, previous reports indicated that members of the families are involved in the transport of iron in root, shoot tissues for plant mineral nutrition. Therefore, we assume that based on the transcriptome expression the fruit specific genes could be important sources for biofortification of iron in tomato fruits.

Keywords: Tomato, İron Biofortification, Nramp, Vit, Zip

GENETIC CHARACTERIZATION OF TURKISH BREAD WHEAT LANDRACES USING IPBS RETROTRANSPOSONS MARKERS

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Abstract:

Major part of Fertile Crescent is located in Turkey and it is important center of domestication and diversity for many major crops including wheat. Besides of availability of many genomic resources in wheat, there is still problem for genetic studies in the laboratories of least developed and developing countries, where availability of funding is scarce for genetic studies in any crop including wheat. Therefore we have to search new PCR based markers system with HIGH polymorphism with low TECHNICAL demand and lost cost. Transposable elements, particularly the retrotransposons, comprise much to most of plant genomes; their replication generates genomic diversity makes them an excellent source of molecular markers. In the present work, we tested the applicability and efficiency of iPBS retrotransposons markers for molecular characterization of bread wheat genetic resources. We used thirteen iPBS retrotransposon primers for molecular characterization of wheat germplasm covering almost all geographical provinces of Turkey and some commercial cultivars. Bread wheat landraces harbored HIGH genetic diversity based on retrotransposons data. A total of 92 polymorphic bands were amplified with 13 retrotransposons primers with an average of 10.92 bands per primer. PIC value ranged from 0.43 to 0.89 with an average of 0.62 per primer. It was also evident that wheat landraces from the same geographical region were often placed in different groups in the neighbor joining analysis, indicating that grouping based on genetic parameters was not closely related to the geographical origin. The population structure was determined by using STRUCTURE software, and five populations at K = 5 were identified among landraces. Our data also suggested a role of iPBS-retrotransposons as 'a universal marker' for molecular characterization of wheat germplasm and demonstrated that retrotransposons is major component of genome PLASTICity and diversity in wheat

Keywords: Fertile Crescent, Turkey, Population Structure, Retrotransposons Efficiency

PERFORMANCE CHARACTERISTICS OF A SPARK IGNITION (SI) ENGINE FUELED WITH LIQUID FUELS AND ALCOHOLS

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Abstract:

The effects of different liquid fuels and alcohols, such as gasoline, benzene, hexane, iso-octane, toluene, ethanol and methanol, on the engine performance and combustion characteristics of a spark ignition (SI) engine, running at stoichiometric combustion conditions, are investigated. A validated combustion model with experiments has been used to demonstrate the different fuel type influences on engine performance. The results obtained have been compared with the data of gasoline combustion case. In terms of engine performance, the results showed that the engine running on the liquid fuels, excluding gasoline, and alcohols has close results to the engine fueled with gasoline.

Keywords: Liquid Fuels, Alcohols; Equilibrium Combustion Products, Combustion, Spark İgnition Engine, Engine Performance

SECOND RECORD OF AUTOGNETA (RHAPHIGNETA) NUMIDIANA (GRANDJEAN, 1960) (ACARI,ORIBATIDA) FROM TURKEY

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Abstract:

Oribatid mites are mainly soil living decomposer microarthropods and consist of more than 10,000 described species worldwide (Subias 2016). Among the soil fauna, oribatid mites have an important role in mineralization and decomposition of plant residues especially in acidic soils.

In general, oribatid mites distinguished from other mite suborders by subdiveded body in to the prodorsum (anterior prosoma) and notogaster (posteror opisthosoma), having chelate-dentate chelicera, simple palpi, bothridial sensilla, beeing well sclerotized.

The subgenus Autogneta (Rhaphigneta) Grandjean, 1960 contains three species and distributed in Southern Palearctic region. The main characteristics of this subgenus are the presence of an incision in the rostral apex, narrow costulae and granular sculpturing on the lateral sides of prodorsum.

The species A. (R.) numidiana was previously recorded in Turkey only from the Artvin province. In this study a new distributional record belonging to this species from Sakarya province is given and redescription of A. (R.) numidiana by SEM investigation is also provided. Morphological featerures our specimens are in accordance with those of previously studied specimens.

Keywords: Acari, Oribatida, Autogneta, Rhaphigneta, Turkey

INFLUENCIES OF WINDING TOPOLOGY AND TURN NUMBER ON INDUCTION MOTOR PERFORMANCE AND SPACE HARMONICS

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Abstract:

Magnetic design and ELECTRICAL design are the two of the most important parameters on designing the electric motors. Two of the parameters are directly affect the performance and efficiency of the electric motor. Especially the winding topology and distribution of the coils to the stator slots are affect not only the airgap magnetic flux distribution but also the back electromotive forces on windings. Other important parameters that affect the airgap space harmonics and torque ripple are whole coiled winding type or half coiled winding type, cross section and number of conductors in slots.

In this study, influence on a 1.5 kW induction motor performance when modifying the winding type and turn number is investigated. Furthermore, harmonic analyses of each type of motor are studied. For these analyses, FEA based simulation package program is used. Equivalent circuit parameters, magnetic analyze parameters, physical and ELECTRICAL parameters and performance values (torque, efficiency etc.) are compared for different winding turn numbers and different winding topologies. Comparing of the analytical and numeric solutions, optimum design parameters are determined.

Keywords: İnduction Motor, Winding Topology, Finite Element Method, Harmonic Analysis

INVESTIGATING STUDENTS SUCCESS ON PREREQUISITE CHAIN COURSES

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Abstract:

In undergraduate programs of universities, a prerequisite chain determines the order of taking related courses. Any prerequisite course must be taken before the next course in the chain. The main expectation of defining such a prerequisite chain is that students who take the prerequisite course would be well prepared for the next courses in the sequence and, thus, they are expected to be successful in the following courses. To investigate the validity of this hypothesis in a case study, we selected two courses (Calculus I and Calculus II) in the prerequisite chain of the Computer ENGINEERING Department at Atilim UNIVERSITY. We define student success in a course as the number of times a student takes the course until he or she passes it. We gathered data consist of 319 students who passed both Calculus I and Calculus II courses. For each student, we recorded the number of taking both courses. Afterwards, we APPLIED the correlation and chi-square tests on the dataset. The chi-square test produces low p-value (less than 0.05) which can be interpreted that the hypothesis is accepted. In other words, the number of re-taking Calculus I has statistically significant effect on the number of re-taking Calculus II. However, the correlation coefficient is calculated as 0.23 which means that there is a low correlation between these data. In fact, we observe that 72% of students pass both courses taking the courses maximum twice. On the other hand, the percentage of the students who re-take the prerequisite course in HIGH numbers (more than 5 times) is about 6% and, 50% of these students are able to pass Calculus II by taking this course only twice. In summary, selected statistical analysis methods and the observations indicate the existence of relation between these two courses.

Keywords: Data Mining, Statistical Analysis, Prerequisite Chain, Curriculum Development

DESIGN AND DEVELOPMENT OF WIRELESS BUILDING LIGHTING MANAGEMENT

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Abstract:

Lighting management systems play a significant role on energy consumption of buildings, especially commercial and public buildings like shopping malls, universities and hospitals. The aims of building lighting control system are increasing people's comfort and decreasing energy consumption. The development of the wireless technology provide opportunity for simplification in wiring requirements. This paper explores design and APPLICATION of a wireless sensor and actuator based lighting management systems that uses a protocol providing minimum energy consumption and maximum trustworthy data transfer for the lighting management. A case study is simulated for a UNIVERSITY building in Turkey and the cost and power consumption results are compared to with conventional system.

Keywords: Smart Lighting, Building Lighting Management, Wireless Sensor And Actuator Networks

SIMULATION MODELLING FOR WORKER ASSIGNMENT AND MACHINE SCHEDULING IN A JOB SHOP ENVIRONMENT: A CASE STUDY

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Abstract:

Job shop models, consisting of multiple part types and multiple operations, are widely used in real life manufacturing systems. In this study we consider a job shop environment in which different types of electronic components are processed at a leading electronic company in Turkey. Considered system has two lines that the components have to be assigned to exactly one of them. At each line, assigned components are processed according to a fixed operation route for each job in a given schedule. Besides, since some operations can be performed only by the skilled workers, worker assignments have also been taken into consideration. The aim of the study is to minimize the makespan for the described system. It has been modeled by simulation using the data obtained from the company. Results obtained from the simulation model have been analyzed to determine the wastes affecting the efficiency. Finally, suggestions related to obtaining an active schedule and good assignments together with the best possible objective function value, have been presented.

Keywords: Job Shop, Scheduling, Skilled Worker, Simulation

ANALYSIS OF WIND AND WAVE CLIMATE ALONG THE COASTS OF THE BLACK SEA

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Abstract:

The wind and wave conditions of Black Sea coasts are modelled using the third generation wave model SWAN forced with CFSR winds over a period of 31 years (1979-2009). The SWAN model is adapted and validated for the Black Sea within the TUBITAK Project (Akpınar et al., 2015). Consequently, long-term time series of the CFSR winds and simulated waves are processed to determine the statistical properties of these wind waves in six locations close to the shore. Annual and seasonal wind and wave rose diagrams, probability and cumulative distribution plots, and the relationship between Hmo and Tm02 are discussed. Monthly variations of the arithmetic monthly average Hm0 values during 31 years and the HIGHest, mean, and lowest maximum values obtained using yearly maximum values of each month during 31 years are examined. Extreme value analysis for waves using the yearly maximum values and individually maximum values with the percentile 90% simulated during 31 years is also discussed.

Keywords: Swan, Wind And Wave Climate, Extreme Waves, Black Sea

MONTHLY VARIATION OF THE ORIBATID MITE SPECIES ZETORCHESTES GRANDJEANI KRISPER, 1987 COLLECTED FROM SAKARYA PROVINCE OF TURKEY

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Abstract:

Oribatid mites are one of the largest and diverse group of soil fauna. They have a worldwide distribution and play important role in ORGANIC matter decomposition, nutrient cycling, and soil formation. Generally climatic factors such as rainfall, soil moisture, temperature and solar radiation effect abundance of oribatids.

Temperature has a great effect on oribatid mites because like other invertebrates they are exothermic. Moisture was the second abiotic factor that affects oribatid mites. Variable tolerance to moisture differs one species to another and the different life stages within a species. Oribatid mites that are more frequently found to inhabit the upper layers of the soil are more tolerant to desiccation.

Zetorchestidae prefer warmer environments and usually live in rocks and bark of trees. They feed on lichens and algae. Zetorchestid species can be easily distinguished from other taxa of the Brachypylina by their fourth pair of legs that is specialized for jumping and claws tending to become reduced.

Genus Zetorchestes has sixteen known species and one subspecies all over the world. Hitherto only two species Z. micronychus and Z. grandjeani were rcorded from Turkey.

This study comprises the investigation of relationship between the climatic factors and the monthly abundance of the species. The analysis put in evidence that the correlation between environmental conditions and the occurrence of Zetorchestes is very weak. There is a weak negative correlation between temperature and number of individual i.e. -0.364 for air temperature and -0.348 for soil temperature. In the contrary, this weak correlation is positive for humidity (0.236). It seems that Zetorchestes is not effected severely with the environmental conditions. Moreover, the effect of rainfall is almost null (-0.047).

Keywords: Acari, Oribatida, Zetorchestes, Monthly Variation

COMPARISON OF THE RESPONSE CHARACTERISTICS OF PERCHLORATE-SELECTIVE ELECTRODES BASED ON CALIX[4]ARENE DERIVATIVE

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Abstract:

Perchlorate (ClO4–) ion is absolute poison to the environment, and the health consequences are disastrous. Therefore, the determination of the ClO4– at low concentrations especially in environmental, food, water and biological samples is important [1]. Many analytical methods have been developed for perchlorate determination. In comparison with classical/instrumental determination, potentiometry with ion-selective electrodes (ISE) possess many advantages [2].

In this study, perchlorate-selective PVC membrane electrode [ClO4—PME (47.2 ± 0.6 mV/pClO4)], carbon paste electrode [ClO4--CPE (55.7 mV/ pClO4)], and different types of PVC membrane coated Pt electrodes include or not multiwalled carbon nanotubes(MWCNTs) [ClO4—CPtE (Type 1: 42.7 ± 0.9 mV/pClO4), (Type 2: 44.4 ± 0.3 mV/pClO4), (Type 3: 50.4±1.9 mV/pClO4), (Type 4: 46.1± 0.7 mV/pClO4)] based on 5,11,17,23-tetra-tert-butyl-25,27-bis(pyren-1-yl-methylimido-propoxy)-26,28-dihydroxy-calix[4]arene, as an ionophore, were developed and their response characteristics were compared.

The selectivity coefficients for these electrodes calculated by SSM (Separate Solution Method) towards variety of ions were determined. Furthermore, the applicability of these electrodes was investigated by using them as indicator electrodes for the potentiometric determination of perchlorate in different real samples.

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Keywords: Perchlorate, Perchlorate-Selective Electrodes, Potentiometry, Calixarene

CHEMICAL COMPOSITION, ANTI-ALZHEIMER, ANTI-MICROBIAL AND ANTIOXIDANT ACTIVITY OF ORIGANUM LAEVIGATUM

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Abstract:

The genus Origanum L. species (Lamiaceae) is mostly distributed around the Mediterranean area . There have been known 52 of Origanum taxa in the world. in Turkey 23 species, 14 of which are endemic. The species are known "Kekik, Mercanköşk" in Turkey and also used as spices "oregano" all over the world. They have been used in TURKISH traditional medicine due to their several biological properties such as antioxidant, antimicrobial and antimutagenic activities.

In this study, the essential oil and phenolic profile of Origanum laevigatum Boiss. was investigated. The oil was obtained by hydrodistillation method and analyzed by GC-MS/MS. The plant was cutted in small pieces and then extracted with chloroform, acetone and methanol. The phenolic profile of the extracts was analyzed by LC-MS/MS. Also anti-Alzheimer, anti-microbial and antioxidant activity of the extracts were studied.

The essential oil of Origanum laevigatum was consisted of twenty-five compounds, and Gamma-cadinene (23.0%), Caryophyllene-(Z) (7.6%) and 4-Terpineol (7.3%) were determined as main components of the oil.

The main phenolic constituents of the extracts were as follow: for choloroform Chlorogenic acid, caffeic acid and Rosmarinic acid, for acetone Rosmarinic acid, Ursolic acid and Kaempferol, for methanol-1 and methanol-2 Gallic acid, caffeic acid and ursolic acid.

The extracts did not show antimicrobial activity against studied microorganism. For CUPRAC method both methanol extracts and acetone extract showed very remarkable activity. In DPPH and β-carotene-linoleic acid assay, the extracts have moderate activity especially at 100 µg/mL concentration. The chloroform extract showed very weak activity for all methods. The anti-Alzheimer activity result showed that any of the extracts have not inhibited AChE or BChE significantly.

The authors thank TÜBİTAK for supporting this study as a part of the project 113Z225.

Keywords: Origanum L. , Origanum Laevigatum, Essential Oil, Phenolic, Activity

APPLICATIONS OF ULTRASOUND IN FOOD AND ESPECIALLY DAIRY SYSTEMS

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Abstract:

Improving the quality and nutritional aspects of food is one of the key issues for healthy life of human beings. The stability during storage is an important parameter in quality assurance of food products. Various processing modern TECHNIQUES such as HIGH pressure, thermal, pulsed electric FIELD and microwave have been used to prolong the shelf-life of food products. In recent years, ultrasound technology has been found to be a potential food processing technique. Ultrasound waves are generally used for monitoring the composition and physicochemical properties of food components and products during processing and storage, many food processing operations such as extraction, freezing, drying, emulsification and inactivation of pathogenic bacteria on food contact surfaces. This review provides an overview of recent developments in ultrasonic processing of dairy systems, meat products, vegetables and fruits, cereal products and microbial inactivation.

Keywords: Ultrasound Technology, Food Systems.

CHEMICAL COMPOSITION OF ORIGANUM VULGARE SUBSP. HIRTUM WITH ACTIVITY

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Abstract:

The genus Origanum L. is naturally grown in western and southern Turkey and other Mediterranean countries with about 52 taxa in the world. Origanum species have been used in medicine and as spices and condiment since antiquity, mainly because of their content of essential oils which possesses carminative, stomachic, diuretic, and emmenagogue properties.

In this study, the essential oil and phenolic profile of Origanum vulgare L. subsp. hirtum (Link.) Ietsw. was investigated. The oil was obtained by hydrodistillation method and analyzed by GC-MS/MS. The plant was extracted with chloroform (C), acetone (Ac) and methanol (M). The phenolic profile of the extracts was analyzed by LC-MS/MS. Also anti-Alzheimer activity of extracts and anti-microbial activity of the oil were studied.

The essential oil of Origanum vulgare subsp.hirtum was consisted of thirty two compounds, and Alloaromadendrene (27.5%), Cymene (19.4%) and τ-Terpinene (16.9%) were determined as main components of the oil.

The main phenolic constituents of the extracts were as follow: for C; Penduletin, Quercetagetin-3,6-dimethylether and Isorhamnetin, for Ac; Rosmarinic acid, Penduletin and Ursolic acid, for M-1 Rosmarinic acid, Apigenin and Quercetagetin-3,6-dimethylether for M-2; Rosmarinic acid, Apigenin and Penduletin.

The anti-microbial activity result of the oil showed that it has very strong activity all the tested species. The extracts of Origanum vulgare subsp.hirtum showed moderate inhibition assay against AChE and BChE enzyme.

The authors thank TÜBİTAK for supporting this study as a part of the project 113Z225.

Keywords: Origanum Vulgare Subsp.Hirtum , Essential Oil, Phenolic, Antimicrobial Activity, Anticholinesterase Activity

INVESTIGATON OF STATOR AND ROTOR SLIT EFFECTS ON MIDDLE POWERED INDUCTION MOTOR PERFORMANCE

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Abstract:

To improve the performance of the induction motors, several TECHNIQUES are used. Especially in recent years, optimization of the stator and rotor slot geometrical parameters to stand out in academic publications. Furthermore, studies on magnetic and ELECTRICAL design parameters, airgap length optimization, control TECHNIQUES, cooling systems, using of efficient MATERIALS, using of different winding topologies are conducted for improve the performance of the induction motors.

In this study, different from these TECHNIQUES, for decreasing the influence of armature reaction and for increasing the performance of the motor, a new approach is used. Object of the technique is using modified stator and rotor structure which have slitted stator and rotor teeth. Lengths of the slits are the same with stator and rotor slots height. Widths of the slits are designed at 0.1mm. For these analyses, 5.5 kW and 10 kW squirrel cage induction motors and FEA based simulation package program is used.

Equivalent circuit parameters, magnetic analyze parameters, physical and ELECTRICAL parameters and performance values (torque, efficiency etc.) are compared for reference motor and modified motor.

Keywords: İnduction Motor, Slits, Performance Analysis

ENRICHMENT WITH ESSENTIAL OILS OF EDIBLE FILMS AND COATINGS IN FRUIT AND VEGETABLES

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Abstract:

In recent years, consumer preferences have tended towards healthy foods that contain lower levels of chemical preservatives and exhibit more fresh-like and natural characteristics. Edible coatings are based on biodegradable and edible MATERIALS from natural sources. They extend the shelf-life of fruit and vegetables through reduction in moisture loss and respiration rate, thereby preventing physical and microbial damage and enhancing product appearance. Edible film and coatings are based on polysaccharides, proteins and lipids or a mixture of these. Other food-grade ingredients such as antimicrobial agents, antioxidants, flavors, color pigments and vitamins can also be incorporated into the basic formulation of these coatings with the aim to improve their functional properties. Among the active ingredients used in antimicrobial edible coatings, compounds such as plant essential oils, ORGANIC acids, parabens, their salts and other permitted food additives have been preferred for fruit and vegetables. EOs have received much attention as inhibitors of a wide variety of phytopathogenic fungi and are generally recognized as safe (GRAS) at the doses typically used in foods and coating MATERIALS. In this perspective, this review discusses the potential APPLICATION of edible film and coatings enriched with essential oils constituents in fruits and vegetables.

Keywords: Edible Film And Coatings, Essential Oils, Antimicrobial.

CFD ANALYSIS OF A DIVIDED COMBUSTION CHAMBER OF SINGLE CYLINDER SPARK IGNITION CNG ENGINE

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Abstract:

There are several software APPLICATIONs for CFD modelling of cold flow and combustion in internal combustion engines. The reliability of these APPLICATIONs are verified with previous studies. In preliminary studies prior to the experiment it is convenient to use CFD analysis methods. In this study, analysis of a project that is planned to do experiments of single cylinder divided chamber spark ignition CNG engine are evaluated with a commercial CFD code. CFD analysis were performed by using the G-equation for turbulent, partial premixed combustion in divided combustion chamber. The obtained results are presented comparatively for two different fuels of methane and iso-octane. These results include cylinder pressure, temperature and mass fraction at different equivalence ratios. It is observed from the results of this study that methane use in divided chamber instead of iso-octane provides HIGHER performance in terms of indicated power output, thermal efficiency and specific fuel consumption.

Keywords: Engine Performance; Divided Chamber; Cfd Combustion Model; Methane; İso-Octane; Equivalence Ratio.

INDUSTRIAL ENERGY EFFICIENCY IMPROVEMENT WITH CASE STUDIES

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Abstract:

Usage of efficient energy reduces air pollution and greenhouse gas emission by protecting the environment and reducing energy costs ,it also increases competitive capacity of the country and enterprises. As it is considered with regard of our country, efficiency is extremely important to reduce energy importations and to increase safety of energy. According to datas of 2014, it is clearly obvious that Turkey which has energy importations more over 75 % and its current deficit resulted from the energy importation,must take a step for energy efficiency.As it is examined the energy consumption of industries in our country, energy consumption is very HIGH respectively in the industry, buildings and service sector. It is obvious that energy saving in industry contributes to national economy. It can be saved 25% of the HIGH energy in industry. In this work, APPLICATIONs on the energy efficiency have been evaluated with case studies. According to results,APPLICATIONs have been proposed to increase energy consumption and energy efficiency of all sectors and have been researched to national economy.

Keywords: Energy Efficiency, İndustry

CLASSIFICATION OF POINT CLOUD IMAGES

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Abstract:

Object recognition and classification are the most important problems considering in computer vision. Classification of 3D point cloud data is an emerging topic attracting increasing research interest. Especially feature matching has become an increasingly used method for comparing images. In this paper, we address the issues of the efficient detection of the real object models by means of 3D point cloud data images. The efficiency of the method is verified according to real 3D point cloud data. The used data sets consist of a large number of point cloud and its images, and it has been acquired with calibration of Kinect sensor camera. Automatic, accurate and robust feature detection is critical task in image matching and processing. We embed our approach in a framework that is a combination of feature extraction of point cloud data and three different types of image feature detection algorithms. These are Scale Invariant Feature Transform (SIFT), the more recent Speed up Robust Features (SURF), and Graphics Processing Unit (GPU) based SURF. These methods have been used to compare images to improve the outcome of the classification stage. This paper proposes a novel approach to recognition of the object categories over point cloud images. For this aim, classification of 3D point cloud data allows robust segmentation and feature descriptions into different objects. Selection of 3D classification is generated on extracted partial 3D shapes from the point clouds images and quantizing 3D SURF local descriptors. For execution time, GPU based SURF algorithm 2.5-3.5 times faster than SURF algorithm and 8-9 times faster than SIFT algorithm. APPLICATIONs are implemented on a MACHINE equipped with an Intel Core i7-3610 QM CPU at 8GB RAM and a GeForce GT 650M GPU. In the future, the authors are planning to work with complex scene data.

Keywords: Point Cloud, Classification, Feature Detection, Sift, Surf, Gpu-Surf.

DETERMINATION OF DIFFUSE SOLAR RADIATION FOR PV SYSTEMS

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Abstract:

Turkey is a country which has HIGH potential of solar energy according to its annual sunshine duration and values of solar radiation violence. It is predicted that PV power plants will support substantially energy requirement of our country. For planning and activating these systems, it is principally important to determine the data of solar energy radiation. Total solar radiation consists of direct and diffuse radiation components and totality of solar radiation is lower in winter than in summer. In winter total cloud amount and raise of moisture content increase diffuse solar radiation in the atmosphere. As a result of this, PV systems produce electricity efficiently in summer season, but may not arrive to planned efficiency in winter season. It is important to determine the diffuse radiation more carefully in winter. In this work, instance calculations are investigated which have important effect on PV power plants to detect diffuse solar radiation. In particular, sample calculations on the determination of diffuse solar radiation during the winter months are made to ensure maximum production and efficiency. According to calculations, daily tables and graphics are consisted and compared to the total values of solar radiation.

Keywords: Solar Radiation, Diffuse Radiation, Pv

DISCRETE COSINE TRANSFORM BASED AUTOMATIC GENDER DETERMINATION FROM FACE IMAGES

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Abstract:

Gender is one of the information that is contained in the human face. In this study, gender determination has been performed using face images. For this operation, database that consists of 100 people (50 male and 50 female) are used. Facial regions in each image are automatically determined and masked. The region within the mask is divided into blocks and discrete cosine transform is APPLIED to each block. The feature vectors are obtained from these blocks. Support vector MACHINE, neural networks and k-nearest neighbour algorithms are used for classification. The best success rate and the area under the ROC curve is obtained by using Support Vector MACHINE as 94% and 98.4%, respectively.

Keywords: Gender Determination, İmage Processing, Discrete Cosine Transform

SOME APPLICATIONS OF MATRICES EIGENVALUES AND EIGENVECTORS

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Abstract:

Eigenvalue and eigenvector problems arise in many ENGINEERING APPLICATIONs. In this work, some matrices were considered which are important in APPLICATIONs. The elements of these matrices consist of cartesian components of the mass tensors, area inertia tensors and stress tensors. The physical meanings and some facilities of eigenvalues and eigenvectors of these matrices are given. Moreover the transformation equations of the mentioned matrices are obtained and the tensor transformation relations are showed.

Keywords: Symmetric Matrixes, Eigenvalue, Eigenvector, Quadratic Form, Moment Of İnertia, Flexure, Stress

HEART SOUNDS ANALYSIS BY USING LINEAR PREDICTION CEPSTRAL COEFFICIENTS

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Abstract:

The analysis of heart sounds has an important role to recognize the signs of various pathological conditions of heart. Along with the development of the signal analysis TECHNIQUES, analysis of heart sounds and determination of the pathological heart sounds have become possible in the digital environments. In this study, following the filtering and segmentation pre-process, 9 different heart sound data were analysed using linear prediction coding technique. Weighted cepstral coefficients derived from linear prediction parameters were evaluated characteristic features of heart sound data. Reduction of features was performed using principal component analysis. Artificial neural network, k nearest neighbour and support vector MACHINE algorithms were used to classify heart sounds into 9 different types. As a result of analysing and classification, the accuracy of over 90% with each classifier was obtained for identification of 9 different heart sounds.

Keywords: Artificial Neural Network, Cepstral Coefficient, Heart Sounds, K-Nearest Neighbour, Linear Prediction Coding, Support Vector Mac

MOVING OBJECT DETECTION USING AN ADAPTIVE BACKGROUND MODELING IN DYNAMIC SCENE

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Abstract:

Determination of moving foreground objects in dynamic scenes for video surveillance systems is still a problem cannot be resolved exactly. In the literature; pixel-based, block-based and texture-based methods have been proposed to solve this problem. The method we propose will be block-based method which can be APPLIED to real time in dynamic scenes. We have created non-overlapped blocks with the averages the pixels in the gray level. We used this average value to generate the background model based on a modified original KDE (Kernel Density Estimation) method. To determine the moving foreground objects and to update background model, we use an adaptive parameter which is determined according to the number of changes in the state of this pixel during the last N frames. Performance evaluation of the proposed method is tested by background methods in literature without applying post-processing TECHNIQUES. Experimental results demonstrate the effectiveness and robustness of our method.

Keywords: Background Modeling, Moving Object, Background Update, Adaptive Threshold.

THE DETERMINATION OF BIOGAS PRODUCTION POTENTIAL FROM BANANA WASTE IN TURKEY

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Abstract:

Approximately 90% of world's energy has been supplied from fossil resources. Since the fossil sources are limited and harmful to environment, there is a significant requirement to renewable energy. By considering this situation while the governments are making their energy plan, they research for rising way of renewable energy rate in energy production.

According to TÜİK 2014 data, Turkey supplies 47.9% of its energy from naturel gas, 30.2% from coil, 16.1% from hydraulic energy, 4.9% from renewable energy and 0.9% from liquid fuels. Turkey supplying 75% of its energy from importation should use its own renewable energy sources to reduce energy dependence. The using rate of renewable energy has risen to 4.9% in 2014 while it was 0.6% in 2008. Sustaining of this rising and reaching to 16-20% line of using rate of renewable energy about 8-10 years are one of the energy plan of related ministry.

Turkey has so wide renewable energy sources. One of the most important sources is biomass. Energy production from biogas has been increasing among the biomass energy sources. Various MATERIALS are used for biogas production. One of resources is banana waste. In this study, banana waste potential of Turkey was investigated.

Banana is an annual plant that can be produced in greenhouses or open air FIELDs. The amount of AGRICULTURAL waste is twice of production. Banana is growing approximately in a 200 km line in the middle of Mediterranean region in Turkey. According to TÜİK data, banana production area was about 25000 decare in 2003 and 58380 decare in 2015. In these years, banana productions were 110000, 270500 tons, respectively. This increase in production causes an increase in waste too. At the end of study in response to this 270500 banana production, it is calculated that Turkey approximately has 550000 tons of banana waste. Methane gas and energy amounts that can be produced from this waste are determined.

Keywords: Babana Waste, Biogas, Energy

PREDICTION OF CHRONIC KIDNEY DISEASE USING AN ARTIFICIAL NEURAL NETWORK

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Abstract:

Chronic renal failure is a long-term disease which inflicts damages on kidneys and prevents the normal duties of kidneys. This disease can result in serious complications such as HIGH blood pressure, anemia, bone disease and cardiovascular diseases. In this study, a prediction model is developed for a common disease; chronic renal failure by using an artificial neural network which is a computer-based technology and recognizes the relationship between the output variable and input variables with non-linear statistics. The patients age, their blood and biochemical values, and 24 input data which consists of various chronic diseases are used for the estimation process. The input data have been subjected to preprocessing because they contain both missing values and nominal values. 147 patient data which was obtained from the preprocessing have been divided into as 70% training and 30% testing data. As a result of the study, artificial neural network model with 25 neurons in the hidden layer has been found as the model with the lowest error value. Chronic kidney failure disease has been able to be estimated accurately at the rate of 99.3% using this artificial neural network model. The developed artificial neural network has been found successful for the estimation of chronic kidney failure disease using clinical data.

Keywords: Prediction, Artificial Neural Network, Chronic Kidney Disease, Disease Diagnosis

ENERGY SAVING IN COPPER METALLURGY BY ADDITION OF FLUXING AGENT

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Abstract:

Energy is an indispensable requirement for each production process. Every industry needs the energy to manufacture some MATERIALS used by mankind. A large part of the world's energy is consumed by industry especially by mining and ferrous- nonferrous metallurgical processes. Copper sector is one of them. Copper production plants (from ore to finished products) include several energy intense processes such as smelting of concentrate, converting of matte, fire refining of blister and electro-refining of anode. Therefore, energy efficiency APPLICATIONs are crucial for copper industry. Several precautions such as energy-saving technologies, new furnaces design or usage of new insulation MATERIALS etc. could be APPLIED to reduce energy consumption in copper metallurgy. In this study, it is revealed that apart from these energy efficiency methods in copper industry, energy saving can be obtained by the addition of colemanite (2CaO.3B2O3.5H2O) to the slag during the copper smelting operation. This energy saving can be explained that the furnace temperature decreases with increasing colemanite addition since combining boron oxide with other oxides in slag leads to form a eutectic due to its very low melting point. That is, the addition of colemanite to the slag makes it possible to operate the smelting furnace at lower temperatures and this resulted in considerable amount of fuel saving.

Keywords: Copper Smelting, Energy Saving, Colemanite

ESTIMATION OF HIGH TEMPERATURE VISCOSITIES FOR COPPER SMELTING SLAGS AFTER B2O3 ADDITION

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Abstract:

Viscosity plays a very crucial role in most of the metallurgical processing, especially in copper smelting and converting stages. It causes not only MECHANICALly entrained copper losses to slag but also several operating problems related to skimming and tapping of slag. In this study, the relationship between viscosity and slag structure containing B2O3 are discussed. The experimental viscosity measurement methods and estimation models for molten slag viscosities are also explained. Furthermore, the viscosities and liquidus temperatures of the resultant slags obtained by the addition of B2O3 were calculated by several estimation methods and the calculation results of these methods were compared.

Keywords: Viscosity, Slag, B2O3

ZINC AND IRON CONTENT OF SOME TURKISH SESAME GENOTYPES

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Abstract:

Sesame (Sesamum indicum L.), one of the oldest and very important oil seed crops known to man, is widely grown in tropical and subtropical areas of the World. Sesame seeds are used in the making of tahin (sesame butter) and halva, and for the preparation of rolls, crackers, cakes and pastry products in commercial bakeries. Most of the sesame seeds are used for food in Turkey. Micronutrient malnutrition, particularly zinc and iron deficiency, afflicts over three billion people worldwide due to low dietary intake. This study was conducted to determine the zinc and iron contents of five sesame cultivars each of which was classified according to its seed colors (black, brown and dark brown). The seeds were found to be good sources of minerals. Zinc content varied between 12.64-33.20 mg kg-1, iron content varied between 30.42-54.64 mg kg-1 in thirteen sesame samples. The results were compared with some other cultivars growing worldwide. Our results revealed that incorporation of sesame seeds in bakery industry at suitable levels may satisfy the recommended daily dietary allowances of minerals (N.R.C.), as shown by chemical analysis of sesame seeds, confirming it as the richest source of most of the inORGANIC nutrients.

Keywords: Sesame, İron, Zinc

COMPARISON OF QUANTITATIVE AND SEMI QUANTITATIVE XRF ANALYSIS OF FUSION SAMPLES TAKEN FROM CEMENT PRODUCTION PROCESSES

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Abstract:

Many chemical and mineral additives are added to bring new features or improve the existing properties (setting time, viscosity, anti-freeze, freeze-thaw resistance, corrosion) of the cement. While cements are being produced, even they are processed the same, final product becomes different according to its usage purposes because of additives that added at the end of cooling. In order to have required qualities and to comply with quality standards of all these additives, tens of elemental analysis are carried out in a day in cement plants. Because of having many advantages the most important of all these elemental analyses is X-ray fluorescence spectrometer analyses. In this study, cement samples which are taken from the production's processes (farin, clinker, cooling, final product), grinded and dried. Then they were operationalized fusion and turned into fusion glass disc (FGD) at 16000C. These FGD samples were subject to firstly quantitative XRF and then semi quantitative XRF measurement and percentage of major oxide components and minor elements were obtained. In accordance with the obtained data precision and sensitivity of both two different XRF measurements and compliance with quality standards of cement processes are determined.

Acknowledgment and funding

The authors are grateful to The Bursa Cement Factory Co., Inc. for cement sample support. The authors would like to acknowledge Bursa TECHNICAL UNIVERSITY through the grant 2015-01-003 for financial supports.

Keywords: Cement, Xrf, Quantitative Analyses, Fusion Sample

EVALUATION OF COMMERCIAL TYPE OF SPLIT AIR CONDITIONS BY USING CONDENSER WASTE HEAT IN A BOILER

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Abstract:

Air conditioners are used for reducing the ambient temperature and they manufactured in different versions. Especially split type air conditioners are used widely today. Because of increasing usage of air conditioners, energy consumption has also increased, so researchers have attracted to search for production of more efficient air conditioners. The main objective of this study is to investigate thermal performance of the whole system. For this purpose an experimental system was designed and manufactured by adding a boiler unit to the conventional split air conditioners condenser. At the end of the study, coefficient of performance (COP) of the system increased from 2.89 to 4.54. In addition, boiler which added to system increases degree of water from 10°C to 40 °C. When economical benefit is considered, ELECTRICAL consumption is decreased 0.61 $ supposing that the device works 10 hours daily. Only 132.5 $ is paid for the device in addition to existing split air conditioners. Besides, domestic water at 40 °C is ready to use.

Keywords: Split Air Conditioner, Boiler, Energy Efficiency, Condenser.

DEVELOPMENT OF IODIDE-SELECTIVE ELECTRODE AND ITS USE IN PHARMACEUTICAL SAMPLES

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Abstract:

An excess of iodine or iodide ingestion can produce goiter and hypothyroidism as well as hyperthyroidism. Due to the importance of iodide as an essential micronutrient, its determination is an important analytical task[1]. Most of the analytical methods are complicated and expensive for routine analysis. However, ion-selective electrodes offer an inexpensive and convenient method for fast analysis with HIGH selectivity, and have emerged as one of the most promising tools for direct determination of various anionic and cationic species in biological and INDUSTRIAL analysis [2]. Considerable effort has been devoted to the design of selective receptors for anions in the FIELD of molecular recognition. The preparation of carrier-based membrane electrodes for the direct and HIGHly selective potentiometric determination of anionic species by using different macrocyclic compounds as receptorst known as ionophore has been of great interest [3]. In this study, a metal complex named dibromo[1,1'-bis(diphenylphosphino)ferrocene] palladium(II) was used as an ionophore to develope an iodide-selective PVC membrane electrode.

The effect of membrane composition, effect of pH, internal filling and conditioning solution were investigated. An optimum membrane composition of 2 % ionophore, 68.3 % o-nitrophenyloctylether, and 29.7 % PVC was found. The electrode exhibited linear response to iodide ions in the range of 1.0×10-1 -1.0×10-5 M with a slope of 53.7±1.1 mV/pI at pH 4.0. Other response characteristics such as lifetime (at least 3 months), response time (5-10s) were determined and selectivity coefficients towards a variety of anions were calculated by separate solution method. Additionally, SEM images of the membrane and impedance studies of the electrode were evaluated to suggest a possible response mechanism.

Finally, the electrode was found work well under laboratory conditions by utilising it as an indicator electrode for the potentiometric determination of iodide content in pharmaceutical samples.

Keywords: İodide-Selective Electrode, Potentiometry, Pvc Membrane, İodide Determination, Metal Complex

HSP GENES EXPRESSION PROFILE ANALYSIS UNDER BORON TOXICITY IN TOMATO

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Abstract:

Boron (B) is an essential microelement in plants. Expression levels of genes in plants can differ at excess level of boron or deficiency of it. Metabolic changes are evaluated on tomato (lycpoersicon esculentum) plant. Breeded seedlings are put on the mediums which have different concentrated boric acid in them, after twenty-four hours plants are harvested that separated according to roots and shoot parts of plant. These samples are used in physiological and molecular tests.

Different types of HSPs (Heat-Shock Protein) are found at normal conditions in the plant cells as proteins which are over-expressed under stress conditions on plants such as salinity, drought, biotic and abiotic stresses; that is proved many studies. Thus, the importances of HSPs are introduced. In this study, Real-Time PCR technique is used to analyze expressions of different HSPs quantitatively. Real-Time PCR is different the classical PCR which is measured amplified PCR products at each cycle throughout the PCR reaction.

Aim of this study is obtain the data about excess amount of boron on soil therefore meaningful changing HSP genes expression levels by using PCR TECHNIQUES as well as RT-PCR and Real-Time PCR. According to other molecular studies, real-time PCR technique is used for obtain quantitative analysis data. The results of the study will lead us to work on future studies.

Keywords: B Toxicity, Hsps(Heat-Shock Proteins), Rt-Pcr (Reverse Transcriptase Polymerase Chain Reaction), Real-Time Pcr

FUPINGOPOLLENITES WACKERSDORFENSIS AND MARGOCOLPORITES VANWIJHEI FINDING IN THE OLIGOCENE DEPOSITS FROM ŞEREFLIKOÇHISAR AND ULUKIŞLA REGIONS (CENTRAL TURKEY)

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Abstract:

Fupingopollenites wackersdorfensis and Margocolporites vanwijhei pollen grains which are scattered through the Old World tropics were reported from as early as the Middle Eocene. Moreover, these pollen grains were also recorded from the Oligo-Miocene palynofloras in Asian and Europe. F. wackersdorfensis and M. vanwijhei have been firstly observed in the palynofloral assemblage from the Early Oligocene sedimentary sequences in northern and eastern part of the Salt Lake in the TURKISH palynofloras up to now. F. wackersdorfensis is recorded in the Early Oligocene samples collected from Şereflikoçhisar and Ulukışla in the eastern and southern parts of the Salt Lake (Central Anatolia). Palynofloras with F. wackersdorfensis is represented by abundance of the spore species. Gymnosperm and angiosperm pollen are characterized by Picea, Podocarpus, P. plicatus, F. wackersdorfensis, Acacia, Mauritidites franciscoi and Slowakipollis hippophaëoides. Palaeoclimatic condition based on the palynoflora is humid and warm subtropical during deposition of the Early Oligocene in the eastern part of the Salt Lake, and also coexistence intervals of these palynofloras are mean annual temperature (MAT) and mean annual precipitation (MAP) between 14 and 19oC, 840 and 1423mm respectively. M. vanwijhei is recorded from the Early Oligocene samples collected from Yeniceoba-Acısuderesi in the western part of the Salt Lake. This region palynoflora is represented by abundance and diversity of the spore species. Gymnosperm pollen are characterized by Pinus, Cedrus, Podocapus, Tsuga and Sciadopits. Percentages of the angiosperm pollen are low, however diversity of these pollen (e.g. Bohlensipollenites hohli, Margocolporites vanwijhei, Bombacacidites) are recorded in this palynoflora. Based on palynological data, palaeoclimatic condition could be humid and warm subtropical during the Early Oligocene, as the eastern part of the Salt Lake. Besides, this climatic condition is represented by the MAT 17-23oC and MAP 817-1200mm. The study is supported by Tübitak-Çaydag (project 113Y090).

Keywords: Palynology, Şereflikoçhisar, Ulıkışla, Central Anatolia, Fupingopollenites

PALAEOVEGETATION OF THE CİHANBEYLİ-YENİCEOBA OLIGO-MIOCENE BASIN (CENTRAL TURKEY)

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Abstract:

Yeniceoba basin studied here is located to the southeastern and northwestern parts of the two largest Cenozoic basins. In the studied basin, Kartal Fm. was deposited as terrestrial sediments with typical palynomorphs and marine dinoflagellates of Late Cretaceous-Early Paleocene. The litho-biostratigraphic division of Late Eocene-Early Pliocene units have been grouped into four formations respect to palynomorphs and 86/87Sr. Two palynofloral associations are defined from Late Eocene-Early Oligocene in Acısu Deresi Fm. and these are represented by diversity of spores. Percentage of angiosperm pollen are reduced, however, diversity of these pollen is considerably HIGH. Richness of herbaceous pollen (NAP) is low, but variety of these pollen is markedly elevated in the Acısu Deresi section, dinoflagellate species is relatively decrease during the section due to decline of the marine effect. Low abundance of spores species and woody angiosperms (AP) in palynoflora have been determined in the lower part of Gökdağ Fm. (Late Oligocene-Middle Miocene). The palynological data show that Gökdağ Fm. has a different palynoflora assemblages from those of Acısu Deresi Fm. Conversely, Paleogene palynoflora species are apparently lacking in Middle Miocene aged upper part of the Gökdağ Fm. According to palynological data, sedimentary succession should be deposited under warm subtropical climatic condition with effectiveness of the seasonality changes through the Oligocene. Late Miocene-Early Pliocene palynoflora defined from Cihanbeyli Fm., which has unconformable boundary with overlying Gökdağ Fm., has indicated dry and temperate climatic conditions. Palynoflora of Cihanbeyli Fm. is characterized by the low diversity of the AP pollen but the abundance of the NAP pollen. In the palynoflora of İnsuyu Fm. (Late Miocene-Pliocene), which is the uppermost stratigraphic unit in the study area, swamp and fresh water elements are low percentage. The study is supported by Tübitak-Çaydag (project 113Y090).

Keywords: Palynology, Yeniceoba, Central Anatolia, Late Oligocene, Late Miocene

APPLICATIONS FOR TURKISH TEXT SUMMARIZATION

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Abstract:

Computer ENGINEERING is one of the most visible departments of the human - MACHINE interaction. The systems like making translation, classification being studied for a long time.

Digital technology progresses , different needs that bring the work in this environment have occurred. The number of documents worth noting that in the digital environment, it may seem that facilitate access to resources has revealed a problem as the separation of this document which is required in. In this study, , natural language processing (NLP) is one of the interest topic of human - MACHINE interactions will be referred to the document summarizing. Common aim of this subject is to develop a system that can remove the nearest summary to man-made summary. Document summarizing studies have started with choosing the best sentence that can be entered in the summary from the document (Statistical methods); nowadays developments on semantic summarization are improved (as creating new sentences for summary according o document's main subject and sub_titles). Although the document summarizing has worked since the 1950s is an issue that can be considered new for TURKISH Studies. TURKISH, considered a difficult language for summarization because of morphology and synonyms due to abundance of document. Therefore requirements for summarization systems like libraries, natural language processing APPLICATIONs as seperating words, finding word's root, noun classification are needed. With this study an entry is made for TURKISH document summarization and the literature and the results of our research will be evaluated.

Keywords: Natural Language Processing, Text Summarization, Text Summarization On TURKISH

DETERMINATION OF HYDRATION CONSTANTS ON SOME PYRIMIDINES CONTAINING KETO AND THIOKETO GROUPS

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Abstract:

Pyrimidines as being a constituent of nucleic acids are pharmaceutical compounds. The CHEMISTRY of pyrimidines has been the subject of extensive research in medicine and biology [1]. Hydration of pharmaceutical compounds plays an important role in design of drugs by affecting solubility, stability and bioavailability. Hydration constants are crucial in drug design [2]. Therefore, investigations on hydration behavior of these compounds play an important role for potential MEDICAL APPLICATIONs.Considering the above mentioned importance of the hydration properties of pyrimidines, recently synthesized I and II may exhibit novel biochemical and pharmaceutical features. In this study, time dependent hydration properties I and II were investigated by using UV-Vis spectroscopy at different pH values from 1.0 to 13.0 in aqueous medium at 25 ± 0.1 oC. The hydration constants were determined, and preferred hydration mechanisms were discussed.

Keywords: Hydration, Pyrimidines, Thiopyrimidines, Uv/Vis Spectroscopy

DETERMINATION OF HYDRATION KINETICS ON SOME PYRIMIDINES CONTAINING KETO AND THIOKETO GROUPS

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Abstract:

The CHEMISTRY of pyrimidines has been the subject of extensive research because of their APPLICATIONs in molecular BIOLOGY and medicine [1]. Some sulfur and oxygen containing pyrimidines provide binding to multiple receptors with HIGH affinity, and therefore offer novel APPLICATIONs in drug-delivery systems, biosensors, bioMATERIALS, implants and scaffold [2]. Therefore, studying the kinetics of hydration of these compounds is known to be very crucial for exerting their biological and other functional characteristics [3]. Considering the above mentioned importance of the hydration kinetics of pyrimidines, recently synthesized I and II may exhibit novel biochemical and pharmaceutical features. In this study, time dependent hydration kinetics of I and II were studied by using UV-Vis spectroscopy at different pH values from 1.0 to 13.0 in aqueous medium at 25 ± 0.1 oC. The order of the hydration reactions in excess water were calculated.

Keywords: Hydration Kinetics, Pyrimidines, Thiopyrimidines, Semicarbazone, Thiosemicarbazone.

DETERMINATION OF HEAVY METALS IN POLYPROPYLENE MATERIALS USED IN FOOD PACKAGING BY WDXRF SPECTROMETRY

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Abstract:

PLASTICs used in food packaging include many additives that could result in changing some properties such as physical, chemical and MECHANICAL. It affects the quality of the product, human health and the environment. Considering this situation, there are some legislations and regulations developed in the U.S. and the European Union about food contact MATERIALS like food packaging. Also in Turkey, certain additives must be determined according to the TURKISH Food Codex and notification of PLASTIC Stuff and MATERIALS that is contact to food. These MATERIALS are analyzed using spectroscopic methods such as AAS, ICP-AES, ICP-MS. Unlike these spectroscopic methods, X-ray fluorescence spectrometry is also widely used in different industries; since it is a quick, non-destructive, sensitive and an easy method. Among XRF methods, Wavelength Dispersive X-ray fluorescence spectrometry is being preferred for INDUSTRIAL APPLICATIONs due to its analytical assessment and sensitivity. These spectrometers provide analysis in ppm levels for determination of concentration. In this study; polypropylene bulk MATERIALS from some different food sectors which are mostly used in food packaging were examined via semi-quantitative analysis used in WDXRF. Detected some heavy metals in these MATERIALS were compared with certain additives which are determined the TURKISH Food Codex and notification of PLASTIC Stuff and MATERIALS that is contact to food. In this way, using of WDXRF spectrometry methods will be developed to determine metal additives in PLASTIC food packaging industry.

Acknowledgment and funding

The authors would like to acknowledge Bursa TECHNICAL UNIVERSITY through the grant 2015-02-001 for financial supports.

Keywords: Food Contact Polymer MATERIALS, Food Packaging, Migration, PLASTIC Additives, Polypropylene (Pp), Wdxrf

POTENTIAL HEALTH BENEFITS OF BIOACTIVES DERIVED FROM ALGAE

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Abstract:

Reactive oxygen species could attach protein, DNA, lipid and carbohydrate and lead to oxidation reaction which consequently cause several syndromes such as cardiovascular diseases, degenerative disease, some sort of cancer and early aging in the human body. For instance, formation of Alzheimer and colon cancer has been associated with free radical damage in related tissue. Carotenoids are potential biological antioxidants scavenging singlet oxygen radicals since they have the ring of the chain and thus they protect tissue from chemical damage. Also, carotenoids have the ability to stimulate the immune-system, and could potentially threat more than 60 diseases including various form of cancer, coronary heart diseases, early aging and arthritis. In this study, the carotenoids extracted from various algae species were used in different carrier forms such as encapsulation, absorption and immobilization etc. involving with algal biopolymer. Algal biopolymers have various biological properties such as anticoagulant, antiviral, antiangiogenic, antitumor, anti-inflammatory, antioxidant, antiproliferative and immunomodulating properties. Electrospraying process was used for manipulating molecular self-assembly to produce nanoparticles. In this process, biopolymers obtained from algae were filled in syringes at various concentrations by dissolving in ORGANIC solvents. Biopolymer was filled in syringe again with stirring in the carotenoid from algae and in the ORGANIC solvent dissolved various concentrations. The solution was delivered from the syringe under certain electric FIELD. Nanoparticles accumulated on the plate were collected, dried in an oven and characterized for usage in different MEDICAL areas.

Keywords: Algae, Bioactive, Biopolymer

A COMPARATIVE STUDY OF JOINT CLEARANCE EFFECTS ON ROBOTIC SYSTEMS HAVING 2D AND 3D MOTION NECESSITY

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Abstract:

Due to the advances in technology, robots are used in INDUSTRIAL APPLICATIONs where HIGH accuracy, repeatability and stability of operations are required. Even in an accurate design and manufacturing process, clearance in a joint cannot be completely eliminated in articulated systems owing to the relative motion necessity of links. This is a main reason of accuracy loss for a robotic manipulation. In this study, effects of joint clearance are investigated on the system dynamics. Theoretical analysis is performed for a small clearance size. By using the nonlinear spring-damper characteristic, contact model in revolute joint with clearance is established and the friction effect is performed using the Coulomb friction model. 2D and 3D motion sensitivity are compared relative to each other by considering with and without joint clearance. The results show that even if the clearance size is small, it has a crucial role on motion sensitivity of robotic manipulations.

Keywords: Joint Clearance, Motion Sensitivity, Manipulation Accuracy, Contact Force, Rigid İmpact.

PRODUCTION OF CARBON NANOTUBE REINFORCED POLYVINYL ALCOHOL NANOMATS BY ELECTROSPINNING METHOD

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Abstract:

In this study, poly(vinyl alcohol) (PVA) nanomats and PVA nanomats containing 1, 3 and 5 wt. % multi-wall carbon nanotubes (MWNTs) were produced by electro-spinning method. Differential scanning calorimetry (DSC) and Fourier transform infrared spectroscopy (FTIR) were used to characterize the nanomats. Furthermore, changes in the surface morphology of the nanomats were investigated by scanning electron microscopy (SEM). While the diameters of the nanomats ranging between 222-403 nm, the diameter of 5% wt. MWCNTs introduced PVA nanomats were measured as 95-192 nm. Owing to the ELECTRICAL conductivity of MWCNTs (106–107 S/m) conductivity of the solution increases depending on the amount of MWCNTs. In electrospinning method when the ELECTRICAL conductivity of the solution is increased, the charges that solution carries also increases, resulting in smoother and smaller diameter fibers. As compared with nano diameter of PVA+% 5 MWCNTs and PVA, was measured as average 110 nm that PVA+% 5 MWCNTs decreased 64.7% than PVA. □Cp value for PVA nanomats is 0.066 J/g □C when t 0.895 J/g ased. Further increase in the amount of MW attributed to the agglomeration of MWCNTs in PVA matrix.

Keywords: Nanomats, Electrospinning, Mwcnts, Dsc

LATENT HEAT THERMAL ENERGY STORAGE CHARACTERISTICS OF KAOLIN/CAPRIC ACID COMPOSITE AS A BUILDING MASS WITH PHASE CHANGE-ENERGY STORAGE/RELEASE ABILITY

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Abstract:

In recent years, latent heat thermal energy storage (LHTES) by using phase change materials (PCMs) has become a extremely essential subject in energy management applications [1]. One of the LHTES application is the inserting suitable PCM into a porous building material to decrease the temperature fluctuation inside the building envelopes [2,3]. In this regard, this paper deals with the preparation, characterization and determination of LHTES properties of kaolin/capric acid (CA) composite as a building mass with energy storage/release ability. The morphology, physical/chemical compatibility, LHTES properties, thermal endurance, thermal conductivity and its effect on the melting times of prepared kaolin/CA composite were investigated by using SEM, FT-IR, DSC, TG and thermal conductivity meter. The leakage test indicated that CA was impregnated maximally into kaolin as 17.5 wt%. The prepared K/CA composite PCM K/CA composite PCM had a phase change temperature of 30.71 °C and a latent heat of 27.23 J/g, respectively. The composite PCM had good thermal reliability after repeated 1000 heating-cooling cycling. The heat storage time of the composite PCM was reduced noticeably by introducing expanded graphite (EG; 5 wt%). All the fabricated kaolin/CA had good LHTES function for heating, ventilating and air conditioning (HVAC) in building envelopes.

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[3] Parfait Tatsidjodoung, Nolwenn Le Pierres, Lingai Luo, A review of potential materials for thermal energy storage in building applications, Renewable and Sustainable Energy Reviews 18 (2013) 327–349.

Keywords: Capric Acid, Kaolin, Thermal Energy Storage, Thermal Reliability, Thermal Durability, Thermal Conductivity.

THERMAL ENERGY STORAGE CHARACTERISTICS OF BENTONITE-BASED COMPOSITE PCM WITH ENHANCED THERMAL CONDUCTIVITY

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Abstract:

Phase change materials (PCMs) have been widely used in many latent heat thermal energy storage (LHTES) applications. PCMs can be integrated with different building materials. However, they also have some inherent limitations, such as low thermal conductivity, and the needing for a container to prevent leaking. To solve these problems, some investigators have studied the possibility of a container that can prevent the leaking of liquid PCMs by using form-stable PCM (F-SPCM) [1,2]. Bentonite is an aluminum phyllosilicate and one of the most common industrial clays. The advantageous properties of bentonite such as low cost, excellent absorption capacity, and direct usability with cement, mortar and concrete due to its good compatibility and chemical inertness make it a prospective matrix for the production of FS-BCPCMs [2]. In this regard, this paper deals with preparation, characterization and investigations of LHTES properties of bentonite/heptadecane(HD) composite for energy saving. The FT-IR and SEM results showed that the bentonite show good physicochemical compatibility against HD which was well-infiltrated into the porous structure. The DSC findings revealed that the fabricated bentonite/HD including 20%HD has a melting temperature of 22.07 ^{o}C and latent heat of melting of 28.42 J/g, which are suitable for heating and cooling applicationss of buildings envelopes. The TG analysis showed that the produced FSPCM has greater thermal durability compared with pure HD. The heat storage rates of the prepared Bb-FSPCMs were increased noticeably due to enhanced thermal conductivity after EG(5w%) adding.

References:

[1] Ling TC, Poon CS, Use of phase change materials for thermal energy storage in concrete: An overview. Constr Build Mater 2013;46:55-62.

[2] Sarı A, Alkan C, Biçer A, Bilgin C. Latent heat energy storage characteristics of building composites of bentonite clay and pumice sand with different organic PCMs. Int J Energy Res 2014;38:1478–1491.

Keywords: Composite PCM, Bentonite, Heptadecane, Thermal Energy Storage, Thermal Conductivity

EFFECT OF ABRASIVE WATERJET MACHINING PARAMETERS ON INCONEL 718 NICKEL-BASED SUPERALLOY

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Abstract:

In this study, the effect of machining parameters (traverse speed, pressure and standoff distance) on abrasive waterjet machining (AWJM) of Inconel 718 nickel-based superalloy was experimentally investigated. In the experiments, effects of these tree parameters on cutting performance (surface roughness, kerf width and kerf taper angle) are investigated. For this purpose, in order to save in cost and time, a Taguchi L9 (34) orthogonal array was chosen instead of full factorial experimentation. The each cutting parameters were changed at three levels in order to explore their effects on the measured responses. In present study, Analysis found that varying parameters are affected in different way for different response.

Keywords: Awj, Superalloy, Traverse Speed, Water Pressure, Standoff Distance.

INVESTIGATION OF WIND ENERGY POTENTIAL USING WEIBULL PARAMETERS

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Abstract:

Turkey is a dependent country on FOREIGN energy and the consuming of electric energy is getting increased very fast in terms of the development of industry and increment of the population. Although Turkey has a wide range of energy resources such as coal, natural gas, petroleum etc., they are limited. Because of this, renewable energy sources are getting importance for Turkey due to both energy dependency and disadvantages from the fossil fuels. On this issue, Turkey has started to use renewable energy sources especially wind energy which has HIGH potential. In this study, wind energy potential as a result of the distribution of wind speed is studied at a certain location of OSMANIYE region. Wind energy potential as a result of the distribution of wind speed was studied. Weibull distribution, k and c as its parameters which mostly using for this type of wind energy studies were calculated using graphical method.

Keywords: Wind Energy Potential, Weibull Distribution, OSMANIYE, Turkey

THE EFFECTS OF PARTICLE SIZE ON FLOTATION: A SHORT OVERVIEW

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Abstract:

Flotation is a physicochemical process which is used for separation of hydrophobic MATERIALS from hydrophilic ones. This method is often used in mineral processing for the selective separation of minerals, it is also used in waste water treatment and recycling processes.

In the flotation of minerals, hydrophobic particles and bubbles forms bubble-particle aggregates because of micro-events (collision, attachment and detachment). The aggregates are floated to the top of flotation cell while the hydrophilic particles, which are not attached to bubbles, are taken from bottom of the flotation cells. For the HIGH flotation recovery, particle should be attached to bubble and stay stable or non-detach during flotation process. The most important parameter affects the stability of particle-bubble aggregate is particle size. It is known that the HIGHest recovery has been obtained in the commercial flotation devices with particles size between 250 and 38 micrometer. The recovery diminishes for the coarser and finer particle feeding in the flotation due to the HIGH turbulence and low collision of bubble-particle, respectively. It is observed that many researchers have studied to develop new technologies and TECHNIQUES for providing the increase of recovery in coarse and fine particle flotation.

In this study; the development of new technologies to increase the efficiency of the flotation of fine and coarse were comparatively investigated. As the results of this study, the most appropriate TECHNIQUES were determined INDUSTRIAL applicability of the coarse and fine particle flotation.

Keywords: Miineral Processing, Flotation, Particle Size, Hydrophobicity

FACTORIAL DESIGN OF EXPERIMENT APPLICATION AND STATISTICAL ANALYSE OF LIGNITE FLOTATION

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Abstract:

Statistical design of experiments has been used in the mineral processing for providing the real optimum results by numerous authors. One of the methods is full factorial design of experiments. In this study, the main and interaction effects of parameters (collector amount, frother concentration and impeller speed) on lignite flotation were systematically investigated. The effects of collector amount (kerosene), frother concentration (AF65) and impeller speed on combustible recovery and ash rejection of lignite were investigated by the use of three-variable and two-level (23) with 4 base point factorial design of experiment. The coal samples were subjected to the experiments with kerosene in a range of 600 to 1200 gr/t, AF65 in the range of 30 to 56 ppm and impeller speed in the range of 900 to 1400 rpm. It was obtained from the present study that collector and frother amounts are statistically significant parameters on combustible recovery, while the impeller speed with collector-frother interaction were significant on ash removal.

Keywords: Mineral Processing, Full Factorial Design, Flotation, Anova

A SURVEY ON MPC WIDELY USED MANY AREAS OF THE INDUSTRY

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Abstract:

This paper presents exhaustive information about Model Predictive Control (MPC) , which is used widespread many areas of the industry. Although MPC opinion emerged in 1960's, interest to this FIELD started with a study by Richalet in 1978. Nowadays, this method has been one of the most important methods for linear and non-linear systems. MPC is consisted a plenty of control methods (Generalized Predictive Control (GPC), Dynamic Matrix Control (DMC)... etc.). Primary characteristic of these methods is included mathematical model of the system as well as is created to control signal according to prediction response of system and moving horizon principle. MPC has the ability that the input signals is currently optimized on mathematical model and it is observed that other control methods (Proportional-Integral-Derivative (PID), Linear Quadratic Regulator (LQR)) in the same category do not have this predictive ability. The aim of this study is determined with advantages and disadvantages by using a comparison between MPC and other control methods in its class. It is aimed that this paper has the characteristic of a resource for researchers who will work in this area. By considering the results of the studies, a comparison between MPC and other control methods is given on table.

Keywords: Mpc, Comparison Of Mpc, Use Areas Of Mpc

HYDROLOGICAL AND HYDROGEOLOGICAL ANALYSIS OF HISTORIC KAYIŞDAĞI SPRING WATERS OF ISTANBUL

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Abstract:

Istanbul used to have good quality drinking waters that have been supplied from sources in nearby surrounding regions. These water resources have come up today with increasing value although their quantity and quality have been gradually decreased at some extent over the years due to disorganized urbanization. Historical Kayışdağı Waters are still considered as one of the Istanbul's most natural, delicious and best quality water supply. In Kayışdağı Waters has flow rates about 200-250 m3/day in winters and 100-150 m3/day in summers which are collected from seven springs and delivered to 27 public water fountains in Anatolian part of Istanbul. Today, Kayışdağı Spring Waters are protected and managed by Istanbul Water and Sewerage ADMINISTRATION (İSKİ). In this study, hydrological and hydrogelocial characteristics of Kayışdağı Waters are investigated as a research project for İSKİ, which involves in determination of water potential subject to f hydrological variables and land use/land cover changes. It also involves determination of water quality, potential risks and recommended treatment options to reach its renowned historical status. To achieve these goals, 8 observation wells were drilled which were used to monitor groundwater levels 14 month biweekly. Water quality samples were also taken monthly from these wells and springs. As a result of statistical analysis, it was found that 10 days moving average precipitation data is correlated with biweekly measurements of spring discharges and groundwater levels. Water quality in the springs are found better than that of wells. This suggest that water in the spring comes out from the fractured quartz rocks although water in the wells are affected from shallow subsurface drainage from clay layer overlay the rocks. Kayışdağı is the only recharge area of the springs that still needs to be protected from urbanization effects to keep the good quality of water.

Keywords: Kayışdağı, İstanbul, Historical Waterways, Spring-Waters, Subsurface Drainage

A NEW SIGMOID EQUATION FOR ESTIMATING THE POINT LOAD INDEX OF ROCKS

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Abstract:

In this study, relationships between corrected point load index (Is(50)) with Schmidt hardness (N) and unit weight (□) of rocks were analyzed using simple linear, multiple regression analyses and feed forward-type ANN model. For this purpose, a total of 544 samples from different rock types were collected and laboratory tests carried out to create a data base.80% of data sets from each rock type were selected randomly and were used for developing the models and remaining 20% were used as control data sets for validation of the models. Two regression models, namely, simple linear and multiple regressions, and one feed forward-type artificial neural network (ANN) model, namely, multi-layer perceptron network (MLPN) were developed. The Is(50) values were predicted using expressions obtained from the models, and then compared to the experimental Is(50) values. As a result of these analyses, the MLPN model was found to be the best model and a sigmoid equation was suggested based on ANN model to estimate the corrected point load index of rocks.

Keywords: Artificial Neural Network, Regression Analysis, Point Load İndex, Schmidt Hardness, Unit Weight

THE EFFECT OF RESIN PAPER COATING ON SOME PARTICLEBOARD PROPERTIES

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Abstract:

In this study the effects of resin impregnated decor paper and the coating conditions on physical and MECHANICAL properties of particleboard were thoroughly investigated. For coating material, 50% melamine and 50% urea formaldehyde resin were used in impregnation process of décor papers. The density of the boards were 630 kg/m3 and the coating conditions were as follows; 30 kg/cm2 pressure, 180oC for 24 second, 200oC-19 second and 205oC -18 second as press temperatures and times. According to the results, coating with décor paper increased the bending strength and modulus of elasticity 10-19%. However, internal bonding strength was decreased by 10-20%, and screw withdrawal by 1-4% and surface soundness by 1-9%. On the other hand, it was determined that water uptake and thickness swelling was improved by 5-15%. It is stated that, pressure and heat APPLICATION during the coating process is HIGHER than the board production values and this affects the board properties negatively except bending strength and modulus of elasticity.

Keywords: Décor Paper, Coating, Resin Paper, Particleboard, Properties, Bending Strength.

DEBLURRING IMAGES TAKEN BY A QUADROTOR USING ARTIFICIAL NEURAL NETWORKS

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Abstract:

Motion blur occurs when the camera mounted on quadrotor moves abruptly due to such as adverse air conditions. In this study, an artificial neural network (ANN) is designed in order to deblur the images taken by our quadrotor. For sharpening the blurred images, initially, sharp images of scenes that blur occurred are taken from same altitudes and angles in various flights. The collected sharp and blurred images of same scenes are used to train the ANN to be capable of estimate the relationship between sharp and blurred images. The characteristics of ANN such as number and transfer function of layers are selected experimentally. Finally, the performance of designed ANN in deblurrig images taken by the quadrotor is measured and deblurrig results are illustrated by real experimental images. ANN is proved to be used as an intelligent method to deblur the images.

Keywords: Quadrotor, İmage Deblurring, Artificial Neural Networks

REAL-TIME TARGET TRACKING USING FAST OBJECT DETECTION

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Abstract:

In this study, Mean-shift, Cam-shift and Colour Tracking algorithms which all be used in object tracking are compared in a real-time robotic APPLICATION. The environment in which the robot and the object followed by robot is recorded by a camera and that data is sent to a computer through cables. To identify this object by using appropriate image process trackings, the location of the robot and the object is could be monitored at the same time. According to the results, the most effective method is shared at the discussion of the outcomes. The robot used in this APPLICATION has omni-wheel and were designed in our own laboratory.

Keywords: Target Tracking, Mean-Shift, Cam-Shift, İmage Processing, Remote Control, Omni Wheel

ESTIMATING EVAPOTRANSPIRATION USING ADAPTIVE NEURO-FUZZY INFERENCE SYSTEM AND HARGREAVES-SAMANI METHOD

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Abstract:

Information about evapotranspiration (ET) is limited even though water losses due to evapotranspiration is an important process for hydrological design and AGRICULTURAL yield. Solar Radiation (SR), Air Temperature (T), Wind Speed (U) and many other meteorological parameters have an impact on evapotranspiration. In this study 2287 daily meteorological SR, T, U and Relative Humidity (RH) data from De Soto County, Florida, USA are used for modelling ET. In the first part of the study an adaptive neuro-fuzzy inference system (ANFIS) model is created using 1716 daily data for training model and remaining 571 daily data is used for testing model. In the second part of the study Hargreaves-Samani empirical formula is APPLIED to the data set. Mean Square Error (MSE), Mean Absolute Error (MAE) and determination coefficient (R) statistics are calculated for the evaluation of results. According to the analysis, it is seen that ANFIS has better performance than Hargreaves-Samani empirical formula for modelling ET.

Keywords: Evapotranspiration, Adaptive Neuro-Fuzzy İnference System, Hargreaves-Samani, Modelling, Estimation

REMOVAL OF CHROMIUM (VI) FROM TANNERY WASTEWATER BY KAOLINITE

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Abstract:

The tannery industry is one of the most polluting industries and characterized by considerable water consumption associated with the large use of different chemicals.(10). The function of chromium salts in tanning processes is to form through complexation with the polypeptide collagen components of leather, a protective layer, which prevents the penetration of water inside the leather pores avoiding putrefaction. (4). Kaolinite is an inexpensive and efficient adsorbent which has great potential in the APPLICATION of heavy metal removal from wastewaters because of its abundance, chemical and MECHANICAL stability, HIGH adsorption capability and unique structural property.

In the present work, adsorptive removal of Cr(VI) from aqueous solution and tannery wastewater sample was studied by using kaolinite under various environmental conditions. The effects of experimental conditions on the removal efficiency of the hazardous chromium including pH, ionic strength and initial Cr(VI) concentration were studied. The results revealed that hexavalent chromium is significantly adsorbed on kaolinite and the method could be used economically as an efficient technique for removal of Cr(VI) and purification of tannery wastewaters.

Keywords: Tannery Wastewater, Adsorption, Kaolinite, Chromium(Vi)

PREDICTION OF EVAPOTRANSPIRATION WITH DAILY METEOROLOGICAL DATA USING M5 MODEL TREE

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Abstract:

Evapotranspiration is an important term for hydrological design and AGRICULTURAL yield. Although it has a great impact on the efficiency of hydrological design calculations such as dam water level changes and AGRICULTURAL yield, evapotranspiration (ET) process and accuracy of ET models are not clear enough. This study consists two parts. For each part of the study, the same data set including namely Solar Radiation (SR), Wind Speed (U), Air Temperature (T), Relative Humidity (RH) and ET parameters is employed. The data set is achieved from De Soto County, Florida, USA. In the first part, M5 model tree (M5T) is built up and 1716 daily meteorological data is used for training the model and 571 daily meteorological data for testing the model. In the second part of the study, the Ritchie empirical formula is APPLIED to the data set. For comparison of the results Mean Square Error (MSE) , Mean Absolute Error (MAE) and determination coefficient (R) statistics are used. According to the comparison it is found that M5T gives better solutions than Ritchie empirical formula and it is possible to employ M5T successfully to the ET modelling.

Keywords: Evapotranspiration, M5 Model Tree, Ritchie, Statistical Modelling, Prediction

IMPROVING THE PERFORMANCE AND ANTIBACTERIAL ABILITY OF POLYSULFONE ULTRAFILTRATION MEMBRANES BY USING ZINC OXIDE NANOPARTICLES

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Abstract:

Membrane filtration TECHNIQUES, especially ultrafiltration is one of the most important technique for water purification. The performance of membranes depends on many structural and morphological properties like hyrophilicity, porosity, pore structure and anti-fouling ability. Polysulfone (PSf) is the most widely used polymer in ultrafiltration membrane preparation. But polysulfone has some drawbacks like low water fluxes and low fouling resistances to ORGANIC and biologic foullants because of its hydrophobic nature. In this study, zinc oxide (ZnO) nanoparticles were blended with polysulfone membrane casting solution to improve the membrane structural and morphological properties, flux and rejection performances and antibacterial abilities. Ultrasonication was used for dispersing the nanoparticles in the casting solution. After preparation of membranes by using phase inversion technique, the properties of ZnO blended composite membranes were compared with the pristine polysulfone membrane. The results showed that, addition of ZnO nanoparticles supported the long finger-like pore structure and nano holes in the pores. Contact angle of membranes were decrased 69.6 to 54.6 after addition of 4% ZnO. Pure water flux (PWF) and Bovine serum albumin (BSA) rejection performances of ZnO blended PSf membranes were increased about 2.3 and 2.2 times with increasing additive amount, respectively. Also, antibacterial effect of ZnO blended composite membranes were investigated by using B. Subtilis, E. coli and P.aeroginosa bacterias. ZnO blended membrane showed strong killing effect B. Subtilis and weak killing against E. coli and P.aeroginosa. Briefly, ZnO nanoparticles improwed the PSf membrane's flux and rejection performances and fouling resistance, especially ORGANIC and biological foullants.

Keywords: Polysulfone, Membrane, Zinc Oxide Nanoparticle, Antibacterial Ability

PUBLIC TRANSPORT PLANNING: CASE STUDY OF İSTANBUL

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Abstract:

Public transport companies follow a five step procedure to plan transportation activities. These steps are network planning, timetabling, vehicle scheduling, driver scheduling, and driver rostering. In practice, companies define and follow their own rules to find solutions for each problem. Determining these rules are crucial on finding the best plans. In this study, vehicle scheduling problem of IETT, the single governor of Istanbul's public transportation are investigated. We show that there are cost improvement opportunities if mathematical optimization TECHNIQUES are used to find the vehicle schedules.

Keywords: Public Transport Planning, Vehicle Scheduling, Mathematical Optimization

A COMPARATIVE DESIGN OF THE SURFACE MOUNTED PERMANENT MAGNET SYNCHRONOUS MOTORS

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Abstract:

Permanent magnet synchronous motors are recently popular in INDUSTRIAL FIELDs. Because these motors enable different APPLICATIONs with great precision and efficiency through their structural features. It needs to provide a superior design approach to provide a HIGH-performance permanent magnet synchronous motor. So in this study, we investigated the surface mounted inner and outer rotor permanent magnet synchronous motors. We determined the optimal number of slots per pole and per phase to achieve HIGH efficiency. It is then to evaluate the optimal geometric parameters we used the genetic algorithm. The obtained results were compared with each other and the results were sufficient. This study contains useful comparisons for motor designers and industry eventually.

Keywords: Design Optimization, Genetic Algorithm, İnner Rotor, Outer Rotor, Permanent Magnet Synchronous Motor

STUDY ON SURFACE ROUGHNESS OF CARBON AND GLASS FIBER FILLED POLYTETRAFLUOROETHYLENE IN TURNING PROCESS

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Abstract:

Although polytetrafluoroethylene (PTFE) has been used in many INDUSTRIAL APPLICATIONs such as sliding bearings, wiring in aerospace and computer APPLICATIONs, research about the machinability of this ENGINEERING PLASTIC is inadequate. This paper focuses on investigation into turning of %25 carbon and %25 glass fiber filled PTFE in order to analyze the effect of machining parameters on surface roughness. The dry turning was carried out to examine average surface roughness by using a MAHR mobile roughness measuring instrument. Selected machining parameters are cutting speed (100 m/min), three different feed rate (0.1, 0.2, and 0.3 mm/rev) and three different depth of cut (1, 2, 3 mm).

Keywords: Polytetrafluoroethylene, Surface Roughness, Turning, Machinability

HYDROLOGIC AND HYDROGEOLOGICAL ANALYSIS OF HISTORIC ATIK VALIDE WATER WAY OF İSTANBUL

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Abstract:

Atik Valide Water Way built in 1582-1583 is one of the oldest subsurface water collection and distribution system of Anatolian part of Istanbul. It was collecting groundwater by means of subsurface drainage galleries and transmit them to Atik Valide Mosque and its complex via 12 km long transmission lines made of brick pipes and masonry galleries. In historical development, the system initially supplying 676 m3/day of water, was expanded to supply water to the public fountains of Üsküdar and it was in service until 1930s. Then the water system started to be deteriorated over the years due to disorganized urbanization which resulted in falling of its capacity to 78 m3/day. Most of its recharge areas have been occupied by urban land use and main transmission lines were cut by HIGHways at three points. The system is currently under PROTECTION of Istanbul Water and Sewerage ADMINISTRATION (İSKİ). It has 17 different pieces of land parcels considered to be part of the recharge areas of the old system. In this study, hydrological and hydrogelocial characteristics of those recharge areas are investigated to determine current water potential and its relation to precipitation and land use/land cover changes. It also aims regenerating part of the historic water way to increase the public awareness toward historical water ways. Water quality and recommended treatment options are also investigated. Groundwater levels are monitored biweekly and water quality samples were taken monthly from 19 observation wells drilled at each recharge area for this study. As a result, it was found that 5 days moving average of precipitation data is correlated with biweekly measurements of groundwater levels. Water quality in the wells reflects some contamination of urbanization effects. Only couple of recharge areas are useful to construct new drainage galleries to regenerate historic water way partially.

Keywords: Historic Water, Atik Valide, Subsurface Drainage,İstanbul

GEOCHEMICAL AND MINERALOGICAL PROPERTIES OF ZEOLITES FROM GORDES (MANISA) AND ITS NEAR VICINITY

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Abstract:

The study area which is rich in zeolite occurrences in volcanic rocks is located at Gordes and its near vicinity (Manisa, Turkey). In the area, Menderes Massif metamorphic rocks which consist of gneiss, migmatites, mica-schist and quartzite are basement rocks. These rocks are unconformably overlain by Kürtköy formation which consists of tufa, conglomerate and sandstone, and is overlain by Yeniköy formation which consists of conglomerate, sandstone, limestone and sandstone containing lignite and lignite. Çıtak formation consisting limestone, shale, mudstone, sandstone, tuff and bituminous shale is situated on Yeniköy formation (Göktaş, 1996) and rhyolitic Gökyar tuff and Azimdağ volcanics pass upward respectively (Ercan, 1983). Azimdağı volcanics are characteristics with dacite, rhyodacites, and rhyolitic lava domes. On the Azimdağ volcanic, Tekkedere formation consisting carbonaceous shale at the bottom and limestone in upper is situated. lacustrine limestone is situated to on Tekkedere formation. The youngest units are alluviums.

42 rock samples were collected from the area and investigated for geochemical and mineralogical propersties of zeolite minerals using XRF (such as major element oxides, minor and trace elements) and XRD (for minerals) . According to chemical analiysis: the ranges of major oxides, lost of ignition (LOI) vaules are 0.1 to 1.6% for Na2O, 0.2 to 12.4% for Mg, 1.5 to 15.5% for Al2O3, 32.2 to 73.7% for SiO2, 0.3 to 4.4% for K2O and 0.9 to 17.0% for CaO and 6.55 to 30.30% for LOI. According to XRD analysis, zeolite minerals were mainly clinoptilolite and rarely is heulandite type. In the some part of area, both of zeolite minerals, eg. clinoptilolite and heulandite were found together. SEM-EDX analysis is carried out on some samples, and the both results obtained from XRD analysis are confirmed by SEM. On the basis of GEOLOGICAL, geochemical, and mineralogical studies, general properties of the area were brought out.

Keywords: Zeolites, GeoCHEMISTRY, Mineralogy, GORDES, Turkey

EXAMINING OF DESIGN SPECTRUM WITH PEAK PERIOD,VS 30 VALUES RELATED BY EUROCODE 8: CASE STUDY OF IZMIR BAY AND SURROUNDING AREA

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Abstract:

Site class and peak period values must be described in detail on the construction area while designing earthquake resistant buildings. In this context, the depth of the bedrock determines the scope of work to be done. The distinction between bedrock and site is made on the basis of S-wave velocity values. Today, according to Eurocode 8 (EC8) regulations if the average depth of the bedrock is 30 meters or less, Vs30 velocities and peak period (T0) values are considered together while defining the ground response spectra. Thus, with respect to the site response spectrum it can be ensured possibility of using table values. However, as described in the EC8 earthquake regulations when T0> 1 sec and Vs30 <300 m/s condition was achieved the ground is defined as S1 and S2. This means that the long-period site response spectrums must be defined by making additional studies in these areas. With this definition, the calculation of earthquake loads can be ensured for particularly HIGH-rise buildings safer. In this context, the creation of the site model and the site transfer function must be calculated by in-situ studies for the site class with S1-S2 feature. In this study, data was collected from the vicinity of the Gulf of Izmir sampled with regional 1 km intervals. Changes at Vs30 values obtained from the MASW study and changes at T0 values obtained from Quasi Transfer Spectrum are mapped. The areas contain S1 and S2 site classes based on the EC8 earthquake regulations are determined by examining these maps. Then at these areas the site and the ENGINEERING-seismic bedrock depths have been identified by obtaining S-wave velocity changes in the vertical direction using SPAC study results. Site thickness in areas defined as S1 and S2 determined much more than 30 meters (average 250m.-300m.) according to the obtained results.

Keywords: Ec8, ENGINEERING Bedrock, Design Spectrum

RELATIONSHIP BETWEEN SOIL DEFORMATION, QUASI TRANSFER SPECTRUM AND SOIL-BEDROCK MODELS : CASE STUDY OF IZMIR BAY AND SURROUNDING AREA

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Abstract:

Buildings during the earthquake remain under the force of inertia, defined as seismic forces. The magnitude of this force will affect the changes of the amplitude frequency spectrum that occurs in the source until it reaches to the ground surface of earthquake waves. During the earthquake, when the seismic force has reached or exceeds the endurance limit of the structure and the floor, structural damage begins to occur due to the earthquake motion. Earthquake force varying as a dynamic load that depends on time and space may behave as elastic, elastoPLASTIC or PLASTIC in the lateral direction of the site. These events pushing the limits of endurance are basically associated with displacement of soil-structure intersection during the earthquake. The endurance limit of the soil-structure intersections joint movement is defined as strain. Nowadays weight and height of the structures is gradually increasing, to perform site dynamic analysis using site-bedrock models which are appropriate to the construction area are important. The site-bedrock model must be obtained up to a necessary depth (Vs>760 m/s) to perform site dynamic analysis. In this study, at east of the Gulf of Izmir stretching NW-SE direction approximately on a 10 km long profile, seismic wave velocities (Vp,Vs) were obtained by geophysical studies. Thickness depth, and density parameters are obtained by using seismic velocities, and the 2-dimensional (2D) site-bedrock model as was created. The relationship between the lateral deformation changes and Kg values at the ground surface were examined.

Keywords: Site-Bedrock Model, Vs, IZMIR

GRAVITY SEPERATOR AND APPLICATIONS USED IN MINERAL PROCESSING

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Abstract:

In mineral processing minerals physical, chemical and physicochemical features are utilized in order to seperate minerals from each other with INDUSTRIAL value and non INDUSTRIAL value. The specific gravity of a physical property of minerals is the most utilizied feature in mineral processing. Considering the INDUSTRIAL APPLICATION, many gravity separators are available the used of this feature difference. Especially it has seen that the development of new technology device intended for slim size liberalized minerals to be gained by this method.

In general, water, rarely heavy (dense) fluid, and sometimes used the air as the fluid medium in enrichment of the specific gravity difference. With this method, the separation of mineral grains are provided through specific gravity difference of grains, mevement velocity of fluid medium, specific gravity and vizcosity of fluid medium, the structure and operation of the separator device, general hydrodynamic features. It has seen overmuch studies in literature related to selective separation work with different gravity separators. In these studies the parameters which effect the separation examined in detail, it has been studied to the effect of effective parameters on gain efficiency and content.

In this study, It was investigated gravity separators currently used in INDUSTRIAL plants and new tehnology gravity seperator. Also, the existing APPLICATIONs of this separator was investigated for samples of voriuos ore.

Keywords: Mineral Processing, Beneficiation,Gravity, Separators.

STANDART PENETRATION TEST CORRELATION FOR KOCAELI, TURKEY

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Abstract:

In any geoTECHNICAL design procedure, the fundemantal point to be initially clearified is the characterization of existing soil profile at asite. Standard Penetration Test is considered one of the most common in-situ tests to evaluate the the soil parameters. The parameters to be determined in the ground examination sometimes cannot be obtained due to various reasons. In this case, from the correlations of Standard Penetration Tests, soil parameters are obtained. Up to the present day, many researchers have done Standard Penetration Test correlations. However; because they work in different areas, each correlation gives different results. In this study, the correlation was made between the values obtained from the Standard Penetration Test made in soil examinations which were done in KOCAELI (Turkey) and laboratory tests. In the first stage of this study, the FIELDwork done in the ground examinations in KOCAELI /Turkey has been analyzed. The parameters obtained as a result of soil mechanics tests on disturbed and undisturbed samples taken from drills huddled together. These parameters are liquid limit, PLASTIC limit, compression index, cohesion and internal friction angle. The SPT-N value obtained as a result of Standard Penetration Test done on each borehole and these soil parameters were matched. In the second stage of this study, by perFORMING regression analysis between determined parameters, correlations were obtained between Standard Penetration Test and undrained shear strength (Su) of fine-grained soil. In this way, special Standard Penetration Test correlations for KOCAELI /Turkey were obtained. Soil parameters which could be obtained in this way are determined more accurately by Standard Penetration Test results.

Keywords: Keywords: Soil Shear Strength Parameters, Cohesion, Soil İnvestigation, Soil Mechanics Laboratory Test, Unconfined Compression T

AN ADAPTIVE TORQUE RIPPLE REDUCTION METHOD IN HYSTERESIS CURRENT CONTROLLED PERMANENT MAGNET SYNCHRONOUS MOTOR

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Abstract:

In this study, an adaptive method is used in minimization of torque ripple in hysteresis current controlled Permanent Magnet Synchronous Motor (PMSM). This method is based on injection of appropriate current harmonics to obtain minimum torque ripple. In the APPLIED method appropriate amplitude and phase values of predetermined harmonic orders are weighted with the APPLIED adaptive method. The weights of injected current harmonic values are online updated by orthogonal projections onto convex sets, according to the gradient of torque ripple. The validity of the APPLIED method is presented with simulation studies carried out in different speed and torque values.

Keywords: Pmsm, Torque Ripple, Hysteresis Current Control, Adaptive Control

NUMERICAL ESTIMATION OF NOX EMISSIONS WITH ANN UTILIZING FUEL PROPERTIES AND COMBUSTION INDICATORS IN A CI ENGINE

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Abstract:

Emissions of nitrogen oxides (NOx) are main important pollution emissions, which are mainly caused by compression ignition (CI) engines. NOx emissions are of the greenhouse emissions that lead to global warming. They also lead to acid rain thus damage land and human health. Therefore, NOx emissions should be decreased in CI engines. For these reasons, exploration of the reasons of NOx formation in CI engines is an important issue. In this study, NUMERICAL estimation of NOx formation in a CI engine with artificial neural network (ANN) by focusing on combustion outputs the real engine works and fuel properties. Combustion parameters such in-cylinder pressure, temperature and heat release, and fuel properties such as O2 content, distillation temperature and cetane number were selected as input values while NOx formations at certain loads were observed as the output value. Achieved showed that the proposed method can be successfully employed in the estimation of NOx.

Keywords: Nox Emissions, Ci Engines, Diesel Fuel, Ann

COST COMPARISON OF THERMAL AND CHEMICAL DEFOLIATION APPLICATIONS IN COTTON PRODUCTION

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Abstract:

The leaves should be removed from plant before harvesting to save cotton fiber quality. To carry out this process, chemicals are widely used. Harvest is possible at the end of 15th-20th days after chemical treatments are done. In defoliation, another method, which has been tried during recent years, is to use defoliation MACHINEs that utilize thermal energy. In APPLICATIONs carried out by thermal defoliation MACHINE, almost all leaves are dried/killed, and leaf dropping starts as soon as following treatment day. In thermal treatment plots, it is possible to take the harvest time to an early date in comparison with chemical defoliation. By having early harvest, it is able to prevent negative effects of environmental conditions on cotton quality. With this study, it is aimed to compare the cost of chemical and thermal defoliation treatments. In conclusion, the two-years average defoliation cost of three different cotton varieties was realized as around 20.89$/da in thermal treatment plots, 3.39 $/da in chemical treatment plots. In case, harvest date is taken early in thermal treatment plot, average income of three different cotton varieties for two-years, is more about 28.04 $/da per year because of cotton quality. As it is compared in regardless of process cost of thermal and chemical defoliation method, these two methods were found to be competitive.

Keywords: Thermal Defoliation, Defoliants, Cotton Production

CONTRIBUTION OF DAM LAKES TO RECREATION: PALANDOKEN CAT DAM

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Abstract:

As it is generally accepted, recreation is one of the most important needs of people today. Especially, people living in big cities feel this requirement much more. Dams built around urban area for the purpose of providing drinking water, irrigation and flood control become prominent in this process as the source of recreation and for the satisfaction of this requirements with their natural and cultural properties

In this study, it is aimed to determine the potential of recreation for PALANDOKEN Çat dam and its environment which are planned to meet drinking water need of the city of Erzurum. In the process of the determination of recreational areas fitting the aim of this study, natural datas and cultural land uses were analyzed with the inventory studies and observation made in the FIELD. Evaluated datas are interpreted in GIS (geographic information systems) environment and recreational suitability maps were produced. In the light of produced land use suitability maps, recreational land use recommendations were presented.

Keywords: Palandoken Cat Dam, Recreation, Geographic İnformation System (Gis), Erzurum

NONLINEAR BUCKLING ANALYSIS OF ECCENTRICALLY LOADED T-SECTIONS

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Abstract:

Single steel T-sections are widely used as chord and web members in trusses. Despite the fact that T-sections are readily available commercially and can be easily obtained by cutting standard I-sections through the middle of the web, the failure behaviour of these members when subjected to a compressive force is still not fully understood as corroborated by the numerous different design approaches for these members in various national specifications for steel structures.

An efficient nonlinear finite element model is provided to understand the behavior of eccentrically loaded single T-sections. Theoretical buckling and the experimental failure loads of pin ended, concentrically and eccentrically loaded T-sections were predicted by eigenvalue and load-deformation analyses of various models developed in ABAQUS 6.13. The T-sections were modeled by shell elements considering geometrically and materially nonlinear behavior. Initial imperfections, residual stresses, end support conditions, geometry and material property variation of the T-sections were included differently in each model. The load-carrying capacity of the single T-sections are investigated by perFORMING an extensive parametric study obtaining the most realistic estimations. It is seen that compression capacities of eccentrically loaded t-sections are overestimated according to TS 648.

Keywords: Buckling, Failure Load, T-Sections, Finite Element Method, Thin-Walled Members, Nonlinear Analysis, Ts 648

EMULSION TEMPLATED BIODEGRADABLE POLYMERS: TAILORING THE MORPHOLOGICAL, MECHANICAL AND THERMAL PROPERTIES

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Abstract:

In recent years, HIGHly porous polymer composites are attracting considerable interest due to their unique morphological and MECHANICAL properties. These MATERIALS have numerous APPLICATIONs such as catalysis, filtration, energy exchange, sensors, tissue ENGINEERING and etc. For this reason, preparation of such MATERIALS with different processes is frequently in focus of research. Especially, in the FIELD of tissue ENGINEERING precise control over scaffold material, porosity, and internal pore ARCHITECTURE is essential. To achieve these goals, a robust fabrication method that allows independent variation of scaffold structural parameters and material is necessary.

Herein, we used emulsion templating in order to achieve HIGHly porous, interconnected biodegradable polymer matrices with HIGH MECHANICAL strength and thermal stability. Biodegradable polymers were prepared via cross-linking of HIGH internal phase emulsion (HIPE) templates consisting of a monomer (glycerol-1,3-diglyceroate diacrylate), crosslinker co-monomer (glycydyl methacrylate or 1,3-butanediol dimethacrylate) and hydroxyapatite. The effect of monomer ratios and hydroxyapatite amount on the morphological, MECHANICAL and thermal properties were investigated. Moreover, the immersion tests were carried out in standard simulated body fluid (SBF) at different time points to monitor the degradation of resulted polymers.

Keywords: Emulsion Templating, Biodegradable Polymer, Morphological Properties, MECHANICAL Properties, Thermal Properties

EMULSION TEMPLATED BIODEGREDABLE POLYMERS: PREPARATION AND CHARACTERIZATION

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Abstract:

The purpose of tissue ENGINEERING is to produce alternating viable synthetic tissue scaffolds to be used in the treatment of tissue loss caused by traumas and accidents. The main features required for tissue growth by facilitating mass transport are known as biocompatibility and interconnected porous structure. In this respect, HIGH internal phase emulsion (HIPE) templating is attracting considerable interest in the FIELD of tissue ENGINEERING due to hierarchical pore morphology, HIGH chemical resistance, permeability properties, and low density of the resulting MATERIALS. HIPEs are concentrated emulsions consisting of a HIGH ratio of internal or dispersed phase. In case of, either one or both phases of a HIPE contain monomers, polyHIPEs can be produced

Herein, we describe the preparation of hierarchical macroporous biodegradable polyHIPEs via emulsion templating. For this aim, we used glycerol-1,3-diglyceroate diacrylate (GDGDA) based HIPE templates and focused on obtaining a composite structure in order to facilitate influence and migration of cells into the polymer matrix by the use of hydroxyapatite. Moreover, we investigated the morphological, MECHANICAL, and thermal properties of the resulting MATERIALS based on the amount of emulsifier ratio, internal phase ratio, and continuous phase composition.

Keywords: Emulsion Templating, Biodegradable Polyhipe, Glycerol 1,3-Diglyceroat Diacrylate, Hydroxyapatite

MODELING THE PERFORMANCE OF CDS/CDTE SOLAR CELLS FOR EFFICIENT LIGHT HARVESTING

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Abstract:

In this work, simulation based on generalized equivalent circuit modelling was satisfactorily APPLIED to photovoltaic solar cells in order to estimate real device related parameters for efficient light harvesting. To that aim, an MS visual basic program is developed to estimate device response by iteration method. Such a route will certainly provide an insight into how such devices can be optimized further.

The device parameters of interest in the equivalent circuit model of PV solar cell are in briefly the reverse saturation current, photocurrent, ideality factor of diode, series and shunt resistance. The mathematical model of the current-voltage characteristics of a solar cells is transcendental equation due to the existence of series and shunt resistance. Thus, NUMERICAL analysis methods to solve the transcendental equation of current-voltage characteristics with powerful mathematical tools and iterative methods are really required. Throughout the simulation, working device temperature is varied between 100 and 350K and a constant photon flux density is assumed to fall onto devices.

Thin film of CdTe based solar cells have long been identified as a promising candidate for low cost PV solar cells due mainly to its direct band gap, HIGH absorption coefficient and the ease with which it may be produced in thin film form. Simulation data yielded a close agreement with that of obtained experimentally. The cells are all treated with CdCl2 an hour in an oxygen containing ambient at a temperature of 400oC. The natural form of the dark IV characteristics associated with single-diode equivalent circuit model displayed a diode behavior with a HIGH rectification factor. It kept almost nearly constant at forward biases beyond 1V due mainly to series resistance effects. Interestingly, relatively HIGHER values of about Voc were observed in cases where the current is controlled by tunnelling/recombination process.

Keywords: Single-Diode Modelling, Simulation, NUMERICAL Substitution, Visual Basic Software.

RISK ASSESSMENT FOR TECHNOLOGY MANAGEMENT BY USING IMPROVED FUZZY-AHP METHOD

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Abstract:

We consider the risk assessment problem of technology management process in the MARITIME sector wherein the goal is to determine the risk levels of each pre-defined risk types and to select the best optimal product among other alternatives in the presence of multiple criteria subject to financial, operational, TECHNICAL, functional and safety factors. Ship-owners may have a tendency of comprehensive attitude during the expert consultation on a multidimensional process. Similarly, MARITIME companies may purchase a new technological product without considering all the risks for the long term. A novel aspect of our study is that we propose an expert categorization for Improved Fuzzy Analytical Hierarchy Process (IF-AHP) method to deal with the both holistic response instability and risk assessment of technology management. Second novelty for this study is that it provides the moderator to re-assess and valuate the decision makers' expertise. We illustrate our methodology on a Radar example, which is involving all steps of decision-making process.

Keywords: Risk Assessment, Technology Management, İmproved Fuzzy Ahp (İfahp), Radar

EFFECTS OF DIFFERENT ORGANIC MATERIAL APPLICATIONS ON ONIONS YIELD AND SOME YIELD COMPONENTS OF ONION UNDER SALINE CONDITIONS

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Abstract:

This study was carried out to determine effects of different ORGANIC MATERIALS aplication on yield andsome yield components of onion under saline conditions at Ordu UNIVERSITY in 2013-2014 growing season. Experiment was established in completely randomized designed with 3 replicates. Sets of Kantartopu cultivar were used as plant material. Different ORGANIC MATERIALS mixed with soil in pots (hummus 0, 75, 150 and 300 kg/da), hazelnut husk compost (0, 3, 6 and 9 t/ha), tea waste compost 0, 3, 6 and 9 t/ha) was implemented. Plants were exposed to salt stress (0 mm and 75 mm) when the leaves reach to 4-5 cm in length. Yield, yield components and some macro and micro nutrition contents of plants were measured. The results showed that ORGANIC material APPLICATIONs on saline conditions according to the control increased in yield, axle length, root length, number of leaf per plant, dry matter, and K and Na content values comparing with the control parcels. The yield values increased between 22% and 44% depending on kind of ORGANIC MATERIALS APPLIED in saline conditions.

Keywords: Green Onions, Tea Waste Compost, Hazelnut Husk Compost, Hummus, Saline Stress, Salinity Tolerance,

DETERMINATION OF THE RELATIONSHIP BETWEEN PREDOMINANT FREQUENCY AND DAMPING RATIO BY USING SINGLE STATION MICROTREMOR RECORDINGS

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Abstract:

Microtremor measurements have been widely used to understand seismic behavior of buildings over the last decades. Predominant frequency and damping ratio obtained by Nakamura Method shows how to respond buildings during earthquakes. In this study, 10 single station microtremor recordings (SSMR) have been taken in the KARADENIZ TECHNICAL UNIVERSITY, Department of Geophysical ENGINEERING Building and 2 SSMR have been taken near the building to compare with the inside measurements. The predominant frequencies obtained by using Nakamura Method. The predominant frequency of the inside measurements are between 4.7-7.0 Hz and mean inside frequency is 5.6 Hz while the outside measurements are 3.7 Hz, 4.0 Hz and the mean outside frequency is 3.85 Hz. The inside and outside measurements show that they are not equal to each other. For this reason, the resonance risk is very low. The damping ratios of the building obtained by Half Power Bandwith Method and change 5.32 to 17.86 percent. According these results the predominant frequency and the damping ratios correlated with each other and it was determined that there is a meaningful relation between them. The increasing predominant frequencies lead to increasing damping ratios.

Keywords: Microtremor, Predominant Frequency, Damping Ratio

TIME PREDICTABLE MODEL APPLICABILITY FOR EARTHQUAKE PREDICTION ALONG THE NORTH ANATOLIAN FAULT ZONE

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Abstract:

North Anatolian Fault Zone is located on the one of the seismically most active regions in the world, where a few large and several moderate earthquakes have occurred in the past. In this study the North Anatolian Fault Zone has been considered for an earthquake generation model using earthquake data in the historical period (I0 > 9.0 corresponding to MS > 7.0, before 1900) and in the instrumental period (MS > 5.5, until 2015) earthquake catalogues reported by national and international data center. In this region, thirteen seismogenic sources were identified on the basis of certain seismological and geomorphological criteria. It is observed that the time interval between the two consecutive mainshocks depends upon the preceding mainshock magnitude (Mp). This result corroborates the validity of time-predictable model in the North Anatolian Fault Zone. A linear relation between the logarithm of repeat time (T) of two consecutive events and the magnitude of the preceding mainshock is established in the form LogT = cMp+a, where "c" is a positive slope of line and "a" is function of minimum magnitude of the earthquake considered. The values of the parameters "c" and "a" are estimated to be 0.19 and 0.08 in the North Anatolian Fault Zone. For the region considered, the positive correlation between the time interval of the events and the magnitude of the preceding earthquake shows that the model is suitable. The result derived can be used for long term seismic hazard estimation in the delineated seismogenic regions.

Keywords: Time Predictable Model, Earthquake Prediction, North Anatolian Fault Zone

USEFULNESS OF SLIP PREDICTABLE MODEL FOR EARTHQUAKE OCCURRENCE IN TURKEY

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Abstract:

Turkey is located in the seismically most active section of the Alpine-Himalayan Belt in the eastern Mediterranean and involves several important tectonic structures. In this study, Turkey has been considered for an earthquake generation model using earthquake data in the historical period (I0 > 9.0 corresponding to MS >7.0, before 1900) and in the instrumental period (MS >5.5, until 2015) earthquake catalogues reported by national and international data center. In this region, 33 seismogenic sources were identified on the basis of certain seismological and geomorphological criteria. It is observed that the repeat time (T*) between the two consecutive mainshocks depends upon the following mainshock (Mf). The linear regression between the logarithm of repeat time of two consecutive events and the magnitude of the following mainshock was obtained as LogT = kMf + l, where "k" is a positive slope of line and "l" is function of minimum magnitude of the earthquake considered. The values of the parameters "k" and "l" are estimated to be 0.05 and 0.95 for Turkey. The above equation has a smaller correlation coefficient than 0.15 and a standard deviation with 0.1. The positive slope graphically indicates that more time is needed for a large forthcoming earthquake, which is accordance with slip-predictable model. The slip-predictable model is applicable to the regions considered.

Keywords: Slip Predictable Model, Earthquake Prediction, Turkey

AGE-DEPENDENT LIFE TABLE OF MYZUS PERSICAE (SULZ.) (HEMIPTERA:APHIDIDAE) ON SIX DIFFERENT CAPSICUM ANNUUM, CAPIA PEPPER VARIETIES AT THE LABORATORY CONDITIONS

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Abstract:

Life tables give brief life history of an organism. At the same conditions, the comparisons of life table parameters of populations are used for many species and results are very important for population dynamic practices. In this study, we constructed age-dependent life table for Myzus persicae (Sulz.) (Hemiptera:Aphididae) on six Capsicum annuum, commercial capia pepper varieties as follows; Sarp, Diyar, Bellisa, Paşa, Cümbüş and Serenat at the laboratory conditions, 25±1 □C, 60±5%RH, 16:8 D/L. At the result of the study, the intrinsic rate of increase (rm) were found as follows; 0.301, 0.319, 0.323, 0.338, 0.348 and 0.351, respectively. Their statistically comparisons were found very important. Development time was ranged from 6.72 days to 8.29 days. Total numbers of offsprings of aphid were recorded on different varieties as follows 52.60, 54.35, 58.52, 58.04, 61.04 and 62.49 individuals, respectively. End of the study, we found more sensitive the Serenat variety than others.

Keywords: Myzus Persicae, Capsicum Annuum, Age-Dependent Life Table, Capia Pepper Varieties, Sarp, Diyar, 35508, Paşa, Cümbüş, Serenat.

AN EXPERIMENTAL STUDY ON WATER-EXIT OF PARTIALLY AND FULLY SUBMERGED RIGID BODIES

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Abstract:

Prediction of hydrodynamic loads during water exit of a body is of a great importance in designing the marine vehicles that pierce through the free surface like missiles and submarines, and take off from the free water surface such as sea planes and wing-in-ground effect vehicles (WIG). In this study, different fluid dynamics phenomena like free surface elevation, break-up of free surface, wave generation, splash formation and water detachment from the solid surfaces during a water exit event have been examined to gather enough experimental data to understand this difficult phenomenon. Very few experimental studies have been carried out with limited methodology, and most of the NUMERICAL studies have been based on the very same experimental data. Our study is aimed at understanding the dynamics of water-exit events under an extended range of parameters including free surface break-up and water detachment at varying exit conditions for different geometries.

In this study, exit tests have been set up for fully and partially submerged bodies. The water-exit phenomenon is demonstrated by using three types of geometry; sphere, cylinder and flat plate. From the digital images captured using a HIGH speed camera, the elevation of free surface and water detachment at various velocities are analyzed and the exit characteristics are quantified during water exit events. We also measure the global loads acting on the test bodies during water-exit by employing strain gauges.

Here we first present the preliminary results from our water-exit tests, using sphere, cylinder and flat plate made of acrylic. Second, we consider how free surface break-up and water detachment are modified under different hydrodynamic conditions. Finally, we present the results from the strain readings to show how the global load characteristics vary below and above the free surface during an exit event.

Keywords: Water-Exit, Free Surface Break-Up, Fluid-Solid İnteraction

STATIC ANALYSIS OF A FUNCTIONALLY GRADED HIGHER ORDER SHEAR DEFORMABLE TIMOSHENKO BEAM

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Abstract:

Functionally graded MATERIALS (FGM) have properties that changes gradually within the microstructure of the material. This enables the structure to have much beter material properties than of its counterparts of metal and ceramic. In this study, static analysis of a simply supported and edge-clamped Timoshenko beam has been investigated using HIGHER order shear deformation theory. NUMERICAL implementation has been done by using Ritz method considering the material properties vary alongside the beam according to the power-law. Approximation functions that are used in both transverse and longidutinal displacement of the cross sections are considered polynomial. The governing equations and boundary conditions are derived from principle of virtual work. Transverse and longitudinal deflections, stresses and strains are examined for different power law values. It has been found that axial and shear stresses changes according to the loading side and the power law value which represents the metal-ceramic ratio in a functionally graded beam.

Keywords: Fgm, Ritz, HIGHER Order Shear Deformation

OBSERVATIONS ON TRAVELING TURBULENT SPOTS DURING LAMINAR-TURBULENT TRANSITION

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Abstract:

Predicting turbulent transition in pipe flows of complex fluids is of a great importance in petroleum, mining and pulp&paper industries. Modification of the transition characteristics can be an important factor in hydraulic design. It is known that there is an asymmetry in the axial velocity profile during transition in shear-thinning fluid flows. In this study, we experimentally investigate the traVELIng turbulent spots that occur during transition to turbulence for a Newtonian fluid (glycerol mixture) and a shear-thinning fluid (xanthan gum) in Hagen–Poiseuille flow.

The flow is visualized from three different axes via a HIGH speed camera. By carrying a qualitative evaluation of the flow through the HIGH speed images, some features of the turbulent spots (puff/slug) are derived. The tests were performed in a 16 m long flow loop with an inner diameter of 100 mm acrylic pipe. The measurements are conducted at different Reynolds numbers ranging from the beginning of the transition (Recr) to the fully turbulent flow. The recording stations are placed at about 8 m and 14 m downstream. The size and velocity of the leading and trailing edges of the turbulent spots are obtained from the images by an object tracking method. We have also produced the full shapes of the turbulent structures with spatio-temporal plots of the images.

First we present the preliminary results from our tests, by visualizing the flow via seeding particles and a two-coloured art dye, for which the colour changes with the orientation of particles. Second, we measured the velocities of the leading edge and trailing edge of the turbulent spots for both fluids. We also showed how the flow is stabilized during transition and the size of the turbulent spots gets smaller for the non-Newtonian fluids.

Keywords: Turbulent Transition, Turbulent Spots, Pipe Flow

A NOVEL BROADBAND SINGLE-LAYER REFLECTARRAY ANTENNA DESIGN FOR X-BAND APPLICATIONS

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Abstract:

In this work, X-Band single layer broadband reflectarray antenna is presented. The designed unit cell with variable size patches are operating at 10 GHz. The phase characteristic of unit cell structure is obtained with the CST Microwave Solver. The absolute value of the reflection phase range is 300 degree is achieved by different dimensions of patches. The unit cell consists of three main sections which are patch, substrate and ground plane. A 12x12 unit cells reflectarray are designed on a 120x120 mm2 square plane. Also pyramidal horn antenna is used for centre-fed configuration. The gain bandwidth of the proposed reflectarray is improved by adjusting the design parameters. According to the simulation results, the max gain of reflectarray antenna is 20 dB and it has %17 1-dB gain bandwidth.

Keywords: Broadband, Reflectarray Antenna, Unit Cell.

AN EXPERIMENTAL INVESTIGATION ON THE AERATION EFFICIENCY OF STEPPED SPILLWAYS

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Abstract:

Although hydraulic structures are used these days for a variety of purposes, including drinking water supplies, electricity generation, and irrigation, the fact that these structures help increase the aeration efficiency of water and therefore provide natural water treatment is normally ruled out. On the other hand, cascades, especially on stepped spillways, and the subsequent hydraulic jump, decrease the amount of required dissolved oxygen, and thus contribute to the permanence of natural life. The stepped structures that are widely used, especially in drinking water treatment facilities, can also be used for aeration purposes in the vicinity of rivers or on the coastline. Natural aeration is defined as the process of oxygen passing into the water, without the use of special equipment. There are three mechanisms that enable natural aeration; these include jet streams, hydraulic jumps, and cascades. To ensure natural aeration, hydraulic jumps and jet streams are used together with hydraulic structures, such as stepped channels (cascades) or spillways, depending on the location and purpose of aeration.

The aeration efficiency was investigated in two different structures for different flow rate values. In the stepped structures, nappe, transition, and skimming flow regimes were generated, and the effect of these flow regimes on oxygen gain was examined.

Keywords: Aeration Efficiency, Stepped Spilways, Nap Flow Regime, Skimming Flow Regime

A FUZZY LOGIC APPROACH FOR PREDICTION OF SUSPENDED SEDIMENT IN RIVER

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Abstract:

Suspended sediment forecast is crucial to maintain of the water resources. In this paper, Fuzzy Logic (FL) and statistical approaches such as Sediment Rating Curves (SRC), Multiple Linear Regression (MLR) are used for forecasting daily suspended sediment concentration from daily temperature of water and streamflow in river. The daily data measured at Augusto station by the US GEOLOGICAL Survey. These aproaches are compared to each other according to three statistical criteria, namely, mean square errors (MSE), mean absolute relative error (MAE) and correlation coefficient (R). Statistical criteria were used to assess the performance of the approaches. Comparisons of modeling and measurements results demonstrate that FL approach have better forecasts than the other conventional TECHNIQUES.

Keywords: Fuzzy Logic, Suspended Sediment, Forecasting; Stream Flow, Sediment Rating Curves

THE INVESTIGATION OF THE RESPONSE AGAINST TO ECF AND TCF BLEACHING OF WHEAT STRAW ALKALINE SULFITE-ANTHRAQUINONE (AS-AQ) PULP

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Abstract:

ECF and TCF methods were used to investigate optimum alkaline sulfite-anthraquinone (AS-AQ) pulping conditions for wheat straw and bleaching of resulting pulp. In AS-AQ pulping experiments active alkali charge, maximum cooking temperature, heating time to maximum cooking temperature, alkali ratio, AQ dosage and liquor to straw ratio were kept constant at 17.5%, 170 oC, 70 min, 80/20, 0,2% and 5/1 respectively. Cooking time at maximum temperature was varied from 60 to 150 min. Optimum cooking time at maximum temperature was determined to be 90 min.

The wheat straw pulp which produced optimum cooking conditions were bleached with conventional DEDED and AOPaQPPa sequences as ECF and TCF methods respectively. The usage at A stage of the TCF bleaching sequence ensured significantly lower HexA and metal ion content in the pulp. Eventually, considerable decrease in the consumption of bleaching chemical was taken place. Although the pulp bleached by TCF method resulted in milder delignification, brightness of the pulp reached 83.5 %ISO. On the other hand, except for the tearing index, breaking length and bursting index of TCF-bleached pulp were somewhat lower than for ECF-bleached pulp.

Keywords: As-Aq Pulping, Wheat Straw, Tcf Bleaching, Ecf Bleaching

USE OF WATER JETS IN MINING AND NATURAL STONE CUTTING

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Abstract:

It is a known fact that Earth contains all the minerals required for the development of CIVILizations and INDUSTRIAL utilization. Open pit mining technique and especially natural stone quarrying, which has a significant importance for Turkey, is the two extraction methods which are mostly employed in the exploitation of these natural resources. Water jets comprising HIGH-volume but low-pressure had been experienced for the excavation of unconsolidated rock formations for many years in the past and still finds APPLICATION opportunities on special occasions even today. However, the usage of HIGH-pressure, HIGH-velocity and low-volume water jets has become a major issue in rock cutting for the last two decades. In this study, first of all, a brief summary of HIGH-energy liquid jets (mostly the water jets) in mining APPLICATIONs is presented. In the first stage, the use of liquid jets in underground APPLICATIONs associated with MECHANICAL excavation tools are explained, and then its utilization in the areas of rock quarrying and precise shaping of particularly natural stones are explained in more detail. Their practical use in rock quarrying and advantages particularly in the FIELD of rock shaping are given and general recommendations and further research attempts for their efficient work are presented as well. In addition, the state-of-the- art improvements in water jet-assisted rock cutting both at laboratory and FIELD scale is discussed and possible future enhancements in this area are evaluated.

Keywords: Excavation, Mining, Rock Shaping,Stone Cutting,Water Jet

AIRSPEED COMPUTATION FOR AIRCRAFTS WITH ANFIS USING FLIGHT PARAMETERS

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Abstract:

The airspeed is the most important parameter for accurate navigation of the aircrafts. Conventional pitot-static system consists of pressure sensors to measure total air pressure and static pressure as the aircraft moves through air mass. The measured pressure values are used by the Air Data Computer (ADC) to compute airspeed that shown to pilot by a conventional airspeed indicator. Although these precautions have been taken, one or all of the pitot-static probes may ice up and provide incorrect data to ADC, or ADC itself can fail. In this situation, there is no alternative source to obtain airspeed information. For this reason, it is very important to find an alternative airspeed computation method without using pitot-static system measurements. In this paper, an alternative airspeed computation method based on adaptive neuro-fuzzy inference system (ANFIS) is presented. The data set used to train proposed ANFIS model is obtained from the Digital Flight Data Acquisition Unit (DFDAU) records of a Boeing 737-82R type commercial aircraft. The total number of input/output pairs, obtained from DFDAU was 960. The proposed method uses the flight parameters as inputs of the ANFIS. As such, airspeed is calculated using flight parameters instead of the pitot-static system measurements. Simulation results clearly show that the proposed ANFIS method can be used as an alternative airspeed computation method when pitot-static probe or ADC failures. The advantages of the proposed model is that its simplicity and accuracy. The implementation of the proposed ANFIS model is very easy. After proper training, After proper training, ANFIS model is capable to be very fast.

Keywords: Airspeed, Anfis, Flight Parameters

BIOMEDICAL USAGE OF ALGAL BIOPOLYMERS

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Abstract:

Algae are photosynthetic organism which can use solar energy to fix carbon dioxide in the atmosphere and produce glucose as a main product, then convert it to other important components. They are utilized in different areas such as MEDICAL, pharmaceutical, AGRICULTURAL fertilizers, food and biofuel industries due to their lipid, protein, vitamin, pigment material and mineral content. Recently, algae have come into prominence in BIOMEDICAL area due to being feasible for biopolymer production. Algal biopolymers are biocompatible, recyclable, biodegradable and also similar to some synthetic polymers due to thermoPLASTIC, MECHANICAL and physical properties. Biopolymer obtained from algal biomass can be used in drug delivery system or as a wound dressing material due to their properties of immune system supplement, anticancer agent and etc. For instance, in addition to its ability to retain water, gelling, viscosifying, and stabilizing properties of alginate which is derived from macroalgae, it is HIGHly suitable material as an immobilization matrix for living cells. In this study, the BIOMEDICAL APPLICATIONs of biopolymers from different types of algae and novel innovations in this area are summarized.

Keywords: Algae, Biopolymer, BIOMEDICAL

PERTURBATION METHOD IN GAS-ASSISTED DISPLACEMENT OF A NEWTONIAN OR A NON-NEWTONIAN LIQUID

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Abstract:

The motion of a long bubble in Newtonian and non-Newtonian fluids confined in horizontal or vertical tubes, rectangular channels and square-sectional channels has been studied both theoretically and experimentally. Of particular interest is the determination of residual film thickness on the walls of a geometry. In this study, the gas-assisted injection molding process was examined theoretically using the perturbation method to determine the shape of interface and thus the residual liquid thickness on the wall of a tube. When an inert gas is injected into one end of a circular tube containing a viscous fluid, it forms a round-ended column which travels down the circular tube forcing some of the liquid out at the far end and leaving a fraction m in the form of a layer covering the wall. The interface profile between a gas and a liquid was expressed in terms of mathematical equation and then this equation was solved by aid of the perturbation method to determine the residual liquid deposited on the wall of a tube in the form of annul layer. It was assumed that the gas-assisted displacement took place at such a low velocity to be APPLIED the lubrication approximation. Therefore, the results obtained in the present study is valid very law capillary numbers. The obtained results was compared with other the results obtained from the other methods and the related literature.

Keywords: Perturbation Method, Gas-Assisted Displacement, Coating

ENTROPY GENERATION IN A FLUID MOTION DISTURBED BY MASS SUCTION/INJECTION AT POROUS PARALLEL PLATES

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Abstract:

The flow of a Newtonian or non-Newtonian fluid between two porous parallel plates was analyzed in terms of the second law of the thermodynamics. It was assumed that the fluid was driven by both the motion of the upper plate and the pressure drop. When the mass either suction or injection at the upper or the lower porous plate, the main flow is disturbed and thus the entropy generation increases. The entropy generation because of suction or injection at either the upper or lower porous plate was examined as functions of Prandtl number, Eckert number, Reynolds number for perpendicular flow and the dimensionless temperature difference. The parameters effective on the entropy generation were investigated to determine their magnitude of influence. The temperature distribution, entropy generation number and Bejan number were derived with aid of velocity distribution of a fluid. The friction of fluid particles which causes entropy generation were examined as functions of the suction or injection at the upper or lower porous plate. It was observed that the sucked / injected mass at the upper or lower porous plate perpendicular to the main flow had a significant effect on temperature and the entropy generation.

Keywords: The Second Law Analysis, Entropy Generation, Porous Parallel Plates

THE EFFECT OF REACTION PARAMETERS ON THE YIELD AND FUEL PROPERTIES OF BIODIESEL FROM ALGAE OIL

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Abstract:

In this study, the conversion of algae oil into biodiesel via alkali-catalyzed transesterification using methanol was studied. The algae oil methyl ester (biodiesel) was obtained at the optimal conditions which have been determined after investigating the effect of catalyst concentration (0.5 wt.%, 0.75wt.% and 1wt.% potassium hydroxide -KOH- of the oil), reaction temperature (60-70 0C) and reaction time (60-100 minutes) at constant methanol to oil molar ratio of 6:1. The optimized conditions, i.e., 0.75 wt.% KOH of the oil as catalyst at 68 0C and 80 minutes at a molar ratio of methanol to oil of 6:1, offered the maximum methyl ester yield of 98.6% and 96.6% ester content with kinematic viscosity and density values of 4.491 mm2/s and 881 kg/m3, respectively, which are within EN14214 biodiesel standard.

Keywords: Chlorella, Algae Oil, Biodiesel, Fuel Properties

THE EFFECT OF AGING HEAT TREATMENT ON WEAR BEHAVIOR OF CU-CR-ZR ALLOYS

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Abstract:

Copper and copper alloys are widely used because of their excellent thermal conductivity, outstanding resistance to corrosion, ease of fabrication as well as good strength and wear resistance. HIGH strength and good ELECTRICAL conductivity are the fundamental requirements for MATERIALS used in AUTOMOTIVE, aeronautic and electronic industries. The aim of this study is to determine the effect of aging heat treatment on wear behavior of the Cu-Cr-Zr alloys. Microstructure of the as-cast and aged alloys were analyzed with the light optical microscopy (LOM) and scanning electron microscopy (SEM). The MECHANICAL properties of the alloys, at room temperature, were determined using hardness tests, which were carried out in a Shimadzu HMV2 microstructure test device where 500 g immersion load was APPLIED using a Vickers indenter. A ball on disc type wear device, under different loads, was used to conduct the dry environment wear experiments carried out for investigated alloys. Aging heat treatment APPLIED to the investigated alloys increased the wear resistance of the alloy.

Keywords: Cu Alloys, Aging, Wear Properties

OTTOMAN CULTURAL HERITAGES IN BURSA: STRUCTURAL DETERMINATION OF HISTORICAL MINARETS

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Abstract:

The minarets were built in various forms by different CIVILizations throughout the history. In the Ottoman Period, geometric forms and construction TECHNIQUES of these structures were progressively changed and improved. Therefore, the minarets were became indispensable components of a mosque as both symbol indicating the location of the mosque and the support member to the main building wall in the residential area of the Ottoman Empire. One of the area is Bursa, in which many examples of Ottoman ARCHITECTURE are seen due to the empire's first capital and reigned throughout six century. Thus, the minarets of the city have various geometric properties and construction TECHNIQUES. The boot of each minaret was built using different cross-section, height, wall thickness, material properties and boundary conditions within the body wall. The shaft of the minarets were also design different heights and cross-sections as cylindrical. Even so, the components of the minarets were constructed with the specific sizes ratio between cross-sections and heights. However, some of these minarets experienced damage due to 1855 Bursa earthquakes and were repaired or reconstructed with altered sizes. In this study, the current rates are presented for the minarets. The construction TECHNIQUES of boot, stairs and shaft of the minarets are also explained. Furthermore; common damage examples of the minarets are shown because of the earthquakes and storm.

Keywords: Historical Ottoman Minaret, Geometric Form, Construction TECHNIQUES

DYNAMIC CHARACTERISTICS AND SEISMIC BEHAVIOR OF HISTORICAL MINARET OF THE ALTIPARMAK MOSQUE

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Abstract:

A large number of the historical minarets are world heritages in Turkey. Unfortunately, these monuments are located in the HIGHly active seismic regions. Therefore, seismic behavior of the historical heritages should be surveyed so as to be preserved from the possible earthquakes. There are different procedure on the identification of dynamic characteristics of historical masonry minarets, the most common used procedure and so difficult one is Structural Health Monitoring. After collecting data from this procedure, evaluation of the performances is also complex. Because the historical masonry minarets have complex stiffness, HIGH heterogeneity and shadowy boundary conditions as observational. Thus, ambient vibration test was performed with aim of defining modal parameters of the minaret. In order to achieve the modal analysis-frequency domain, peak-picking method was employed in derivation of modal data. Since the structural behavior of the minaret were also represented with mathematical model, solid model were implemented by using the finite element technique. Model updating was performed in order to match the natural frequencies arising from the experimental investigation with those from NUMERICAL results. For the determination of the seismic behavior of the minaret, non-linear static pushover analysis were carried out considering displacement distribution of the first mode on the calibrated model. As a result of analysis, demand/capacity curve of the minaret were computed and damage mechanism of the structure were investigated.

The Altıparmak Mosque of Bursa, which was built in second half of 15th century, is selected as an example to understand of the dynamic performance of historical minarets. The result showed that most critical sections of the minaret is between body and transient segment or upper body component. Therefore, the tensile stress value and PLASTICization level of the region are very important for evaluation of seismic performance.

Keywords: Historical Masonry Minaret, Ambient Vibration Test, Modal Analysis, Pushover Analysis, Seismic Assessment

PREDICTION OF DAM RESERVOIR VOLUME FLUCTUATIONS USING ADAPTIVE NEURO FUZZY APPROACH

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Abstract:

Determination of reservoir volume fluctuations is important for the operation of dam reservoir, design of hydraulic structures, the hydropower for the energy production, flood damage reduction, navigation in the dam reservoirs, water quality management in reservoir and the safety of dam. In this study, reservoir volume variations were estimated using average monthly precipitation, monthly total volume of evaporation, dam discharge volume, and released irrigation water amount. In the present paper, adaptive-neuro-fuzzy inference system (ANFIS) was APPLIED to estimating of reservoir volume fluctuations. ANFIS results are compared with conventional multi-linear regression (MLR) model. The results show that reservoir volume was successfully estimated using fuzzy logic model with low mean square error and HIGH correlation coefficients.

Keywords: Dam, Reservoir Volume, Prediction, Fuzzy Logic, Multi-Linear Regression

THE GEOTHERMAL FEATURES OF ERZURUM AND SURROUNDINGS (TURKEY)

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Abstract:

Geothermal fluids have a wide spectrum of utilization areas ranging from district heating to balneology, greenhouses and fish farming. Turkey happens to be a rich country from the aspect geothermal fluids. Some part of the geothermal FIELDs in Turkey are located in the region covering the vicinities of Bayburt, Erzincan and Erzurum corresponding to the junction point of North Anatolian and East Anatolian fault zones. For this reason, this region has a HIGH potential for geothermal resources. However, due to the lack of drilling studes and insufficiency of the existing thermal facilities, the region is not capable of benefiting from this potential significantly. Among these cities located in Eastern Europe, especially Erzurum has an advantegous and remarkable standing because of the adequate number of drilling studies, HIGH fluid temperature associated with HIGH flow rate and also facility allocations. In this scope, by benefiting from the aeromagnetic data of Eastern Anatolia, Curie point depths were calculated. First of all, spectrum analysis was APPLIED to the aeromagnetic data and Curie depths were computed. Then, by using these depths the heat flow of the region was calculated. Finally, the obtained findings were evaluated together with the previous studies conducted for the region. Benefiting from the geophysical findings of Erzurum and surroundings were analyzed.

Keywords: Erzurum, Geothermal, Gravity, Magnetic, Turkey

A CASE STUDY FOR DECISION MAKING AND VALUATION OF CONTRACT FLEXIBILITY IN MANUFACTURING INDUSTRY

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Abstract:

An investment decision is rarely a now-or-never decision and rarely a decision that cannot be abandoned or changed. In most instances, the decision can be delayed or accelerated, and often it comes in sequential steps with various decision points, including “go” and “no-go” alternatives. All of these choices are real managerial options and they affect the value of the investment opportunity. The real option at each step in the decision-making process is the freedom of choice to embark on the next step in the climb, or to choose against doing so based on the examination of additional information. Managers are very conscious of preserving a certain freedom of choice to respond to future uncertainties. In this study, the real options approach to evaluate the flexibility to contract a project is presented using a case study for an electric car manufacturing firm that is unsure of the technological efficacy and market demand of its new cars. Valuation of the option is demonstrated using binomial trees. Optimal decisions for each state are shown on the tree.

Keywords: Real Options, Stochastic Optimization, Manufacturing, Flexibility

A NEW SPECIES RECORD OF SPHAGNUM L. FROM TURKEY AND SOUTH-WEST ASIA; SPHAGNUM FLEXUOSUM DOZY & MOLK.

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Abstract:

Sphagnum flexuosum Dozy & Molk. (Sphagnaceae) was reported for the first time from Turkey and South-west Asia. Sphagnum peat lands in Turkey were usually known from eastern Black Sea region. Nevertheless, this taxon was collected from the peat lands near to alpine meadows at Sogucak plateau (1075 m) on 28 May 2015, in Samanlı Mountains where located north-west of the country. Accompanying moss species to S. flexuosum in this locality were hygrophytic species such as; Sphagnum inundatum Russow, Sphagnum palustre L., Aulacomnium palustre (Hedw.) Schwägr. and Calliergonella cuspidata (Hedw.) Loeske.

Hitherto the genus of Sphagnum L. has been represented by 23 taxa in Turkey, bringing the total number of species of this genus known from Turkey to 24. When the geographical distribution of Sphagnum L. in Turkey was mapped, it was seen that, this report provided a remarkable contribution to TURKISH distribution of Sphagnum. Moreover, the description and photographs of the diagnostic characters of this species were given.

At first sight, Sphagnum flexuosum is similar to S. angustifolium, S. fallax and S. obtusum, but it differs from pore sizes, leaf arrangement, shape and size. Sphagnum flexuosum is recognized that; pale stems with small notched obtuse-rounded stem leaf, homogeneous cortex, none fibrillose cortical cells, chlorophyllose cells as wide as hyaline cells at abaxial surface upper part of the branch leaf.

Acknowledgements: The study was financially supported by The Scientific and Technological Research Council of Turkey (TUBITAK, Project Number: 114Z337)

Keywords: Bryophyte, Moss, Samanlı Mountains, Sphagnaceae

DEFINING AND CONTROLLING GAIT CYCLE FOR BIPED WALKING IN SAGITTAL PLANE

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Abstract:

Two 6-DOF leg mechanisms were defined in closed-chain to simulate natural human walking. For this purpose, a novel biped gait cycle and angular joint trajectories were defined. System setup, kinematics and dynamic model has been obtained. Computed-torque and Lyapunov based controllers were used in simulations. The states between joint angles and of the system were defined differently both in single and double support phases for a stable bipedal walking. The gait cycle was determined as a loop which has symmetrical locomotion. The system model has mobility that is available for 3D motions. However in this study, the conditions were chosen for 2D sagittal plane walking for convenience. Controlled motion results were shared and discussed.

Keywords: Bipedal Walking, Gait Cycle, Locomotion, Curve Fitting, İnverse Kinematic

LOPHOZIA OBTUSA (LINDB.) A. EVANS, NEW TO BRYOPHYTE FLORA OF TURKEY AND SOUTH-WEST ASIA

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Abstract:

Due to hardly accessible regions have not yet been visited by bryologists, bryofloristical knowledge of Turkey is still incomplete. So increasing bryophyte research activities in these areas will lead to the discovery of quite a number of new records. One of these areas is Samanlı Mountains, where located in north-western of Turkey. This mountain chain extends from western edge of the Armutlu Peninsula in Yalova province to Geyve gorge of Sakarya province. This area is in the transition zone between Mediterranean and Black Sea climates and that's why, this mountain chain especially covered with deciduous forests in northern slopes, at the same time conifers and maquis vegetations in southern slopes and the HIGHER levels of the area.

In this study Lophozia obtusa (Lindb.) A. Evans was recorded for the first time from Samanlı Mountains in Turkey and Southwest Asia. The specimens was collected from Kartepe, which is the HIGHest region of Samanlı Mountains, on 26 May 2015. This taxa was occured on the moist rocks near the stream in deciduous forests at 900 m altitude under the Mediterranean climate. It was found together with the moss species; Hygrohypnum luridum (Hedw.) Jenn, Rhynchostegium riparioides (Hedw.) Cardot and the liverwort species; Pedinophyllum interruptum (Nees) Kaal., Leiocolea bantriensis (Hook.) Jörg.

Lophozia obtusa is easily recognized by its horizontal bilobes leaves, rounded lobes, gibbous sinus and numerous small oil bodies.

The latest status of the taxa for Turkey and South-west Asia has been evaluated using the recently literature. The specimens were stored in the special bryophyte collections of Uyar at the GAZI UNIVERSITY.

Acknowledgements: The research was financially supported by The Scientific and Technological Research Council of Turkey (TUBİTAK, Project Number: 114Z337)

Keywords: Kartepe, KOCAELI, Liverwort, Lophoziaceae, Marchantiophyta, Samanlı Mountain

COMPARISON OF THE OIL AGGLOMERATION RESULTS FOR THE ENRICHED COALS

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Abstract:

The success of the enrichment process is depended on the several parameters. Many factors are taken into consideration to decide on which method is APPLIED for the beneficiation of any mineral. The particle size of mineral is one of these factors. Dense medium is the most common separation method in order for cleaning of coarse coal. This method is based on the density differences between the coal and inORGANIC MATERIALS. However, dense medium separation for fine particles loses its effectiveness due to the decrease in the gravitational forces on the fine particles. Oil agglomeration is a well-accepted method for the enrichment of fine mineral particles. In this method, the mineral particles which are naturally hydrophobic or rendered hydrophobic by surface active agent together with the oils used and agglomerated. The various parameters such as type and amount of oil, stirring speed, agglomeration time, pH, solid rate etc. influence the success of the process.

In this study, the oil agglomeration of enriched coals which had +18 mm and -18+0.5 mm of particle sizes obtained from the Tuncbilek (Kutahya) coal washery plant along with the raw coal sample were investigated and correlated. The amount of oil, stirring speed and agglomeration time were also examined for each sample.

Keywords: Coal, Oil Agglomeration, Kerosene, Combustible Recovery

SPATIAL VARIABILITY OF ERODED SOILS ON DIFFERENT SHAPED SLOPES: A FIELD STUDY IN TURKEY

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Abstract:

This study was performed for two years from September 2007 to September 2009 in uniform, concave and convex shaped slopes under natural rainfall. The aim of this study is to monitor eroded soil variation and spatial variability behavior along the slope. For this, a total of three FIELD plots were located on complex hill-slope, including uniform, concave and convex slope forms, one for each of three forms. Metal level sticks were used to monitor variations, such as transport or deposition on ground surfaces on plots. When evaluating the results, plots that were located on slopes were divided into three sections, such as top (Section 1= S1), middle (Section 2= S2) and bottom (Section 3= S3) for better understanding transported and deposited variations on plots.

As a result, eroded soil was transported in the plots S1 and S2 on uniform slope while it was deposited in S3. For concave slope, eroded soil was transported in the plots S1 and S3, but a clear deposition occurred in S2. On convex slope, eroded soil was transported in the whole plot but little deposition occurred in S3.

Keywords: Eroded Soil, Spatial Variability, Slope Shape

ASSESSMENT OF THE MINING ACCIDENTS FROM THE STAND POINT OF OCCUPATIONAL HEALTH AND SAFETY

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Abstract:

Mining sector is one of the ancient and the leading sectors which have taken a place in historical time course. Increase in the demand to better life standards together with the increase in the number of living people in the world has also brought the growth in the production especially in mining sector which takes an important role in the supply of raw material. Taking no precautions for the occupational health and safety is unfortunately the main reason for the disasters occurred in the working places causing many fatalities as well as the loss of goods. The main drawback for not taking the preventive necessary measures is because of not comprising the occupational health and safety culture sufficiently.

In the present study; the reasons for the occupational accidents originates in underground mines and the significant mining accidents took place in Turkey and in the world along with the measures to be taken from the view of the safety and health at work have been emphasized.

Keywords: Mining, Mining Disaster, Occupational Health And Safety

EXPERIMENTAL ASSESSMENT OF HEAT FLUX THROUGHOUT CYLINDER WALL IN A COMPRESSION IGNITION ENGINE

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Abstract:

Internal combustion engines are a part of our daily lives as indispensable. The large of energy is consumed for engine operations. So the engine loss power and fuel economy is one of the conditions that need to be analyzed. In internal combustion engines, the combustion chamber and the cylinder walls keep in touch with hot exhaust gases. This should be examined in terms of thermal stresses for both consistently engine operations and long-lived engine life.

This paper aimed to analyze the combustion chamber wall heat flux by the change of engine speed and loads. The experimental study was carried out on a single-cylinder diesel engine. The experimental measurements involved to 1200 and 2000 rpm engine speeds, and 25% and 50% of full engine load. The Engine block temperatures were measured using the K-type thermocouples for all parameters. Experimental data were computed using Woschni heat transfer model. The variations of in-cylinder pressure and gas temperature, heat transfer coefficient and heat flux with the crank angle is illustrated graphically. The results demonstrate that the engine running conditions have considerable effects to the combustion chamber wall heat transfer.

Keywords: Engine Heat Transfer, Diesel Engine, Heat Loss, İn-Cylinder Temperature

THE ROLE AND THE IMPORTANCE OF UNIVERSITIES IN ESTABLISHING THE CULTURE OF OCCUPATIONAL HEALTH AND SAFETY

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Abstract:

According to the records of the International Labour Organisation (ILO), an occupant dies as a result of a work-related accidents or disease while 153 workers have an occupation-related accident every 15 seconds in the world. Under the light of these figures, 5760 workers lose their lives due to the occupational accidents or diseases every day resulting in more than 2.1 million deceases per year. Additionally, it may be pronounced that 322 million job oriented accidents take place annually with a similar evaluation. The same records also illustrates that the economic burden of these accidents occurred may reach up to 4% of global gross national product each year.

In addition, improper implementation of occupational health and safety thought may bring about an economic loss up to 10-20% of the gross domestic product of a country as emphasized in the World Health Organization (WHO) registries.

The safety culture is a life style targeting occupational health and safety with a top priority. There is knowledge in base of safety and this knowledge transformed into a style of living forms the safety culture. In the case of not interiorizing the safety culture, work related accidents will be inevitable. Furthermore, an institution's safety culture reflects the behaviors and attitudes of its occupants towards the job based hazards. From this perspective, the safety culture espoused to the personnel and the students of a UNIVERSITY may cause the UNIVERSITY to work in accordance with the safety culture as well as it affects its graduates positively in their inbred behaviors at the institutions for which they are to work in the future resulting in the working life retrieving to a better level. This paper examines the safety culture together with the contribution supplied by the universities.

Keywords: Safety Culture, Universities, Occupational Health And Safety

FACTORIZATION IN MODULES

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Abstract:

Let D be an integral domain. It is well known that D is a Unique Factorizatition Domain (UFD) if and only if every nonzero non unit of D is a product of irreducibles, and this factorization into irreducibles is unique up to order and associates. There are several generalizations of this notion UFD to commutative ring with zero divisors. At this point, to take into account a special kind of factorization called U-decomposition in a factorization eliminates the bad behavior of factorization caused by non zero idempotents. Let R be a commutative ring with identity and M be an unitary R-module. In this study we investigate several factorization properties in an R-module M by using U-decompositions.

Keywords: Factorization, Modules

OBSERVING THE EFFECT OF SOURCE LOCATION AND SIZE ON TSUNAMI AMPLITUDES FOR LANDSLIDE-SOURCED TSUNAMIS

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Abstract:

In this study, the purpose is to determine the effect of the location of submarine mass movement and size of sources on tsunami amplitudes using simple source model. To observe these parameters, the same-size sources are taken into account in different depths ranging from 0.5 km to 2 km and also different source areas are selected as 10x10 km2, 30x30km2, 50x50 km2 and 100x100 km2 in constant depth. The maximum tsunami amplitudes are discussed with different depths and source areas respectively. In the model, the fluid is assumed as incompressible and the flow is irrotational. Laplace-Fourier transform methods are used for mathematical solutions. Results for tsunami peak amplitudes are presented for selected parameters. The results show that there is an inverse proportion between the amplitude value and the depth of the source. The plots of peak amplitude versus source location show that amplitude values decrease when the water depth increases for all source areas. It can be said that a small area source can generate a large amplitude tsunami if the location of landslide source is close to the free surface of the ocean. According to the results, it is possible to claim that the shallower the water, the HIGHER the amplitudes. The interaction of the tsunami wave forms each other are examined for different parameters and illustrated.

Keywords: Tsunami Source Model, Tsunami Amplitudes, Submarine Mass Movemets, Landslide Source Area, Laplace-Fourier Transform

THE NORMAL STRESS DISTRIBUTION IN AN ELASTIC BODY WITH A LOCALLY CURVED AND HOLLOW FIBER

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Abstract:

The results of the normal stress distribution in an elastic body with a locally curved and hollow fiber are expounded. The normal stress distribution is studied when the body is loaded at infinity by uniformly distributed normal forces in the fiber direction. The investigations are carried out in the framework of the piecewise homogeneous body model with the use of the three-dimensional geometrically non-linear exact equations of the theory of elasticity. The mathematical formulation of corresponding boundary-value problem was given. The boundary form perturbation method is employed for the investigation. NUMERICAL results related to the normal stress distribution considered and the influnce of parameters on these stresses are analyzed. The corresponding NUMERICAL results are presented.

Keywords: Locally Curved, Normal Stress

OFFSHORE WIND FARM LAYOUT OPTIMIZATION USING MATHEMATICAL MODELING

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Abstract:

With the rapid increase in energy demand, existing energy resources will be exhausted in the future. Thus, the use of renewable energy sources around the world has become inevitable. Because of the continuity and sustainability opportunities of renewable energy, it has been considered as an alternative energy resource in developed countries. Wind energy is a main source of renewable energy comparing with the other renewable energy resources such as solar energy, geothermal energy, bio energy, and heat pump. Wind turbines extract the kinetic energy from wind and convert it into electricity. A group of turbines is called wind farm which can be located in land or in bodies of water. The latter is named offshore wind farm while the first is onshore. Offshore wind power is a charming alternative to generate energy in the future since it has better wind regime than that of onshore. Therefore, this study focuses on layout of offshore wind farms to decide the locations of the turbines relative to each other and ELECTRICAL cable connections between each pair of turbines installed. Objectives of this layout design problem is to both maximize total power generated via the installed turbines and minimize total cost of the cables between these turbines. In this study, a mixed integer non-linear mathematical model is proposed for layout of small sized offshore wind farms. Since the total installation cost of offshore wind farms is quite expensive, small sized farms are generally prefered in the real case APPLICATIONs. An optimum layout design would provide a considerable saving in the cost besides providing increment in the total energy generated. An experimental study has been carried out to show the usability of the proposed mathematical model on different test problems.

Keywords: Wind Farm, Layout Design, Mixed İnteger Non-Linear Model

USAGE OF HYPERSPECTRAL IMAGING TECNIQUE FOR DETECTOIN OF AFLATOXIN: A REVIEW

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Abstract:

Aflatoxins are one of the most popular toxic metabolites, show poisoning and carcinogenic effect, found in some foods. These metabolites are produced by fungi called Aspergillus flavus and Aspergillus parasiticus. The foods under the risk of aflatoxins are milk, cheese, corn, peanuts, cottonseed, nuts, almonds, figs, spices, and a variety of other foods. The recent methods for detection of aflatoxins in foods are thin layer chromatography (TLC), liquid chromatography (LC) and immunochemical methods such radioimmunoassay (RIA), enzyme-linked immunosorbent assay (ELISA), and immunoaffinity column assay (ICA). However, these TECHNIQUES are destructive and not suitable for continuous systems. Hyperspectral imaging as a promising technique in food processing and analyses became a target for researchers and the industry. This technique is not only for detection/analyze but also classification of products. This paper aims to discuss the challenges and issues associated with development of the usage of hyperspectral imaging in aflatoxin detection.

Keywords: Aflatoxin, Aspergillus Flavus, Aspergillus Parasiticus, Hyperspectral İmaging

NEW GENERATION WIRELESS MICROCONTROLLER BASED MEASUREMENT SYSTEM

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Abstract:

In this study, physical quantities such as moisture, temperature and pressure were measured by using new generation microcontroller systems. The measurement system is designed based on wireless communication protocol. Quantities that can be used in many APPLICATIONs such as moisture, temperature and pressure were measured by the sensors which are selected according to the APPLICATION. Measurement values are transferred wirelessly to the receiver module. Thus, the display of these values is provided. The developed wireless measurement system has a low cost and compact design. The obtained results reveal that measurements can be performed with ± 2% margin of error.

Keywords: Wireless Sensor Network, Measurement, Microcontroller Based APPLICATION

MAMMOGRAM CLASSIFICATION BY USING WAVE ATOM MOMENTS

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Abstract:

In the computer-aided diagnosis system, feature extraction step is of great importance to achieve a good classification performance. When considering the feature extraction, the most discriminative features are the key issue. According to the recent studies, multiscale transforms provide satisfactory results to obtain the effective features. This paper represents a method to classify mammograms by using wave atom moments. The method consists of the APPLICATION of wave atom to region of interests (ROIs) and the computation of first-order moments from the coefficients of wave atom. Once, obtaining the first-order moments for each ROI, feature matrix is constituted using them. Then, the features are ranked by using the statistical t-test technique, and then a thresholding process is APPLIED over the ranking values to determine the most effective features to classify the classes. The classification is repeated using support vector MACHINE (SVM) till obtaining the optimal threshold point (point of effective feature set) that gives the best classification performance. Finally, the classification is performed last time via 5-fold cross validation using the feature set at the optimal point to validate the result. In the study, 228 mammograms from the Digital Database for Screening Mammography (DDSM) database are used and the mammograms are distinguished as normal and abnormal. The wave atom moments yielded an accuracy of 94.74% with 18 features for abnormality detection. According to the results, wave atom moments are an effective way to obtain a reduced set of discriminative features for normal-abnormal classification of mammograms.

Keywords: Wave Atom Moments, Mammography, Feature Extraction, Feature Reduction.

EVALUATION OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS ON HYDROELECTRIC POWER PLANTS IN TURKEY

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Abstract:

Energy demand and ELECTRICAL production in parallel with the increasing population and economic growth, significantly increased since 1980 in Turkey. Based on these developments, policies preferred by Turkey for electricity production revealed two important consequences. Firstly, the use of fossil fuels has led to increasing in CO2 emissions and the share of cycle stations using coal is quite HIGH in the total emissions. The second important result is associated with an all the natural gas that using in thermal power plants are imported production. In this respect, hydroelectric power stands out as the country's most abundant domestic renewable resources. Hydroelectric power is one of the essential activities of the Environmental Impact Assessment (EIA) carried out by the EIA Regulations.

A total of 3992 EIA report was prepared since 1993, started to be implemented the EIA legally in Turkey. 3858 reports decision were positive, 32 reports have resulted in a negative decision. A large part of the EIA reports prepared for oil and mining sector (%26) and energy investments (%24) in Turkey. Energy investments consists from %83 of hydroelectric power plants and dams, %9 of thermal power and %8 of wind power stations. Hydroelectric power plants have a significant share in energy investments. When Turkey's energy situation and implementation of policies in last two annual are considered generally, it is possible to say that hydroelectric power plants will continue to grow in the coming years.

In recent years, debates and concerns has begun about the effectiveness of EIA process due to increasing numbers of hydroelectric power plants. In this study, the development of hydroelectric power plants in Turkey is investigated and EIA process APPLIED to these projects have been evaluated.

Keywords: Environmetal İmpact Assessment, Energy, Hyroelectric Power Plant

EVALUTION OF RENEWABLE ENERGY SOURCES IN SOUTHEASTERN ANATOLIA REGION IN TURKEY

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Abstract:

Energy is needed to provide planned usage of energy sources and more utilization of renewable energy sources for the sustainable development. It has been entered into the process of reconstruction in Turkey, since 2001.

Southeastern Anatolia Region is one of the poorest region in terms of socio-economical conditions. In order to provide sustainable and balanced development in the region, several plans and projects have been conducted for a long time. People live in the region HIGHly emigrate, INDUSTRIAL activities in the region need to be improved.

In this context, sustainable development that provide to use of renewable energy sources and energy efficiency gains importance. Accordingly, it is examined to possibility of productive usages of sources with national and international projects.

The region is prosperous not only in terms of oil,coal, etc., but also hydropower and solar energy potantial. In the scope of Southeastern Anatolia Project (known in TURKISH as GAP), HIGH capacity dams contructed in the region.

When the Southeastern Anatolia Region was evaluated in terms of renewable energy sources; for solar energy, the region has a production capacity over the average of Turkey. Geothermal sources are existing in the region, however these sources are used for the heating, greenhouse, thermal facilities instead of electric power generation because of the lack of required additional Technologies. Several hydroelectric power pant (HPP) has been under construction in the region which is substantial in terms of hydroelectric energy.

The main objective this study is to research to renewable energy sources for the sustainable and balanced development by examining the socio- economical structure of Southeastern Anatolia Region . The results wiil be determined by comparing with the general conditions of Turkey.

Keywords: Renewable Energy Sources , Southeastern Anatolia Region

PERFORMANCE ANALYSIS OF TIME SERIES FORECASTING MODELS FOR SHORT TERM WIND SPEED PREDICTION

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Abstract:

Being incontrollable and variability of wind power can lead to problems in terms of power quality, production-consumption balance and power system reliability in the networks with HIGH wind power. Wind speed forecasting methods with HIGH accuracy are an effective tool that can be used to minimize these problems. In this study, 63m wind measurement station has been assembled with corresponding wind sensors in Mehmet AKIF Ersoy UNIVERSITY campus and the system has been engaged. From the recorded data total 4464 wind data of March 2014 have been studied and 8 different models (random walk, linear trend, quadratic trend, simple moving average, ARIMA (1,0,2), ARIMA (2,0,1) ,ARIMA(2,0,2) ,NARX) have been developed by using time series forecasting methods. Performance analyses have been carried out by using Root Mean Square Error (RMSE) method and comparison of model performances of developed models have also been carried out. The developed models make wind speed estimations when two consecutive wind speed data is entered. According to the results it has been seen that the most successful model is Nonlinear Autoregressive with External Input (NARX) obtained with the use of artificial neural network and as a result of running of this model regression coefficient has been found as 97.82%, RMSE value has been found as 0.80. Consequently, the results show that the developed NARX model is quite effective for short term wind speed prediction

Keywords: Wind Speed Prediction, Time Series Analysis, Wind Speed Forcasting, Arima, Narx

LYAPUNOV FUNCTIONS AND SOME STABILITY, BOUNDEDNESS PROPERTIES FOR DIFFERENTIAL EQUATION OF FRACTIONAL ORDER

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Abstract:

In this paper sufficient criteria on some stability and boundedness for system of fractional differential equations are established. To this end comparison method via Lyapunov function and a scalar fractional differential equation is applied. Some examples are given as an APPLICATION of the obtained results.

Keywords: Lagrange Stability, Boundedness, Lyapunov Functions, Fractional Differential Equations.

THERMODYNAMIC AND THERMOECONOMIC ANALYSIS OF SPLIT TYPE AIR CONDITIONERS COMBINED WITH BOILER

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Abstract:

Today, cooling systems have been used in so many places. The cooling systems consume HIGH amount of energy. Due to the fact that split type air conditioners are the mostly used devices in all around the world, the energy efficiency of these devices has gained extreme importance. In the present study, it is aimed to investigate system performance of the split type air conditioner combined with boiler in point view of energy, exergy and thermoeconomic aspect. For this purpose an experimental test rig designed and built. A constant hot water has been obtained by using a boiler before the condenser unit of the wall type split air conditioner. A series of experimental studies were conducted and obtained data were used to calculate the exergy efficiency, energy consumption and system performance. As a result of the analysis, the cooling efficiency was computed as 18% and 41% for the air conditioner without and with boiler respectively. The energy consumption was decreased with the increase of efficiency as expected. When it is compared with and without boiler from the economical point of view the device was consumed 0.0395 EUR/h and 0.0465 EUR/h respectively.

Keywords: Split Type Air Conditioner; Boiler; Energy-Exergy; Thermoeconomic

PERFORMANCE OF DUAL AXIS SOLAR TRACKING SYSTEM USING FUZZY LOGIC CONTROL: A CASE STUDY IN PINARHISAR, TURKEY

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Abstract:

Generating ELECTRICAL via solar energy is one of the most popular renewable energy source. Modular structured solar panels that work according to photovoltaic principles convert solar radiation into ELECTRICAL energy. There are some ways of increasing the power produced by the photovoltaic panels. One of the most effective ways is to minimize the angel of rays from sun to panel surface by taking the right position according to the angle of the sun. This paper proposes an intelligent control method for solar tracking. This method uses a fuzzy logic controller APPLIED to the DC motors in solar tracking system (STS). STS is designed and developed as dual axis. Fuzzy logic algorithm used in STS was APPLIED separately in order to control DC motors which determine the azimuth and zenith angels of the system. Position error which is obtained by the help of encoders tied to the motors and error variation were taken as input of fuzzy logic algorithm, APPLIED voltage to the motor was taken as output of fuzzy logic algorithm. Finally, results of the photovoltaic panel on the STS controlled by fuzzy logic are compared to those obtained by the photovoltaic panel system without STS according to instantaneous power performance throughout the day in Pinarhisar, Turkey. Experimental results show that the STS which uses fuzzy logic controller increases the efficiency of energy production from PV.

Keywords: Renewable Energy,Solar Tracking System,Fuzzy Logic,Photovoltaic Panel

CONTROL OF POWER ELECTRONIC INTERFACE FOR A STAND-ALONE PHOTOVOLTAIC SYSTEM

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Abstract:

This paper presents a single phase stand-alone PV system. The system includes ten PV panels that are connected in series and parallel. Each panel has 260W power and 38.3V open circuit voltage. Five panels are connected in series, thus 192V output voltage can be obtained. Parallel connected other five panels are utilized for increasing the output current for HIGH power capacity. The total system power is 2.6kW in ideal standard test conditions, 1000 W/m2 and 25oC. As output power of PV panels changes depending on the weather conditions, a DC/DC converter is used for maximum power point tracking (MPPT). As PV panels have low efficiency, MPPT is the important issue for PV systems. The extracted power from PV panels is injected into DC bus that includes batteries. In the study, batteries are modelled as a bulky capacitor not real battery model because charge and discharge take long time in the simulation. Thus, the operating principle effects of the converters on the system can be clearly seen in the figures. In the next stage of the system, a single phase inverter is utilized to feed the stand-alone load. The inverter provides required sinusoidal voltage for the input of the transformer. It is controlled with sinusoidal pulse width modulation technique to regulate the output voltage for different load values. At the output stage, a transformer increases the inverter output voltage to required load voltage level and provides galvanic isolation.

The system is simulated for different radiation values and loads. The load is fed from the PV panels with maximum power extraction. Maximum power extraction is done with DC/DC converter, and load voltage is regulated with the inverter. The presented system is suitable for rural areas that are far away from the power network.

Keywords: Stand-Alone Pv System, Mppt, Single-Phase İnverter, Pulse Width Modulation

TESTING OF DEVELOPED ELECTRO-MECHANIC DRIVE SYSTEM FOR SEED METERING OF PRECISION PLANTERS UNDER LABORATORY CONDITIONS WITH SUNFLOWER SEEDS

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Abstract:

In order to minimize the competition between plants during the use of water and nutrients from the soil, it is important to ensure of a uniform plant spacing in FIELD conditions. To achieve this goal, precision planters that can leave the seeds into the soil at desired spacing have been used for row crops. Seed metering units of precision planters take the motion from ground wheel. Because of this, they have some disadvantages such as; negative-sliding, seizing and jamming on transmission systems. In addition to these, it is difficult to exactly set the desired seed spacing, because seed spacing is dependent on the number of holes on their metering plates and limited transmission settings. In this study, electro-MECHANICAL drive system for seed metering unit which was capable of desired seed spacing as steeples were developed. The system performance was tested with sunflower seeds at three different forward speeds (5, 7.5, 10 km/h) and ten different seed spacing 5 to 50 cm in laboratory condition. Quality of feed index (Iqf), multiple index (Imulti), miss index (Imiss) and precision index (Ip) were used in performance evaluation. The HIGHest value of Iqf was found at 20 cm and 5 km/h as 97.91% and the lowest value of Iqf was found at 10 km/h and 20 cm as 82.82%. Values of Imulti were detected between 0.27 and 11.73%, Imiss ranged from 0.36 to 15.36% and IP ranged from 10.06 to 17.26 at all experimental levels. When all results were evaluated together, the performance of the developed electro mechanic driving system for seed metering units was found to be HIGHly successful according to international standards.

*The data used in this work comprise a part of the research project [TOVAG-114O656] that supported by the Scientific and TECHNICAL Research Council of Turkey (TUBITAK).

Keywords: Precision Planter, Seed Spacing Uniformity, Sunflower, Seeding Performance

EQUILIBRIUM AND KINETIC STUDY OF BISPHENOL-A ADSORPTION BY BENTONITE CLAY FROM AQUEOUS SOLUTIONS

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Abstract:

Bisphenol A [2,2-bis(4-hydroxyphenyl)propane, BPA], which is classified as a type of endocrine disruptor compounds (EDCs), has been widely used in the manufacturing of polymer plastics, epoxy resins, polycarbonates, and other plastics. As a result, BPA has been detected in various types of environmental water at concentrations ranging from 17.2 mg/L in hazardous waste landfill leachate, to 3.5-59.8 ng /L in drinking water and 12 µg/L in stream water. However, even in low concentration (ng/L), BPA can cause endocrine system disruption and present toxicological risks to animals and humans, which is attributed to its low biodegradability and highly resistance to chemical degradation.

In the present work, adsorption behavior of bisphenol-A from aqueous solution onto bentonite was investigated under various experimental conditions. The influence of variables including pH, concentration of bisphenol-A and contact time was investigated by the batch method. The maximum sorption capacity was estimated to be 0.94 mg/g at pH 9. The equilibrium data was evaluated using Langmuir and Freundlich isotherm. The Langmuir model best describes the uptake of bisphenol-A, which implies that the adsorption of bisphenol-A onto bentonite is homogeneous. The kinetic data were analyzed using Lagergren pseudo-first order and pseudo-second order equation. The pseudo-second order exhibited the best fit for the kinetic studies, which indicates that adsorption of bisphenol-A is limited by chemisorption process.

Keywords: Bisphenol-A, Bentonite, İsotherm, Kinetic

ESTIMATION OF EARTHQUAKE OCCURRENCES BY USING MARKOV CHAIN APPROACH IN TURKEY

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Abstract:

It is necessary to investigate earthquake risks because Turkey is located in an active earthquake zone that caused large earthquakes. According statistical study, earthquake predictions are obtained with using earthquakes occurred in the past. 3 regions were selected in Turkey according to the scope of study. Two of these regions are located on the North Anatolian Fault Zone and 3rd region is located around Van Lake. The data sets were created for the magnitude of earthquakes Ms >5.0 between 1900-2015. Region-transition probabilities were calculated from the created data sets with Markov Chain approach. There are cases for selected 3 regions. According to earthquake may occurred or not, all cases are numbered between 0-7. In this study, "0" indicates that any earthquakes is occurred in 3 regions, on the other hand "7" indicates that there are earthquakes in 3 regions. Transition matrix (P) was generated from number of earthquakes between 1900-2015 by Markov statistical method. In selected regions, it has tried to estimate the probability of earthquake may occur within 5 years by generated transition matrix and defined initial distribution values. According to the results, in case of "0" probability for 5 years; 1st year: %35.5, 2nd year % 39.6, 3rd year % 40.3,4th year %41.2,5th year % 41.5, respectively.

Keywords: Markov Chain Approach, Earthquake Prediction, North Anatolian Fault Zone.

DETERMINATION OF EARTHQUAKE PROBABILITY BY USING STATISTICAL METHODS IN TURKEY

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Abstract:

Many studies are performed on earthquakes because of the loss of life and property as a result of the major earthquakes, which located worldwide. The most important one of these studies is statistical study which estimates the earthquakes will be occurred in the future by using the earthquake data in the past.

The aim of this study is estimated the return period and the probability of earthquakes by Poisson distribution and Exponential distribution methods, which widely used in seismology. Therefore, it was used the earthquakes between 1900 and 2015, Ms ≥4. 0 occurred in Turkey. From these data it was estimated the earthquakes occurrence probability for Ms ≥5.0. 3 regions in the study area is determined to taking into consideration on the epicentral distribution, seismicity, the type of faulting and geomorphological features. 2 of these regions are located on the North Anatolian Fault Zone, the third region is selected around Van Lake. In the result of the calculations made in region 1, annual earthquake occurrence number for Ms=5.2 was determined 0.62 and recurrence interval was estimated as 1.6 years according to the exponential distribution method. On the other hand, annual earthquake occurrence number to Ms=5.2 was calculated 0.48 and recurrence interval was estimated as 2.23 years for Poisson model. Used statistical methods were APPLIED separately to each region. Also, seismic risk for each region with the Poisson distribution model was calculated in the next 10 years.

Keywords: Poisson Distribution Method, Exponential Distribution Method, Earthquake Occurrence Probability, Turkey.

EFFECT OF THE CARBON BLACK OBTAINED FROM WASTE TYRES ON THE DURABILITY OF MORTAR MIXTURES

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Abstract:

In Europe 29 countries used 3.418.000 tones tyres in 2012 according to ETRMA (European Tyre & Rubber Manufacturers' Association). This amount represents a significant proportion of the total solid waste stream. Waste tires are commonly used in cement kilns and power plants as fuel, as an aggregate in Portland cement concrete and for production of rubberized MATERIALS. There has been great interest in alternative treatment processes for waste tyres, amongst which is the use of pyrolysis technology. Pyrolysis is the chemical conversion or breakdown of the ORGANIC compounds by heating in total or partial absence of oxygen. Pyrolysis of waste tyres produces oil, gas and char product. The solid char may be used as a solid fuel, as carbon black or upgraded to produce an activated carbon. In this study the compressive strengths of cement mortars containing different amounts carbon black obtained from waste tyres were obtained. Generally a linear increase in compressive strength is observed depending on the amount of carbon black.

Keywords: Waste Tyre, Carbon Black, Cement Mortar, Compressive Strength

REMOTE CONTROL OF LIGHTING USING PROGRAMMING LANGUAGE MATLAB, ZIGBEE TECHNOLOGY AND PIC18F452 MICROCONTROLLER

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Abstract:

Microcontrollers are used in automated products and devices, such as automobile engine control systems, remote controls, OFFICE MACHINEs, power tools, toys and other systems that are embedded. Also, the ZigBee networks are very suitable for network APPLICATIONs. ZigBee is a low-cost, low-power, wireless mesh network standard targeted at the wide development of long battery life devices in wireless control and monitoring APPLICATIONs.

Bearing in mind the numerous advantages and ease of linking these two technologies, the remote control of lighting is practically implemented.

Lighting assembly is made from more types of light sources. The PIC18F452 microcontroller and transistor amplifiers are used to control lighting. XBee modules are used for serial communication to PIC18F452 microcontroller and computer. The graphical user interface, designed in the PROGRAMMING language MATLAB, is used for remote control of lighting. In this way, the user has a complete overview of the state of lighting at any time.

Keywords: Matlab, Pic18F452 Microcontroller, Zigbee Network, Xbee Module, Xctu, Lighting

MINIMIZING HEADING ERROR OF OMNI-DIRECTIONAL WHEELCHAIR BASED ON MECANUM WHEELS BY APPLYING CONTROL ALGORITHM

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Abstract:

In an attempt to increase orientation capability of conventional wheelchair the system was equipped with four omni-directional wheels. In this study a control algorithm is developed to eliminate heading errors between demanded and real motor speeds taken from directly from system.

In order to examine designed controller on real large-scale system, an experimental setup is installed. The experimental setup consists of microcontroller, dc motor drivers, four dc motors coupled with mecanum wheels and quadratic encoder and gyro based on wheel chair chassis.

Mathematical model of this system is created through forward and backward kinematic with weighted matrix equations,which provides with the decreasing heading error while any of DC Motors operate in unexpected behaviors such as stop or undesired velocity by improved mathematical model unlike relevant works in this area,Transfer function of Dc motor is estimated with ARMAX model by the help of measured voltage and speed values. The dc motor model is added into system model to determine needed speed according to user inputs. Created mathematical model is designed and simulated in MATLAB/Simulink environment. In order to validate designed model, different orientation scenarios are given to system independently. Cross-validation is done by independent input-output data sets and it is determined that the model has the residual autocorrelation function inside the confidence interval.Based on the validated model, unlike motor speed responses are without overshoot and oscillation, a sub-control algorithm PD is designed and simulated to reduce settling time and minimize heading errors.

Obtained simulation and real system results are compared. Owing to designed controller performance and adaptation of weight unit matrix values, heading error caused by structural, assembly and manufacturing failures is decreased dramatically.

Keywords: Mecanum Wheel, Backward-Forward Kinematic, Heading Error, Pid Control

BARK BEETLE SPECIES OF ORDU

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Abstract:

In this study, bark beetles of Ordu forests were investigated. For this purpose, at appropriate times in the FIELD with the pheromone traps and trap trees in the collectionof species, determination of some important species BIOLOGY to be studied. Identification of the species kept and the specimens, As a result of studies, 8 bark beetle species have been identified in the regions and provide suggestions to reduce the amount of insect damage.

Keywords: Ordu, Bark Beetle, Pheromone Trap, Trap Tree

EVALUATION OF QUALITY CHARACTERISTICS OF HAZELNUT MILK ICE CREAM WITH VARIOUS STABILIZERS

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Abstract:

This study examined the effect of different emulsifiers (salep, guar gum and locust bean gum) on the some physical and sensory properties of hazelnut-milk ice-cream. Ice-cream was prepared with hazelnut-milk. Natural hazelnut kernels (100 g) were soaked overnight in 500 mL water at 4 °C. The soaked hazelnut kernels were drained and the skins of soaked kernels were manually removed. The swollen kernels were blended with 500 mL of water at 60°C with a laboratory blender for 5 min at 20.000 rpm. The slurry was filtered through cheesecloth, and the filtered milky hazelnut suspension was called as hazelnut-milk. For mix manufacture, the fat content of the mix was adjusted to 15% using hazelnut oil for a total batch of 100 g. The ingredients sugar (25%) and stabilizer (0.75%) was then added to the mix. The prepared mixes were homogenized and pasteurized (90 ± 1°C for 15 min). Pasteurized ice-cream mixes were then rapidly cooled to 25°C and aged at 4°C for overnight, then vanillin (0.4%) was added. The hazelnut milk ice-cream was produced by using a vertical ice-cream maker of 1.6 L capacity (Tefal, Model: TE0014, Fr) at a constant speed for about 20 min. The partially frozen mix was packaged in 50 ml PLASTIC cups and stored at -18°C until the tests were conducted. It was identified that addition of different emulsifiers affected the physical and sensory properties of hazelnut ice-cream. Viscosity and overrun values of ice-cream mix containing locust bean gum were found to be the HIGHest. Stabilizer types had slight effect on pH value. Appearance, texture, mouthfeel, taste and aroma characteristics of the ice-cream samples were tested by panelists. Salep containing samples had lower scores with respect to overall acceptance, while guar gum and locust bean gum containing samples provided HIGHER scores.

Keywords: Frozen Dessert, Stabilizer, Hazelnut-Milk, İce Cream

CALCULATION OF BRAIN VENTRICLES VOLUME USING ATLAS BASED METHOD IN PATIENTS WITH PARKINSON

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Abstract:

Parkinson's disease (PD) is a neurodegenerative disease which is characterized clinically by tremor at rest, postural instability, bradykinesia, and rigidity. Several volumetric studies have been performed to characterize brain volume differences in PD. Mristudio is a new automatic method that the observer can perform the manual or the fully automatic segmentation using this software. The aim of the current study was to compare the volumes of brain ventricles between healthy subjects and patients with PD using Mristudio software. 21 patients (9 males, 12 females) with PD with 20 healthy subjects (11 males, 9 females) and free of any psychiatric, neurological or cognitive impairment were included in this study. We used volumetric analysis using 3D T1-weighted images and Mristudio program (DTIStudio, ROIEditor ve Diffeomap) is atlas-based image processing program. Brain parcellation map was superimposable onto the original 3D T1-weighted images, leading to the parcellation of the brain into 189 anatomical structures. And then volumes of brain ventricles are obtained. Brain ventricles volumes were obtained from the patient and control groups determined by using Mristudio software were 32102.5±11284.1 mm3 ve 27090.4±17478.4 mm3, respectively. In our study, although the increase in all of ventricular volume, in patients with PD, It was not found to be statistically significant ($p > 0.05$). Only in the left occipital part of the lateral ventricle volume increase it was found to be statistically significant. We think that, our results would contribute to the studies which evaluated the development, pathology and abnormalities of brain. In addition, we consider that our study may serve as a reference for similar studies to be conducted in the future.

Keywords: Parkinson Disease, Ventricle Volume, Mristudio, Brain Parcellation

INVESTIGATION OF CRYSTALLIZATION BEHAVIOR OF TALC FILLED PP POLYMER AND FOAMS

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Abstract:

In this study, PP polymer and 20%talc filled PP (PP-T) polymer composite MATERIALS were used. Polymer and its composite were foamed with using convectional injection molding method. The decomposition temperature of chemical endothermic foaming agent was 140°C and the total gas capacity was about 130 ml/g. Foaming agent added to polypropylene and composites between 1% and 2% by weight. Phase transition temperature such as melt and crystallization temperatures, enthalpy and crystallization rates of polymer and foam samples were determined with differential scanning calorimetry (DSC). The effect of the amount of foaming agent and talc additives were investigated on the crystallization behavior.

Keywords: Pp, İnjection Molding, Foaming Agent, Crystallization

THE EFFECT OF NANO-AL2O3 AND NANO-MOS2 ON TRIBOLOGICAL PROPERTIES OF POLYAMIDE 46 (PA46) NANOCOMPOSITES

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Abstract:

In this experimental research, the tribological performance of pure Polyamide 46 (PA46), nano-Al2O3 filled Polyamide 46 (PA46-Al2O3) and nano-MoS2 filled Polyamide 46 (PA46-MoS2) were studied using a pin-on-disc tribometer against 1040 steel under dry sliding conditions. The influences of APPLIED load and sliding speed on tribological properties were investigated. All the MATERIALS were dried at 100 oC for 4 hour before compounding. PA46 nanocomposites granules were fabricated on twin screw extruder. Thereafter, the specimens for tribological tests were produced using injection-molding MACHINE. Tribological tests were carried out at sliding speeds of 0.5 and 1.0 m/s and APPLIED load values of 20, 30 and 40N. The results show that the coefficient of friction for PA46 and nanocomposites were decreased while specific wear rate increased with increased APPLIED load and sliding speed values. The coefficient of friction and specific wear rate of the PA46 polymer decreased with the addition of Al2O3 and MoS2. The specific wear rate for PA46 and nanocomposites are in the order of 10−13 and 10−14 m2 / m.

Keywords: Pa46, Mos2, Al2O3, Friction, Wear

EFFECTS OF THE EJECTOR USAGE ON VAPOUR COMPRESSION COOLING SYSTEM

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Abstract:

In this study, getting more performance with using an ejector on vapour compression cooling system was aimed and a cooling system with ejector was designed and manufactured. At the end of the experiments and calculations the differences of two system were explained.The cooling systems which have been designed with ejector and without ejector were operated and experimental studies were done. For the each experiment, inlet and outlet temperatures of condenser, evaporator and compressor were measured by thermocouples. Minimum temparature, on the system without ejektör was -10 °C and on the system with ejector was -11°C. According to these values, coefficient of performance (COP) of the systems were calculated. COP of non ejector sistem was calculated as 2,6 and COP of system with ejector was calculated as 2,74. These results expect that there is a % 5 percent performance difference between the systems and ejector has a positive effect on the vapour compression system.

Keywords: Cooling, Ejector, Energy Efficiency

INVESTIGATION OF PROPERTIES OF CNT REINFORCED HA BIOCOMPOSITES PRODUCED BY MECHANICAL ALLOYING TECHNIQUE

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Abstract:

Hydroxyapatite (HA) based MATERIALS are being used for orthopedic implants because of their good biocompability of soft tissues such as muscle, skin and gums. However, using unreinforced hydroxyapatite in orthopedic implants suffers from its poor wear resistance and brittle fracture behaviour. Carbon nanotubes (CNT) is an inviting reinforcement to overcome these problems with its HIGH stiffness and MECHANICAL strength. In early studies the CNT were used as reinforcement in HA, in the form of coatings and composites and it was seen that CNT addition has importantly deveopled not only MECHANICAL behaviours but also biocompability of HA. In these studies different proccessing TECHNIQUES were used to fabrication of HA-CNT biocomposites and the most important problem was declared as “unhomegenous distribution of CNTs”.

In this study to obtain homogenous distribution of CNTs the MECHANICAL alloying tecnique was used. The different CNT contents (0,25, 0,5, 1 and 2 wt%) were mixed in a planetary ball mill for 2 hours. Than, MECHANICALly alloyed biocomposite powders were cold pressed under 600MPa pressure and sintered at 1100 oC for 1 hour under pure Argon gas atmosphere. To investigate the physical and microstructural properties of these biocomposites green density, sintered density, porosity, hardness tests and microscopic analyses were conducted. The results showed that the CNT particles were homogenously distrubted in microstructure and the increasing in CNT content resulted as increase in density of biocomposites.

Keywords: Biocomposite, Hydroxyapatite, Cnt, Milling

TEN-YEAR RESULTS OF INITIAL SPACING TRIAL IN ASH (FRAXINUS ANGUSTIFOLIA VAHL.) PLANTATION IN TURKEY

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Abstract:

Ash species is getting more important in European forestry due to their fast growth ability and valuable wood. Fraxinus angustifolia Vahl. (NLA) is the most common and useful native ash species and dominates the bottomland forest of northern coastal region of Turkey. Its stands have a HIGH productivity, and mean annual increment can reach up to 15 and 25 m3 ha−1 in natural stands and plantations, respectively. Almost all NLA-dominated bottomland forests have been converted to pure NLA plantations in the last 60 years in Turkey. NLA has been grown at spacings of 3 x 2 and 3 x 2.5 m until 1980s and later on spacings of 3.7 x 3.7 m and 4 x 4 m has been preferred in Adapazarı region. In recent years spacing of 3.0 x 3.0 m (1111 trees ha−1) has been practiced in Turkey. But ash trees planted at 3x2 m or wider spacings provided poor tree form and low timber quality. Thus, more research is needed in order to optimize the initial spacing or density of NLA. The spacing trial were conducted in a randomized block design with three replications and seedlings which were 1+0 year old and bare-root were planted in December 2004. We used four initial plantation spacing (3x3 m, 3x2 m, 2.5x1.6 m and 2.5x1.2 m). 10-year data was collected in 2015 fall including the diameter (dbh) and height of trees in experimental plots. Results suggested there were no mortality in trial plantation. Influences of initial spacing on diameter were not significant. But the height was significantly negatively correlated with spacing. Stand mean height and basal area correlated with initial spacing. Ten-year results suggested that better growth at closer spacing may be a silvicultural characteristic of NLA similar to that of F. excelsior.

Keywords: Spacing Trial, Stocking, Fraxinus Angustifolia, Narrow-Leaved Ash

STABILITY AND EFFICIENCY IMPROVEMENT VIA SELF ASSEMBLED MONOLAYERS MODIFIED ITO IN HYBRID SOLAR CELLS

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Abstract:

Perovskite based ORGANIC-inORGANIC hybrid solar cells are specified as a significant option for easily produced renewable energy because of low device costs and HIGH power conversion efficiencies (PCE). The general chemical formula of organo-metal halide perovskite absorber material is ABX3, A is ORGANIC cation (such as CH3NH3, NH2CHNH2), B is metallic cation (such as Pb, Sn) and X is halide anion (such as Cl, Br, I). Interface ENGINEERING of the perovskite layer with the electron and hole separating layers has been proved to be crucial for optimizing and improving overall device performance, stability and life times. These device properties are dependent on the active MATERIALS and their interfaces. For planar heterojunction perovskite solar cells, the nature of the ELECTRICAL contacts between the ORGANIC layers and metal electrodes is one of the most important issue in profiling device parameters such as open circuit voltage Voc, short circuit current Jsc, fill factor FF. The modification of ITO using Self-assembled monolayers (SAMs) with a permanent dipole moment provide both improving the long-term stability of device and tuning the work function of ITO for efficient hole collection at anode side. In this work, we offered SAMs for electrode/ORGANIC interface modification to improve device performance because of easy processable and containable as well as changing wettability of interface without any extra layer. Self-assembling functional monolayers which are Fluorine terminated boronic acid derivatives have been used to modify between ITO and PEDOT:PSS layers in ITO/PEDOT:PSS/CH3NH3PbI3 /PCBM/Ag inverted structure planar device ARCHITECTURE.

Keywords: Perovskite Solar Cell, İnterface Modification, Sams.

FUNCTIONALLY GRADED MATERIALS

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Abstract:

This article reviews the current status of the functionally graded MATERIALS (FGMs) such as types, fabrication methods and APPLICATION areas. Functionally graded MATERIALS (FGMs) are special MATERIALS which incorporation two or more MATERIALS by varying gradually in specific properties such as heat conductivity, specific heat, and density. FGM properties (physical and MECHANICAL properties) vary in space to meet the specific requirements due to the gradual change in composition. FGMs have great potential in APPLICATIONs where the operating conditions are severe, including impact plates, bearing MATERIALS, BIOMEDICAL implants and heat exchanger tubes. After a brief introduction to the origin of the FGM concept, the review shows some specific examples of FGMs which are present in nature and human body. The present study provides new contributions of recent works aimed at the further development of new FGMs for increasing their ENGINEERING APPLICATIONs. Moreover, this review is intended to gain the readers a new perspective for the variety of studies and APPLICATIONs related to functionally graded MATERIALS.

Keywords: Functionally Graded MATERIALS (Fgms), Casting, Powder Metallurgy, BioMATERIALS

STUDY ON MICROSTRUCTURES AND WEAR PROPERTIES OF B4C NANOPARTICLE REINFORCED ZA27 NANOCOMPOSITES

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Abstract:

Among the group of zinc base alloys, the zinc–aluminum alloys have gotten a lot of attention in the last years like substitute MATERIALS of aluminum based alloys, irons and brasses. ZA-27 has the HIGHest aluminum content, HIGHest strength, HIGHest melting point, and lowest density of the ZA group. ZA 27 alloy, in particular, has been used in bearings and bushing APPLICATIONs, as a replacement for bronze bearings because of its low cost and equivalent or superior bearing performance. However their MECHANICAL and tribological properties are not enough to be used as unreinforced alloy. In early studies to provide their MECHANICAL and tribological behaviours ceramic particles (Al2O3, B4C, SiC) were used as reinforcing MATERIALS. Among the group of these ceramic particles, the B4C particles are known as being harder and having less density.

In this study to investigate the tribological behaviours of Za27 matrix B4C nanoparticle reinforced nanocomposites the samples were fabricated by powder metallurgy technique. The abrasive wear behaviour of nanocomposites were investigated using ball on disc wear test at different loadings of 2 and 10 N. Results of the wear tests revealed that the wear rate and wear resistance of nanocomposites decreased with an increase in the B4C content. The best wear resistance was obtained at 3 wt % B4C nanoparticle reinforced nanocomposites.

Keywords: Za27, B4C, Nanocomposite, Wear, Tribology

THE EFFECT OF GRAPHITE CONTENT ON THE WEAR BEHAVIOR OF ZA27/AL2O3/GRAPHITE HYBRID NANOCOMPOSITES

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Abstract:

ZA27 based hybrid composites with hard particles and dry lubricating particles can use for bearing APPLICATIONs with their good tribological properties instead of traditional bearing MATERIALS. İn this study, the wear behavior of ZA27 based hybrid nanocomposites reinforced nano-graphite particles and hard nano-alumina (Al2O3) particles was investigated under dry sliding conditions. While the content of nano-alumina that is one of reinforced MATERIALS was selected in 4 vol. %, the contents of nano-graphite particles was determined in different volumes (%1-%2-%3 and %4). The effect of graphite content was studied on wear behavior under different sliding distance conditions. A block-on-disc sliding wear testing apparatus was used to carry out dry wear tests. The sliding distances was found to be significant parameter detecting effect of graphite content. The worn surfaces were investigated by scanning electron microscopy (SEM) and the wear mechanisms were identified. While the lowest wear loss was seen in hybrid nanocomposite with content of 4 vol. % graphite and 4 vol. % alumina, the HIGHest wear loss was determined in ZA27. It was determined that abrasion is the dominant mechanism in all hybrid nanocomposites except for the composite including 4 vol. % graphite and 4 vol. % alumina. The worn surface of the hybrid nanocomposite that is with content of 4 vol. % graphite and 4 vol. % alumina showed that adhesion is dominant as the wear mechanism.

Keywords: Alumina, Graphite, Hybrid Nanocomposite, Wear

THE EFFECT OF NANO-PARTICLE CONTENT ON THE WEAR BEHAVIOR OF ZA27/AL2O3 NANOCOMPOSITES

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Abstract:

In this study, the effects of volume fraction of nano-Al2O3 on the abrasive wear properties of Al2O3 nano-particle reinforced ZA27 alloy metal matrix nanocomposites produced by MECHANICAL alloying and hot pressing method have been studied. The density, porosity and hardness of nanocomposites were also examined. Wear behaviour of Al2O3 nano-particle reinforced ZA27 alloy metal matrix nanocomposites was investigated by a block-on-disc abrasion test apparatus under unlubricated conditions. The effects of sliding time and the content of Al2O3 nano-particles on the abrasive wear properties of the nanocomposites have been evaluated. The dominant wear mechanisms of nanocomposites were identified using SEM. It was found that the density decreased with increasing reinforcement volume fraction but the porosity and hardness increased with increasing nano-particle content. Moreover, The wear resistance of the all composites was found to be considerably HIGHER than that of the ZA27 matrix alloy. The wear loss of composite increased with increasing nano-particle volume fraction after Al2O3 nano-particles reinforcement content of 1 vol. %. Furthermore, it was understood that the main wear mechanisms of ZA27 are adhesive and delamination while the dominant wear mechanism of Al2O3/ZA27 nanocomposites is abrasive.

Keywords: Alumina, MECHANICAL Alloying, Nanocomposite, Wear, Za27

A NEW CYSTEIN MODIFIED SILICA MICROPARTICULES AS A SORBENT FOR LEAD AND SILVER IONS

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Abstract:

Generally, every metal which is toxic and causes environmental pollution is called as a heavy metal. The worldwide increase in industry and urbanization causes serious pollution in environments surrounded by water resources. Thus, interest about removing heavy metals from water resources is gradually increasing. In addition, recycling of valuable MATERIALS such as silver, gold and platinium has a profitable potential along with solutions for environmental problems. There are several methods which are used in order to remove heavy metals from water, but adsorption process is often used to remove heavy metals in water.

In this study, a new adsorbent was prepared by modifying 3-aminopropyl silica with cysteine and it was characterized by FTIR. With the optimum conditions (pH, contact time, initial metal ion concentration) determined for maximum adsorption of Pb2+ and Ag+ ions of the adsorbant, adsorbtion capacity of the adsorbant was also determined. Adsorption isotherm models were APPLIED to the adsorption process. Maximum adsorption capacities for Pb2+ and Ag+ were obtained such as 12.32 ± 0.2 and 110.2 ±0.4 mg.g-1 adsrobent respectively at pH 6.0. The selectivity of adsorbent for these metal ions was observed as having the follows: Ag+> Pb2+.

Keywords: Silver, Lead, Adsorption, Cystein, Adsorption İsotherms

SOLVENT ASSISTED CRYSTALLIZATION MECHANISM OF HIGHLY REPRODUCIBLE PLANAR HETEROJUNCTION PEROVSKITE SOLAR CELLS

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Abstract:

ORGANIC-inORGANIC hybrid MATERIALS have been successfully employed in many electronic APPLICATIONs such as FIELD effect transistors,1 sensors,2photo detectors,3 light emitting diodes,4 and thin film photovoltaic devices.5 Among those ORGANIC-inORGANIC hybrid ELECTRONICS, perovskite solar cells based on methylammonium lead (II) halides (MaPbX3 X= I, Cl, Br) as a member of third generation photovoltaics, are of great interest in recent years because of their low cost and excellent properties- such as long exciton diffusion lengths and life times, HIGH absorption coefficients, excellent charge carrier mobilities and direct band gap. In this work, we report a simple process for reproducibly fabricating perovskite solar cells. We emphasize that solvent washing technique is the most practical method to success uniform crystallization so it facilitates HIGHly efficient reproducible perovskite solar cells. The critical parameter for tuning crystallinity is determined to be the type of washing solvent and the quantity dispensed. The amount of washing solvent strongly effects the particle size distribution resulting in better or worse interconnection between the crystal grains. We discovered that 20 µl of toluene is the best washing solvent for device reproducibility. Our proposed parameters result in 90% reproducible perovskite solar cells with average efficiency around 8%.

Keywords: Hybrid Solar Cell, Solvent Washing Tecnique, Reproducibility.

THE EXPERIMENTAL INVESTIGATION OF ADDED THE METHANOL TO DIESEL FUEL AS A METHOD FOR REDUCING DIESEL EMISSIONS

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Abstract:

An experimental investigation is conducted to evaluate the effects of using 15% methanol as additives to diesel fuel on the performance and exhaust emissions of a single cylinder-water cooling-direct injection diesel engine. This study aimed reduced air pollution from diesel engines. The isobutanol (1%) was added to fuel mixing for prevent phase separation of diesel fuel – methanol blend. Thermal efficiency values obtained with using methanol lower average about 15% than that of diesel fuel. As results of exhaust emission at engine speeds (1600 rpm and 1800 rpm) obtained of maximum engine torque and engine power; CO (Carbon di-Oxide), UHC (Unburned Hydro-Carbon), and smoke opacity emissions decreased approximately about 30.3%, 53.33% and 48.4% respectively compared to diesel fuel. But, it's NOx (Nitrous-Oxide compounds) emission values were HIGHER about 17.5% than that of diesel fuel.

Keywords: Methanol, Exhaust Emission, Diesel Engine, Air Pollution.

A MECHATRONIC DEVICE FOR PREVENTING THE SURGICAL OPERATION IN INTUSSUSCEPTION

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Abstract:

The majority of intussusceptions in children can be reduced safely without recourse to surgery. This study proposes design and prototype manufacturing of a mechatronic air feeder device which is named as pneumatic reduction device. This device can control the pressure and flowrate. Working stability in millibar level is also possible. By using this device, it is aimed to solve the invagination problem, which is frequently experienced in children between six months and two years old, without surgical operation. This device was tested in laboratory condition and it was seen that it can quickly reach necessary pressure level in spite of change in volume and it can preserve this pressure level.

(This study is a part of the research project FYL-2015-6280. The authors wish to express their thanks for financial support being provided by the Scientific Research Projects Coordination Unit of ERCIYES UNIVERSITY, in carrying out this study.)

Keywords: İnvagination; MECHATRONICS; Pneumatic Reduction Device; İntussusception

MODELING OF A STATIC VAR COMPENSATOR (SVC) AS VOLTAGE REGULATOR FOR A HEAVY LOADED TRANSMISSION LINE.

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Abstract:

In this study, a Static Var Compensator (SVC) is modelled by using Matlab/Simulink in order to regulate the receiving end voltage of a 230 kV transmission line. Only one phase of the transmission system is represented. The SVC consists of one 10 Mvar TCR bank and two 10 Mvar TSC banks connected to each phase of the load bus. The SVC controller monitors the receiving end voltage of the transmission line and successfully sends appropriate pulses to the compensator thyristors to obtain the susceptance required to keep the voltage level of the line end within ± % 5 tolerance limits. The desired voltage regulation at the transmission line end can be achieved in less than a half seconds using the modelled system under changing heavy and light loading conditions.

Keywords: Facts, Svc, Voltage Regulation, Simulation

MOTIVATION AS A TOOL FOR ENSURING PRODUCTIVITY IMPROVEMENT IN TURKISH CONSTRUCTION INDUSTRY

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Abstract:

Recently, human resource, which is crucial to ensure productivity improvement, became one of the most important competition tools. Employing the labor force in an effective way will provide to benefit from the advantages of productivity improvement. In this aspect, determination and evaluation of the factors affecting labor productivity will ease the right employment of labor force. In the literature, there are numerous researches related with the factors affecting labor productivity. However, in most of these studies motivation theories were neglected and critical factors were not correlated with motivation schemes. The aim of this study is to correlate the factors affecting labor productivity in Turkey with motivation schemes. For this purpose a two-step study was conducted. In the first step, factors affecting labor productivity were categorized under 4 different factors groups named as organizational, economical, socio-physiological and physical, respectively and a questionnaire was administered to craft workers. The results of the questionnaires were evaluated by using Relative Importance Index (RII). In the second step, productivity improvement based on motivation theories was investigated by reviewing the literature. The results revealed that, the most important schemes for craft workers and managers were economical and organizational schemes, respectively.

Keywords: Construction Labor Productivity, Productivity Factors, Motivation Theories, Relative

STATISTICAL INVESTIGATION OF TURKEY BOSNIA AND HERZEGOVINA ECONOMIC RELATIONS

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Abstract:

Abstract

Turkey and Bosnia and Herzegovina, relations of the two countries is based on the centuries. Relationships are seen in every area of life management for both countries and peoples. This relationship politically, culturally and economically can be divided into three main groups. In this study; A research and statistical and economic relations have been made between Turkey and Bosnia and Herzegovina. In the study, Bosnia-Herzegovina as an independent state by the year 1992 from changes in the economic relations up to 2015 were analyzed. Economic relations, the two countries expressed with import and export figures to each other. At the end of the study; Bosnia and Herzegovina declared its independence in exports to Turkey in the first year, $ 128,217,000, while Turkey's exports to these countries were $ 292,640,000. Total bilateral trade volume in the head while 144 million dollars was realized as 543 million dollars in 2015. Both countries in recent years showed that trade volume increased significantly compared to the first year.

Keywords: Economic Relation, Export, Bosnia-Herzegovina,Turkey

DETERMINATION OF ANTIOXIDANT CAPACITIES OF 5-BROMO-2-(PROP-2-IN-1-ILOXY) BENZALDEHYDE AND 3,5-D-TERT-BUTYL-2-(PROP-2-IN-1-ILOXY) BENZALDEHYDE WITH TWO DIFFERENT ASSAYS

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Abstract:

Benzaldehydes are common in nature. Also, it has been reported that some of benzaldehyde derivatives have important role in preventing cancer and inhibiting phospholipase D activity. However, they are not usually chemically stable in nature. Therefore, two structurally stable benzaldehyde derivatives were synthesized and used in this study.

Antioxidant capacity of synthesized benzaldehyde derivatives were determined with phosphomolybdenum and reducing power assays, according to the modified Prieto at al., (1999) and Joyaprakash et al., (2001) methods, reciprocally. Ascorbic acid was used as a standard for determining antioxidant capacities of synthesized benzaldehyde derivatives.

According to the phosphomolybdenum assay that 1 µg 5-bromo-2-(prop-2-in-1-iloxy) benzaldehyde had an 0,07 µg ascorbic acid equivalent antioxidant capacity. Besides, it was determined that 1 µg that 3,5-d-tert-butyl-2-(prop-2-in-1-iloxy) had an 0,24 µg ascorbic acid equivalent antioxidant capacity. In addition, it was determined that while it was not determined reducing power for 5-bromo-2-(prop-2-in-1-iloxy) benzaldehyde, 1 µg that 3,5-d-tert-butyl-2-(prop-2-in-1-iloxy) had an 0,025 µg ascorbic acid equivalent antioxidant capacity in reducing power assay.

According to the results of phosphomolybdenum and reducing power assays that 3,5-d-tert-butyl-2-(prop-2-in-1-iloxy) benzaldehyde showed significantly HIGHER antioxidant capacity than 5-bromo-2-(prop-2-in-1-iloxy) benzaldehyde.

Keywords: Benzaldehydes, Phosphomolybdenum Assay, Reducing Power Assay, Antioxidant Capacity

REDUCTION OF WAVES MAGNITUDES BY OFFSHORE BREAKWATER UNDER SEA LEVEL IN AKYAZI STADIUM AREA, TURKEY

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Abstract:

A shore is a place where sea and land across each other and the land is affected by the sea waves. Shores are important for many aspect including, economical, political, and cultural sides. Spoiled, unregulated, messy or unsteady shores are neither valuable nor protecting against damages from waves. Shore PROTECTION constructions are built up to protect beaches and lands behind them from the destructive effects of waves. Commonly APPLIED precautions for shore PROTECTION are; seawalls, bulkheads, revetments, groins, sand dunes, sand bypassing, jetties and breakwaters.

In this study, the shore PROTECTION subject of Akyazı Stadium, Trabzon, Turkey was studied. The experiments were performed on a model system to establish a breakwater type to get a more reductive effect on wave magnitudes. For this purpose, four offshore breakwaters models under sea level in different sizes were experimentally tested. The TEXTILEs of the breakwater models were filled with sand in varying diameters (10 cm,7,6 and 5 cm) and located 6.5 cm away from the seawalls. After the implementation, the damages and wave climbings on seawalls, and wave breaking points on each model were determined. The experimental results obtained before and after the shore PROTECTION constructions with varying diameters were compered.

Results showed that the breakwater with 10 cm diameter caused 0.6 m of reduction on wave climbing. Moreover, the wave was broken at a 7.5 cm farther location from the seawall, comparing to the no breakwater setup. Overall results proved that, the sand filled offshore breakwaters, can reduce the wave magnitudes and cause a more effective PROTECTION for the seawalls. Therefore, the required size and amount of the rocks used for inshore construction can be reduced which also makes the construction more cost effective.

Keywords: Shore PROTECTION, Reduction Of Wave Magnitudes, Offshore Breakwater

TURBULENT BOUNDARY LAYER WITH LOGARITMIC LAW IN 2-D

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Abstract:

The problem of predicting features of turbulent flows occurs in many APPLICATIONs such as geophysical flows, turbulent mixing, pollution dispersal and even in the design artificial hearts. One promising approach is large eddy simulation (LES), which seeks to predict local spacial averages of the fluid's velocity. One important problem in LES is to find appropriate boundary conditions for the flow averages which depend on the behavior of the unknown flow near the wall. Inspired by works of Navier and Maxwell [1,2], we develop boundary conditions on the wall. In this study, we derive friction coefficient appropriate for 2-D turbulent flows and study asymptotic behavior as the averaging radius goes to zero and as the Reynolds number goes to infinite.

Keywords: Near Wall Models, Large Eddy Simulation (Les), Turbulent Flows

FLOW ESTIMATION BY AREA-RATIO METHOD IN TWO ADJECANT BASINS IN EAST BLACK SEA AREA, TURKEY

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Abstract:

A flow duration curve (FDC), showing exceedance probabilities across flow value frequencies at specific times, can be used for determining flow values having certain exceedance probabilities. However, FDC cannot be obtained at a place where flow measurements are insufficient or do not exist . Therefore, discharges having certain exceedance probabilities need to be estimated by various methods.

In this study, area-ratio method was considered whether it can be APPLIED on feasibility studies in our two specific adjacent basins. Discharges having %20, %30, %50 and %90 exceedance probabilities were chosen for the estimation. The adjacent basins were 22-52 streamflow gauging station (SGS) and 2202 SGS areas in the Black Sea Basin, Turkey. While the 22-57 and 22-07 SGSs are included in the area of 22-52 SGS, the 22-42 SGS is in the area of 2202 SGS. If discharges having some exceedance probabilities need to be determined, firstly it is considered to investigate whether the area-ratio method can be used. Area-ratio method is mainly depended on a regression analysis between the project site and the other basins/subbasins which have long term data. %20, %30, %50 and %90 yearly scale discharges were obtained from 10 years of data from each SGS. Regression analysis were APPLIED between flow records and drainage areas of the SGSs. Flows having exceedance probabilities of 20, 30, 50 or 90 percent and their regression equations were analyzed for the decision whether the area-ratio method can be used.

In this study, determination coefficients of 22-52 SGS were obtained between 0.814 and 0.911 for the considered exceedance probabilities. However, the results obtained from 2202 basin equations were between 0.213 and 0.752. Consequently, it has been found that area-ratio method is convenient for the entire percentages of 22-52 SGS area but only for 50 and 90 percent values of the 2202 SGS.

Keywords: Flow Duration Curves, Regression Analysis, Flow Prediction

EMULSION TEMPLATING AS A TOOL FOR HIERARCHICAL MACROPOROUS PHOTOCATALYST PREPARATION

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Abstract:

In recent years, porous polymers have attracted much attention in wide variety of APPLICATIONs ranging from drug delivery to catalytic processes. In this context, scientists reported a variety of polymers with miscellaneous properties based on template-assisted processes. Emulsion templating is a simple and effective route for the preparation of hierarchical open porous polymers through HIGH internal phase emulsions (HIPEs). HIPEs are formed with the maximum packing density of monodispersed spheres allowing an internal phase volume ratio (Ø) of greater than 74%. If one or both phases of a HIPE contain monomers, it is possible to produce polyHIPEs.

In this study, we report preparation of novel macroporous poly-Pickering-HIPE nanocomposites through water-in-oil (w/o) Pickering-HIPEs. In this respect, Pickering-HIPEs were obtained by the cross-linking of surface modified TiO2 nanoparticle stabilized Pickering-emulsion templates. Moreover, we developed new routes to prevent oxidation of the double bonds of the resulting polymer network without affecting the well-known hierarchical structure of polyHIPEs. With this respect, we used two different approaches: (i) adding a commercial antioxidant into the oil phase of the Pickering-HIPEs and polymerize the emulsions directly to obtain oxidation-stabilized nanocomposites, (ii) saturation of double bonds with thiols right after polymer preparation. The influence of nanoparticle amount, antioxidants and thiol modification on the morphological, MECHANICAL and thermal properties of the resulting nanocomposites was investigated.

The morphological properties of the nanocomposites were characterized by Scanning Electron Microscopy and Transmission Electron Microscopy. The specific surface areas were determined from the nitrogen adsorption/desorption isotherms. Moreover, MECHANICAL properties were determined by perFORMING uniaxial compression experiments. In order to reveal the INDUSTRIAL applicability of the resulting nanocomposites as a photocatalyst, heterogeneous photocatalytic degradation experiments of a phenol derivate pollutant were performed in a batch-type photoreactor.

Keywords: Emulsion Templating, Pickering-Emulsion, Poly-Pickering-Hipe, Photocatalyst

NOVEL EXOPOLYSACCHARIDE (EPS) SOURCE: MICROALGAE

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Abstract:

Microbial exopolysaccharides are long-chain, HIGH-molecular-mass biopolymers that dissolve or disperse in water to give thickening or gelling properties which are indispensable tools in food product formulation. These biopolymers are also used for secondary effects, which include emulsification, stabilization, suspension of particulates, crystallization and encapsulation. The physicochemical properties of EPS determine their viscosity efficiency. Hence, the knowledge of the structure–function relationship of these biopolymers is crucial in order to choose or design polymers for a specific technological APPLICATION. In addition, exopolysaccharides might contribute to human health as prebiotics or due to antitumor, antiulcer, immune modulating or cholesterol-lowering activities. An alternative class of bio-thickeners is that of microbial EPS. Microbial EPS are extracellular polysaccharides which are either associated with the cell surface in the form of capsules or secreted into the extracellular environment in the form of slime. EPS produced from microalgae play an important role in the food industry because of a great variety of EPSs with different chemical composition and structure. The amount of EPS production depends on the medium and cultural conditions used for growth of microbes. EPS production is generally favored by HIGH carbon and low nitrogen substrate ratio. For instance, B.braunii produces EPS but a few of them have commercially importance. Compared to other green algae species it has a relatively thick cell wall that is formed from previous cellular divisions; making extraction of cytoplasmic components rather difficult. Yet, since much of useful hydrocarbon is outside of the cell, it is easily obtained from B.Brauni. EPS with nutraceutical potential and bioactive properties have been investigated in detail during the last few decades. With this study, obtained data will make up the deficiency in literature on micro-algal EPS production and its evaluation as food additive and they will provide a basis for further studies.

Keywords: B.Brauni,Microalgae,Exopolysaccharide

QUANTUM DOT ZNO-TIO2 THIN FILMS SYNTHESIS AND APPLICATION OF SOLAR CELL

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Abstract:

Solar Cell is defined as the SCIENCE and technology of converting both light and temperature to electricity, the most common form being the utilization of light and temperature from the sun. The most commonly used in solar cell is ZnO and TiO2 metal oxide structures. ZnO and TiO2 has been one of most investigated ENGINEERING MATERIALS, CHEMISTRY and physical SCIENCE during recent decades, especially in the area of energy and environmental APPLICATIONs.

In this working, a HIGHly productivity quantum dots (Sb2Se3 or Sb2S3) ZnO-TiO2 photoanode consisting of nanostructures for dye-sensitized solar cells (DSSCs) was synthesized using hydrothermal method on an indium-tin-oxide (ITO) substrate at different temperatures in a solution containing Zn2+, Ti4+ and HCI (ethanol or NaOH). X-ray diffraction (XRD), scanning electron microscopy (SEM), energy dispersive spectroscopy (EDS), and UV–vis absorption spectroscopy was employed to characterize of the thin films. It was found that the thin films with different nanostructures can be obtained by controlling the composition. XRD and EDS results revealed that the films are crystalline phase with composition of ZnO-TiO2. The photoelectrochemical results reveal that the DSSC based on quantum dots ZnO-TiO2 nanostructures has the fairly HIGH power conversion efficiency.

This study was supported by Scientific Research Projects Unit of KAHRAMANMARAS SUTCU IMAM UNIVERSITY (Project code: BAP- 2015/2-34M), (KSU-Turkey)

Keywords: Dssc, Zno-Tio2, Photoelectrochemical, Hydrothermal Method

OPTIMIZATION OF AMMONIA REMOVAL FROM LEACHATE BY AMMONIA STRIPPING USING RESPONSE SURFACE METHODOLOGY

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Abstract:

For the disposal of municipal solid waste, one of the most common used methods is landfill. Leachate forms in consequence of percolation of rain-water and moisture through waste disposed in landfill. Leachate formed contains HIGH ORGANIC matter and ammonium nitrogen. For the removal of ammonium nitrogen from landfill leachate, ammonia stripping is used as a pretreatment method to maintain the ammonia concentration of the effluent in a range that is safe for subsequent biological processes. In this study, ammonia removal from landfill leachate using ammonia stripping as a pretreatment was investigated. The operating variables such as pH and mixing rate were optimized via response surface methodology (RSM) using central composite design (CCD) to obtain the maximum removal of ammonium nitrogen. Ammonium removal efficiency increased significantly as pH and mixing rate increased. Ammonium removal efficiency of about 99% was obtained.

Keywords: Ammonia Stripping, Leachate, Response Surface Methodology

ELECTRODEPOSITION PROCESS OF THERMOELECTRIC SNTE THIN FILMS

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Abstract:

Energy storage will be more important with the development of renewable energy and electrified transportation in the future than it has ever been in the past. One as well indicating the energy property is thermoelectric (TE) MATERIALS. TE MATERIALS are special types of SEMICONDUCTORs that can directly convert heat to electricity. SnTe is used in mid-IR photodectectors and thermoelectric heat converters.

In this study, co-deposition technique was APPLIED to opd potentials, which can deposite species from same solution simultaneously. SnTe thin films were synthesized onto Au(111) substrates from an aqueous solution containing SnCl2, TeO2, and C6H5Na3 at room temperature (25oC) for the first time via electrochemical route. The overpotential deposition (opd) potentials of Sn and Te have been determined by the cyclic voltammetric studies. The films were grown in 0,2 M HNO3 at a potential of -0,50 V. XRD, SEM and EDS were APPLIED to characterize the thin films. The as deposited thin films were crystallized in the preferential orientation along the (220) plane. SEM investigations indicated that the shape of thin films could be altered from a spherical particle to a dendritic crystal by increasing the deposition potential. The optical absorption studies as a function of deposition time indicated that the band gap of the SnTe thin film increases as the deposition time decreases.

Keywords: Electrodeposition, Snte, Opd, Thin Films

DEVELOPMENT OF BIOACTIVE PVA FILM WITH GRAPEFRUIT PEEL EXTRACT FOR PACKAGING

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Abstract:

In recent years, use of synthetic petroleum based packaging films caused serious environmental problems due to their difficulty in recycling and poor biodegradability. Grapefruit peel is a solid waste produced by vegetable and fruit industry that is often used to feed animals or thrown away directly. Like the grapefruit juice, grapefruit peels contain high amounts of antioxidant compounds which have anti-inflammatory, antiseptic, antioxidant benefits. Present study was aimed to develop natural polymer-based antimicrobial and antioxidant packaging films as an alternative for the synthetic packaging films by incorporation of grapefruit peel extract (GPE) into PVA; non-toxic and biodegradable synthetic polymer. Naringenin (predominant flavanone in grapefruit) and BHT also incorpareted in PVA (as model compounds) in order to compare with bioactive grapefruit peel extract. The extraction of phenolics from dried and ground grapefruit peel performed by autohydrolysis. It was performed at 175°C for 1 h in a Parr 4590 model 100 ml stainless steel micro bench top reactor equipped with magnetic drive stirrer and a temperature controller system (Parr Instrument Co., Moline, IL) using deionized water as the solvent. The resulting extract was assayed for yield, phenolic content and antioxidant capacity. The techniques used for characterization were performed using Fourier transform infrared (FTIR) spectroscopy, thermo-gravimetric analysis (TGA), differential scanning calorimeter (DSC). The antimicrobial activity of films was evaluated against Gram-positive bacteria (Staphylococcus aureus) and Gram-negative bacteria (Escherichia coli) commonly found in human pathogenesis. The total phenolic contents of dried grapefruit peel extract is 38,64 mg gallic acid equivalent (GAE)/g. GPE incorporated composite films showed inhibitory activity against various pathogens. Conclusively, GPE/PVA composite films can be used as an efficient antimicrobial biodegradable packaging film to extend the shelf-life of packaged foods instead of plastic films (polyethylene, polypropylene etc.).

Keywords: Autohydrolysis,Bioactive packaging, Grapefruit peel, PVA.

A NOVEL DUAL-BAND FSS REFLECTOR FOR RCS REDUCTION

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Abstract:

In this study, dual band Frequency Selective Surface (FSS) design with Radar Cross Section (RCS) reduction for planar reflectarray antenna is presented. A 12 x 12 elements reflectarray is used for verify RCS reduction. Simulation results of the reflectarray antenna backed on metalic ground and reflectarray antenna grounded with designed FSS are compared. The simulation results demonstrate that RCS reduction of reflectarray antenna was achieved using FSS backed.

Keywords: Dual-Band Stop Fss, Rcs Reduction

PRODUCTION AND CHARACTERIZATION OF BIOMIMETIC MEMBRANES WITH LOW ALCOHOL PERMEABILITY AND HIGH PROTON PERMEABILITY FOR DIRECT METHANOL FUEL CELLS.

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Abstract:

Direct methanol fuel cells (DMFC) have a wide range of APPLICATIONs due to its inexpensive production and easy storage. HIGH methanol permeability of Nafion membrane in DMFC causes low energy efficiency. In this project, we propose a biomimetic membrane similar to selective permeable channels in biological cell membranes. We use porous membranes mimicking ionic channels in cell membranes. As the porous matrix provides MECHANICAL stability to the membrane, electrolyte filling the membrane will form continuous paths for proton passage while blocking methanol molecules. We compare methanol and proton permeabilities of our biomimetic membrane with that of Nafion.

Keywords: Fuel Cell, Direct Methanol Fuel Cell, Biomimetic Membrane

AN INTEGER PROGRAMMING BASED HEURISTIC FOR 3D-PACKING PROBLEM

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Abstract:

Placing rectangular boxes in a container is a well known problem and it is referred as 3D-packing problem in the literature. The objective is to minimize the height of the used container space during packing. Since the problem is NP-Hard it is not possible to find optimal solutions for large sized problems. For this reason, there are several heuristic methods proposed for this problem in the literature. In this study, we compare two different models which are based on integer PROGRAMMING and constraint PROGRAMMING TECHNIQUES. Initial results show that integer PROGRAMMING model performs better than constraint PROGRAMMING model. Yet, the effectiveness of the integer PROGRAMMING model decreases as the problem size gets larger. In order to find a trade-off between solution quality and the computation time, we propose a heuristic which is based on the integer PROGRAMMING model. The heuristic finds good quality solutions in reasonable time.

Keywords: 3D-Packing, İnteger PROGRAMMING, Optimization

TRIBOLOGICAL PROPERTIES OF BORON CARBIDE REINFORCED COPPER BASED COMPOSITES

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Abstract:

In this study, a boron carbide (B4C) reinforced copper based Metal Matrix Composites (MMCs) manufactured by powder metallurgy method and tribological behavior of compacted composites were investigated. B4C reinforcement was selected at different ratio from 2%wt to 10%wt. Powders was compacted under 735±1 MPa pressure in a die with cold pressing method. Sintering of the samples was performed at two different sintering time as 1 hour and 3 hours under Ar gas atmosphere at 900 °C. Tribological tests were performed by using a computer aided pin-on-disc experimental setup under dry sliding conditions. Tribological tests were performed from 1 hour to 5 hours. And wearing surfaces were investigated in a Scanning Electron Microscope SEM) and mechanisms of the wear were detected. In addition to that tribological behavior and porosity properties of the manufactured samples were investigated. It was found that the porosity of the samples was increased with increasing B4C content. Nevertheless, wear resistivity increased with increasing reinforcement content.

Keywords: Metal Matrix Composites (Mmcs), B4C, Tribology, Copper Based Composites

EFFECTS OF TOPOLOGICAL STRUCTURE ON THE SYNCHRONIZED OSCILLATORY WAVES FROM INTERNAL DYNAMICS IN THALAMIC NETWORKS

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Abstract:

Brain generates ELECTRICAL waveforms, which characterizes different condition and behaviors. The structure and intra-harmony of simultaneously emergence of these characteristic waves in various regions of brain are entirely linked to brain functions. It has been reported that, in case of the characteristic structure and/or the harmony would detonate, it would lead to some abnormal conditions such as neurologic and neurophysiologic disorders. It is thought that, the source of various waves emerged in the brain mainly bases on the talamus and thalamocortical localities and the origination of rhythmic activities are depending upon the excitatory and inhibitory relationship between Thalamocortical Relay (TC) and thalamic reticular (RE) cells. In this study, an insulated thalamic network, which has internal rhythmicity, was developed using TC and RE cell models that appropriate to the electrophysiological reality. The main structure of this model bases on Small-World (SW) topology. The conversion of the rhythmicity that rely on the voltage-dependent calcium current into intra-thalamic synchronized waves and the impact of the topologic structure of SW on this phenomena was investigated. According to the obtained results, it was observed that the thalamic cells, which possess internal rhythmic activity in the shape of spikes without any external effects, are more synchronized at suitable SW rate values. In other words, a more phase synchronized rhythmic activities in the major parts of network were observed at suitable rate values of SW due to the mutual synaptic effect arising from inhibition and exhibition behavior of TC and RE cells. As a result of this phase synchronization, it is thought that comparatively more apparent and powerful waves are coming into view. According to this information, it may be considered that the various neurologic and neurophysiologic diseases may be linked to talamus and/or thalamocortical topologic structure depending to these abnormalities appeared in these waveforms.

Keywords: Thalamus, Rhythmicity, Small-World Networks, İntra-Thalamic Waves

THE USE OF CONDITIONAL PROBABILITY AND EXPECTED VALUE FUNCTİONS TO MAXIMIZE EARNINGS ON BETTING GAMES

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Abstract:

BETTING on sport games has become a rife habit since the invention of gambling software that allows online monetary transactions. Despite its glamour and intense imaginative power of being wealthy, people lose billions of dollars in total. The purpose of this research is to promote a new approach that people can utilize to MAXIMIZE their EARNINGS based on the use of CONDITIONAL PROBABILITY and expected value theorem on a bet. The proposed approach measures how often the individuals' predictions are accurate versus the actual results on BETTING games which finds the intersection of PROBABILITY of the initial prediction and the final score of a game. The validity of the model is proven with a practical example. The results of the study are presented, and recommendations are made to help individuals to achieve the best practice in terms of maximizing their EARNINGS on a bet.

Keywords: CONDITIONAL PROBABILITY, Expected Value, MAXIMIZE EARNINGS, BETTING, Gamble.

MECHANICAL PERFOMANCE EVALUATION OF SALVAGED WOOD OBTAINED FROM HISTORICAL WOODEN HOUSES OF WESTERN BLACK SEA REGION OF TURKEY

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Abstract:

Historic wood buildings are exposed to destruction especially by insects, fungi, sunlight, air pollution (acid rain), wind, fire, earthquake and humans (misuse, overload, etc.). As in the research area being Western Black Sea Region of Turkey, usually Scots pine, Crimean pine, fir, juniper, oak and chestnut wood have been found to be used for structural purposes. In order to determine the current MECHANICAL performance of the wood structures, testing of salvaged wood by using small clear specimen method was preferred. Modulus of elasticity, bending strength, compression strength and Brinell hardness tests of salvaged wood samples obtained from the historical wooden houses and control samples obtained from freshly cut wood were carried out according to TSE standards. According to the results, HIGHest compression, bending strength and modulus of elasticity performance was observed from salvaged oak taken from historic BARTIN home. Also, salvaged chestnut wood from BARTIN presented the HIGHest Brinell hardness value. Scotch pine, juniper, oak and chestnut wood has been found appropriate for structural use, but fir is not recommended because of time dependent decrease in MECHANICAL performance.

Keywords: Historical Wooden Houses, MECHANICAL Properties

APPLICATION OF PARTICLE SWARM OPTIMIZATION TO INVERSION OF MULTIPLE SELF-POTENTIAL ANOMALIES

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Abstract:

Unlike derivative-based search methods, metaheuristic algorithms use populations consisting of potential solution points in the search space. These methods reach to the best or near the best solution faster by creating a cooperation and competition environment among the potential solutions. Also, because of very large solution space, use of the metaheuristic methods is becoming increasingly common for the problems which is not possible to find the optimum solution with certain methods or practices. The Particle Swarm Optimization (PSO), one of the metaheuristic methods commonly used in estimation of the model parameters, is an evolutionary algorithm based on the social behavior, movement and intelligent of swarms/flocks, and it is searching for an optimal location in a HIGH-dimensional search space. In this study, PSO algorithm was used to determine the parameters of multiple self-potential anomalies including vertical cylinder-vertical cylinder, vertical cylinder-infinitely long horizontal cylinder and sphere-vertical cylinder. Both noisy and noise-free data sets were inverted. The model parameters consist of electric dipole moment, depth of the body, polarization angle, origin of the anomaly and shape factor. In the study, 100 iterations were carried out by 100 particles to obtain the model parameters. The results showed that PSO is a useful algorithm for inversion of geophysical data. Also PSO, similar to other metaheuristic algorithms, does not require a good starting point to converge the solution.

Keywords: Particle Swarm Optimization, Metaheuristic, Geophysics, Self Potential

WIRELESS SENSOR NETWORK DESIGN FOR SEEDLING PRODUCTION

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Abstract:

Seedling production in some countries has remained outside the interests of the Information Technology (IT) industry for many years. In fact, the use of next generation technologies such as computing, sensing, monitoring/surveillance, decision support and control systems in seedling production activities enable to prevent the waste of resources, to minimize the environmental pollution, and to provide HIGH quantity and quality products through reducing the use of fertilizers and AGRICULTURAL chemicals. Therefore, integration of emerging technologies with the seedling production by taking into consideration the economic and environmental policies is an important requirement. Hence, in this study, an energy efficient wireless sensor network design is proposed for seedling production activities. This study presents an overview of energy-centric wireless sensor network design that enable APPLICATION developers to significantly extend system and network lifetime.

Keywords: Wireless Senor Network, Sensor Node, İntelligent İrrigation, Seedling Production

DETERMINATION OF SITE CHARACTERISTICS WITH STANDARD SPECTRAL RATIO (SSR) METHOD IN AKÇAKALE (GUMUSHANE) PROVINCE, NE TURKEY

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Abstract:

Microtremor survey method used for ENGINEERING seismology is very important for determining of dynamic ground parameters and its variations. Recently, Microtremor survey method used for ENGINEERING seismology provides the quick and economic results for estimating of dynamic ground parameters. Amplitude and frequency contents of the nature vibration of the ground are influenced by the factors as lithology and geometry of the ground. Predominant frequency and amplification values of the ground are determined by natural vibrations and regional ground classifications can be made according to these parameters. In this study, in order to determine the site characteristics of Akçakale (GUMUSHANE) Province, NE Turkey, microtremor records taken in 53 single-station and 2 reference stations with CMG-6TD three-component broad-band velocity seismometer. The obtained microtremor records are estimated by Standard Spectral Ratio (SSR) method. The amplification and frequency maps of the study area generated to result of SSR method. The amplification and predominant frequency values obtained from SSR method are 1.1-6.23 and 1.8-5.4Hz, respectively.

Keywords: GUMUSHANE, Microtremor, Standard Spectral Ratio Method, Predominant Frequency, Amplification.

CHARACTERIZATION AND DESULFURIZATION POSSIBILITIES OF HIGH SULFUR GEDIZ-TURKEY COAL

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Abstract:

Coal is one of the important energy sources but it causes serious environmental problems such as air pollution, acid rain and greenhouse effects. Sulfur in coal is one of the responsible of these negative effects. Coal is includes two types sulfur; ORGANIC and inORGANIC. While inORGANIC sulfur can be completely removal with physical desulfurization methods, ORGANIC sulfur can be removed only chemical desulfurization methods. But chemical methods not only expensive but also difficult process. Firstly in desulfurization, types of the sulfur content in coal should be well characterized. HIGH sulfur Gediz-Turkey coal has been chosen to this study. This coal basin is located in the central of the Turkey. In this study, characterization and desulfurization possibilities of HIGH sulfur Gediz coal were investigated. For this purpose several physical and chemical characterization methods such as proximate and ultimate coal analysis (ash, calorific value, volatile matter, moisture, sulfur analysis), mineralogical and petrographic analysis, fourier transform infrared spectroscopy, scanning electron microscope were used. Results of these analysis shown that Gediz coals include 3,15% pyritic sulfur and 2,89% ORGANIC sulfur. Removed of pyritic sulfur from Gediz-Turkey coal with physical methods such as gravity and sink-float separation is not possible seems because pyrite particle has 1-2 micron liberation size in coal.

Keywords: Desulfurization, Characteriziton, HIGH Sulfur, Gediz Coal

REPEATED LOW-VELOCITY IMPACT BEHAVIOR OF PARTICLE-REINFORCED METAL MATRIX COMPOSITES

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Abstract:

This study investigates the response of repeated low velocity impact tests on the particle-reinforced metal matrix composites at the same location using a drop-weight tester. Also, the repeated low velocity impact behavior of SiC particle reinforced aluminum matrix composites is analyzed using Finite Element Method (FEM) under multiple impacts of the same total energy. The study compares the experimental and NUMERICAL results. The studies on repeated impact behavior are carried out for same particle size and different particle volume fractions. The effect of repeated impacts on specimens is studied on the contact force, PLASTIC dissipation energy, the residual stress and PLASTIC strain distributions.

Keywords: Low-Velocity Repeated İmpact, Particle-Reinforced Metal Matrix Composite, Finite Element Analysis, Drop-Weight Test

EFFECT OF STORAGE TEMPERATURE ON SHELF LIFE OF SLICED MUSHROOM (*AGARICUS BISPORUS*)

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Abstract:

Mushrooms have been consumed as food and medicine for centuries, because of their high protein, mineral and bioactive compound content. The cultivated button mushroom (*Agaricus bisporus*) is the most common edible mushroom in the world. *Agaricus bisporus* has a very short shelf life because it has no cuticle to protect it from physical or microbial attacks. In addition, mushrooms can easily be contaminated with microorganisms during their growth and processing. *Pseudomonas spp*. is the most abundant bacterial genus during harvesting and has frequently been isolated from sliced mushrooms, ranging from 6.9 to 7.8 log CFU/g. Mushrooms are delivered to consumers under variable environmental conditions such as temperature and humidity from production to consumption. Temperature is the main environmental factor that is most likely to change during processing and storage. Even a slight change in temperature dramatically affects microbial load, appearance, colour, taste and texture of *Agaricus bisporus*. Therefore, it is crucial to determine how the change in temperature affects the quality of *Agaricus bisporus*. The main objective of this work was to investigate the effect of different storage temperatures (4, 12, 20 and 28°C) on the shelf life of sliced mushrooms. For this purpose, the changes in microbial load, pH, weight loss, colour, texture and gas composition in packages were measured throughout the shelf life. The change in the quality parameters of *Agaricus bisporus* with respect to temperature provided important data to simulate and model the growth kinetics of *Pseudomonas spp*. and thereby the shelf life of sliced mushrooms at different storage temperatures could be predicted.

Keywords: Sliced Mushroom, Storage Temperature, Shelf Life, Colour, Texture

EFFECT OF WASHING WITH ACIDIFIED SODIUM CHLORITE (ASC) ON QUALITY OF WHOLE MUSHROOM (*AGARICUS BISPORUS*)

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Abstract:

Button mushrooms (*Agaricus bisporus*) are widely consumed all over the world owing to their characteristic taste, aroma and nutritional value. Unfortunately, the shelf life of mushroom is very limited as compared to most vegetables especially at room temperature, and it loses its commercial value within a few days because of its high moisture content and enzyme activity. In addition, mushrooms can easily be contaminated with microorganisms during their growth and processing. *Pseudomonas spp.* is the most common spoilage organisms in mushrooms, and the initial count of *Pseudomonas spp*. on cultivated mushrooms is quite high, ranging from 6.9 to 7.8 log CFU/g. *Pseudomonas spp.* can be reduced, and shelf life can be prolonged by washing the mushroom with acidified sodium chlorite (ASC) solution. The concentration of washing solution and the treatment time are important factors which can adversely affect the colour and texture of mushroom. Therefore, there exists an optimum washing concentration and washing time in which maximum microbial inactivation occurs, but the colour and texture are not adversely affected. The main objective of this work was to determine the optimum ASC concentration and washing time on the quality parameters (microbial load, colour and texture) of fresh whole mushroom. For this purpose, the whole mushrooms were washed with 0.2-1.2 g/L of ASC solution for 2-10 minutes. *Pseudomonas spp.* inactivation was the highest when the mushrooms were washed with 1 g/L of ASC solution for 2 minutes in which colour and textural properties were very close to the fresh form. Results show that optimum washing conditions could be used in the mushroom industry to extend the shelf life of mushrooms.

Keywords: Whole Mushroom, Acidified Sodium Chlorite (ASC), Washing, Optimization

DETECTION OF RESISTANCE SOURCES TO ANTHRACNOSE IN SOME BEAN CULTIVARS AND GENOTYPES IN TURKEY

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Abstract:

Bean is one of the most important food legume, providing a good source of protein for human nutrition. Bean anthracnose, caused by Colletotrichum lindemuthianum, is among the major bean diseases world-wide. The most effective and economical strategy to control anthracnose is the introduction of host-plant resistance into breeding material. The resistance of bean genotypes to the pathogen is controlled by a number of race-specific genes. Genetic markers linked for the detection of several anthracnose resistance genes have been identified and used routinely to screen breeding material for resistance to anthracnose. In this study, resistance genes available in some bean cultivar and genotype gene pools in Turkey were determined using linked molecular markers. A total of 125 bean cultivars and genotypes, characterized based on morphological criteria in previous study was screened with seven molecular markers (STS, RAPD, SCAR) associated with Co- genes, conferring independently or combined resistance to anthracnose. Amplification products of the expected size with all primers tested were determined in agarose gels. The majority of bean genotypes carry the anthracnose resistance genes, Co-1 and Co-11. Molecular marker assisted selection can be used in breeding studies to identify sources of resistance to anthracnose.

*This work was supported by TÜBİTAK-TOVAG Project 115R042 (Turkey)

Keywords: Disease Resistance, Gene İdentification, Colletotrichum Lindemuthianum, Phaseolus Vulgaris, Molecular Marker

COMPARISON OF POWER SPECTRUM AND BISPECTRUM IN THE BIOMEDICAL SIGNALS

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Abstract:

Bispectrum analysis defines the phase relation between components of a signal. Unlike power spectrum, the bispectrum has a capable of extract extra information from signal which is non-Gaussian and non-linear. The bispectrum is Fourier transform of the third order cumulant since the power spectrum is the Fourier transform of the second order cumulant. The BIOMEDICAL signals such as EEG, EMG and ECG are non-linear and non-Gaussian signals. To analyze the BIOMEDICAL signal correctly is very important since these signals have important roles on the diagnosis of some disease. The nonlinearity in the BIOMEDICAL signals increases during some disease such as epilepsy, alzheimer, sleep apnea and so on. In this study the EEG, EMG and ECG signal of epilepsy and sleep apnea patients were analyzed by using bispectrum and power spectrum. The results show that the bispectrum has an advantage over power spectrum to extract extra information from BIOMEDICAL signals.

Keywords: Bispectrum Analysis, Power Spectrum, BIOMEDICAL Signals

VIBRATION CONTROL OF A SEMI-TRAILER TRUCK FOR COMFORT WITH AN OUTPUT FEEDBACK H∞ CONTROLLER

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Abstract:

Driver comfort is a fundamental parameter in large goods vehicles. Drivers working under uncomfortable driving conditions, experience ergonomic problems over long periods of time. Unless these conditions are overcome, drivers confront fatigue and require additional rests. Consequently, these rests increase both in time and numbers resulting with lost logistics time and reduced efficiency. On the other hand, drivers encounter MEDICAL issues and reduced life quality over time. Drop in MEDICAL status of drivers and efficiency of logistics increase the expenditure via hidden costs. Therefore an uncomfortable driving experience becomes an economical inconvenience. To prevent these issues a H∞ controller with a dynamic output feedback was designed, modeled with LMI and implemented on a model of a half semi-trailer truck augmented with a human model, to measure the change in the comfort level of the driver. To address the comfort level, acceleration and displacement values from passive and active systems were presented in graphics with contrast to each other. Finally, acceleration values under different speeds were gathered from the human body model and evaluated with respect to the ISO 2631 standard to acquire comfort parameters, which then discussed accordingly.

Keywords: Driver Ergonomics, Vehicle Vibrations, Multi-Body Analysis, Modern Control, Output Feedback Control, H∞ Controller, Comfort

TORIC IDEALS OF SIMPLE SURFACE SINGULARITIES

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Abstract:

Algebraic varieties having squarefree initial ideals are of special interest. Normal toric ideals are known to have at least one squarefree term in each minimal binomial generator and they have squarefree initial ideals with respect to a term order. The difficulty is to choose a correct term order.

Our main aim is to extend the discussion to certain examples of normal toric ideals of HIGHER codimension. We concentrate on certain toric ideals of HIGHER codimension arising from singularity theory. These are the simplicial normal toric ideals corresponding to the simple or ADE surface singularities. We show that toric ideals of DE type singularities have square free initial ideals. This is a joint work with Mesut Şahin and Gülay Kaya.

Keywords: Toric İdeals, Ade Trees, Simple Surface Singularities.

THE EFFECTS OF PLANT EXTRACTS ON THE SAME CONCENTRATION IN SERUM BIOCHEMICAL AND HEMATOLOGICAL PARAMETERS IN RAINBOW TROUT (ONCORHYNCHUS MYKISS)

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Abstract:

The potential use of natural antioxidant products has gained considerable interest due to their pivotal role of detoxification mechanisms in environmental studies and culture fish point of view. Fish with different ecological needs may have different antioxidant capacity and response to environmental contaminants. There were totally thirty five rainbow trouts in 2.5 ppm Crataegus monogyna, Melissa officinalis, Papaver somniferum, Rosmarinus officinalis treated groups and control group. Four plant extracts belonging to the same concentration (2.5 ppm) were chosen for comparison of changes on blood parameters for 96 h in Oncorhynchus mykiss. Fish treated to Crataegus monogyna, Papaver somniferum presented significant increases ($P<0.05$) in glucose, triglycerides, total cholesterol and HDL levels as compared with the 2.5 ppm. But, there were significant decreases in ALT, AST and ALP as compared with the control. In groups administrated Melissa officinalis, Rosmarinus officinalis extracts; there were significant decreases in the levels of MCV, MCH and MCHC in 2.5 ppm concentrations compared with control ($P<0.05$).

This comparison may be a important step as a good alternative for treatment of of fish diseases. The obtained results showed that both antioxidant agent treatments presented positive impacts on biochemical parameters at 2.5 ppm level for blood of rainbow trouts. This plant extracts may not only prolong the physiological functions of some aquatic living organisms, but also contribute to the health benefit of consumers who consume aquatic animals.

Keywords: Plant Extract, Blood, Rainbow Trout, Biochemical Parameter, Hematological Parameter

MULTI TOKEN CIRCULATION IN A COMMON CHANNEL FOR LOCATION INFORMATION SHARING IN MULTI-UAV SYSTEMS

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Abstract:

By the help of the miniaturization and cost reduction in UAV technologies, instead of utilizing only one big UAV, the systems consists of multiple small UAVs can be realized. Although multi-UAV system can perform more efficiently in many APPLICATION areas, it also have some limitations. Communication is one of the most important limitations of these systems, and Flying Ad hoc Network (FANET) is an effective solution when there is no preinstalled infrastructure. In FANET, UAVs need to know the position information of each other also to ensure collision free coordination. For this reason, sharing of location information between UAVs is an important role in FANET. Token based approach is one of the significant methods used for location information sharing. In this approach, a token which includes coordinates of the UAVs circulates between UAVs. Thus, UAVs know each other's position due to the circulating token. However, especially in UAV swarms, the circulation of the token takes longer time and it may result in HIGHER error rates. Using more than one token can reduce average circulation time and location information error rates in multi-UAV systems. In the existing multi-token studies, it is assumed that each token uses separate communication channels to solve the token collision problem. In this paper, a new multi-token based location information sharing system is proposed for multi-UAV systems. In this system, while only one common channel is used for the circulation of tokens, another channel is utilized for control packets to minimize the token collisions. The simulation studies show that multi-token based strategies can be an effective solution of location information sharing problem in multi-UAV system, even if there is no separate channel for each token.

Keywords: Multi Token Circulation, Flying Ad Hoc Network, Location İnformation Sharing, Unmanned Air Vehicles.

A COMPARATIVE STUDY ON BIOCHAR PRODUCTION FROM ALGAL SPECIES

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Abstract:

Today, fossil fuels which meet the most of the energy requirement in the world have an important role for ensuring the social and INDUSTRIAL sustainability. However, rapid increase in the world population and industrialization causes reduction of fossil fuel reserves and environmental problems. For this reason, it has emerged the need to use alternative energy sources. Algae as an abundant renewable energy sources, are third generation biofuel feedstock which can be converted to solid, liquid and gas products. In this study, biochar production from Ulva lactuca, Chlorella vulgaris and Codium fragile as third generation biofuel feedstock were performed in split-type tubular reactor under different experimental conditions and biochar was analyzed with thermogravimetric analyzer. In the experiments, effect of parameters such as temperature, nitrogen gas flow rate, retention time, and heating rate on the yield of solid product (biochar) were examined. As a result, it was found that the contents of moisture, volatile substances and oxygen/carbon ratio of the biomass samples decreased. The HIGHest biochar yield was obtained with Ulva lactuca under the temperature of 300°C, heating rate of 20°C/min, retention time of 10 min and nitrogen gas flow rate of 300 ml/min.

Keywords: Biomass, Biochar, Macroalgae, Microalgae, Carbonization

ON CYCLE CODES OF HYPERCUBE GRAPHS

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Abstract:

In this study we analyze the cycle codes of Hypercube Graph families and determine the lengths, dimensions and distances of cycle codes of Hypercube Graphs. As conclusion we construct [12,5,4] binary optimal code obtained by cycle code of the Hypercube Graph of order 3. Finally we compare the studies of the construction of [12,5,4] binary optimal codes with our result.

Keywords: Cycle Codes, Hypercube Graphs, Optimal Code,

TRANSMISSION PROPERTIES OF METALLIC PHOTONIC CRYSTALS IN ONE-DIMENSION

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Abstract:

In this study, we have theoretically examined transmission properties of metallic photonic crystals in one dimension by using OptiFDTD software which is based on the finite difference time domain approximation method. The light can be controlled by fixing the geometry and refractive indexes in photonic crystals. In our investigation, the suitable thickness and the layer refractive indexes are optimized. Thus, the optical transparency is investigated within this photonic structure.

Keywords: Metallic Photonic Crystals, Fdtd, Refractive İndex, Optical Transparency

THE HEALTH POLITICS OF ENVIRONMENT IN TURKEY, EU CANDIDATE COUNTRY

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Abstract:

This study is about the role of the political process in preventing environmental health risks. In this respect, the factors for the lack of immediate steps in public health sector in Turkey, comparative perspectives on environmental concerns, comprehensive policy alternatives for PROTECTION against environmental threats will be discussed within national strategies across European member countries and TURKISH case.

Keywords: Eu Environmental Health, Publich Health For Environment, Ecosystem Management, Environment Risks İn Turkey, İntegrated Policies

COMPARISON OF THE APPARENT POROSITY AND POROSITY VALUES ON DIFFERENT ROCK TYPES (GUMUSHANE TURKIYE)

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Abstract:

This study aimed to indirect estimation of porosity value considering the apparent porosity value. For this purpose, 200 cylindrical test samples, equally obtained from 5 different rock units outcropping in GUMUSHANE (NE, TURKIYE) province, which have characteristics of granite, andesite, limestone, sandstone and andesite tuff, were prepared. The apparent porosity values were obtained by considering their saturated and dry weight values. Next, the porosities were determined by using dry unit weights and grain unit weights of the test samples. To determine if there is a relationship between the apparent porosity and porosity values, simple regression analyses were performed. A total of 150 samples, 30 from each rock group, were used in the analysis. When all rock samples considered together, very strong positive correlation (r = 0.99) was obtained among the samples. Then, each sample was analysed in its own rock group. In this case, correlation coefficients between apparent porosity and porosity values were determined as r= 0.94 in granites, 0.97 in andesite and 0.99 in andesitic tuffs, limestone and sandstone samples, and there is a very strong positive relationship here. The significance of correlation coefficients obtained from these analyses was tested by both using t-test and comparing it with the critical r values of Pearson correlation coefficient. In addition, 50 data randomly selected in the beginning among the samples of each rock group were excluded from analyses to be used to test the interoperability of equation derived from regression analysis. As a result of this analysis, it was determined that the data released a very strong positive relationship. In conclusion, the studied rock types showed no significant difference between porosity and apparent porosity values. Besides, using the specified equations in a healthy way, it is expected that the porosity values can be estimated indirectly benefiting from the apparent porosity values.

Keywords: Apparent Porosity, Porosity, Simple Regression Analyses, Correlation Coefficient

BEARING CAPACITY DETERMINATION OF SOIL/FOUNDATION SYSTEM FOR A SCHOOL BUILDING BASED ON A DETAILED SITE AND LABORATORY INVESTIGATION

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Abstract:

The soil/foundation must be capable of carrying the structural loads transmitted by any structure placed upon it without a shear failure and with the resulting settlements being tolerable for that structure. The topic of bearing capacity calculation has spawned extensive research and numerous methods of analysis. The factors affecting the bearing capacity of foundations generally incorporate the soil properties, foundation type, footing geometry/dimensions and the interaction between them. Furthermore, subsurface exploration is necessary in both selecting the type and depth of foundation suitable for a structure and evaluating the load-bearing capacity of the foundation.

In this study, it is aimed to compute the bearing capacity of soil for construction of a six-storey school building having a base area of 406 m2. In line with this purpose, firstly, three boreholes were drilled to a total depth of 57 m in the FIELD. Then, laboratory studies such as sieve analysis, liquid and PLASTIC limit tests, direct shear tests were fulfilled on the soil samples taken from the boreholes. The soils were classified as GW-GC (well-graded gravel with clay and sand), GM-GC (silty, clayey gravel with sand), SM-SC (silty, clayey sand with gravel), SP (poorly graded sand with gravel), and SW (well-graded sand) by using Unified Soil Classification System. Internal friction angle and cohesion of soils vary between 26° and 34°, and between 2.1 kPa and 7.9 kPa, respectively. The liquid limit values of soils range from 20% to 30%, and the values of PLASTIC limit range from 15% to 22%. Finally, depending on the variation of foundation type, footing dimensions and embedment depth, bearing capacity of soils were computed by using Terzaghi and Vesic theories. The results obtained from the parametric analyses indicate that the bearing capacity of soils can change remarkably due to the foundation type, footing dimensions and embedment depth.

Keywords: Bearing Capacity, Subsurface Exploration, Foundation Type, Terzaghi And Vesic Theories, Embedment Depth

A REVIEW OF HEAVY METAL REMOVAL IN CONSTRUCTED WETLANDS AND MOST WIDELY USED WETLAND PLANT VARIETIES

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Abstract:

Heavy metals that interfere to the nature by INDUSTRIAL waste water are quite harmful for human and environment health. Heavy metals over the limit values in the human body causes several ailments and intoxication as cancer, central nervous system disorder, decrease of brain functions, HIGH blood pressure, digestive system diseases, anemia, osteoporosis, allergy and loss of sense (Kahvecioğlu et al. 2009). People usually intake heavy metals from air, water and vegetables grown by the water which includes heavy metal. Constructed wetlands are alternative removal systems for waste waters which is contaminated by heavy metals like Pb, Cr, Zn, Fe, Mn, Ni, Cu, etc. The aim of this study was to investigate the heavy metal removal capacity of constructed wetlands and most widely used wetland plant varieties in these systems. The studies that are reviewed in this paper showed that constructed wetlands have a capacity of heavy metal removal between %26 and %100.

Keywords: Heavy Metal Removal, Constructed Wetlands. Wetland Plants

LOW-SPEED IMPACT BEHAVIOUR OF ALUMINIUM TUBE BASED HONEYCOMB SANDWICH PANELS

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Abstract:

In many ENGINEERING structures, honeycomb sandwich panel has been widely used for siding or flooring. The purpose of this study is to analyse the behaviour of aluminium tube based honeycomb panel under low-velocity impact NUMERICALly. The core of the honeycomb is made adhesively bonded aluminium tubes with different diameters of 8, 10, and 12 mm. Upper and the lower plates of sandwich panels are also aluminium. Sandwich panels MATERIALS (aluminium and adhesive) have non-linear MECHANICAL behaviour. NUMERICAL analysis simulated using Abaqus Explicit FEA. Contact force histories and deformations of aluminium tube based honeycomb sandwich panels under low-speed impact are compared.

Keywords: Adhesive Bonding, Low-Speed İmpact, Sandwich Structure

THE EFFECT OF VARIATION OF PEAK GROUND VELOCITIES OF NEAR FIELD EARTHQUAKES ON MID-RISE REINFORCED CONCRETE BUILDINGS

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Abstract:

The most important parameter of nonlinear time history analysis is the earthquake record that will be used in the analysis. Many of the characteristics of an earthquake such as its magnitude, displacement and acceleration, can extremely be different from others. Despite the fact that the number and range of the records in the earthquake database increase with every new earthquake and there exist many studies performed with several different earthquake records, there is no general opinion about which characteristics of an earthquake effect the reaction of a building. For this reason, there still exists a requirement to studies about determining the effect of characteristics of earthquakes on structural response. In this study, nonlinear time history analysis of a reinforced concrete mid-rise building are performed by using two different record sets with different peak values, that are recorded from near FIELD. From the results of the analyses, shear force, moment and interstory drift ratio values are obtained for each storey level. When the results obtained from each set are compared to each other, it is observed that shear force, moment and interstory drift ratio of the building increase as the peak ground velocity (PGV) value of the earthquake increase.

Keywords: Mid-Rise Reinforced Concrete Building, Time History Analysis, Near FIELD, Peak Ground Velocity

ANALYSIS OF TEMPERATURE DISTRIBUTION BETWEEN TOOL AND WORKPIECE IN AISI304L DRILLING OPERATIONS WITH FINITE ELEMENT METHOD

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Abstract:

This study focuses on the machinability of AISI 304L stainless steel investigated by using different drilling parameters especially drill bit tip angle, rotational speed, and drill feed rate. Drilling temperature were used in order to evaluate the machinability. In order to minimize the problem of drill bit damage such as tool wear in the drilling operations, it is necessary to operate with optimum drilling parameters. In this paper, the drilling process parameters have been studied by finite element method with ANSYS software. The maximum drill temperatures were observed in the group of large drill bit tip angles. On the other hand, the minimum temperatures were observed in the group of maximum feedrate. As a result of the study, it can be evaluated that the minimum drill bit tip angle, maximum feedrate and minimum rotational speed were the best choice for the optimum drilling performance of AISI 304L.

Keywords: Aisi 304L, Drilling Temperature, Finite Element Analysis, Ansys, Drill Tip Angle

NEW AR-AR AGE AND GEOCHEMICAL DETERMINATIONS FOR THE SARICAKAYA GRANITOID FROM CENTRAL SAKARYA REGION (NW ANATOLIA, TURKEY)

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Abstract:

Sarıcakaya granitoid outcrops with gneisses and ampibolites which are located in the north of Sarıcakaya (ESKISEHIR, Turkey). Monzogranite is dominant rock type; however granite, granodiorite, migmatite, diorite, aplite, and pegmatit are also observed. Sarıcakaya granitoid cuts Paleosoic Söğüt metamorphites and is obducted by Lias Bayırköy sandstones unconformably.

According to geochemical data, Sarıcakaya granitoid is in calc-alkaline character with HIGH-K. This indicates that, with considering depositional environment of the adjacent metamorphites, the rocks of the granitoid might be volcanic arc products. A/CNK vs. A/NK diagram of the rocks reveals that they are nearly on I-type and S-type transition line and close to I-type zone. The rocks are rich in Na2O+K2O content and they show negative Eu anomalies in their rare earth elements chondrite diagram. The average SiO2 content of the rocks is 73.13%.

Although previous age data of Sarıcakaya granitoid are 290 Ma (U-Pb), 272 Ma (K-Ar), and 290±4 Ma (Ar-Ar), respectively; the new Ar-Ar age determination in this study indicates that the rocks are older than those ages: 310.3±1.2 Ma. Excessive Ar loss observed during the analysis point outs that this age might be over much older. According to this, the age of Sarıcakaya granitoid should presumably be Upper Devonian-Carboniferous.

Keywords: Granitoid, Sarıcakaya, Ar-Ar, Nw Anatolia.

THE COMPARISON OF PULLOUT STRENGTH OF SQUARE, TRIANGLE AND CIRCULAR SCREW THREADS

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Abstract:

The screw threads are used for various types of fastening APPLICATIONs. Especially, nonmetal MATERIALS such as PLASTICs, polymers are fastened with screw threads because of non weldability. The screw threads are subjected to various type of loading conditions in these APPLICATIONs. Generally, the loading conditions are included tension, compression, shear, bending and torsion. In this study, the pullout test is used for the tensile strength of the three types of screw threads. The scope of the present study is, comparing the maximum tensile loading performances of square, circular and triangle screw threads with NUMERICALly by ANSYS software. The square, circular and triangle screw threads are tested for the directional deformation, total deformation and von-mises stress. Among these three type of screw threads, the better pullout performance with triangle profile and the worst pullout performance have been obtained with square profile. The circular profile has presented closer values to the triangle profile.

Keywords: Screw Thread, Pullout Strength, Tensile Loading, Finite Element Analysis, Ansys

ON THE INFLUENCE OF ELASTICITY MODULUS OF CONCRETE ON SEISMIC RESPONSE OF A CANTILEVER WALL

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Abstract:

The problems relating to the vibration of soil and earth retaining structures have received great attention of geoTECHNICAL engineers in recent years, and significant advances have been made in this direction. New theoretical and experimental procedures have been developed for design of retaining walls due to the abundance and importance of them, and the complexity of their dynamic response. The behaviour of earth retaining structures is a function of relative soil-structure displacements, structural rigidity, backfill and foundation soil properties and characteristics of APPLIED ground motions.

In order to provide additional insights and expand on those gained from previous studies, this paper presents a three dimensional finite element model of backfill-cantilever wall-soil/foundation interaction system, and investigates the influence of elasticity modulus of wall on seismic response of the cantilever retaining wall. The backfill and foundation soil is modelled as an elastoPLASTIC medium considering the Drucker-Prager yield criterion, and the backfill-wall interface behaviour is taken into consideration by using interface elements between the wall and soil to allow for de-bonding. Lysmer-Kuhlemeyer type viscous boundary elements are also used to simulate the wave energy absorption. Nonlinear time history analyses of the interaction system are carried out for three different values of modulus of elasticity. Dynamic equations of motions obtained from 3-D finite element modelling of the system are solved by using the Newmark's method of direct integration. The response quantities examined include the lateral displacements of the wall relative to the moving base, and the stresses in the wall in all directions. The results show that the variation of elasticity modulus of concrete has a considerable effect on seismic behaviour of cantilever retaining walls, and should be considered in design process of cantilever walls.

Keywords: Elasticity Modulus, Earth Retaining Structures, Soil-Structure İnteraction, Seismic Response

A PRELIMINARY STUDY ON DEVELOPMENT OF NANOSTRUCTURED LIPID CARRIERS LOADED WITH MICROALGAL OIL

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Abstract:

According to the cosmetic product categorization, it is seen that skin care products step forward among other products and have the HIGHest market. Lipid structured MATERIALS such as liposomes, nanoemulsion droplets and lipid nanoparticles are the main component in skin care products which should be able to provide controlled release of actives, drug targeting, occlusion and enhanced skin hydration. In order to improve these properties, many innovative approaches such as developing novel production methods of nanoparticles and raw MATERIALS rich in bioactive compounds, are investigated. In recent years, microalgae have come into prominence in pharmaceutical and cosmetic industry due to having various important bioactive compounds such as omega fatty acids, carotenoids, vitamins and other compounds which show antiviral, antibacterial, and anti-inflammatory effect on diseases. It is reported in the studies that, microalgal oil also shows the effect of anti-aging by increasing the regeneration of cells about 42%. In this study, microalgal oil was utilized to form novel nano lipid carrier by perFORMING different production methods to be used in cosmetic and pharmaceutical dermal products. It was found that microalgal oil structured nano lipid carrier is a remarkable and promising additive for dermal products.

Keywords: Bioactive, Microalgae, Nano Lipid Carrier

CUSTOMER ANALYSIS FOR INTER-CITY TRAVEL COMPANIES WITH MARKOV ANALYSIS: AN APPLICATION IN KOCAELI

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Abstract:

In the competitive situation of the market of today, for travel agencies is more hard to get new customers than keep the existing customers. Due to the rapid developement of the world of travel companies, travel agencies must be in constant change and developement. In recent years has become quiet prevalent do future prediction works on travel companies. These predictions are generally reliables. Markov analysis is a model based on stochastic explanations and prediction tools used to determinate the future possibilities and the behaviour in time of living systems. Markov analysis; has been widely used in many FIELDs such as finance, communication and meteorology. Today, due to the rapid growth of the travel agencies; agencies are making great campaigns. These campaigns has led to continious exchange of passengers between travel agencies. With this study the relevance of Markov analysis to the systems exhibits probabilistic change and brand change problem due to the decision to anlyze the different situations examined with Markov Analysis. In the work conducted survey for bus users at KOCAELI and obtained travel datas. Scope of work; customer analysis was conducted on the basis of four travel companies the most widely used in the transport sector and which has the most market share at KOCAELI. As a result of this anlaysis, there have been suggestions about the strategies travel agencies should follow.

Keywords: Brand Change, İnter-City Travel Companies, Markov Analysis.

PORT STATE CONTROL INSPECTIONS IN THE BLACK SEA REGION AND ITS EFFECT ON MARITIME SAFETY

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Abstract:

Port State Control inspections are one of the most important tools to ensure MARITIME safety at the world seas. There are Regional Agreements on Port State Control which cover most of the world seas. The Black Sea MOU that is one of these regional agreements includes the Black Sea region and it aims to enhance MARITIME safety in the Black Sea region. This study aims to investigate effectiveness of Black Sea MOU port state control inspections and discuss importance of port state control inspections on MARITIME safety in the Black Sea region.

Keywords: Black Sea Mou, İnspection, Safety, MARITIME Shipping, Detention

ESTIMATING UAV ROUTE VIA AERIAL ROAD IMAGES

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Abstract:

At the present time, unmanned aerial vehicles (UAV) have important role in numerous FIELDs, which are employed by security APPLICATIONs such as tracking, patrolling. The aim of this study is to find trajectory of the aerial vehicle without remote control. Thus, a flight can be performed by independent of a man at low cost. This study is conducted to suggest a route to UAV. Hence, it is desirable to provide security by tracking a specified road. Majority of methods in existing studies are widely used solely for detecting roads. In this study, two different methods are utilized to detect specified roads. For that reason, our approach combines two methods that are Nearest Neighbor classification and Hough Transform. To reduce the noise from the image captured by the camera, it is preprocessed using a filter. Further, the shadows in the image are detected and removed. Then, the roads are detected by the Nearest Neighbor classification method. After then Hough Transform is APPLIED to the image without shadow, and the road is detected once again. Thereafter, segmented portions of the road extracted by the two methods are fused. The resultant road is the outcome. However, this result does not suggest actual road direction to the UAV. To follow the road, we still have a final step in which the middle line of the road is detected, and finally the route is determined. Fusing two methods both increases the success rate and satisfies verification concern. Our work achieves HIGHER performance than the other studies detecting and tracking roads. Eventually, the road position and route are determined without GPS data. Therefore, multi-copter flights can be easily performed without human remote control.

Keywords: Road Detection, Unmanned Aerial Vehicles, Nearest Neighbor, Hough Transform, And Shadow Removal.

RIVER SIMULATION IN GIS SOFTWARE

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Abstract:

In human life water pollution is gradually becoming one of the major issue, so that to follow river quality control is very important in the world at present time. CIS software provides many important facilities to river quality control and model simulation and to follow the system for decision makers.

CIS software allows extensive presentation method and many visual effects to follow river system with remote monitoring facilities of the river. For these reasons, in this study written program represents an interactive and friendly Graphical User Interface (GUI) for decision makers.

For this purpose, Yeşilırmak river simulation program (AKAB) was written by using QUAL2E (river simulation model) as base program in MATLAB. In this work, AKAB program integrated in CIS program than all of them organized to represent the river situation for decision makers. They can follow the river pollution parameters in river line on the map. At the same time, this program provides statistical analysis and graph of water pollution parameter of river. This program shows river line with different color and its color is changing with the value of selected parameters on the map. Thus the program provides a user friendly GUI for decision makers.

Keywords: Gis, Simulation, River Quality Control, Qual2E

PROCESSING OF OLIVE LEAF TO OBTAIN HERBAL TEA AND HEALTH BENEFITS

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Abstract:

Recenty, there is an increasing demand for Mediterranean diet in the world. One of the main component of this special diet style is olive tree product including olive fruit, olive oil, olive leaf and biofunctional extracts. Olive leaves are collected in pruning season in each years. They are washed and dried to a certain moisture content under different conditions and then grinded. Due the the HIGH amount of bioactive compounds mainly consisted of phenolics, olive leaf has various health benefits such as PROTECTION from some types of cancer, hypolipidemic, hypoglycemic, antioxidant and antimicrobial effects. There are some studies on the determination of the best drying conditions of olive leaves and assesing some health effects of the leaves. In this study, processing of olive leaves to obtain herbal tea and health benefits olive leaf has been reviewed.

Keywords: Olive Leaf, Processing, Health Benefit, Herbal Tea

GENERAL VIEW OF PUMPED STROGED HYDROELECTRICITY AND ASSESMENT OF THE EFFICENCY IN MICROSCALE

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Abstract:

Increasing of energy demand creates need improvement of installed capacity as well as energy storage systems to compensate peak demand. In this context, due to HIGH applicability, not need complex technology and being of readily operable pumped stroged hydroelectric power plants has become attractive for energy industry. In this paper,the using of PSH/PHES the world in general and in particular Turkey with pros and cons, also in terms of power generation efficiency of a system designed in a micro scale (1MW) are discussed.

Keywords: Energy Storage, Pumped Strorage Hydroelectrics, Electricity Demand

ANALYSIS OF CRITERIA INFLUENCING WEATHER TEMPERATURE WITH AHP AND DEMATEL METHODS

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Abstract:

The weather affects significantly a large part of our daily lives. Therefore, an accurate forecast has an important place in human life. Especially, temperature forecast has a particular importance both live and the impact on other atmospheric parameters. The selection of parameters for weather forecasting models is a critical process affecting the forecasting. The interactions on each other of criteria and the degree of dependence criteria are an important step in the decision-making process in the temperatures forecasting process. The scope of this study; the eight most important criteria (Air pressure, water vapor pressure, relative humidity, wind speed, height, flora, land and seas and exposure) was determined to influencing the air temperature as a result of the literature research. In the first stage of the study; a ranking is formed by a ranking of weights obtained by pairwise comparisons of the criteria according to expert opinion with Analytic Hierarchy Process (AHP) method of the multi-criteria decision-making methods. In the second stage of the study; the ranking dependent weight value between each of the criteria is made with The Decision Making Trial and Evaluation Laboratory (DEMATEL) according to expert opinion. In conclusion; the results obtained with the two methods evaluated and interpreted. The researchers in the selection of the parameters they use in temperature forecasting models aimed to contribute with this study. In this study; AHP and DEMATEL methods of the multi-criteria decision-making methods are used in order to reveal their relationship with each other criteria in the temperature forecasting models.

Keywords: Ahp, Dematel, Multi-Criteria Analysis And Weather Forecast.

NONLINEAR BUCKLING ANALYSIS OF COLD-FORMED CHANNEL SECTIONS

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Abstract:

The main objective of this paper is to provide an efficient and accurate finite element model to understand the behavior of cold-formed steel channel columns. The effects of initial local and overall geometric imperfections have been taken into consideration in the analysis. Failure loads and buckling modes as well as load-shortening curves of plain channel columns were investigated in this study. The nonlinear finite element model was verified against experimental results. The finite element analysis was performed on plain channels compressed between fixed ends and pinned ends over different column lengths, and column curves were obtained. An extensive parametric study was carried out using the finite element model to study the effects of cross-section geometries on the strength and behavior of channel columns. The column strengths predicted from the finite element model were compared with the design strengths calculated using the European Standard, EN 1993-1-3 Eurocode 3: Design of steel structures - Part 1-3: General rules - Supplementary rules for cold-formed members and SHEETING, for cold-formed steel structures.

Keywords: Cold-Formed Steel Channels, Buckling, Nonlinear Finite Element Analysis, En 1993-1-3

IAQ MODELING AND ESTIMATING FOR A MEETING ROOM

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Abstract:

Carbon dioxide (CO2) gas amount is widely used for Indoor Air Quality (IAQ) determination in densely occupied environments such as schools, homes, and OFFICEs. The most important CO2 source in these environments is human metabolic generation. In this study, IAQ modeling tool has been developed to estimate the distribution of CO2 concentration inside an unventilated meeting room and to observe the status of indoor air in terms of CO2. Information of their weight, height and activity level in addition to the number of occupants are considered in the model. Indoor CO2 concentrations are presented graphically by the modeling tool as a function of time and total number of the occupants. The data obtained from the model are compared with real measurements to validate the model, and promising results are obtained.

Keywords: Carbon Dioxide, İndoor Air Quality, Modeling, Prediction.

DRYING OF PUMPKIN SLICES: INFLUENCE OF PRETREATMENTS AND DRYING METHODS

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Abstract:

Microwave drying emerges as an alternative drying method for drying of foods. The use of microwave energy in combination with different drying TECHNIQUES is recommended for the elimination of some disadvantages related with the APPLICATION of microwaves alone. Microwave-vacuum (MV) drying is recommended as an alternative method particularly for drying of heat sensitive products. The effect of various pretreatments on drying kinetics of pumpkin slices during hot air drying and combined hot air-MV drying was evaluated in this study. Fresh, blanched (100°C for 1 min) and osmotically pretreated (immersed in 50% sucrose solution at 27°C for 30min) pumpkin slices (30 x 30 x 10 mm) were air dried at 60°C and also dried in hot air convection at 60°C for 105min followed by MV drying (500mbar)at 300W power level. The samples dried by hot air-MV drying had HIGHER L*, b* and lower a* values compared to the ones dried by hot air drying. Color parameters were not significantly influenced by pretreatments. The experimental drying data for the pumpkin slices were used to fit Newton, Logarithmic, Page, Midilli-Kucuk and Henderson & Papis models and the statistical validity of models tested were determined by non-linear regression analysis. The model that best describes the drying behavior of pumpkin slices was determined as the Midilli-Kucuk for all treatments except the blanched sample dried by combined hot air-MV drying. Page was found to be the most appropriate model for this sample.

Keywords: Pumpkin, Microwave Vacuum Drying, Color, Drying Kinetics

IMAGE SEGMENTATION WITH BACKGROUND SUBTRACTION USING FCM

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Abstract:

Image segmentation is the process of dividing an image into distinct regions containing each pixels with similar attributes. The success rate of image processing APPLICATIONs, -such as face recognition, face detection, object tracking and BIOMEDICAL image processing- depends on reliability of segmentation. Fuzzy c-means clustering (FCM) is an effective algorithm suitable for image segmentation. FCM algorithm aims to the clustering the pixels for the intensity values, each pixel has a member values of each cluster. This paper presents a image segmentation using Fuzzy C Means (FCM) with different way. First of all, the proposed methods first focus the background, while conventional methods focus the object. Then the background images morphologic processing with original images. The results show that the image segmentation with proposed method is the better than the conventional ones, especially for the MEDICAL images.

Keywords: İmage Segmentation, Background Subtraction, Fuzzy C- Means

AN EXPERIMENTAL INVESTIGATION OF THE RHEOLOGICAL PROPERTIES OF THE GEOTHERMAL WATER BASED DRILLING MUDS

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Abstract:

Geothermal drilling is usually carried out into fractured formations in volcanic areas where they lead to major loss of circulating fluid. The areas also have HIGH temperature which is detrimental effects on the availability, operation, and cost of down-hole instruments and equipment used. Since the rheological properties of drilling muds can be affected by many factors, such as temperature, pressure, additives and contaminant during the drilling operations, drilling engineers must have a good estimate the values of rheological characteristic, such as viscosity, yield point and gel strength. Several articles are available in the literature concerning the effect of rheological properties of the drilling muds, but the effect of the geothermal water based fluids has not been investigated by researchers. Therefore, the aim of the study is to determine the effect of geothermal water on the rheological properties of drilling fluids and fulfill the lack of the topic. In this context, firstly, water based muds were prepared using fresh water and geothermal water, and then the rheological properties of the fluids were investigated and compared with each other. Experiments were conducted on fresh water and geothermal water based muds with different bentonite contents and under elevated temperature conditions using Rheometer (Model 50 SL). It was concluded that yield points increase with the increment of temperature for both fresh water and geothermal water based muds with the same level of bentonite concentration. Also it was observed that the shear stress and yield point of fresh water based mud HIGHER than geothermal water based mud in conducted experiments at the same temperatures and constant shear rates. The values of the shear stress and yield point of the both fresh water and geothermal water based muds increase while bentonite concentration increases.

Keywords: Drilling Fluids, Geothermal Water, Rheology

A NEW CUO CATALYST FOR LITHIUM AIR BATTERIES IN NONAQUEOUS MEDIA

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Abstract:

Nano LiCuO catalyst was prepared by sol-gel method and investigated performance for using as a cathode of lithium air battery. The catalysts were prepared with CuCl2 and calcined at 600 °C during 6 hours to the formation of CuO. X-ray diffraction analysis was performed to examine how to change of catalyst's structure of calcinations. Scanning electron microscopy measurements were taken to follow changes occurring particle size and surface image with changes made of prepared catalysts. There is big effect of pore structure and particle size on catalyst activity in the battery test. Nitrogen adsorption-desorption isotherm measurements were taken to examine changing on the catalyst of pore structure and particle size. Specific surface area, pore size and volume calculations were performed by using Brunauer, Emmett and Teller method. The as-prepared catalyst activity was analyzed by using electrochemical impedance spectroscopy, cathodic polarization and cyclic voltammetry TECHNIQUES. Then catalyst was tested with MTI battery cell to investigate over-voltages and battery system capacities.

Copper oxide with 86.787 m^2/g surface area and ~14 nm pore size were formed electrodes provided porous gas flow for oxygen reduction compared to other catalysts. According to battery test results, the systems prepared with copper oxide have the HIGHest battery performance was determined.

Keywords: Catalysts, Capacity, Bet Method, Copper Oxide

THE EFFECT OF DRILL-HOLE PATTERN ON FRAGMENTATION AND OVERBURDEN COSTS IN GLE OPEN PIT MINES IN TURKEY

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Abstract:

The drilling and blasting processes carried out in Garp Lignite Enterprise (GLE) open pit mines in Turkey and the effects of these processes on stripping costs have been examined. Three different drill-hole patterns were drilled then blasted using spacing and burdens of 7x6m, 7x5m and 6x5m respectively. The research study was carried out for a period of three months during which time the effect of drilling pattern on the size distribution of muck pile for each drill-hole pattern (as a measure of fragmentation) was determined. In addition, stripping unit costs were calculated for each drill-hole pattern. The results of this study, demonstrate that the drill-hole pattern does have a have direct effect on fragmentation and thus also will have a significant impact on stripping costs.

Keywords: Drill-Hole Pattern, Fragmentation, Stripping Cost

THE COMPARISON OF SOME PHYSICAL AND MECHANICAL PROPERTIES OF FOREST FIRE DAMAGED AND UNDAMAGED CALABRIAN PINE WOODS

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Abstract:

The forest fires, nowadays progressively increasing, cause a significant loss in the Mediterranean belt, where especially the Calabrian Pine is widely grown. In here, usage of damaged woods productively is important because of raw material shortage in forest products industry. Thus, the aim of this study is to compare some physical and MECHANICAL properties of forest fire damaged and undamaged Calabrian pine. For this purpose, air-dried density, oven-dried density, shrinkage, swelling, compressive strength parallel to grain, dynamic bending strength and janka hardness tests were carried out. The results showed that wood properties of undamaged samples were HIGHER than the damaged samples, except for the shrinkage percentage. This might probably caused by the HIGHER density of the damaged woods. This research will contribute to utilize damaged samples more profitable.

Keywords: Calabrian Pine, Forest Fire, Physical Properties, MECHANICAL Properties, Turkey.

THE EFFECTS OF SYNTHETIC AND STEEL FIBERS ADMIXTURES ON THE ABRASION RESISTANCE OF NORMAL AND VACUUMED CONCRETE

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Abstract:

Although the most important MECHANICAL properties of the concrete compressive strength, many times which is exposed to abrasion by means of friction, air, wetting-drying and freeze-thaw effects. Therefore, concrete is also need to be extra reinforcement for exposing to abrasion. That the concrete strength class is HIGH, is not a factor that increases the abrasion resistance by itself. Abrasion resistance should be increased with also admixtures and APPLICATION methods besides being concrete compressive strength is HIGH. Fiber admixtures and the vacuum dewatering are two methods which increase the abrasion resistance of concrete. The parameters of these study are; normal production of concrete, vacuum dewatered concrete, steel fibers, polyester fibers, 3 different rates of fiber, 2 different fiber length and 3 different concrete strength classes. The aim of the study, the effects of the rates and lengths of steel and polyester fibers to determine abrasion resistance on the normal and vacuum concrete according to ASTMC944 standard. Consequently, all of the study parameters has been shown to increase abrasion resistance all of the concrete types.

Keywords: Fiber Reinforcement, Steel, Polyester, Vacuum Dewatering Concrete

ECOLOGY AND TURKISH ECONOMICS

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Abstract:

TURKISH ecosystem services, biophysical magnitudes of the changes in ecosystem services which were derived from human actions can be a questionable sphere. Possible full economic valuation of several AGRICULTURAL landscape management options for Central Anatolia, including managing for water quality, biodiversity, and crop productivity will be discussed in this paper via Ministry of AGRICULTURE and Ministry of Environment and Urbanization datum taken from TURKISH Statistics Institutions. In this respect, climate, global biogeochemical cycles, water filtration, soil formation, erosion control, flood PROTECTION datum could be seen in a platform on discussing to use TURKISH economic potential for AGRICULTURAL production.

Keywords: TURKISH Ecology İn Economics, Ecology Management, AGRICULTURE İn Economics, Ecology For AGRICULTURE, Turkey İn AGRICULTURE

INFLUENCE OF DEGUMMING PROCESS ON THE OXIDATIVE QUALITY OF CANOLA OIL

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Abstract:

In this study, the effect of degumming process which is a step of refining on the oxidative quality parameters has been determined. Canola oils were obtained from the canola seeds by using MECHANICAL extraction (screw press). Centrifugation and filtration were performed on the oils and then degumming protocol was applied. Peroxide values were determined by sodium thiosulfate titration, oxidative stability induction (OSI) periods were measured with an Omnion OSI instrument, fatty acid profiles of canola oils were determined by using Gas Chromatography instrument and tocopherol contents were detected by using HIGH Performance Liquid Chromatography for identifying the oxidative qualities of oils. According to the results, an increase was observed for peroxide value (from 3.07 to 3.80 meq O2 / kg) and a decrease was observed for OSI (from 7.85 to 6.80 h) after degumming process. Seven fatty acids were identified among all of the samples while oleic acid was the abundant fatty acid. However degumming process did not cause any change in fatty acid composition. γ Tocopherol was found to be the major constituent in crude canola oil with 641.95 mg/kg concentration while this was quantified as 499.25 mg/kg in degummed oil sample. According to the degumming process, the HIGHest loss percentage was observed for α tocopherol (28.24 %) while lowest loss percentage was found for δ tocopherol (4.59 %). The results showed that degumming process affected oxidative quality of olive oils out of fatty acid profiles.

Keywords: Canola Oil, Screw Press, Degumming, Oxidative Quality

THE PREDICTION OF BUTTERWORTH TYPE ACTIVE FILTER PARAMETERS IN LOW-PASS SALLEN-KEY TOPOLOGY BY BACK TRACKING SEARCH ALGORITHM

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Abstract:

Filters are electronic circuits which let the desired frequency components of ELECTRICAL signs that are APPLIED to the inputs and besides purify these signs from harmonics and parasites. Filters are divided into two as active and passive filters. Filters done with transistors or op-amps are called active filters. The active filters are more advantageous in terms of its cost compared with the passive filters. Especially at low frequencies these filters are preferred due to their low costs. Active filters that can be set to a wide frequency region are very practical in terms of size and weight and easy to design. These filters can be tied in a row easily without affecting each other. In this study, parameter values for a low-pass Sallen-Key topology Butterworth type active filter with wide-range of use have been defined by a heuristic algorithm. An active filter passing lower than 10th degrees have been designed with structures tied in a row. The parameter values of the designed active filter have been defined by Backtracking Search Algorithm (BSA) which has been used widely in recent years. With this study a filter design that is closest to the ideal has been tried to be obtained. By calculating the quality factor(Q) of the designed filter with these parameter values, these have been compared with the other studies in literature.

Keywords: Active Filters, Low-Pass Sallen-Key Topology, 10Th Degree Butterworth Type Filter, Quality Factor (Q), Bsa.

DEFINING THE PARAMETERS OF THE HIGH-PASS ACTIVE FILTER BY USING BACKTRACKING SEARCH ALGORITHM

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Abstract:

Filter circuits are used widely in electronic systems in order to pass a frequency band, to weaken the frequencies outside that or prevent them. Filters are designed in two basic types as active and passive. While passive circuit elements are used in the design of passive filters, in active filters semi-conductive circuit elements such as transistor and integrated circuit (IC) are used as well. These filters not containing passive circuit elements are more advantageous compared with the passive filters in terms of their costs. The output impedance of the active filter is very low however the input impedance is very HIGH. Therefore, it is out of the question that the circuit and the circuit elements that will be connected to the inputs or outputs of the active filters are affected. Hence, active filters can be connected in a row easily. In this study, the parameter values for HIGH-pass Butterworth type active filter have been defined by a meta-heuristic algorithm. In traditional approaches, circuit elements are accepted as ideal and unlimited (indefinite). In the practice, the use of these values rather increases the cost of the design. This study has used standard series values known as (E24) in order to decrease the costs of design. An active filter passing lower than 10 degrees have been designed with structures tied in a row. The parameter values of this designed tenth(10th) degree filter have been defined by Backtracking Search Algorithm (BSA). These values defined by Backtracking Search Algorithm have been rounded to the nearest value to them from the (E24) series. The quality factor of the designed filter (Q) has been calculated separately by both of these obtained parameter values. The calculated values have been compared with the values taking place in literature and the results have been interpreted.

Keywords: Active Filters, HIGH-Pass Butterworth Type Filter, (E24) Series, Quality Factor (Q), Backtracking Search Algorithm (Bsa).

EFFICIENT MULTI-SCALE SCENE REPRESENTATION FOR AUGMENTED REALITY APPLICATIONS

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Abstract:

In this work, we are presenting an Augmented Reality (AR) system. Using multiple images which are generated by rotation and zooming from end user camera, are using for create a semi-complete panoramic representation. Our previous studies can explain multi-scale panoramic representation with using tree structure. First, we need to find zoom level information for each images. We use mean-shift algorithm for detecting a scale information. Finding zoom levels is not enough for build our multi-scale panoramic tree. Second problem is reducing number of images. Tree structure relevant to zoom levels and needs to minimum number of images. Main contribution of this study is to use integer PROGRAMMING methods to select the minimum number of images from the image set, which best represent the scene.

Keywords: Multi-Scale Augmented Reality, İnteger PROGRAMMING, Automatic İmage Selection, Mean-Shift Algorithm, Multi-Scale Panoramic Tree

FAULT TREE ANALYSIS FOR TRANSFORMERS AND DETERMINATION OF MAINTENANCE STRATEGIES

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Abstract:

Transformers have a critical role for power systems to ensure the HIGH quality, continuous and economic power for increasing energy demands. Robust network infrastructure and sustainable maintenance strategy are required for economic operation of the system. Therefore, in order to determine the maintenance strategies and to monitor the strategies in whole economic operation period, it is required to classify the transformers according to the importance level. In this study, fault tree analysis is considered for the critical transformers reliability assessment. The real fault data of power transformers in transmission line is used in fault tree analysis. As a result, the possible reasons of transformer faults are identified, and maintenance strategies for the determined fault types are presented.

Keywords: Power Transformers, Fault Data, Fault Tree Analysis, Maintenance Strategy

MULTI PROJECT SCHEDULING PROBLEMS AND THEIR SOLUTION

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Abstract:

A project is a temporary endeavor to create a unique product by means of scarce resources such as material, equipment, cost and human. Indisputably, these resources constitute biggest part of a project in terms of management efforts. This study reveals that considering more than one project interrelated to each other such as projects under Programme and Portfolio, resource management becomes more sophisticated compared to a single project. Because external dependencies contain negative risks and play crucial roles between the resource dependent projects in terms of prioritizing the resources in line with each project objectives. Therefore, importance of establishing heuristic method through software related to scheduling and Enterprise Resource Planning (ERP) is emphasized in this study in order to control and optimize resources among interrelated projects. Additionally, using the same software and similar work breakdown structure (WBS) in different projects under the Programme and Portfolio also eases to get a consolidated report to control and monitor all projects simultaneously.

Keywords: Heuristic Method Of Multi-Project Scheduling, Resource Allocation, External Dependency, Enterprise Resource Planning

MAXIMIZING AND SUSTAINING THE VALUES THROUGH PROJECT MANAGEMENT OFFICE

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Abstract:

Projects become more complicated day by day and organizations prefer to implement the projects concurrently in order to improve total value. These complication is resulted from tight schedules and short budget due to competition among firms. Not only time and cost but also quality come into prominence and require know-how, lessons learned and proper procedures in line with the company organization and perception of value. Therefore, all these requirements are to be developed by means of Project Management OFFICE (PMO) and trigger to improve the project standards, procedures and methods. Establishing PMOs by the organizations has been evolving in time. Mainly two factors enhance the motivation of PMOs, namely improving the effectiveness of project management tasks and achieving the common project management approach. Additionally, all these project documents can be used as lessons learned for the future projects and improve the total quality management in projects. Studies show that these improvements correlate with project performance and success accordingly (Dai C.X. et all, 2004). In addition to correlation, also having improved standard of process and proper lessons learned contribute to sustainability of organization. Moreover, studies depict that PMO competency and function are also vital for the project success (Hobbs B. et al., 2007). Furthermore, efficiency of process can be increased by means of software such as Enterprise Resource Planning (ERP), Building Information Modelling (BIM) supporting the 4D to 6D. Therefore, Project Manager (PM) should take the advantage of the all aforementioned requirements above in order to achieve planned project value. This study contributes to HIGHlighting the importance of project standards, using integrated project software and their positive effects on the project management success respectively. However, new researches have to be made to improve the process of PMO.

Keywords: Project Management OFFICE, Process İmprovement Of Projects, Project Management OFFICE Software

POTENTIAL USE OF NANOTECHNOLOGY IN CONSERVATION APPLICATIONS OF HISTORICAL BUILDING

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Abstract:

Historical buildings are the living instruments that create the culture and history of the environment they were built in and of the society, therefore their PROTECTION is of importance. Main purpose in PROTECTION of historical buildings is to protect their structural integrity and allow them to pass on to the future. In order to achieve this goal, being able to sustain the material PROTECTION is important.

In historical buildings, MATERIALS which can be easily distinguished from natural environment have been used mostly. With the improvement of PROTECTION awareness, different protective MATERIALS have been developed, however; partial inadequacy of such MATERIALS, increasing environmental problems worldwide and the requirement for effective use of energy raises the efforts and expectations towards the use of new generation building MATERIALS. Developments which may respond to such expectations corresponds with nanotechnology SCIENCE.

The importance of nanotechnology arises from its enabling to obtain products with developed or new properties by studying at atom/molecule level. Nanotechnology enables to develop more quality and functional building MATERIALS compared to MATERIALS produced by traditional methods.

In this study, it was aimed to analyze PROTECTION problems which occur in historical buildings through the MATERIALS included in external wall construction and examine the nanomaterial usage potential for the solution of identified problems. In this context, ten historical buildings which were built by different construction technique and MATERIALS were examined within the work. As a result of negotiations made by the users of selected buildings, building information cards that include foundation information of buildings and basic problems encountered in building PROTECTION APPLICATIONs shall be prepared and analyzed. At the end of the study, nanomaterial APPLICATION suggestions in PROTECTION practices shall be presented and the acquirements to be obtained by the use of nanoMATERIALS in surface elements of historical buildings shall be explained.

Keywords: Nanotechnology, Historical Buildings, Conservation

EFFECT OF SOLVENT AND CONCENTRATION ON COATING QUALITY OF DIP COATED POLYCAPROLACTONE (PCL) ON AZ91E ALLOY TO REDUCE DEGRADATION RATE

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Abstract:

The use of magnesium and its alloys in living organisms by various means attracts more and more attention every passing day. The main reason of this attraction is the similarity of magnesium alloys' MECHANICAL properties to the bone tissue in terms of modulus of elasticity, density and specific strength. However, the biggest problem that is faced during the APPLICATION of these MATERIALS in the human body is their HIGH degradation rate. Because of this situation, magnesium alloys lose their MECHANICAL and structural integrity before the healing process complete in-vivo. Therefore, research about controlled corrosion of magnesium alloys for BIOMEDICAL purposes has increased in the last decade.

In this study, parameters of biodegradable polymer coating on AZ91E alloy by dip-coating method were investigated. Polycaprolactone (PCL) was chosen as the biodegradable polymer for experimental procedure. To observe the concentration and solvent effect on coating quality, polymer solutions were prepared at three different concentrations with two different solvents; chloroform and dichloromethane. Existence, morphology and thickness of PCL coating on the substrates were characterized by Fourier Transform Infrared (FTIR) Spectroscopy, Scanning Electron Microscope (SEM) and Atomic Force Microscope (AFM). The protective effect of the coatings were investigated by immersion test in simulated body fluid (SBF) medium which is prepared according to Cuneyt Tas' recipe and the results were compared with the uncoated control specimens.

Keywords: Dip Coating, Biodegradable Polymer Coating, BIOMEDICAL Magnesium Alloys, Simulated Body Fluid

USING ANT COLONY ALGORITHM METHOD IN THE DISABLED SERVICE VEHICLE ROUTING PROBLEMS

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Abstract:

Rehabilitation centers would wish it to be fast and the minimumcost of transportation problems in service for the disabled. Vehicle Routing Problem (VRP), aims to efficiently use by minimizing transportation costs of a vehicle fleet with a certain capacity efficiently. The aim of our problem is to minimize the total number of vehicles to be used and distance traveled. It has a certain capacity of each vehicle and a demand that must be met at a specific time period of each disabled. Each vehicle is obliged to make service for disabled people at a certain time period. In this study, ant colony algorithm metaheuristic method has been tried to reduce cost on vehicle routing problem.

Keywords: Disabled, Ant Colony Algorithm, Optimization

MAPPING WITH THE IMAGE PROCESSING METHOD OF DAMAGE REGIONS WITH RESPECT COMPOSITE LAMINATES SUBJECTED TO LOW VELOCITY IMPACT

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Abstract:

In this study , uni-directionaly reinforced laminates that arranged e-glass / epoxy composite samples in the form [+ 45 / -45 / 90/0]s was APPLIED low-velocity impact tests at impact velocities of 1.0 , 1.5 and 2.0 m/s has been obtained 8 and 16 laminated sample. Low-velocity impact tests were performed with the drop weight test device. Low-velocity impact damage was created on the samples depending on the different impact velocity as a result of experiments conducted with hemispherical impactor of 24 mm and impactor mass of 6.350 kg. Digital imaging process method was APPLIED images of the samples subjected to impact damage and damage maps for each damage zone were extracted. Also, change graph of damage area depending on the impact velocity has been omitted.ch damage zone were extracted. Also, change graph of damage area depending on the impact velocity has been omitted.

Keywords: İmage Processing Method, Low-Velocity İmpact, Failure Analysis

A VHDL IMPLEMENTATION OF HENON MAP PSEUDO-RANDOM SEQUENCE GENERATOR

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Abstract:

Chaos theory based random sequences are recently being given particular attention for their properties that can be useful in communication APPLICATIONs that employ cryptography. Given a generator key, fast generation of corresponding sequence is imperative for such a scheme to be successful since the sequences themselves should not be stored. In this paper, we present an FPGA implementation of a discrete-time chaotic signal generator that uses Hénon map algorithm. Designed using VHDL, the generator employs IEEE-754 floating point arithmetic which allows reaching the required precision. ISIM and MatLAB simulation results are provided and NUMERICAL results are compared. It is concluded that FPGA implementations of chaotic generators can be effectively used in real-time cryptography APPLICATIONs such as secure communication.

Keywords: Fpga, Vhdl, Chaos, Cryptography, Hénon Map, Chaotic Pseudo-Random Sequence Generator

CONSTRUCTION OF DICHROMATE-SELECTIVE ELECTRODE BASED ON A CALIX[4]ARENE DERIVATIVE

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Abstract:

Heavy metals in industrial, refinery and municipal effluent water are important sources of water contamination. Also, a large quantitity of these metals can easily leak into the soil and plants and cause environmental pollutions and poison food chain [1]. Cr(VI) is one of these hazardous heavy metals monitored in water and wastewater streams. Ion-selective electrodes (ISEs) for Cr(VI) have been widely used with polymeric membranes containing appropriate carriers known as ionophore [2]. Calixarenes, represent a family of oligophenols linked in macrocyclic arrays by methylene bridges and act as active agents for ion-selective electrodes because of very selective behaviour for some ions over the other [3].

In this study, dichromate-selective electrode was developed using "5,11,17,23-tetra(tert-butyl)-25,26,27,28-tetra(4-propylimidazole acetamide)-calix[4]arene" as an ionophore. The effect of membrane ingredients such as the PLASTICizer, polymer material, lipophilic additives and the influence of internal filling solution and the pH on the potentiometric response of the electrode were investigated. All emf measurements were carried out by using Orion 720A Model pH ion meter and the electrochemical cell below:

D. J. Reference Electrode | Analyte Solution | Membrane | Internal filling solution | Ag, AgCl

The electrode prepared with optimum membrane composition exhibited a near-Nernstian slope of 52.746±1.6 mV per decade for dichromate ions over a wide concentration range (1.0×10-1-1.0×10-5 M) at pH 1.0. Its response time, lifetime, selectivity coefficients towards variety of anions were determined by separate solution method. The proposed electrode was also successfully employed as an indicator electrode in the potentiometric titration of iron(II) with K2Cr2O7.

Furthermore, the proposed electrode will be investigated to determine iron(II) quantitatively in real pharmaceutical samples.

Keywords: Calix[4]Arene, Dichromate-Selective Electrode, İonophore, Potentiometry

A NEW APPROACH TO SWARM BASED COMPUTATIONAL INTELLIGENCE: WHALE OPTIMIZATION

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Abstract:

Swarm optimization algorithms are relatively newer subFIELD of computational intelligence and recently getting strong and becoming more popular. They are inspired from intelligent behaviors resulting from the local interactions of swarm agents between each other and environment. They are adaptable and general purposed solution methods that can be APPLIED to the HIGH-scale combinatorial and non-linear search and optimization problems in case of concurrent different decision variables, objective functions, and constraints and they do not depend on the solution space type, the number of decision variables, and the number of constraint functions. Furthermore, they do not require very well defined mathematical models that are hard to derive. Their computation power is also good and they do not require excessive computation time. Their transformations and adaptations are easy. These algorithms do not require the assumptions that are hard to be approved to adapt a solution algorithm to a given problem and they do not require the alteration on the interested problem as done in classical algorithm. Due to these advantages, these algorithms are densely being used in many different FIELDs.

Whale Optimization (WO) is the most current swarm based computational intelligence algorithm inspired from the hunting behavior of humpback whales and uses three operators for simulating the search for prey, encircling prey, and bubble-net attacking. This paper explains the main steps of WO and represents its and other current computational intelligence algorithms' comparative results obtained from the benchmark functions. Although WO is very novel and no optimization has been done in its parameters, promising results have been obtained from the simulation results. Its more efficient multi-objective, distributed, and parallel versions for different type of problems may be proposed for future works.

Keywords: Computational İntelligence, Swarm Optimization, Whale Optimization, Performance

THERMODYNAMICS PROPERTIES MEASUREMENTS OF WATER BASED AL2O3, TIO2, AND ZNO NANOFLUIDS AT VARIOUS TEMPERATURES AND CONCENTRATIONS

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Abstract:

It is necessary that thermophysical properties of nanofluids have to be determined in order to evaluate their thermal performances like heat transfer, convection heat transfer coefficient, Nusselt number. The purpose of this study is to obtain thermodynamics properties of nanofluids.

Al2O3, TiO2 and ZnO metal oxides are used as nanoparticle, while deionized water is used as base fluid. The solutions included nanoparticles in a way to be each with 0.5%, 0.7% and 1.0% volume concentration were prepared. The nanofluids were obtained by mixing those solutions 30 minutes by probe type of ultrasonic homogenizer at environment conditions. Sodium Dodecyl Sulfate (SDS) was added to the solutions as surfactant to prevent instability occurred due to agglomeration and sedimentation.

For thermal conductivity measurement, the device that works by transient hot wire method was used between 30-60°C temperature. And for viscosity measurement, the device that works as based on vibrating plates method was used between 20-50°C temperature. Density and specific heat values are obtained with help of the well-known equations while thermal conductivity and viscosity are measured.

Thanks to this study, it is emphasized how thermodynamics properties of nanofluids change according to temperature and volume concentration. Moreover, their curve fitting equations are obtained. All of thermodynamics properties are also shown as graphics.

It is established that thermal conductivity of nanofluids is proportional to temperature, and viscosity of it is proportional to volume concentrations but inversely with temperature.

Keywords: Al2O3, Tio2, Zno, Nanofluid, Thermal Conductivity, Viscosity

PREPARATION AND STABILITY ANALYSIS OF WATER BASED AL2O3, TIO2 AND ZNO NANOFLUIDS

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Abstract:

For nanofluids to be able to use practically, they must not cluster and precipitate. Namely, they have to become stable. The target of this study is to determine the parameters that are effective at preparing stable nanofluid and to obtain stable one.

To follow nanofluid stability, its sedimentation state is determined by photo capturing and controlling continuously. It is verified by SEM images that the nanofluids, which do not precipitate and are determined as stable, are distributed homogeneously and do not constitute considerable agglomerates.

The work fluid is made from Al2O3, TiO2, ZnO nanoparticles and deionized water as base fluid. The solutions are prepared with 0.5%, 0.7% and 1.0% volume concentration. They are mixed 30 minutes by probe type of ultrasonic homogenizer at environment conditions. Sodium Dodecyl Sulfate (SDS) was added to the solutions as surfactant to prevent instability occurred due to agglomeration and sedimentation.

At this study, it is investigated that from where the contradictory data for stability experiments in the literature stems. Moreover, the various stable nanofluid preparation parameters that are not available in the literature are given.

It is observed that Al2O3, TiO2 and ZnO nanofluids have stability up to 5 days, 7 days and 21 days without considerably sedimentation, respectively. It is ascertained that properties of nanoparticle and nanofluid preparation parameters are important to enable stability.

Keywords: Al2O3, Tio2, Zno, Nanofluid, Stability, Surfactant

A SIMULATED ANNEALING APPROACH FOR THE UNCAPACITATED P-MEDIAN PROBLEM

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Abstract:

The p-median problem is one of the basic problems in location theory of operations research where it is shown to be a NP-hard problem. The problem has been intensively studied in the literature using both exact and heuristic approaches. P-median problem may be defined as finding the location of p facilities on a graph where the positions of a number of demand points and the cost of satisfying these demand points from other points which are potential facility locations are given. The objective of the problem is to minimize the sum of the transportation costs. In this study, a well-known data set which consists of 40 problem instances with increasing values of total number of nodes and p.of uncapacitated p-median problems provided by OR-LIB are solved using a simulated annealing algorithm. The main objective of the research is to show the performance of the algorithm for both solution quality and CPU times. The results show that for all the problems in the data set simulated annealing shows a significant success.

Keywords: P-Median, Simulated Annealing, Metaheuristic, Or-Lib

AN ITERATED LOCAL SEARCH BASED ALGORITHM FOR CURRICULUM BASED COURSE TIMETABLING PROBLEMS

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Abstract:

Determining a timetable for courses, exams and for other events at all EDUCATIONal INSTITUTEs is a time consuming and hard problem to be solved under a number of constraints in order to maximize a number of goals. Most common constraints of these problems are class capacities, course and lecture clashes at the timetable, available time zones for events etc. As a special class of all timetabling problems, curriculum based course timetabling is also a NP-hard problem. The problem structure and its parameters are generalized at International Timetabling Competitions (ITC) which were held in 2002, 2007 and 2011. In this study, the problem set used at ITC 2007 are solved using an iterated local search based algorithm. The results achieved are encouraging but compared to the best solutions to the problems provided, it is obvious that iterated local search method may be used with another method in a hybrid way.

Keywords: Curriculum Based Course Timetabling Problem, İterated Local Search, İnternational Timetabling Competition

ANALYSIS OF SEASONAL SOLAR ENERGY: A CASE STUDY FOR OSMANIYE, TURKEY

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Abstract:

Nowadays, solar energy has taken a significant place in many industries and APPLICATION areas in terms of photovoltaic cell and supplying energy to natural processes like photosynthesis. As one of the most important renewable energies, solar energy has certain accessibility in many parts of the world such as building thermal systems and photovoltaic across the world. This study focuses on the variability (changeability) of the seasonal global solar radiation over the area of OSMANIYE (37.05 N, 36.14 E, and 120 m.) is located in the Eastern Mediterranean region in Turkey. Solar radiation data were measured during June 2012 – June 2015 period from the five-minute recorded by using the meteorological measurement device (vantage PRO2) installed at the UNIVERSITY of OSMANIYE Korkut Ata. The seasonal solar energy potential (assumed winter period (November-January) and summer period (June-August)) in OSMANIYE is evaluated by using the actual measurements data according to the averaged values of hourly, daily, monthly and yearly. As a result of this measurement, on an annual scale the maximum global seasonal solar radiation changes from 7.33 kWh/m2/day by June in 2013 (for summer) to 2.46 kWh/m2/day by November in 2014 (for winter). Minimum global seasonal solar radiation changes from 6.02 kWh/m2/day by August in 2014 (for summer) to 7.20 kWh/m2/day by January in 2013. Yearly average energy potential during the measurement period was 1.63 kWh/m2/day by December in 2013 (for winter).

Keywords: Seasonal Solar Radiation, Solar Energy, Photovoltaic , OSMANIYE

APPLICATION OF AQUIFER TESTS TO DETERMINE HYDRAULIC CONDUCTIVITY OF AQUIFERS IN BURSA, TURKEY

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Abstract:

The aim of this study is to determine the hydraulic conductivity of certain aquifers in Bursa region of Turkey using slug tests. Slug tests were performed by pouring instantaneously a specified amount of water into a groundwater well and observing the drawdown in the well by time. Two analytical methods namely, Bouwer-Rice and Dagan methods were APPLIED to drawdown time-series data. In addition, the tests were modeled using the NUMERICAL model MODFLOW that solves 3-dimensional groundwater flow equations using method of finite differences. A good correspondence was obtained between the results of analytical and NUMERICAL solutions.

Keywords: Hydraulic Conductivity, Slug Test, NUMERICAL Model

DIAGNOSIS OF POWER TRANSFORMER INCIPIENT FAULTS USING ELECTRONIC NOSE

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Abstract:

Power transformers are very expensive entities of ELECTRICAL power systems. Since repairing and maintaining health of a transformer is very difficult and time consuming, their failure will have big negative impact on the system. Thus, any information regarding incipient faults in the transformer is very important. In this study, an electronic nose that is implemented to detect incipient faults of power transformers is presented. The electronic nose has four gas sensors namely hydrogen, carbon monoxide, carbon dioxide and methane with an addition of humidity and temperature sensor. The results of the study show that the proposed detection method can effectively diagnose partial discharge and overheated cellulose type of incipient faults of power transformers.

Keywords: Electronic Nose, Power Transformer, İncipient Fault Diagnosis

SPATIAL ANALYSIS OF ASSAULT AND BATTERY CRIME STATISTICS IN TURKEY

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Abstract:

In this study, geographical information systems and explorative spatial data analysis methods were employed in the analyses assault and battery crime rates. Because of the differences among the provinces with small populations, and the provinces with large populations regarding volume of crimes make a major impact on the stability of the assault and battery crime rates, empirical Bayes smoothing method was used to correct the crime rates. Global spatial autocorrelation indices including Moran's Getis-Ord G, Geary c, and I were used to test the spatial dependence. Local spatial autocorrelation methods were used to detect the clustering of crime rates. The distribution of smoothed rates and excess risk rates (with a standard deviation classification) of crimes in the TURKISH provinces were presented in the implementation. The present study demonstrates the utility of geographically weighted regression and spatial analyses for exploring local processes that drive crime levels, and examines misspecification of the global models of the assault and battery crime statistics.

Keywords: Crime Rates, Geographical İnformation Systems, Spatial Analysis, Spatial Statistic, Risk Mapping

ENHANCED BIOGAS PRODUCTION FROM ALGAL BIOMASS DIGESTION USING DIFFERENT PRE-TREATMENT METHODS

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Abstract:

The importance of renewable resources for energy production is increased due to increase in energy demand and the release of greenhouse gases. Biogas is one of these important renewable energy resources. Biogas can be defined as a mixture of different gases such as CH4 and CO2 produced via anaerobic digestion of all kinds of biomass, and it can be a good alternative to natural gas. In the last decade, researchers focused on their attentions on biogas production more than ever to meet the energy demand. Especially, biogas that obtained from algal biomass (micro and macro algae mixture) becomes a trended research area in recent years. Composition of algal biomass is suggested to be a good substrate for anaerobic digestion due to its HIGH content of volatile solids. In this study, the effects of physical pre-treatment on the biochemical methane potential (BMP) were investigated. The algal biomass was co-digested with sewage sludge in anaerobic digester under mesophilic conditions. Three physical pre-treatments such as washing, drying and chopping were carried out on biomass samples. After 40 days, biochemical methane potential of samples were determined. The results showed that the chopping method is more effective on the biogas yield than washing and drying.

Keywords: Algae, Biogas, Anaerobic Co-Digestion

SYNTHESIS AND PHOTOLUMINESCENCE PROPERTIES OF ER1.98GD0.02TI2O7 PYROCHLORE (A2B2O7) STRUCTURE

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Abstract:

The pyrochlore (A2B2O7) compound are well known MATERIALS and have for various APPLICATIONs. Among these, the rare earth pyrochlore compounds have also photoluminescence characteristics. In this research, rare-earth based Er1.98Gd0.02Ti2O7 pyrochlore was synthesized through a HIGH temperature solid state reaction method under open atmosphere. The thermal analysis (DTA/TG) were carried out to determine optimal reaction conditions and phase formation. The phase properties of the samples were characterized by X-ray powder diffraction. The photoluminescence (PL) results were determined to obtain excitation, emission and decay time properties by using a photoluminescence spectrometer under room temperature. The photoluminescence investigations showed excitation maximum at 299 nm and emission maximum at 523 nm. The excitation bands are at 299 nm and 364 nm which belong to 4I15/2 →2K13/2 a
Moreover, there is an emission band at 523 nm which belongs to 2H11/2 → 4I15/2 tr
Er3+ ions.

Acknowledgement: The authors would like to thank TUBITAK (SCIENCE, Technology and Research Association of Turkiye) for the support to the project numbered 114Z438.

Keywords: Pyrochlore, Er3+ İons, Photoluminescence

SYNTHESIS OF YB3+-ACTIVATED DY2TI2O7 PYROCHLORE (A2B2O7) STRUCTURE AND PHOTOLUMINESCENCE PROPERTIES

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Abstract:

The Yb3+-activated Dy2Ti2O7 is a rare earth pyrochlore (A2B2O7) compound which the pyrochlores are important MATERIALS using in luminescence, ionic conductivity, etc different APPLICATIONs. In this research, the pyrochlore compound was synthesized with HIGH temperature solid state reaction method under open atmosphere. The expected phase formation process was investigated by thermal analysis (DTA/TG). The X-ray diffraction (XRD) analysis results gave the phase properties of the samples. The photoluminescence (PL) properties including excitations, emissions and decay time of the Dy1.98Yb0.02Ti2O7 were determined by a photoluminescence spectrometer under room temperature. The sample was excited at 293 nm that is based on 6H15/2 → 4K13/2, 4H13/2 transition of the Dy3+-ion. The emission bands at 477 and 575 nm concern the typical 4F9/2 → 6H15/2 and 4F9/2 → 6H13/2 transitions of the Dy3+-ion, respectively.

Acknowledgement: The authors would like to thank TUBITAK (SCIENCE, Technology and Research Association of Turkiye) for the support to the project numbered 114Z438.

Keywords: Yb3+-Activated Dy2Ti2O7, Pyrochlore Compound, Photoluminescence

IMPROVING THE ISOLATION BETWEEN TWO PORT MICROSTRIP DIPOLE ANTENNAS

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Abstract:

2-Port microstrip dipole antennas with operation frequencies of 2.4 GHz and 4.5 GHz are designed. In order not to prevent the antennas to affect each other, the isolation should be improved or the separation distance between these two antennas must be chosen large enough. However, in most APPLICATIONs, the latter solution is not possible due to the physical space requirements so more efficient solutions should be used. In this study, a MetaMATERIALS (MTM) based structure is used to improve the transmission parameter, known as the isolation between two antennas without sacrificing any board space is designed. The geometry has simple shape and not require a lot of installing area. In addition the isolation with and without the MTM structure is compared by using CST Microwave studio and the results are shown. Isolation behavior improved significantly proving that the structure can be used in many existing antennas offering much better performances and it can also be seen as another method for antenna minimization.

Keywords: 2-Port Antennas, Mtm Antenna APPLICATION, İmproved İsolation, Mtm Antenna Minimization

SYNTHESIS AND CHARACTERIZATION OF ZINC OXIDE NANOSTRUCTURES

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Abstract:

Zinc Oxide (ZnO) is the one of the most promising material for filtering APPLICATIONs due to its HIGH total surface area. It is also a well-known fact that ZnO is a polar crystal with hexagonal phase, and the HIGH anisotropy of ZnO leads to the oriented growth along the c axis. This HIGH anisotropy helps HIGH nanotube formation during recrystallization.

In this study, single crystal ZnO nanorods are successfully synthesized using Zn(O2CCH3)2(H2O)2, NaOH and distilled water as precursors at ambient pressure and room temperature. Firstly, Zinc Acetate is added to distilled water and stirred magnetically (Solution A). Then NaOH is added to distilled water and stirred magnetically as well (Solution B). Afterwards, Solution B added to Solution A, dropwisely and stirred for 2 hours. Finally obtained nano structures are calcined at 300 ˚C for 3 hours. Synthesized ZnO nanorods are used to produce multi walled ZnO nanotubes using simple hydrothermal treatment without use of any catalysts, plates or substrates. ZnO nanotube structures are synthesized at low temperatures by employing ZnO nanorods and H2O2 as starting MATERIALS. ZnO nanorods are added to H2O2 and stirred for 1 hour. The solution is put on a stainless steel autoclave and is treated hydrothermally at 180 ℃ for 24 hours. After drying process, the final product is calcined at 500 ˚C for 5 hours. Characterization result indicate that both tubular and rod structures are successfully synthesized. Synthesized nanotubes are suspended in acetone and alcohol for obtaining a stable solution and this solution is used for coating carbon and stainless steel based porous filter by using electrophoretic deposition.

Finally, filtering capability of coated filters is simulated. For modelling and simulation of air flow of manufactured filters Solidworks and Ansys programmes are employed. Tubular and rod like nanostructures demonstrated effective catalytic and air filtration properties at room temperature.

Keywords: Zinc Oxide, Hydrothermal, Nanotube, Nanorod

A NUMERICAL INVESTIGATION OF CYCLIC BEHAVIOR OF COUPLED WALL SYSTEMS

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Abstract:

RC (reinforced concrete) shear core walls preferred to depend on height of them form lateral-load resisting system for modern and HIGH-rise building construction are divided into smaller wall units and coupling beams formed between openings due to the architectural requirements such as door, window, stairway and elevation. When the buildings are subjected to strong lateral loads, coupling beams act as fuses and exposed to inelastic rotation and deformation. Moreover, if units are properly detailed, behaviors of two independent shear wall piers will turn into a coupled system and their lateral stiffness will be greater than sum of individual wall piers and so the desired degree of coupling will be achieved. These groups of RC shear core walls are named RC coupled shear wall systems. Historically, the most of researches have focused on the coupling beam response but the studies on the behavior of coupled RC coupled shear wall systems are not prevalent. In this study, the behaviors of the RC coupled shear walls with different type coupling beams were NUMERICALly investigated under the cyclic loading.

Keywords: Rc Coupled Shear Wall Systems, Coupling Beams, Slab İmpact

IMPROVING A RECTANGULAR MICROSTRIP PATCH ANTENNA BY USING VARIOUS EBG STRUCTURES

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Abstract:

The work proposed a rectangular patch antenna working in WI-FI (2.4 GHz) frequency whose background plate is replaced with EBG structures having various shapes and variations. The resonance frequency is chosen so that it can be used for Wi-Fi systems. For the simulations, CST Microwave Studio software is used. In order to find the best dimensions, genetic algorithm included in CST is used and the optimized EBG dimensions is used to improve the parameters of the antenna and compared with the one originally designed with full coper rectangular background. The variation in the background structures improves the bandwidth and gain. It is also proven that the resonance frequency can be changed by adjusting the EBG structure. The model has simple geometries that can be easily manufactured and/or adjusted in any desired operation frequencies.

Keywords: Ebg Structure, Microstrip Patch Antenna, Ebg Optimization With Ga

SYNTHESIS AND PHARMACOLOGICAL STUDIES OF NOVEL HYDROXY-, METHOXY- AND BENZYLOXYIMINO- TETRADECANOATES

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Abstract:

Ketoximes and O-substituted ketoxime ethers are not only used in several drugs and biological active compounds in practice, but they are also utilized in ORGANIC CHEMISTRY and drug CHEMISTRY as therapeutic imino agents. Oximes have antiprotozoan-, antibacterial-, antiviral-, antifungal- and antimicrobial- effective compounds and their importance increases with every day; they are also used as antidotes in organophosphorus poisoning cases. DNA interaction is a very important factor in developing and designing anticancer drugs. In the literature, it was found that oxime derivatives synthesized for this purpose had anticancer activities. By referring to these ideas, we have, in the first part of our study, started from 3-, 4-, 6- and 13-ketotetradecanoic acid methyl esters to yield twelve original hydroxy-, methoxy-, and benzyloxyiminotetradecanoates. In the second part of the study, the DNA interaction and antimicrobial interaction of these compounds.

DNA-binding of the synthesized oximes were studied, in vitro, by agarose gel electrophoresis. Antimicrobial activity was performed with eleven types of microorganism in vitro. The relationship between oxime and oxime ether compounds' stereoCHEMISTRY and biological activity. Among all compounds, 3-hydroxyiminotetradecanoic acid methyl ester, synthesized from 3-ketotetradecanoic acid methyl ester showed the best DNA-binding activity. Therefore, this compound, being an originally synthesized one, can be regarded as a potential pro-drug.

Acknowledgments

This work was supported by TÜBITAK (The Scientific and Technological Research Council of Turkey), Scientific Research Projects, project number: 214Z232.

Keywords: Oxime; Oxime Ether;Keto Ester; Dna Binding; Antibacterial Activity; Antifungal Activity

ECONOMIC AND ECOLOGIC SOIL MANAGEMENT PRACTICES IN OLIVE CULTIVATION

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Abstract:

South-eastern Anatolia and Mesopotamia, the homeland of olives quickly spread throughout the Mediterranean climate zone in time. Today's literally tillage has started also in olive cultivation as in any product after mankind has settled. Starting from the end of the 19th century, the developments in engine technology and the rapid growth of human population with INDUSTRIAL revolution have made it necessary to get the HIGHest yield per unit area. Therefore, lands began to be tilled unconsciously. It is understood in a short time that unconscious and intensive management has the adverse effects on soil and ecology. Conservation tillage term has emerged as the results of these developments. PROTECTION of soil, which will also create a source of life for future generations, is only possible with the conservation tillage methods which allow to APPLICATION of sustainable production systems in terms of soil PROTECTION by lowering production costs and increasing the yield per unit area. In this study, together with the conventional tillage methods currently being APPLIED in olive production, the ecological friendly and economic new approaches that could be an alternative to these methods as regarding to protect the land and nature were discussed. Additionally, cover crops which have an important role in the FIELD of AGRICULTURE ENGINEERING were discussed. Furthermore, to minimise environmental pollution, information about crimpers and choppers recently developed to kill cover crops without herbicides were reviewed.

Keywords: Olive Production, Conservation Tillage, Cover-Crops, Soil Management

THE PREDICTION OF TOOL LIFE BY USING CHANGES IN CUTTING FORCES DURING TURNING PROCESS

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Abstract:

The present study concentrates on the relationship between cutting force and tool wear for different parameters in cylindrical turning of AISI 4140 steel under conditions where cutting fluid is used. The set of experiments consist of three different levels of three different parameters. Three of these parameters are feed rate (0.05, 0.1, 0.2mm/rev), three of them are cutting speeds(150, 190, 250 m/min) and the rest of them are depths of cut(0.5, 0.87, 1.5mm). Cutting forces were measured in each experiment of different combination of parameters. The aim of these experiments is to predict tool wear by using cutting forces. For these reason progression of tool wear A mathematical model of tool life is obtained by using experimental results. Relationship between cutting force and cutting parameters are investigated according to design of experiment. Results indicated that increase in cutting speed slightly increases cutting force while increase in feed rate and depth of cut significantly increases cutting force. The changes in the magnitude of machining forces and the alterations in tool wear progression were investigated. Correlation between time-dependent cutting forces and tool wear was analyzed. By using changes in cutting forces, tool life is obtained in a shorter time period, while it takes a lot of time to determine tool life obtained by measuring wear. In addition, predicted tool life and experimental results of tool life is compared.

Keywords: Tool Life, Cutting Force, Tool Wear, Turning Process

AUTOMATIC DETECTION OF THE LATERAL BODY OSCILLATIONS TO ASSESS THE LAMENESS OF BROILERS

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Abstract:

Lameness is one of the major causes of poor welfare in broilers. Previous studies have documented approximately 30% of the chickens were seriously lame. In this study, a new and non-invasive technique was developed to automatically assess the lameness of the birds. For this aim, video images of broiler chickens with five different predefined gait scores were recorded as they walked along a test corridor. Afterwards, the image processing algorithm was APPLIED to detect the lateral body oscillations of broiler chickens. Then, the relation between lateral body oscillation and gait scores (as a measure of lameness) of broilers was investigated. The results showed a positive significant correlation between lateral body oscillations detected by the proposed algorithm and gait score level of broilers given by an expert ($P<0.05$). Since strong correlations were found between lateral body oscillations and gait score level of broiler chickens, the results suggest that this automatic monitoring system has the potential to be used as a tool for assessing lameness of broiler chickens.

Keywords: Body Oscillation, Broilers, Gait Score, Lameness, İmage Analysis.

ON THE INVESTIGATION OF A NOVEL P&O MPPT ALGORITHM BASED ON EXTRATERRESTRIAL IRRADIANCE FOR PV SYSTEMS

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Abstract:

To produce the ELECTRICAL energy from the sun, photovoltaic (PV) panels use. The output of the PV panels has nonlinear characteristics due to unstable variations of solar radiations, and ambient temperatures. To maximize the efficiency of the PV systems, the PV panels should be operated in maximum power point (MPP). There are a lot of algorithms such as Perturb and Observe (P&O), Incremental Conductance (INC) and Hill Climbing (HC) etc. for maximum power point tracking (MPPT) for the PV systems. Because of its simple structure, P&O algorithm is widely used for MPPT. In this study, a novel P&O type MPPT algorithm based on extraterrestrial irradiance is proposed for the PV systems. The proposed P&O algorithm has low computational complexity, easily implementable and, requirement of a few measurement parameters. Steps of the proposed P&O algorithm are; i. A look-up table that gives the MPP parameters of the PV panel versus irradiance is computed, ii. The extraterrestrial irradiance values are calculated for given date and location, iii. MPP parameter of PV panel is derived from the look-up table. iv. Traditional P&O algorithm is started to tracking from the derived MPP. The proposed P&O and traditional P&O algorithms were tested on a platform arranged in MATLAB/Simulink environment. MPP catch time of the proposed P&O algorithm and steady-state performance was examined in test experiments. Moreover, the energy efficiency of the proposed P&O algorithm was investigated in case of long time operation. The results showed that the proposed P&O algorithm has shorter the MPP catch time than the traditional P&O algorithm and power oscillations can be reduced by small perturbation step. The energy efficiency of the PV system can be increased thanks to small the MPP catch time.

Keywords: Extraterrestrial İrradiance, Pv Panel, P&O, Mppt

NUMERICAL APPROACH FOR SOLVING SYSTEMS OF FRACTIONAL INTEGRO DIFFERENTIAL EQUATIONS

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Abstract:

In this study we give a NUMERICAL approach for solving system of fractional integro differential equations which is consist of m-th order , k linear equation under mixed conditions. The solution is expressed in the truncated generalized fractional Taylor series form. In this method we present a Taylor collocation method for the NUMERICAL solution of fractional integro differentialsystem. This method transforms the fractional integro differential systems equation into matrix equations. The desired approximate solutions can be determined by solving the resulting system, which can be effectively computed using symbolic computing codes on Maple.

Keywords: System Of Fractional İntegro Differential Equations, Caputo Derivative, Taylor Collocation Method, Taylor Series, Approximate So

CHARACTERIZATION OF ENRICHED LEUCITE FROM AFYON REGION/TURKEY

SEVGİ KARACA, ALİ UÇAR, VELI UZ, NİHAL DERİN COŞKUN, ALİ İSSİ - YAŞAR KİBİCİ

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Abstract:

Leucite is used today in advanced technology MATERIALS as a syntetic product. However, the use of naturel leucite with outstanding properties such as HIGH strength and wide thermal expansions coefficient has not been happened upon any work. Therefore, the pre-research has been performed on the use of advanced technology FIELDs by enrichment of Afyon region naturel leucite. To use leucite mineral which is taken from nature is not possible in such MATERIALS. It has been attempted to obtain pure leucite as possible, so dry and wet HIGH intensity magnetic seperations were performed, respectively, in order to remove to Fe2O3 which is at a rate of 5,4% in leucite ore. Phase analysis (XRD), chemical analysis (XRF), thin section optical microscopy analysing and thermal behavior (DTA/TG) were determined for enriched leucite. As a result of studies, the leucite was obtained with ~ 17% K2O, 21% Al2O3, 49% SiO2 and 0,57% Fe2O3 content.

Keywords: Leucite, Enrichment, Characterization

NUMERICAL SCHEME FOR SOLVING LINEAR FREDHOLM INTEGRO DIFFERENTIAL DIFFERENCE EQUATIONS

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Abstract:

In this paper a NUMERICAL method is given for the solution of linear Fredholm integro differential difference equations under the mixed conditions using the Bernoulli polynomials. The aim of this article is to present an efficient NUMERICAL procedure for solving linear Fredholm integro-differential-difference equations. This method transforms linear Fredholm integro-differential-difference equations and the given conditions into matrix equation which corresponds to a system of linear algebraic equation. Finally, some experiments and their NUMERICAL solutions are given. The results reveal that this method is reliable and efficient.

The basic ideas of the above studies are developed and APPLIED to the mth-order linear Fredholm integro differential difference equation with variable coefficients under the mixed conditions. And then the solution is expressed in the form, which is a Bernoulli polynomial of degree N.

Keywords: Bernoulli Polynomials, Fredholm İntegro Differential Difference Equations, NUMERICAL Solution

A STUDY FOR DEVELOPING A GRAVITY BASED TRIP DISTRIBUTION MODEL FOR INTERPROVINCIAL BUS TRAVELS IN TURKEY

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Abstract:

Although there are many Origin-Destination (O-D) estimation models in the literature, using conventional methods based on home surveys or roadside interviews in order to estimate O-D matrices are generally costly, time consuming and labour intensive. Since rapid changes in land use and demographic structure occur in developing countries, this situation shortens validity of data for these countries. Therefore, it is necessary to revise frequently the data obtained by using relatively inexpensive methods. For this purpose, various methods that are cheaper and do not require intensive labour have been developed in order to form and revise O-D matrices. Thus, since the early 1980s, the idea of determining trip matrices from traffic counts has attracted attention of the researchers, and various methods have been suggested on this subject. The model developed by Bell in 1983 is also one of these methods, and it has been used for determining the daily interPROVINCIAL bus travel matrix in Turkey.

After the daily interPROVINCIAL bus travel matrix was determined, a multivariate regression analysis was performed in order to develop a gravity based trip distribution model for the interPROVINCIAL bus travels by using O-D information obtained from this matrix. In this analysis, as the interPROVINCIAL bus travels were used as the dependent variable, the populations of the provinces and the distances between them were taken as the independent variables. The coefficients of independent variables obtained from this regression analysis were then used as the calibration constants of the gravity based trip distribution model. Finally, by placing these constants in the equation of the trip distribution model, the gravity based trip distribution model was developed.

Keywords: O-D Matrix Estimation, Trip Distribution Models, Gravity Model.

SELECTED BIOCHEMICAL AND OXIDATIVE STRESS PARAMETERS AND CERULOPLASMIN AS ACUTE PHASE PROTEIN ASSOCIATED WITH BOVINE LEUKAEMIA VIRUS INFECTION IN DAIRY COWS

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Abstract:

The aim of this study was to determine the ceruloplasmin (Cp) and vitamin C concentrations, the total antioxidant status (TAS), and selected biochemical parameters in dairy cows spontaneously infected with bovine leukaemia virus (BLV). Of the 27 cows included in the study, 18 animals were seropositive for enzootic bovine leukosis (EBL), whereas nine cows were seronegative and were used as controls. The serum aspartate aminotransferase (AST) ($P = 0.003$) and Cp concentrations ($P = 0.03$) decreased (65.17 ± 5.03 and 7.70 ± 0.72 respectively) in BLV-infected cows, as compared to healthy animals (100.67 ± 11.50 and 10.40 ± 0.70 respectively). A slight insignificant increase in alkaline phosphatase activity and unchanged levels of alanine aminotransferase, lactate dehydrogenase, calcium, magnesium, and TAS were demonstrated in EBL cows. As the TAS and vitamin C levels remained unchanged in EBL cows, it may be suggested that ruminants may compensate for the impaired oxidative/antioxidative balance. The results obtained also indicate that BLV may suppress AST and Cp synthesis or secretion in the liver through an unknown mechanism. The mechanism of action of BLV in hepatocytes, especially on AST and Cp, requires further investigation to elucidate the immune suppression caused by oncogenic retroviruses.

Keywords: Cattle; Bovine Leukaemia Virus; Aspartate Aminotransferase; Oxidative Stress; Ceruloplasmin

THE EFFECT OF DIFFERENT HYDRODYNAMIC PARAMETERS IN WATER ENTRY OF THE OBJECTS WITH CONSTANT DEADRISE ANGLE

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Abstract:

In order to predict impact loads acting on ships and offshore structures during slamming, the water impact problem has been the research subject for the last century. Slamming is a phenomenon that is described as the ship structures reentering to water after lifted out at rough sea conditions, and needs to be critically considered in ship design. In this study, cones and wedges with different deadrise angles are used as simple test geometries to investigate experimentally the effect of the deadrise angle on the impact forces experienced during slamming. The experimental setup consists of a water basin and railing systems which are integrated with a sliding mechanism to carry free fall water entry tests. Another important parameter effecting impact forces during slamming is water entry velocity. In order to investigate their effects, three strain gauges are installed on the inner side of the test specimens for measuring the impact loads. For each test specimen, these gauges are installed in the same order with the same orientation starting from the tip of the specimens. Thus the comparison for the impact load measurements can be made between the cases of different deadrise angles. First, the effect of deadrise angle on slamming is investigated with wedges with three different deadrise angles, namely 7.5, 30 and 45 degrees, for five different entrance velocities. Then, cones with the same deadrise angles are tested, and the results are compared with the ones obtained from the wedge tests.

In this study, we also investigated the effect of the surface property of the objects. The same experiments under the same hydrodynamic conditions were carried out with hydrophobic coated surfaces. The effect of hydrophobicity is shown via strain measurements and analyzing the pileup and splash characteristics by HIGH speed camera images on the objects with constant deadrise angles.

Keywords: Water Entry, Hydrophobicity, Wedge, Cone

EXPERIMENTAL AND NUMERICAL ANALYSIS OF CUTTING FORCE IN HARD TURNING OF AISI 52100

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Abstract:

Hard turning process is widely used an alternative machining process to grinding. Hard machining has many advantages than grinding such as short cycle time, process flexibility, better surface finish, HIGHER material removal. In this paper, NUMERICAL analysis and experimental investigation of hard turning have been studied to investigate the effects of cutting parameters on cutting forces in machining of AISI 52100 steel using coated and uncoated Cubic Boron Nitrite (CBN) inserts. Taguchi's L16 orthogonal array was used for design of machining experiment. Machining experiments were carried out to study and evaluate the effect of cutting parameters on cutting force. The Johnson-Cook PLASTICity model is used to describe the work material behaviour. A three dimensional (3D) finite element analysis (FEA) model to predict cutting forces in hard turning has been developed and validated with the extensive experimental data. Results of FEA simulation and machining experiments are compared. The obtained cutting force measurement tests and NUMERICAL results showed that the feed rate and coating have a great influence on the cutting forces and tool stresses, especially in the cutting force and Von Mises stress distribution. The predicted forces are similar with the measured ones in magnitudes and trends.

Keywords: Cutting Force, Finite Element Analysis, Hard Turning, Cbn Cutting Tool

DECOLORIZATION OF TEXTILE AZO DYES BY HALOPHILIC ARCHAEA

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Abstract:

Azo dyes are aromatic compounds with one or more –N=N– groups and the largest class of synthetic dyes used in commercial APPLICATIONs. They pose serious ecological threat because of their disposal together to TEXTILE wastewater containing rather HIGH salt ratio. In this study, azo dyes decolorization by halophilic archaea were screened. Among 121 isolates, the strains called F89A1, B44B and CH7 were determined as having the HIGHest decolorization capacity on solid and liquid media containing 20% (w/v) NaCl and Reactive Black 5 (RB5). These isolates were subjected to decolorization of different azo dyes and maximum decolorization by three archaeal isolates were found to be optimal at the presence of 20% NaCl, under statical conditions at 45□ and pH 7.5. It was showed that the trace elements didn't have any effect on the process. ORGANIC nitrogen sources, particularly that of yeast extract was observed to enhance decolorization rate. Azoreductases activity of F89A1 strain was estimated as 12.8 U/ml at the conditions of 2.5 M KCl, 45□C, pH 7.0, while it was calculated as 11.63 U/ml and 11.07 U/ml respectively for B44B and CH7 at the conditions of 2.5 M KCl, 35□C, pH 7.5. In our knowledge, it is the first time that halophilic strains have been used for studying decolorization of azo TEXTILE dyes and archaeal azoreductases which is active at HIGHER salt concentrations were studied.

Keywords: Halophilic Archaea, TEXTILE Azo Dyes, Azoreductase, Decolorization

THE EFFECTS OF ARTIFICIAL PASTURE MIXTURE PREPARED IN CENTRAL ANATOLIA CONDITIONS ON TURKEY' S WEIGHT

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Abstract:

In recent years, the red meat is expensive in turkey led to the prominence of white meat. Turkey pasture evaluation capacity is HIGHER then the other poultry. In addition to this turkey feed protein and energy to turn meat is more superior then cattle and sheep. In the livestock business, total in put costs constituting 65-70% coming from forageand it is important to meet some parts of forage from the low-cost pasture. To close the rough age deficit, it is important to breeding work to do in pasture and the creation of suitable artificial pasture tograze on the type of animal. In light of this information is to develop

A pasture mixture for turkey grazing to accelerate the increase in body weightis becoming important for this sector. In this study; changes in different measurement periods of weight incrase follow a straight line, as expected in both 2015 and 2014 study years, on the last measurements have reached the HIGHest weight. Effect on turkey weights of different mixture ratios, in both years experiments were reached an average weight of turkeys in the first and second mixture is determined that more than a third mixture. As a result of this study, the pasture with effects of turkey weight increse will be established with different hay mixtures.

Keywords: Turkey Weight, Hay, Pasture Mixture

COMPARISON OF DIFFERENT WATER-REPELLENT CHEMICALS DURİNG SIZE PRES IN CORRUGATED CARDBOARD

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Abstract:

Paper and board production in Turkey in 2011 reached 2,847,326 tons. This rate of corrugated paper constitutes a serious figure as 1,393,832. The total amount of paper and cardboard domestic sales were 5,194,084 tons. Here it is represented by a ratio of 1,968,290 tons of paper such as corrugated cardboard. These ratios continued to increase in the years underlines the essential importance of the sector of corrugated paper. It is connected with the corrugated cardboard and paper packaging industry, part of the work done in the paper and packaging has led to increased investment. A number of surface treatments are carried out to improve the properties of the outer surface of corrugated cardboard paper. The most common of these is the bonding surface of the surface starch as you press. This study is aimed at helping to improve with using the different water repellents chemicals to use, reducing the amount of starch used in the bonding surface with water-repellent chemical activity with the surface starch is APPLIED on size press. To compare the effectiveness of different water repellent with starch, the results can be seen from the angle of changes in the availability and strength values will be important in the production of waste paper. In addition, mass production can not be done with consideration of the different trials, we believe the industry will shed light on the applicability of the study results.

Keywords: Corrugated Cardboard, Size Pres, Water-Repellent Chemicals, Surface Starch

EXERGY AND LIFE CYCLE ANALYSIS OF A STEAM BOILER

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Abstract:

Energy usage is a critical part of numerous processes. For processes where energy is intensively used or/and undergo substantial conversion, the expenditure of energy constitutes a significant part of overall costs. Thus maintaining total costs at the minimum level may be ensured only through conducting thermodynamic analyses and decreasing the energy costs. Based on the first and second laws of thermodynamics an exergy analysis is to be done to quantify the exergy losses of system components, to predict their efficiencies, and then to calculate the total thermodynamic effectiveness of the system. Moreover, the evaluation of environmental impact and energy use throughout the overall production and usage life cycle is critical for the appropriate evaluation of technologies. The environmental impact and efficiency of technologies depend on the characteristics of the many steps and chains involved over their lifetimes, from natural resource extraction and plant construction to distribution and final product utilization. Life cycle analysis is a methodology for this type of assessment, and represents a systematic set of procedures for compiling and examining the inputs and outputs of MATERIALS and energy, and the associated environmental impacts, directly attributable to a product or service throughout its life cycle. In this work, energy, exergy and life cycle analyses of a steam boiler were studied. The mass, energy and exergy balance equations were developed, and the energy and exergy analyze were done for the system. The improvement potential and the exergetic efficiency of the system were determined. By using life cycle analysis methodology, global warming potential for the system was obtained.

This study was supported by Research Fund of the Yalova UNIVERSITY. Project Number: 2012/BAP/030.

Keywords: Energy, Exergy Analysis, Life Cycle Analysis

EXPRESSION OF GENES WHICH WORKS ON DROUGHT, WATERLOGGING AND SALT STRESS INTERACTIONS ON WHEAT (TRITICUM AESTIVUM L.) SEEDLINGS AND ANTIOXIDANT ENZYME ACTIVITY

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Abstract:

In the present study, drought, water and salt stres their interactions were investigated on wheat seedlings (Triticum aestivum cv. Dagdas and Doğankent). Shoot length and shoot dry weight, chlorphyl a and b, total chlorophyl (a+b) amount, catalase, glutation reductase enzyme activity as well as gene expressions during abiotic stres were investigated.

Stress negatively affected shoot develeopment on wheat cultivars Dagdas and Doğankent used in this study. In addition, amount of chlorophyll a, chlorophyll b and total chlorophyll also decreased with abiotic stress appilications. Catalaz (CAT), glutation reductase (GR) and APX activities were HIGHER than the control treatment. All of this stress treatments increased the enyzme activities. When analyzed genes stress factors depending on our data TaSRHP gene increased compared to control occurred but it was observed that a decrease in gene CHL. TaZnFP protein was observed no activity.

Keywords: Wheat, Abiotic Stress, Enzyme Activities, Gene Expressions

INHIBITION EFFECT OF THIOL DERIVATIVE INHIBITOR ON MILD STEEL CORROSION IN ACID SOLUTION

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Abstract:

Mild steel which is susceptible to corrosion in aggressive media is used for many ENGINEERING APPLICATIONs and INDUSTRIAL environments. Among them, mild steel is the most widely used. Mild steel corrosion is one of the most investigated topics by researchers because it has a large allotment of the national economy. Researchers have developed various methods for metal PROTECTION. It is also HIGHly sensitive to corrosion, especially in acidic media. In recent studies, heterocyclic molecules and environmentally friendly compounds have been investigated to protect the metals against corrosion. The heterocyclic ORGANIC compounds, containing N, O, S and P heteroatoms, generally active for the metal inhibition in acidic solutions via FORMING a tight barrier as physically or blocking active zones of metal.

The inhibition effect of 4-amino-5-(4-pyridyl)-4H-1,2,4-triazole-3-thiol (4APT) is investigated on the corrosion of mild steel in 1.0 M hydrochloric acid solution using linear polarization resistance (LPR), electrochemical impedance spectroscopy (EIS) and current-potential curves TECHNIQUES. Experiments are carried out in solutions including 5 – 0.5 mM 4APT concentration range at 298 K. Potential of the zero charge (PZC) of metal is determined by using EIS method for getting more information about the inhibition mechanism of 4-APT. Obtained results showed that the 4APT provides a good film layer on the surface and protect the metal from acid corrosion.

Acknowledgement

The authors are greatly thankful to CUKUROVA UNIVERSITY Research Fund (Project Number: FBA-2016-5900)

Keywords: Corrosion, İnhibitor, Acid Solution, Electrochemical TECHNIQUES

ARDUINO BASED WALL PLUG CONTROL BY ANDROID MOBILE DEVICES

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Abstract:

The idea of controlling the existing manually controlled devices remotely, make the life easier. Apart from the convenience, some systems become a lot more secure when monitored and controlled by such systems. The security issues cannot be easily monitored, when using traditional methods whereas remote controlling allows us to be able to see what is going on without really interfering with the system and take the necessary precautions before it is too late.

The PROTECTION of ELECTRICAL devices is provided through some MECHANICAL fuses. These MECHANICAL fuses are not convenient when they are desired to be controlled remotely, due to the MECHANICAL properties of the components and their likelihood of failure. Some devices may draw more current than desired from the power line. It is because of the devices present in the system such as motors, heaters. When such an event happens, it is expected to damage the wires that carry the power, the device itself or even to humans.

In this study, the ELECTRICAL devices which draw current from the 220V single phase line can be controlled in terms of preventing them from drawing more current than desired. When the current exceeds the limit, system can be protected by terminating the system. A mobile device having an Android OS is used to monitor the drawn current values. The values that are read by the current sensor are processed by Arduino and sent to the Android device. The software allows us to open/close the plugs and any problem that may occur can be prevented by doing so. It is expected that the damages that can be harmful and fatal can be minimalized. All devices that are run from the single phase power line can be controlled remotely, and the users are warned/protected against the possible leakage currents.

Keywords: Wall Plug Control, Android Mobile Device, Remote Control

A SURVEY: VISIBLE LIGHT COMMUNICATION TECHNOLOGY

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Abstract:

The illumination technology has entered a new era as the LEDs become more commonly used instead of the current incandescent bulbs or fluorescent lamps. The LEDs are HIGHly efficient compared to the traditional lighting systems. By the end of 2030, it is estimated that 70% of all indoor illumination systems will be provided by the LED lighting systems. LEDs are also not hazardous as they contain no harmful gasses or chemicals.

Apart from the efficiency and biocompatibility, LEDs have very HIGH switching rates. An LED's light intensity can be changed very rapidly, so fast that a human eye cannot detect. This property allows one to send information by using the LEDs. The data transmission is provided by the system as well as the system performs the illumination task. Such a HIGH speed communication is called VLC (Visible Light Communication). The light intensity is modulated through various modulation TECHNIQUES and the data is sent by the LED. This survey provides an overview about the VLC technology, the idea that lies behind it, brief history, advantages, challenges and the APPLICATIONs that have been introduced so far.

Keywords: Visible Light Communication, Vlc APPLICATIONs, Led

INVESTIGATION OF THE DESIGN CRITERIA FOR A CLOSED-LOOP HIGH-SPEED CIRCULATION TUNNEL FOR MARITIME APPLICATIONS

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Abstract:

Model tests carried out in water and cavitation tunnels have significant impacts on final design stages of the submerged marine structures such as submarines, torpedoes and their auxiliary. A new recirculating water tunnel facility has been designed at YTU, specifically for the research needs of the TURKISH MARITIME industry. Designing the tunnel has been done by considering the practical knowledge from the industry, academic literature and the hydrodynamic design analysis of the certain flow components. Each flow component like contraction section, diffuser and corner with guide vanes has some influence on the flow quality in the test section, thus needs to be critically examined with respect to design criteria of no vibration, no flow separation, minimum viscous heat generation and minimum energy losses. At the end, the dimensions of the tunnel were determined depending on these criteria.

By carrying analytical and CFD analyses, the goal of having 1% flow uniformity, 1% turbulence intensity, 0.2 cavitation number and 5 mm boundary layer thickness in the test section is investigated. A commercial CFD code FLUENT is used to simulate the flow in each component of the water tunnel. The design speed in test section is chosen to be 6 m/s provided with the conditions of 5th order polynomial contraction wall profile with the contraction ratio of 6.6 and angle of 8.5 degree for the diffuser with the expansion ratio of 4 to prevent secondary flows after the test section while minimizing the pressure losses. The contraction ratio is optimized at 6.6 to give minimum turbulence intensity and no boundary layer separation. Optimization of the guide vanes in the elbows and the size of honeycomb and screens for helping reduce the turbulence intensity are also considered.

Finally, we present the initial investigation on the boundary layer modification system for improving flow quality for different test models.

Keywords: Water Tunnel, Contraction, Diffuser, Guide Vane

A SIMPLE AND GLOBAL PHYSICS BASED METAHEURISTIC METHOD: WATER EVAPORATION OPTIMIZATION

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Abstract:

Metaheuristic methods are very popular and efficiently used in many complex real world search and optimization problems. Due to the philosophy of continually searching the best and absence of the most efficient metaheuristic method for all types of problems, novel algorithms or new variants of current algorithms are being proposed. Water Evaporation Optimization Algorithm (WEOA) is the most current physics inspired metaheuristic algorithm and based on the evaporation of a tiny amount of water molecules on the solid surfaces with different wetting capabilities. This paper explains the operators of WEOA and represents the comparative results obtained from novel metaheuristic methods for different benchmark functions. Although WEOA is one of the newest algorithm and no optimization has been done for its parameters, obtained results from the experiments are promising. WEOA seems a simple and efficient global optimization algorithm that may be used in many complex search and optimization problems and its variants may be proposed for efficiency in future works.

Keywords: Global Optimization, Metaheuristics, Water Evaporation Optimization.

A NEW METHOD FOR SOLVİNG LARGE SCALE DİFFERENTIAL MATRIX RICCATI EQUATIONS

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Abstract:

The aim of this work is to present a new method for solving large-scale differential continuous-time matrix Riccati quations. These equations have many APPLICATIONs in control theory. Our method is based on Krylov subspace where the initial and large problem is projected onto an extended block Krylov subspace. Then we obtain a low-dimentional differential Riccati equation that is solved by some classical methods such as BDF or Rosenbrock solvers. We present the construction of the method with some theoretical results and give some NUMERICAL experiments to show the effectiveness of our approach.

Keywords: Extended Block Krylov, Bdf, Rosenbrock Low Rank, Riccati Equations.

PERFORMANCE OF NITROGEN AND PHOSPHORUS REMOVAL OF MOVING BED BIOFILM REACTOR OPERATED AS SEQUENCING BATCH

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Abstract:

In this study, nitrogen and phosphorus removal from municipal wastewater in moving bed biofilm reactor operated as sequencing batch was investigated. Kaldnes (K1) material as biofilm carrier media was used in the study. Operation consisted of anaerobic/aerobic/anoxic/aerobic phases with hydraulic residence times of 120 min/330 min/210 min/50 min. In the moving bed biofilm reactor with the filling ratio of 50% operated as sequencing batch, average effluent chemical oxygen demand (COD), ammonium-nitrogen (NH4-N), nitrite-nitrogen (NO2-N), nitrate-nitrogen (NO3-N) and phosphate-phosphorus (PO4-P) values after the cycle duration of 12 h were determined to be 27 mg/L, 0.7 mg/L, 0.04 mg/L, 0.6 mg/L and 0.7 mg/L, respectively. The average COD, NH4-N and PO4-P removal efficiencies were obtained as 92%, 97.5% and 91.3%, respectively.

Keywords: Moving Bed Biofilm Reactor, Nitrogen Removal, Phosphorus Removal, Sequencing Batch Biofilm Reactor

EXPERIMENTAL INVESTIGATION OF THE HYDROPHOBIC EFFECTS ON LAMINAR-TURBULENT TRANSITION

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Abstract:

Predicting turbulent transition in shear flows of Newtonian and complex fluids is of a great importance in different industries with APPLICATIONs on pipe flows, film flows and Couette flows. Identification of the flow regime can be an important factor either in hydraulic design or in flow control. Moreover, a possible delay in transition would be preferred in many INDUSTRIAL APPLICATIONs for the sake of HIGHER capacities of transportation with increased solid fraction.

In order to investigate this possibility, a cylindrical Couette flow setup consisting of an inner cylinder that rotates with an angular velocity within a stationary concentric larger outer cylinder has been constructed. For the purpose, we experimentally investigate the transition to turbulence of a Newtonian fluid, namely glycerol mixture, under hydrophobic effects in Taylor–Couette flow. The experimental setup consisting of the two coaxial rotating cylinders are made of acrylic allowing visualization from any direction. The measurements are conducted at different Reynolds and Taylor Numbers. We also measure the drag reduction due to the slip on the walls via amperage requirements to maintain the proposed angular velocity. By combining direct HIGH-speed imaging of the flow structures with the pressure losses data, we provide a systematic description on what happens during different flow regimes from laminar to fully turbulent when hydrophobicity is present. We also observed the Taylor vortices at HIGHER Reynolds numbers under the hydrophobic effects.

First we present the preliminary results from our tests, by visualizing the flow via seeding particles and a two-coloured art dye, for which the colour changes with the orientation of particles. Second, we consider how the critical Reynolds number is increased under the hydrophobic effects at the same hydrodynamic conditions. Finally, we present the results from the amperage readings to show at what limits the drag reduction realizes due to hydrophobicity.

Keywords: Taylor-Couette, Hydrophobicity, Turbulent Transition, Laminar, Taylor Vortex

ANALYSIS OF CARRIER BASED DISCONTINUOUS PWM METHOD FOR CASCADED H-BRIDGE MULTILEVEL INVERTER BASED D-STATCOM

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Abstract:

Demand of ELECTRICAL energy is increasing day by day. For this reason, nowadays, energy efficiency on power systems submit the major emphasis. Power ELECTRONICS based compansation devices are developed to minimize the losses and provide energy efficieny on power systems in parallel with the development of power ELECTRONICS technology. Distribution static synchronous compensator (D-STATCOM) is one of the custom power devices used in solving the power quality issues and reactive power compansation on distribution systems. In recent years various kinds of multilevel inverters have been used in D-STATCOM circuit structure in different power system APPLICATIONs. In this study, the analysis of cascaded h-bridge inverter D-STATCOM system controlled with proposed carrier based discontinuous pulse width modulation (DPWM) method which is based alternative phase opposition disposition (APOD) is performed. As it is known, DPWM methods are energy efficient PWM methods. D-STATCOM system controlled with proposed DPWM method is modelled in MATLAB-Simulink enviroment and simulations are accomplished. Proposed DPWM method is compared with continuous PWM methods in terms of harmonic distortion and losses. It is observed in simulations that proposed method with HIGH modulation indexes provides lower harmonic distortions than proposed method with low modulation indexes. Moreover, it is determined that proposed DPWM method significantly reduces inverter losses compared with continuous PWM methods.

Keywords: Energy Demand, Energy Efficiency, Power Systems, Power Quality, D-Statcom, Distribution Systems

THE EFFECT OF LEAD MINE WASTE USED AS CONCRETE AGGREGATE ON SOME PHYSICAL AND MECHANICAL PROPERTIES OF CONCRETE

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Abstract:

The aim of this study is to determine the physical and MECHANICAL of concretes produced from lead mine waste which cannot be processed economically as the lead content is low in the mines they are extracted. Lead mine waste were exchanged at ratios of 25%, 50% and 75% respectively with barite and limestone aggregates and samples were prepared at C16, C25 and C35 classes. The density, water absorption and visible porosity ratio of prepared samples were determined. Besides, the compressive strength of prepared samples were determined via destructive and non-destructive methods. For this purpose, the samples were prepared in 10x20 cm dimensions. It was seen from the experimental measurements that the aggregates produced by lead mine waste had positive effect on physical and MECHANICAL properties of concretes. As a result, depending on the increasing ratio of lead mine waste in aggregates added into the concrete mixture, a better physical and MECHANICAL properties were obtained as compared with limestone aggregate.

Keywords: Concrete, Waste Management, MECHANICAL Properties

MPPT FOR PV ARRAYS BASED ON BAT ALGORITHM WITH PARTIAL SHADING CAPABILITY

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Abstract:

The power–voltage (P-V) curve of photovoltaic (PV) arrays has several local peaks and one global peak under partial shading conditions. Because the conventional maximum power point tracking algorithms are converge to the first peak of the P-V curve, they may not find global maximum power point (GMPP). Soft computing methods such as bat algorithm (BA) may find GMPP of P-V curve. Therefore, this paper proposes a dual algorithm search method that consist of BA and perturb&observe algoritm (P&OA). Firstly, BA is used to determine the area of global peak, then P&OA is replaced to track the maximum power point in the area of global peak. As the sampling period of BA is very longer than P&OA's, the number of iteration of BA was limited. If the power greatly changes during the iteration process of P&OA, BA is reactivated. As a result of the simulations, performance of the proposed method is superior to either BA or P&OA.

Keywords: Bat Algorithm, Perturb&Observe Algorithm, Partial Shading Conditions

MAIN GROWTH PARAMETERS OF CHONDROSTOMA HOLMWOODII (BOULENGER, 1896) FROM TAHTALI RESERVOIR

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Abstract:

Chondrostoma holmwoodii (Boulenger, 1896) is an endemic species from western Anatolia and is listed as vulnarable in IUCN Red List. Aim of this study is to investigate main growth parameters of the species and evaluate the threats. A total of 201 specimens were sampled with multimesh gillnets from Tahtalı Reservoir in 2014. Population parameters such as age and sex composition, length-weight relationship, frequence analysis and von Bertalanffy growth function was investigated. Aging of the fish was made from scales and length measurements were taken as total length. Age composition of the population differs from 0 to 5. Female/male ratio is 1.00/0.94 according to 76 specimens and 16 specimens were identified as immature. Population growth parameters were calculated as, $L\infty = 49.93$ cm, $k = 0.1122 \cdot year–1$ and $t0 = –1.1977$ year–1 .

Tahtalı Reservoir is hosting an important population of this endemic and threatened fish species. However interspecific relations seem to affect this population. Conservation measures are need to be taken immediately.

Keywords: Chondrostoma Holmwoodii, Growth Parameters, Tahtalı, Turkey

HORIZONTAL AND VERTICAL BALANCING FOR CLOUD ENVIRONMENT

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Abstract:

Today the border has increased work to be done using computers, as well as developments in all areas with the expansion of the concept of non-specific cloud. Then carried out on the data files in the beginning of operations on data stored carried on through databases accessible anywhere through increased provision enables the desired jobs. In particular, cloud computing can be used in my parallel PROGRAMMING is provided by the concept of data to be processed in multiple environments. The two most important factors that determine the quality of the software produced for the cloud are security and other quality factors. Other factors must be in balance due to the mentioned factors as a whole. One factor that is not the case as more important. In this section, horizontal and vertical balancing concepts used in the processing of requests, load balancing, automatically balancing.

Keywords: Forwarding, Auto-Balancing, Conditional, Not-Conditional, Rationality, Request

EFFECTS OF DIFFERENT GROUND MOTIONS ON SEISMIC RESPONSE OF A CANTILEVER RETAINING WALL CONSIDERING SOIL STRUCTURE INTERACTION

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Abstract:

It is a well-known fact that earthquake damage to retaining walls is strongly affected by the dynamic properties of local soil deposits and frequency content of the ground motion occurred. The magnitudes of wall movements and stresses in the wall depend on the response of the foundation soil, the response of the backfill, the inertial and flexural responses of the wall itself, and the nature of the ground motions. Major advances have been made for characterizing the seismic behaviour of retaining walls over the years. Although researchers have developed a variety of analytical and NUMERICAL models to estimate the dynamic behaviour of retaining walls or performed various types of experiments to study the mechanisms behind the development of seismic earth pressures on retaining structures, there has been relatively little work on understanding the effects of soil-structure interaction (SSI) and earthquake frequency content on seismic behaviour of cantilever walls.

In light of the foregoing, a better understanding of the effects of ground motions and SSI appears desirable. As such, the primary objective of this study is to shed light on the effect of the different ground motion records considering SSI on the behaviour of cantilever walls. In line with this aim, considering two different ground motion records, nonlinear dynamic analyses of backfill-cantilever wall-soil/foundation interaction system were carried out in time domain using finite element method (FEM). The FEM of the system was constructed using the finite element package ANSYS. Radiation damping and wave reflection effects were considered by using artificial viscous boundaries in the FEM. Consequently, based on the response amplification/reduction pattern observed on the lateral displacements and stresses, it is concluded that the dynamic behaviour of cantilever walls is HIGHly sensitive to ground motion characteristics and SSI.

Keywords: Ground Motion Characteristics, Soil-Structure İnteraction, Finite Element Method, Response Amplification

TENSILE STRENGTH OF DOUBLE LAP JOINTS BONDED WITH A MICRO-PARTICLE-REINFORCED ADHESIVE

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Abstract:

Adhesive bonding of structures has significant advantages over conventional fastening systems. Bonded joints are considerably more fatigue resistant than MECHANICALly fastened structures because of the absence of stress concentrations that occur at fasteners. Therefore, the need to improve adhesives used for bonding has acquired utmost importance. The present work aims to strengthen double-lap adhesive joints. In order to improve the tensile lap shear strength of adhesively bonded joints, micro-particles (45µm and below) of sewage sludge ash were mixed with the adhesive. Glass fiber/epoxy composite laminates with 10 layers were chosen as adherents and the adhesive was produced from different amount of micro-particles added into epoxy. The MECHANICAL properties of adhesively bonded double-lap joint geometry with same configurations and thicknesses of lower and upper adherents under tensile loading were investigated experimentally to assess the effect of different weight content of micro-particles on the MECHANICAL properties of the adhesive. After MECHANICAL tests, failure loads and effect of additive ratio were presented for each mass rated adhesive with some conclusions.

Keywords: Double Lap Joints, Adhesive, Composite MATERIALS, Bonding, Micro-Particles

MINIMIZATION OF NETWORK CONSTRUCTION COST FOR A GIVEN FAILURE PROBABILITY

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Abstract:

Reliability of networks is an important issue that arises in different problem settings. In this study we focus on the initial construction of a network. Each edge in the network has a specific cost and this cost incurs if the related edge is included in the network construction. In addition to the cost factor, each edge has a specific reliability level which shows the probability that the connection represented by that edge will be working at a particular time. Our objective is to minimize the total cost of the edges included in the network construction. On the other hand, the constructed network should satisfy a minimum probability level such that all the nodes of the network are connected to each other at any given instance. We present a simulated annealing algorithm for this problem and share our preliminary results.

Keywords: Network Construction, Reliability, Optimization, Simulation

THE EFFECTS OF AGGREGATE TYPES ON ABRASION RESISTANCE OF HEAVY WEIGHT CONCRETES

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Abstract:

The aim of this study is to determine the effects of abrasion resistance of heavy weight aggregates on abrasion resistant of concretes. In this study, the heavy weight aggregates that are magnetite, barite and limonite were used. Abrasions were determined according to ASTM C131 and ASTM C535. Selected concrete classes are C16, C25 and C35; in addition, these are subjected to wear according to ASTM C944. Consequently, it is seen that aggregate types affects the abrasion resistance of all type of concrete.

Keywords: Abrasion Resistant, Heavy Weight Aggregates, Heavy Weight Concrete

QUALITY MANAGEMENT SYSTEMS OF CONSTRUCTION PROJECT DESIGN

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Abstract:

Quality is the most important parameter which affect the preference of product choice of today's consumers. The quality is a concept which directly affect the management of organizations, resources in general and the relationship between the costumers and producers in business world. There are a number of factors which affect the quality especially in construction sector from the project design to delivering to the customers. Moreover, the quality becomes more and more important since the construction products are used for long period of time. Construction manufactures is a sector in which the most frequent conflicts is experienced between customers and producers. The well planning and management of these planes during the planning process mean that the problems between managers, workers and the costumers at the later stages are minimized. In this study the outline of the quality management in the process of construction projects design within the framework of ISO 9001 is excamined.

Keywords: Quality, Construction, Design, Management, İso 9001

PARTICLES' BEHAVIOUR ANALYSIS IN PARTICLE SWARM OPTIMIZATION

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Abstract:

Particle Swarm Optimization (PSO) is an easily realizable and computationally effective heuristic optimization technique and is based on the social behaviour of a flock of birds, a school of fish or a swarm of insects while they are searching for food. This technique is very simple and it needs the small number of parameters by comparison with other optimization TECHNIQUES. In the literature, the escape behaviour from bad has been modelled for the improvement of PSO. According to this behaviour, each particle moves depending on extra two best values in addition to "pbest" and "gbest", in one generation: "pworst" is the personal worst solution of each particle found so far and "gworst" is a global worst solution. In this study, a constriction factor is added into the equation of particle velocity updating to increase the speed of convergence of this PSO version. The proposed PSO in this study is compared with other PSO versions using benchmark functions and their performances are analyzed.

Keywords: Constriction Factor, Convergence, Swarm Behaviour, Heuristic Optimization

COMPUTATIONAL MODELING OF WAVE INTERACTION WITH SOLID BODY IN A NUMERICAL WAVE TANK

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Abstract:

In this paper, computational modeling of wave interactions with solid body is given. The NUMERICAL wave tank (NWT) can be considered as the ENGINEERING research tool about sea waves that requires the least manpower and material resources. NWT can be used to simulate the motion of ocean and sea waves with modeling moving wall as wave-maker. NWT based on Navier-Stokes (N-S) equations and Volume of Fluid (VOF) method is modeled by using dynamic mesh technique (DMT) to generate regular gravity waves. A solid body is placed into computational fluid domain in the simulation. The wave dissipation induced by solid body and also the FIELD of flow under the effect of waves are simulated. The results of fluid-solid interactions are obtained. The analysis in that study can be used in research of using energy harvesting devices to produce the ELECTRICAL energy from sea waves.

Keywords: NUMERICAL Wave Tank (Nwt), Wave İnteractions, Volume Of Fluid (Vof), Dynamic Mesh, Wave-Maker

ANALYSIS OF A NOVEL DESICCANT COOLING SYSTEM

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Abstract:

A desiccant based air-conditioning system suitable for hygienic APPLICATIONs is considered. The moisture of supply air is reduced with a solid desiccant wheel and its temperature is decreased by "dry coil" of a vapor-compression refrigeration cycle. To enhance the performance of the system, some technologies such as "pre-cooling with outdoor air", "waste cool recovery", "pre-cooling of waste air with evaporative cooling" and "use of a cheap thermal energy source such as solar energy to remove the moisture from the desiccant" are utilized. In this study, analysis of the system considered is carried out using a program written in FORTRAN language and suitability of the system is investigated for the health care facilities in which hygiene is crucially important.

Keywords: Air-Conditioning, Desiccant Cooling, Dehumidification, Hygiene

EFFECT OF TEBUCONAZOLE APPLICATIONS AT DIFFERENT ANTHESIS STAGES ON DISEASE DEVELOPMENT OF FUSARIUM CULMORUM AND HEAD WEIGHT

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Abstract:

Fusarium culmorum is a devastating pathogen of wheat, causing seedling blight, foot rot, head blight. Host resistance, cultural practices and fungicide APPLICATIONs have been used widely to control this pathogen worldwide. The effect of fungicide APPLICATIONs on disease development differs according to the different stages of plant growing. In this study, the effect of tebuconazole APPLICATIONs at different anthesis stages (7 days before inoculation, 0%, 25%, 50%, 75%, 100%, 7 days post inoculation) was determined on disease development and head weight. Tebuconazole APPLICATIONs were carried out at the time of, before and after inoculation. Disease developments were measured 7, 14 and 21 days after tebuconazole APPLICATIONs. Also, relative head weight was determined after maturation. The results indicated that all APPLICATION reduced disease severity to some extent, however the most effective of fungicide APPLICATIONs on disease development was obtained at anthesis stage of 50%. Also, the HIGHest level of head weight was statistically observed with fungicide APPLICATION at this growing stage.

*This study was a part of Master Thesis performed in Department of Plant PROTECTION, Faculty of AGRICULTURE, Çanakkale ONSEKIZ Mart UNIVERSITY.

Keywords: Head Blight, Fusarium Culmorum, Anthesis Date, Tebuconazole, Head Weight

GEOCHEMICAL AND GENETIC CHARACTERISTICS OF MANGANESE MINERALIZATION IN OLD GUMUSHANE (ARGYROPOLIS), NE TURKEY

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Abstract:
Manganese mineralizations of Old GUMUSHANE (Argyropolis) is located in near GUMUSHANE city, the eastern Black Sea Tectonic Unit. In the scope of this study, geochemical and genetic characteristics of manganese mineralization were investigated. Basement rocks of the area are represented by Middle-Late Carboniferous GUMUSHANE granitoid. GUMUSHANE granitoid is mainly composed of micro-diorite with quartz, granite and dasitic porphyries. Şenköy Formation consisting of volcano-sedimentary units comes unconformably over the GUMUSHANE Granitoid. This volcano-sedimentary units are overlain by Late Jurassic–Early Cretaceous Berdiga formation of which its bottom is formed by platform carbonate in massive character in general.

Late Cretaceous Kermutdere formation conformably comes over this carbonate platform. Whilst, the Eocene aged volcano-sedimentary Alibaba formation comes over unconformably over the Kermutdere formation, nearly same aged granitic rocks cut Alibaba formation.

Different from other manganese occurrences in the Black Sea region, this mineralization occurred in massif limestone of Berdiga formation. The ore mineralization exhibits mainly lens shaped stacks and stockwork-form structures and is characterized with late filling of open cavities and replacement of limestone by manganese oxides. Manganese oxides are in relation with the nortwest-southeast oriented feeder cracks and fault zones and often associated with jasper and iron oxide minerals like hematite, goethite.

Element analysis such as major, minor and trace elements, and XRD analysis and ore microscopy studies were carried out to investigate the geochemical and genetic properties and and mineralogical association of manganese mineralizations.

As a results of mineralogical studies, pyrolusite, braunite, manganite, psilomelane and stiplomelane are defined as manganese minerals, and also quartz, calcite, dolomite and smectite are found as gangue minerals. The mineralizations are determined as hydrothermal in origin, supported with hydrogenic contributions according to geochemical data.

Keywords: Ore Deposits, Manganese Mineralizations, GeoCHEMISTRY, Eastern Black Sea Tectonics, GUMUSHANE

EFFECTS OF TEMPO, PINO AND PERIODATE ON KRAFT PULP FIBERS

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Abstract:

Cellulose, in the form of fibers or derivatives, is the most abundant and renewable biopolymer resources utilized to produce a wide spectrum of MATERIALS. The oxidation of cellulosic MATERIALS is a gripping and challenging topic due to the presence of multiple reactive sites causing specific reactions. These pivotal reactions result in MATERIALS having superior and diversified properties. In this study, oxidations agents of 2,2,6,6-tetramethylpiperidine-1-oxyl radical (TEMPO), N-hydroxyphthalimide (PINO) and sodium periodate was used to compare structural (FT-IR, 13C-NMR), thermal (TGA, DSC) and morphological properties (SEM) of bleached kraft pulp. Homogeneity and surface area were increased with treatments. TEMPO oxidized pulps had the HIGHest thermal stability. Periodate oxidation led significant degradation and glycosidic cleavege in the structure. TEMPO and PINO oxidation affected the viscosity and the lowest viscosity was observed in TEMPO oxidation.

Keywords: Cellulose, Kraft, Periodate, Pino, Tempo.

FINITE ELEMENT MODELING OF RESIDUAL STRESSES AND CUTTING TEMPERATURE IN HARD TURNING

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Abstract:

Hard turning and grinding are the most important finish processes for manufacturing of precision MECHANICAL components such as bearings, gears and cams. However, hard turning has much more advantages than grinding with HIGHER metal removal rate, shorter setup time, less MACHINE investment and also no usage of coolant. The residual stresses and cutting temperature which are induced by hard turning affects fatigue life, corrosion crack resistance and part distortion. Therefore, they should be predicted better and the cutting parameters should be adjusted according to that. This paper presents the finite element analysis (FEA) on cutting temperatures and residual stresses in hard turning of AISI H13 tool steel to hardened 56 HRC with uncoated CBN tools. The cutting parameters are chosen as feed rate and cutting speed with three levels and constant depth of cut. The analyses are performed with Advantedge software in 2D orthogonal cutting. The adaptive remeshing are APPLIED to workpiece for more accurate results although it requires much more time. After the cutting process is finished, both the chip and tool are removed and the workpiece is allowed to thermo-MECHANICALly relax. The average of three extraction points on eight different depths of MACHINEd surface for residual stresses is calculated for better results. Besides, cutting temperatures obtained from tool-chip interface were evaluated according to cutting parameters. FEA results showed that compressive residual stresses turned into tensile residual stresses when depth from MACHINEd surface increase. Also, increasing feed rate has decreasing effect on compressive residual stresses while increasing effect on tensile residual stresses. Finally, both increasing feed rate and cutting speed lead to increase in cutting temperature.

Keywords: Hard Turning, Aisi H13, Finite Element Method, Residual Stress, Cutting Temperature

OPTIMIZATION OF DRILLING PARAMETERS FOR THRUST FORCE IN DRILLING OF AA7075

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Abstract:

AA7075 aluminum alloy has been attracted considerable interest in the production of structural components in marine, AUTOMOTIVE and aviation APPLICATIONs due to its HIGH strength-to-weight ratio, good PLASTICity and better machinability comparable to many metals. Especially, final products must have uniformly HIGH quality to ensure essential safety standards in the aircraft industry. The cutting forces during the machining processes is machinability criteria due to the fact that the magnitude of cutting forces have a direct influence on the tool wear, quality of MACHINEd surface and dimensional accuracy of finish product. Therefore, the optimization of hole quality which can variable according to tool geometry and drilling parameters is important in spite of HIGH machinability rate of AA7075 alloy. In this study, the effects of drilling parameters on thrust force (Fz) has been investigated in drilling of AA7075 with tungsten carbide drills. Machining experiments were performed with three different drill point angles (120°, 130° and 140°) and three different levels of cutting parameters (cutting speed, feed rate). Kistler 9272 type of dynamometer and its equipments have been used for measuring of feed forces. The effects of drilling parameters on Fz has been determined with ANOVA in %95 confidence level. Feed rate was determined as the most important factor on Fz according to ANOVA results. Moreover, it was shown that increasing feed rate leads to increase of Fz while increasing drill point angle leads to decrease of Fz. The HIGHest thrust force was obtained with HIGHest point angle and lowest feed rate and cutting speed according to Taguchi optimization method.

Keywords: Aa7075, Drilling, Thrust Force, Optimization, Anova

EXPERIMENTAL AND NUMERICAL ANALYSIS OF CUTTING FORCES IN MACHINING OF HARDENED X40CRMOV5-1 STEEL

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Abstract:

The production time and cost of MACHINE parts decrease while fatigue strength increase in manufacturing of cylindrical parts from hardened steels when hard turning is preferred instead of grinding. X40CrMoV5-1 hot work tool steels are commonly used in manufacturing of injection and extrusion mold, and also in process which require HIGH toughness and wear resistance in HIGH temperature. In this study, the main cutting force (Fc) in machining of X40CrMoV5-1 tool steel hardened to 55±1 HRC in vacuumed heat treatment with uncoated ceramic tools were experimentally measured. The machining experiments were performed according to Taguchi L9 orthogonal array with different cutting parameters (cutting speed, feed rate and depth of cut). Kistler 9257B type of dynamometer and its equipments were used for measuring of cutting forces. The NUMERICAL analysis of cutting forces was carried out with DEFORM 3D software which has solutions according to finite element method. Moreover, the effects of cutting parameters on cutting forces has been specified with ANOVA in %95 confidence level. It was determined that average of %94 similarity between experimental and analysis results of cutting forces. It was shown that the depth of cut is the most important factor, followed with feed rate on Fc while cutting speed has no importance according to ANOVA results.

Keywords: Hard Turning, Deform 3D, Tool Steel, Finite Element Method, Taguchi Method

MECHANICALLY ALLOYED MG-NI-Y POWDERS

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Abstract:

In this work, nanostructured Mg65Ni20Y15 powder alloy was synthesised by MECHANICAL alloying technique. The powder alloy was characterized by X-ray diffraction (XRD), scanning electron microscopy coupled with energy dispersive spectroscopy (SEM-EDX). According to the XRD results, three different phases such as Mg24Y5, Mg2Ni3Si and Mg2Ni were obtained after 75 of milling while the elemental peaks which belongs to Mg, Ni and Y, were still observed till 45 h of MECHANICAL alloying process. The crystallite size of Mg65Ni20Y15 alloy estimated with broadening of XRD peaks by Debye Scherrer equation. It was determined that the crystallite size was decreased with increasing milling time and calculated 9.1 nm after 145 h of milling. From the SEM micrographs, the particle sizes of the powder alloy decreased during MECHANICAL alloying. The EDX characterization confirmed the compositional homogeneity of the Mg65Ni20Y15 alloy with HIGH accuracy.

Keywords: MECHANICAL Alloying, Mg-Based Alloys, Debye Scherrer, Xrd

DETERMINATION OF KNOWLEDGE LEVELS FOR HYDATID CYST IN NURSING STUDENTS

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Abstract:

Hydatid cyst is a zoonotic disease transmitted by dogs, infected animals and contaminated foods to humans over the world. It is an important health problem and needed to public EDUCATION to eliminate the disease. We aimed with this study to determine the knowledge levels of nursing students in Karaman province of Turkey. A questionnaire consisting of 10 questions about Hydatid cyst were APPLIED to 249 students between July 2015 and December 2015. 69.07% (n:172) of students stated that they have information regarding hydatid cyst. Only 23.69% (n:59) of students knew the agent of the disease is helmint. 39.35% (n:98) of the students knew that dog is definitive host of the disease. 87.95% (n:219) of student pointed out that infected organs should be put in the ground. The information of "animal's cysts can be infective for humans" was known correctly with the percentage of 87.55% (n:218). students said that the disease is transmitted through food and unwashed vegetables play role in transmission of the disease with percentages of 85.94% (n:214) and 78.31% (n:195). Also 8.03% (n:20) of participants reported that there are some persons who caught disease around them. We found inadequate information regarding Hydatid cyst in students and we suggest more EDUCATION about zoonotic disease for nursing students in Turkey.

Keywords: Hydatid Cyst, Nursing Student, Knowledge

THE ENVIRONMENTAL MANAGEMENT OF CONSTRUCTION PROJECT DESIGN

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Abstract:

The biggest primarily global problems of the current century are the fast consumption of natural resources and the pollution. The construction sector is the most important factor which enhance these problems. There are factors which affect the environment while using and constructing the constructions. The well management of the construction projects during the design process will enable us to affect the environment at the minimum level. In this study the effect of construction projects during the design process was held within the framework of ISO 14001 Environmental Management System.

Keywords: Environment, Construction, Design, Management, İso 14001

OCCUPATIONAL HEALTH AND SAFETY OF CONSTRUCTION PROJECT DESIGN

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Abstract:

Occupational Health and Safety (OHSAS) becomes one of the most important parameters in today's occupation life. OHSAS is a part of a work place that cannot be replaced and neglected. If an activity is conducted in a product or service area within the framework of Management System, OHSAS is another activity area which should be systematically managed. OHSAS is one of the most important sector which should be cared in construction sector. OHSAS management is not a topic which only should be considered during the construction process, but also in long life usage. Therefore, the precautions should be taken not only for which the workers and other occupants in the construction process, but also for occupants long life. In this study, it was examined how OHSAS management in construction projects prepared by the construction project designers should be carried out within the framework of TS 18001.

Keywords: Occupatıonal Health And Safety, Construction, Design, Management, Ts 18001

ASSESSMENT OF YAKUTIYE JUNCTION BY VISSIM

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Abstract:

There are about 150 thousand vehicles registered to traffic in Erzurum city. Although the increased traffic volume in every day, road capacity remains constant. Therefore, accident numbers are increasing every day. According to study of the number of accident in Turkey, fatal and injury accidents in city centrum occurred, especially, at junctions in the percent of 52%.

In this study, taking into consideration for number of accidents in the junction which has 3000 veh/h for peak hour Yakutiye Square that is intersection of Cumhuriyet Street-Menderes Street and Ali Ravi Street in Erzurum, different alternative solutions were modelled by changing road geometries and signalizations. These alternatives were evaluated by micro simulations technique. There are many congestions in that junction. Since the junction is in the center of commercial FIELD, it is important to mitigate the congestion problems. VISSIM program was used for modeling. Travel time, delay, queue length, fuel consumption and CO emissions were considered as assessment criteria. As a result, optimum alternative was proposed.

Keywords: Traffic, Junction, Microsimulation, Vissim, Delay, Queue Length

THE PREPARATION AND CHARACTERIZATION OF LSCF AND LCCF PEROVSKITE CATHODE ELECTRODE FOR SOLID OXIDE FUEL CELL APPLICATIONS

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Abstract:

A solid oxide fuel cell is an electrochemical device that provides efficient and clean power generation. In solid oxide fuel cells , the electrode material must have mixed electronic and ionic conductivity. There has been significant progress in reducing the operation temperature of SOFC from HIGH temperature of 1000oC to intermediate temperature range of 600 to 800oC.

In this paper, LaSrCoFe and LaCaCoFe powders compositions were prepared with the solid state reaction. The crystal structure of powders perovskite possess hexagonal type crystal lattice according to the literature survey. Crystallographic and micro structural properties of the produced powder were characterized by XRD and SEM equipments respectively. Lattice parameter for LSCF a=5.471 Å,c=13.47 Å and for LCCF a=5.435 Å, c=13.23 Å . The crystallite size and lattice strain were estimated from using Scherrer equation of X'Pert HIGH Score Plus software;

$D=(0.89\,\lambda)/(\beta\cos\theta)$ $\beta=\beta_{obs}-\beta_{std}$ (1)

$\varepsilon = \beta/(4\tan\theta)$ $\beta=\sqrt{(\beta_{obs}^2-\beta_{std}^2)}$ (2)

where D crystalline size, ε is the lattice strain, λ is the X-ray wavelength angular line, β full width at half maximum (FWHM) and θ the Bragg's angle. The silicon standard is using the instrumental correction with FWHM value. The calculated crystalline size of LSCF and LCCF are 48.4 and 74.3 nm, respectively. The calculated strain of LSCF and LCCF are 0.32 and 0.64 %, respectively. It is indicated that LSCF and LCCF has a single phase and indexed reference pattern ICSD 98-016-0592 and 98-024-7306, respectively.

At the end of this study, the useful and applicable cathode electrode was developed for SOFC fabrications.

Keywords: Sofc, Cathode Electrolyte, Perovskite

ANALYTICAL MODELING OF SOLID PARTICLE EROSION OF POLYMER MATRIX COMPOSITES

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Abstract:

Solid particle erosion (SPE) is one of the most important failure modes of composite MATERIALS in various APPLICATIONs such as piping of hydraulic or pneumatic transportation, blades of water or wind turbines, turbine blades of aircraft engines and helicopter blades and so on.

The studies on analytical modeling have gained importance due to the limited changes in the level of experimental parameters. In the present work, an analytical model for predicting the SPE of pure glass fibre reinforced epoxy composites (GF/EP) , which captures the effects of impingement angle, velocity, properties of target MATERIALS and abrasive particles, has been developed by using dimensional analysis technique.

The erosion rates of GF/EP are investigated experimentally at three particle impact velocities, (23, 34 and 53 ms-1), three impingement angles (30^0, 60^0 and 90^0) and at two different fiber directions (0^0 and 45^0) by using alumina abrasive particles. The experiments have been performed at room temperatures on a special test device designed based on ASTM G76–95 standard test method where the composite specimens were subjected to erodent bombardments from dry and pressurized air.

From the results of solid particle erosion testing, the erosion rate increases with increase in particle impact velocity, decrease in impact angle and non-angular changes in the fibre directions. This situation denote the ductile erosion wear in the literature. Furthermore, the predicted results are in a reasonable agreement with the experimental measurements.

Keywords: Analytical Modeling, Erosion Rate, Polymer Matrix Composites, Spe

FORMATION, OCCURRENCE, AND CONTROL OF DISINFECTION BY-PRODUCTS IN DRINKING WATER

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Abstract:

Drinking water disinfection is one of the most important advancements for public health of the last century and has been used to eradicate and inactivate the pathogens from drinking water. Chemical disinfectants are effective for killing harmful microorganisms in drinking water, but they are also powerful oxidants, oxidizing the ORGANIC matter, anthropogenic contaminants, and bromide/iodide naturally present in most source waters (rivers, lakes, and many groundwaters). However, disinfection processes can lead to formation of potentially toxic disinfection by-products (DBPs). Disinfection by-products result from the reactions between disinfectants and naturally occurring ORGANIC matter, bromide, and iodide. Chlorine, ozone, chlorine dioxide, and chloramines are the most commonly used disinfectants and these produce its own DBPs in drinking water.

In 1974, DBPs were first identified in the form of trihalomethanes (THMs) and nowadays over 600 DBPs have been identified. The most groups of by-products include trihalomethanes (THMs), haloacetic acids (HAAs), haloacetonitriles (HANs), haloketones (HKs), halonitromethanes, cyanogen halides, nitrosamines, aldehydes, carboxylic acids, oxyhalides.

There are various strategies for controlling formation of DBPs such as usage of alternative disinfectants, precursor removal, and source control. However, the most of studies on minimizing the formation of DBPs have focused on improving the removal of DBP precursors before disinfection. A variety of processes have been tested and used for removing NOM or DBP precursors in water treatment including coagulation, adsorption, ion exchange and membrane processes.

Keywords: Disinfection, Disinfectant, Disinfection By-Products

FIRST ORDER INTEGRAL SLIDING MODE CONTROL OF THE MAGNETICALLY LEVITATED 4-POLE TYPE HYBRID ELECTROMAGNET

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Abstract:

In this study, 4-pole type yoke hybrid electromagnet is modelled with respect to motion dynamics of the system. The hybrid electromagnet inherently has a non-linear characteristic and from the point view of controllability, it is unstable. This paper concerns the design of robust control using first order integral sliding mode control method. Thus, the system becomes stable and robust against parametric uncertainties, nonlinearity, unmodeled uncertainties and external disturbance.

Magnetic levitation system includes sensors that only measure the air gap. In order to estimate other states of the system, the full order disturbance observer is designed and integrated into the control loop. The estimated disturbance value is factored by the appropriate conversion gain and added to the input signal of the plant, so that the more robust control system is achieved. The efficiency of control algorithm will be given in the paper by computer simulations. The success of the controller against the chattering problem will be discussed.

Acknowledgments: This study was supported by TUBITAK with the Project Grant No. 112M210

Keywords: Magnetic Levitation, İntegral Sliding Mode Control, Disturbance Observer

SYNTHESIS OF GREEN MAGNETIC NANOPARTICLES WITH IRON (II) IONS AND NATURAL PLANT EXTRACTS

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Abstract:

Magnetic nanoparticles have been nano-dimension MATERIALS that can respond to the magnetic FIELD. Due to the response to magnetic FIELDs and nano-dimension properties cause to exert nanoparticles in the industrial, BIOMEDICAL, bio-ENGINEERING and other potential FIELDs as well. Because of the superior functions of mentioned magnetic nanoparticles, synthesis of this kind of MATERIALS in the various APPLICATIONs concern interest within the scientists.

The Fe3O4 is the natural material within the iron oxide. The presence of magnetic characteristics as well as easy and safe synthesis of mentioned nanoparticles in the laboratory environment give rise to increase utilize of MATERIALS in the different APPLICATION fileds and get quite consideration through scientists. The purpose of this research is improving a synthesis method for obtaining the environment friendly, non-toxic and economical magnetic nanoparticles in the laboratory environment.

In the study, alternative to the ORGANIC solvents and surface active MATERIALS, various natural plant extraction used for synthesis of Fe3O4 nanoparticles exerted Fenton method. The surface modification and coated of magnetic nanoparticles by different ORGANIC MATERIALS and polymers using our improved synthesis method cause to apply those in the BIOMEDICAL APPLICATION, purification of toxic heavy metal ions existence in the INDUSTRIAL waste waters and so on. The agglomeration of magnetic nanoparticles (Fe3O4) were prevented during the synthesis process by exerted of our new plan extract method. In addition, lack of use of stabilizing, distributor and oxidizing agents in the plant extract during our new synthesis cause to non-use of chemical solvents and afterward get a chance to achieve an economic, environmental friendly synthesis method as well. Obtained magnetic nanoparticles structure and surface characteristics investigated using XRD, FT-IR spectrophotometer and SEM as well as a Zeta potential measurement apparatus for determining particles dimension and molecular weight.

Keywords: Green Nanoparticles, Magnetic Nanoparticles, İron (İi) İons, Plant Extracts

ASSESSMENT OF IMAGE FUSION METHODS

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Abstract:

Image fusion is the integration of HIGH spatial resolution panchromatic images with low spatial resolution multispectral image to produce a HIGH resolution multispectral image. Image fusion, also, is called as pan-sharpening, merge resolution, and image integration. Nowadays, there are different image fusion methods used. According to the characteristics of satellite sensors, image fusion methods emphasize the color information or the spatial information. Therefore, visual and statistical evaluation of the image fusion process is needed. In this study, PCA, IHS, and Brovey transform methods were used to fuse multispectral and panchromatic images. Image fusion methods were compared by using visual and spectral analysis.

Keywords: İmage Fusion, Pan-Sharpening, İhs, Brovey, Pca

DETERMINATION OF THE LEVEL OF AWARENESS AND TO CREATE AWARENESS OF PRIMARY STUDENTS AND PARENTS BY GIVING INFORMATION ABOUT AIR POLLUTION; A CASE STUDY OF ISPARTA, TURKEY

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Abstract:

In this study, it was aimed to determinate the level of awareness and to create awareness of primary students and parents by training about air pollution which is one of the most important problems of Isparta, Turkey. However, brochures including the adverse effects of air pollution and precautions to be taken for air pollution in Isparta, Turkey were distributed to students and parents after the training. The reason why this brochure distributed after the training that it can be reached raw data in the APPLIED pre-survey of the students and parents. The presentations and surveys were APPLIED to the students and parents in target schools in different dates. Then, the prepared preliminary survey questions for the purpose of determining the level of awareness about this issue were answered to both the parents and students. Preliminary surveys and studies prepared after a training presentation that consists of visual elements were delivered separately to the students and parents. This EDUCATIONal presentation and considering the awareness of parents and students to preliminary surveys and preliminary surveys were conducted in two different presentations. Prepared post surveys were conducted after the presentations, training and the preliminary survey studies. In this way, it was tried to determine how effective distributed informative brochures and training.

Keywords: Air Pollution, Primary Students, Parents, İsparta, Turkey, Survey, EDUCATION

ANALYSES OF SO_2 INDEX (IS) AND SO_2 EXTREME VALUE INDEX (ES) FOR KARABUK PROVINCE

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Abstract:

The Air Quality Index known as the Pollutant Index is used for preventing action to limit their activities exceeded to the some leve of pollutants. Air is polluted continuously by means of antropogenic sources. As the air is polluted, the atmosphere could be a serious problem for the human healths. One of the most important gaseous pollutants is the SO2. The SO2 is a higly soluble in water and body fluids. It is also very bad effect on the respiratory system of the body. Its effect is, however, short and severe.

Karabuk Province is a famous provinces for iron and steel industry. There are 3 air quality measurement stations. In this study, the last 2 years SO2 values of these 3 station were studied and Sulfur Dioxide Index (Is) and Sulphur Dioxide Extreme Value Index (Es) were calculated then finally the seasonal and annual results were analysed.

The SO2 Index is the root-sum-square (RSS) value of hourly SO2 concentration data. The sulphur dioxide index is the RSS value of individual terms corresponding to the secondary standards. The RSS value is used to ensure that the index value is greater than 1, if one of the Environmental Protection Agency (EPA) standard values is exceeded. The index is not only considered the annual value, but also the 24 hours and 3 hour SO2 averages are also used for the calculation of Indexes. In the second methodology, the maximum values of 24 and 3 hour averages were used for the calculations and the pollutant accumulation capacity were considered. The annual, seasonal and daily results are showing some fluctuations. The fluctuations are mainly depends on industrial processes and meteorology. The wind and rain are very affective in winter season.

Keywords: So2 Emission, Sulfur Dioxide İndex, Sulphur Dioxide Extreme Value İndex

UNCERTAINTY ANALYSIS OF DIRECT GHGS EMISSIONS FROM TURKEY'S PROVINCES FOR 2000-2015

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Abstract:

The inaccuracy and imprecision in the calculations are termed as uncertainty estimates of the emission inventories. Uncertainty estimates are an essential element of the complete emission inventories. It can be seen in the range of standard deviation around the mean value of the sample and it is usually associated with different parts of the inventories. These parts are stated by IPCC (Intergovernmental Panel on Climate Change) as: Fuel Consumption Data, Emission Factors and Methodology.

The statistical differences give an indication of the uncertainties of the data. Moreover, the characteristics of the emission data are also estimated with statistical approaches. In an emission inventory, the statistical evaluation of the annual series rather than the differences is also important to understand the representativeness and appropriateness of the emission series. The CO2, CH4 and N2O emission data are separately evaluated. According to the final results, the correlations between years are changing considerably. Another important statistical variable is the SEM, which is the indication of the spread of the mean. The method used in this study determines the significance of year-to-year differences and it takes into account the long-term trends in the inventories. A key issue in the compilation of uncertainties within inventories is the distinction between the "standard deviation" of the data set and the standard error of the sample mean.

The CO_2 uncertainty values are changing between highest value ∓22.07% in 2000 to lowest value ∓20.14% in 2015. The uncertainty value of CH_4 are changing between lowest value ∓30.4% in 2009 to highest value ∓35.65% in 2006 and the uncertainty value of N_2O are changing between lowest value ∓21.7% in 2013 to highest value ∓27.4% in 2011. The most important causes of uncertainties are the using IPCC emission factors which are changing considerably from local ones and the assumptions in fuel consumption data.

Keywords: Ch4, N2O, CO2 Emission, İPCC Method, Statistical Approach

REAR IMPACT WHIPLASH TEST DESIGN BY USING A MAXWELL-ELEMENT BASED ENERGY-ABSORBER

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Abstract:

Whiplash (or neck pain) is a common consequence of road traffic accidents and they are caused by the sudden differential movement between the head and torso. Whiplash can result from impacts in all directions but the HIGHest risk of sustaining whiplash occurs in rear impacts. Whiplash can be mitigated by well-designed car seats which ensure minimum neck internal motion and low neck forces throughout the impact. In consumer crash tests such as the EuroNCAP whiplash test, car seats are tested on a sled which is accelerated by using HyGe systems. In this study, a less expensive whiplash test system is proposed which involves the deceleration of a cart impacting an energy-absorber fixed to a rigid wall. The cart which involves the car seat is accelerated to the impact velocity by using a drop mass setup. The energy-absorber which is based on a Maxwell element, is optimised to obtain a crash pulse which mimics the medium severity crash pulse of the EuroNCAP whiplash test. In order to compare the obtained crash pulse with the EuroNCAP medium severity crash pulse, computational multi-body models of a generic car seat and a biofidelic 50th-percentile male human for rear impact are developed. Four different car-seat models with different structural characteristics are subjected to both crash pulses to evaluate the differences in seat and human model responses. Two of the developed car-seat models are non-traditional seats that utilise a crash-energy distribution technique to mitigate whiplash. The simulation results indicate that the crash pulse obtained by using a Maxwell-element based energy-absorber produces similar responses in comparison to those of the EuroNCAP medium severity crash pulse. Therefore, the impact test system proposed in this study can help to evaluate whiplash risk in rear impacts.

Keywords: Whiplash Test, Energy Absorber, Rear İmpact, Car Seat Design, Human Body Model

ANN-BASED CLASSIFICATION OF SOUND SIGNALS USING VARIOUS METHODS

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Abstract:

In this paper, one of our writers 20 "Open" and 20 "Close" the original voice data has been recorded. For classifying artificial neural network (ANN) using Matlab program, have been arranged 10 in training and 10 in testing procedure of this audio data. Have been examined difference periodogram between "Open" and "Close" signals, using principal component analysis (PCA), autoregressive (AR) parameters, Discrete Wavelet Transform methods has been separately classified with ANN. Classification results of the three different methods were compared. In the comparison of results, showed to be more successful according to other methods of the classification process using ANN with AR parameter over "Open" and "Close" voices belongs to same person.

Keywords: Ann, Pca, Ar Parameters, Discrete Wavelet Transform, Sound Data

THE ANION TYPE DEPENDENCE ON THE CORROSION PROTECTION EFFECT OF POLYPYRROLE COATING FOR STEEL IN ACIDIC MEDIA

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Abstract:

The damage that metals and alloys suffer as a result of electrochemical and chemical reactions in aqueous and gas environments is referred as corrosion. Corrosion is undesired phenomenon, because besides economically losses, it is also harmful to human life and health and causes environmental pollution. As is known, steel has a wide range of APPLICATIONs in construction and petrochemical industries. However, it has a hig tendency to corrode easily,especially in acidic medium. On the other hand, acid solutions are generally used for the removal of desirable scale and rust in several INDUSTRIAL processes. Therefore, the corrosion of steels and alloys is an important problem in industries.

The use of inhibitors is one of the most practical methods for PROTECTION against corrosion. However, most of these compounds are toxic and have hazardous effects on environment and human health. Therefore, alternative approaches are needed to replace these compounds. In this regard, conducting polymersattract considerable attention in corrosion PROTECTION of Metals, and polypyrrole (PPy) is one of the most promising conductive polymers in terms of its HIGH conductivity and ease of synthesis.

In this study the corrosion parameters of stainless steel in 12% Cr have been determined by Tafel extrapolation method in 1M HCl, H2SO4 and H3PO4 media. Steel surface was coated with PPy film via electropolymerization. In this procedure, steel surface was coated with PPy in 0.1 M Pyrrole + 0.3 M oxalic acid solution by cyclic voltammetry. Later, the corrosion parameters and percentage inhibition efficiencies of coated electrode were investigated according to immersion times in three different acid solutions. In all acidic media studied, increases in immersion time resulted in increased corrosion densities and a decrease in percentage inhibition efficiencies. It was found that the corrosion current density and inhibition efficiency variation order is H2SO4 > H3PO4 > HCl.

Keywords: Polypyrrole, Corrosion, Steel, Coating

FLEXURAL PROPERTIES OF MICRO-SIZE OAK WOOD AND CORRELATION WITH STANDARD-SIZE SAMPLES

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Abstract:

Structural-size and standard-size have been used to determine the MECHANICAL properties of wood. In recent years, micro-sized samples have been used to evaluate the MECHANICAL properties of wood. The aim of this study was to investigate flexural properties of micro-size Oak wood (Quercus petraea Lieb.) and to compare with standard-size test specimens values. Bending strength and modulus of elasticity in bending were determined using standard-size and micro-size test samples. In the standard- and micro-size samples, bending strengths were evaluated as 99.4 and 71.2 N/mm2and modulus of elasticity in bending as 11394.1 and 2741.3 N/mm2, respectively. The results showed that the bending strength and modulus of elasticity of the micro samples were lower compared to the standard samples. Furthermore, regression analyses indicated a positive linear regression between the micro- and standard-size samples. When it is not possible to obtain standard size samples, micro- size samples can be used to determine MECHANICAL properties of wood.

Keywords: Flexural Properties, Micro-Size, Standard Size, Oak Wood, Correlation

THE PHYSICAL BEHAVIOR AND REPETITIVE FREEZE-THAW RESISTANCE OF POLYMER MODIFIED MORTARS

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Abstract:

The uses of polymers for various structural APPLICATIONs are gaining popularity throughout the World. Physical and MECHANICAL properties of concrete are very important for life of structure. As well as, it is known that the MECHANICAL properties of concrete fall when concrete is exposed to repetitive freeze-thaw effects. The freeze-thaw resistance of the concrete and the physical properties of the concrete may be significantly improved by incorporation of different types of polymers.

In this study, it is aimed to increase physical and MECHANICAL properties of cement mortars by means of polymer addition. In addition to, freeze-thaw resistance of cement mortars is observed depend on polymer addition ratios. In this study, Stiren Butadien Rubber (SBR), Stiren Butadien ve modifiye polikarboksilat emülsiyonu (PSBR), Modified Acrylic Dispersion (MAD) polymers are chosen as polymers. Firstly, three different types of polymers are added to cement mortars in five different ratios (0.0%, 5%, 10%, 15%, 20%) and cured watering twice a day for 28 days. Then, physical properties of mortars are observed. Secondly, the samples which cured watering twice a day for 28 days, exposed three different freeze-thaw cycles (0, 100, 200). It is observed the flexural strength, compressive strength and deflection under this condition.

It is concluded that each polymer contributes physical properties of mortars. All polymer additions contribute to physical properties. Especially, permeability of mortars dramatically decreases about 90% thanks to polymer addition. The mortars modified with SBR polymer show the best performance for the HIGHest freeze-thaw cycle (200).

Keywords: Polymer Modified Concrete, Freeze-Thaw Effect, Stiren Butadien Rubber, Physical Properties.

THE EFFECTS OF HIGH TEMPERATURE ON PHYSICAL AND MECHANICAL PROPERTIES OF POLYMER MODIFIED CEMENT MORTARS

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Abstract:

Concrete is a composite material that may be deformed because of dynamic effects such as overloading and earthquake, as well as environmental and climatic conditions. In this study, it is aimed to increase HIGH temperature resistance of cement mortars due to modified with various liquid polymer MATERIALS. Firstly, three different types of polymers are added to cement mortars in five different ratios (0.0%, 5%, 10%,15%, 20%) under dry cure condition. After that it is determined physical and MECHANICAL properties of mortars. It is determined two addition ratios give the best results for each polymer and it is aimed to developed physical and MECHANICAL properties of prepared mortars under HIGH temperature. In this study, Stiren Butadien Rubber (SBR), styrene acrylic co-polymer (SAC), Modified Polycarboxylate-Stiren Butadien Rubber (PSBR) polymers are chosen as polymers. The samples which cured watering twice a day for 28 days, exposed four different temperatures (20 °C (control), 100 °C, 200 °C, 250 °C). It is observed the flexural strength, compressive strength, deflection and change of physical property of concrete under this conditions.

PSBR modified mortars shows the best performance on physical properties. When PSBR is used, depth of penetration of water under pressure and water absorption of mortars, decrease (90%) and (66%), respectively according to control sample. The mortars modified with SBR polymer show the best performance for the HIGHest temperature (250 °C). For the HIGHest temperature, when SBR is used, the flexural strengths of the samples increase (42%), deflections increase (15%) and compressive strength increase (21%)according to control sample.

Keywords: Polymer Modified Cement Mortar, Physical Properties, HIGH Temperature, MECHANICAL Properties

SAFETY MEASURES ON TANKER SHIPS AND ANALYSIS OF INCIDENT ON BOARD

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Abstract:

Tanker ships carry liquid cargo. Liquid cargoes are produced from petroleum. As known, petroleum products are dangerous. This dangerous arises as fire, explosion, poisoning and marine pollution. Tanker ships' crews take precaution against risk of dangerous, while they carry at sea and on loading, unloading at terminals. Precautions are obvious two ways. First way is structural of ships and second is operational. Structural precautions are defined by regulations and naval ARCHITECTURE technics. Operational precautions also are defined by regulations. However, human factor is important on tanker ships operations. Ship captains consider this factor and they evaluate to preventing accidents.

All Works are realized within a systematic for good work. Accidents have been observed despite of all precautions and systematic Works. Reason of accidents could be failure of technic, weather condition or human factor.

This study reveals safety measures a tanker ships against incidents and evaluate accidents on board on a sampling tanker management company.

Keywords: MARITIME, Tanker Ship, Accident, Safety On Board,

EXAMINATION OF THE EFFECT OF CONTAINER PORT LAYOUT PLAN ON THE PORT PERFORMANCE EFFICIENCY

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Abstract:

Container transportation has an increasing share in MARITIME transport. Therefore, container ports which are serving container transportation and container vessels are much needed during this transportation process. In this aspect, for an efficient operation, both new container terminals are built and arrangements are being adopted to existing terminals. In either case, container port layout plan has a significant importance. There are different performance indicators which are used to measure the operating efficiency of the container port from the arrival of vessel till gating out of the container. In this study, the performance indicators which are related to container port layout plan is examined and the effect of port layout plan on port performance efficiency is analysed.

Keywords: Container Transportation, Container Port Layout, Port Efficiency.

DETERMINATION OF CRITERIA WEIGHTS FOR RENEWABLE ENERGY ALTERNATIVES BY USING AN INTERVAL TYPE-2 FUZZY AHP METHODOLOGY

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Abstract:

Energy has a critical importance for sustainable development of societies. The countries that have several energy sources can be evaluated as the most developed countries. By the way, energy is considered as one of the most significant indicators of economic development. On the other hand, it is necessary to choose cleaner and more environment-friendly energy alternatives because of environmental problems. The CO2 levels rise to HIGH values as a result of utilizing fossil energy sources like coal and oil. In this context, renewable energy alternatives provides people to mitigate the negative environmental effects of other energy sources. Selection among renewable energy alternatives is a multi-criteria decision making (MCDM) problem. It is necessary to evaluate alternatives in terms of many qualitative and quantitative criteria. In this paper, it is aimed to determine the weights of criteria that are used to prioritize renewable energy alternatives. For this aim, a methodology based on interval type-2 fuzzy Analytic Hierarchy Process (AHP) has been suggested. These main criteria has been named as quality of energy source, TECHNICAL, environmental, technological, economic and sociopolitic respectively. By the way, 29 sub-criteria are weighted by means of proposed method. It is desired to help researchers which study in this FIELD by determining which criteria are more important to assess renewable energy alternatives. At the end of study, ''economic'' criterion is determined as the most important main criterion and ''sociopolitical'' criterion is determined as the least important main criterion. ''Availability of funds'' and ''social accept'' are determined as the most important and the least important sub-criteria.

Keywords: Analytic Hierarchy Process, İnterval Type-2 Fuzzy Sets, Multi-Criteria Decision Making, Renewable Energy Alternatives

DETERMINATION OF INJECTION TIMING REQUIREMENT OF A STEAM INJECTED DIESEL ENGINE

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Abstract:

Numerous methods have been used to reduce NOx emission released from diesel engines so far. One of these control methods commonly used in diesel engines is injecting water steam into the engine cylinder. In the present study, a new electronically controlled water steam injection method was used to decrease NOx emissions. This method can be also used to improve the performance and efficiency. The tests were conducted in a single cylinder, naturally aspirated, direct injection (DI), four-stroke diesel engine, different fuel injection timings (32, 35 and 38 oCA bTDC) and steam injection rates (S0-STD, S10, S20, S30 and S40) under full load conditions. It was determined in full load condition engine tests that NOx emissions reduce up to 33%, power and moment increase up to 3% and specific fuel consumption decrease up to 5% with steam injection. Optimum steam ratio was obtained as 20% (S20) the performance and the exhaust emissions points of view. Optimal engine speed, injection timing and steam injection rates on the engine performance and exhaust emissions were determined using chi-square's statistic technique.

Keywords: Diesel Engine, İnjection Timing, Water Steam İnjection, Performance,Nox

INVESTIGATION OF THE ALUMINUM ALLOY WITH 304 AUSTENITIC STAINLESS STEEL SHEETS JOINED BY FRICTION STIR SPOT WELDING METHOD

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Abstract:

The welding region of aluminum sheet sample coated with copper-based powder through HIGH velocity oxygen fuel powder spraying method (HVOF) when aluminum alloy with austenitic stainless steel sheets combined through friction stir spot welding. In characterization studies, the microstructural features of welded parts were obtained using both light and scanning electron microscopes and the MECHANICAL properties were determined using Vickers hardness, tensile tests. The microstructure, MECHANICAL and corrosion properties of the welded joints were analyzed.

Keywords: Friction Stir Spot Welding (Fssw), Dissimilar MATERIALS

THERMODYNAMIC, HEAT TRANSFER AND FLUID ANALYSES OF ENCAPSULATED ICE THERMAL STORAGE SYSTEM USED IN A SHOPPING CENTER

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Abstract:

This study presents thermodynamic, heat transfer and fluid flow analyses of ice thermal storage system used in a shopping center. ITES can be used to shift electric demand from HIGH demand period to low demand period. The electric load of cooling can be shift to peak-off period. Thus, cooling cost can be reduced. The shopping center is located in Ankara, Turkey. It has 15000 m^2 closed-area. Total cooling load of the shopping center is 6589 kW/day. Peak time cooling load has been stored during off-peak time. In this paper, thermodynamic, heat transfer and pressure drop calculations of the ice thermal energy storage system have been performed. Energy and exergy efficiencies, pressure drop, center line temperature distribution for storage tank have been calculated.

Keywords: Encapsulated İce Thermal Storage, Energy Efficiency, Exergy Exergy, Heat Transfer, Pressure Drop

PHONONIC CRYSTAL WITH ABSOLUTE ACOUSTIC BAND GAP IN THE AUDIBLE FREQUENCY RANGE: FINITE ELEMENT ANALYSIS

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Abstract:

MetaMATERIALS are described as futuristic design MATERIALS with new and unusual electromagnetic properties. Acoustic or seismic metamaterial provide to design MATERIALS for unusual acoustic and MECHANICAL features such as trapping, reflection or total transparency to acoustic or MECHANICAL waves.

In this study, the propagation of acoustic waves in a two-dimensional composite medium constituted of a square array of parallel steel triangular prisms in air is investigated theoretically. In the low frequency regime, the band structure calculations agree with the finite element results. These calculations show that this composite material have a large absolute forbidden band in the domain of the audible frequencies.

NUMERICAL analysis show that the transmission through an array of steel triangular prisms drops to noise level throughout frequency interval in good agreement with the calculated forbidden band.

Keywords: MetaMATERIALS, Acoustic MetaMATERIALS, Finite Element Method

RECENT LTE SIMULATION TOOLS

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Abstract:

In recent years, LTE (Long-Term Evolution) wireless cellular networks has attracted the attention of many researchers. In LTE cellular network, one of the most important issues considered by researchers is to improve QoS (Quality of Service). Performances of protocols depends on network throughput, end to end delay and packet drop. Performance analysis of improved protocols can be tested using simulation tools. In this study, for wireless cellular network simulation, OPNET, OMNeT, MATLAB and NS-3 network simulators were examined and briefly compared.

Keywords: Lte, Simulation, Wireless Networks.

A SURVEY OF WEB SERVICE ATTACKS AND COUNTERMEASURES

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Abstract:

Through the arise of web services technology, e-commerce and e-business systems are perFORMING efficiently. Web services simplifies communication with devices and people by standardizing the flow of information and by breaking down the barriers of discrete systems. However, they have some security issues. Due to the nature of web services, they cause the need for bridged firewalls, and go down to APPLICATION environment of an enterprise, increase vulnerability to malicious attacks and confront companies with security risks. Therefore this paper presents a survey on different specific attacks of web services. For each attack a description of the attack execution, the effect on the target and some simple examples are given. Additionally, some of the important general countermeasures for preventing web service attacks are discussed.

Keywords: Web Services, Soa, Security, Attacks, Countermeasures

ALTERNATIVES ROUTES FOR CONTAINER VESSELS DUE TO BAD WEATHER; BLACK SEA REGION STUDY

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Abstract:

Selecting best route which permits to container vessel complete voyage rapidly, safely and also the least fuel consumption is one of main goal of shipping markets. There are many practical methods to reduce costs and speed up container vessels. And one of them is obtaining alternative routes with tracking weather forecast for maintain new legs and course in case of bad weather. Consequence of meteorological events on sailing container vessel could have both positive impacts and negative impacts. Even though positive impacts are increasing speed and decrease of fuel consumption, negative impacts are endangering ship and cargo safety and induce delaying in schedule of port of calls. Lessen adverse influence of bad weather is possible to find seasonal alternative routes for regions by using of Townsin-Kwon Speed Loss formulae (1983). In this study, we study on a container shipping line which Istanbul – Samsun - Poti in Black Sea region with real meteorological situations to shorten total voyage time between and also reduce total fuel consumption. As a result of this study, Townsin-Kwon Speed Loss Algorithm found very useful for west black sea area when bad weather dominant in this region and allow to ship complete her voyage 18 hours earlier and induce to decrease fuel consumption.

Keywords: Townsin-Kwon Speed Loss Algorithm, Container Vessels, Route Optimization

FUTURE WIND SHAPED CONCEPTS AT CONTAINER SHIPS

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Abstract:

Container vessels are always desired to sail fast since when they are developed by their designers. But due to their structural design, container vessels are affected by wind extremely. For this reason, studies to fasten container ships economically and environmentally is focused on two models which are multi-wing sail system and container configuration system on deck. Both two model is still not in use but both of them is tested in wind model tunnel. Both two models have positive conclusions. In this study, we study on possibility of using two method tandem with and how benefit to container ship. In conclusion, the lateral aerodynamic force of the ship increase up to %40 and reduce power requirement up %6 in case of using two models together .

Keywords: Multi-Wing Sail System, Container Configuration System On Deck,Container Vessels

LYAPUNOV FUNCTIONS AND SOME STABILITY, BOUNDEDNESS PROPERTIES FOR FRACTIONAL DIFFERENTIAL EQUATIONS

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Abstract:

In this work, sufficient criteria on practical stability, boundedness and Lagrange stability for system of fractional differential equations are established. To this end comparison method via Lyapunov function and a scalar fractional differential equation is applied. Some examples are given as an APPLICATION of the obtained results.

Keywords: Boundedness, Lyapunov Functions, Fractional Differential Equations.

THE EFFECT OF RECIPROCATING EXTRUSION PASS NUMBER OF ALUMINUM 6061 BASED COMPOSITES MICROSTRUCTURE

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Abstract:

In this study Aluminum 6061 (Al) matrix reinforced with SiC metal matrix composites (MMC) were manufactured by powder metallurgy. Besides unreinforced aluminum alloy (Al 6061) samples were manufactured for comparing microstructure of Al 6061 MMCs. The purpose of this study is to investigate the effect of reciprocating extrusion (RE) pass number for microstructures of Al MMCs.RE is a kind of severe PLASTIC deformation (SPD) method for obtaining improved material structures. Different extrusion pressures and RE pass numbers were investigated for the changes in hardness value of samples. The Al MMC and Al 6061 alloy samples microstructures were examined by Scanning Electron Microscope (SEM).

Keywords: Metal Matrix Composites Reciprocating Extrusion, Al 6061, Microstructure

ELECTROMAGNETIC HARVESTING BASED ON PYRAMID METAMATERIAL

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Abstract:

The new metamaterial absorber (MA) based energy harvesting structure composed of pyramid inclusions is NUMERICALly presented and investigated in microwave frequency regime. The proposed harvesting mechanism has very simple configuration, scalability and three band response. The operating frequency values include mobile communication frequencies, WIMAX, WLAN and satellite communications region. The absorption ratios for the proposed structure are HIGHER than %90 for all resonance frequencies. Beside this, polarization (TE/TM) and incident angle independencies of the pyramid model are analyzed for the same frequency ranges. The energy harvesting ratios of the system is investigated especially resonance frequencies i.e. maximum absorption frequencies. The energy harvesting potential of the pyramids are as good as the proposed structures in the literature. The proposed structure model can be used to gather widely used microwave signals in environment

Keywords: Absorber, Harvesting

INVESTIGATION OF TENSILE-SHEAR STRENGTH OF AUTOMOTIVE SHEETS IN ELECTRICAL RESISTANCE SPOT WELDING

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Abstract:

ELECTRICAL Resistance Spot Welding (ERSW) is an important joining process for fabricating sheet metal assemblies such as automobile and truck cabins. It has advantage in welding efficiency and suitability for automation. Spot welding may be performed manually, robotically or by a dedicated spot welding MACHINE. HIGH current intensity and low voltage for welding process is required that a local pool of molten metal is formed, joining the two parts. The amperage can be selected in the range 1 000-1 00 000 A. and the voltage in the range 1-30 V In the present work, the effects of weld parameters on tensile-shear strength of welding joint in ELECTRICAL resistance spot welding of galvanized DP 600 steel sheets having 1.2 and 1mm were investigated. Taguchi's experimental design has been set to optimize some important parameters affecting on the final tensile-shear strength of the weld joints Results showed that the most effective parameters on tensile shear strength were found as welding current and welding time, whereas electrode pressure was less effective factors.

Keywords: Resistance Spot Welding, Tensile Shears Strength, Taguchi Method

A REGRESSION MODEL FOR THE PREDICTION OF THE MINIMUM COST OF REINFORCED CONCRETE RETAINING WALLS

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Abstract:

Analysis and design of the reinforced concrete retaining walls (RCRWs) are one of the important problems encountered in geoTECHNICAL and structural ENGINEERING. In the design procedure of RCRWs, firstly, design variables such as cross-sectional dimensions and material properties are selected based on previous design experiences. Then, the static and dynamic analyses for the wall are APPLIED and checked in terms of external and internal design criteria. In order to minimize the cost of the wall, the design variables are redefined by trial and error process, and these procedures are repeated several times. Since it is extremely difficult and time consuming to obtain optimal design satisfying all the stability requirements, it is beneficial to consider the problem as an optimization problem. Nowadays, meta-heuristic methods have been widely APPLIED in many CIVIL ENGINEERING optimization problems. The artificial bee colony (ABC) algorithm is one of the recently developed meta-heuristic optimization TECHNIQUES.

In this study, the effects of the surcharge load, height of retaining wall and the angle of internal friction of the backfill on optimum wall design resting on soil with HIGH bearing capacity were investigated by using the ABC algorithm. A total of 125 analyses were carried out for different surcharge loads (0 - 40 kPa), the heights of wall (4 m – 8 m) and angles of internal friction of the backfill (28^o - 36^o). Based on the analysis results, a multiple regression analysis was made between these parameters and minimum cost (C_min), and a regression equation was proposed. The proposed equation gives a HIGH coefficient of determination (R^2 = 0.9983), a low root mean square error (RMSE = 5.08 $/m), and a low mean absolute relative error (MARE = %1.68). It is very simple and practical to determine the minimum cost of the RCRW resting on soil with HIGH bearing capacity.

Keywords: Artificial Bee Colony (Abc), Optimization, Minimum Cost, Retaining Wall, Regression Analysis

AN OVERVIEW OF NEW ARCHITECTURAL DESIGN TRENDS IN TALL BUILDINGS

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Abstract:

Tall buildings, which emerged in the late nineteenth century in the United States of America, have been rapidly increasing worldwide. Today, this building type is a worldwide architectural phenomenon. The setting of most active tall building development has been shifting from North America to Middle East and Asia over the last two decades. Although the fist examples were built in the USA, many of the recent tall buildings are now being built, especially in Asian and Middle East countries.

Tall buildings are not only the buildings, which are in the cities for obligation to vertical growth but also they symbolize prestige and power for countries and big companies. Nowadays, countries and companies try to build iconic buildings. Therefore, they are willing to build tall buildings with extraordinary, out-of-the-box and non-orthogonal form, instead of box forms in order to attract public attention. The contemporary tall building designs are no longer monolithic vertical extrusions of an efficient floor plan. In the light of structural developments, complex forms such as cylindrical, aero-dynamic, pyramidal, leaning, twisted and free forms can be designed and constructed by creative architects. This architectural design trends can be constructed by the advent of advanced structural systems, such as diagrid, mega frames, outrigger systems, and etc. Such changes in the architectural form and organization of tall buildings were necessitated by the emerging architectural and structural trends in design, economic demands, and technological developments in the realms of technological innovations, such as structural analysis and digital design methods made possible by the advent of HIGH-speed digital computers.

This paper tends to draw attention to the close interaction between the architectural and structural design of tall buildings and new trends with a number of building examples constructed or on the phase of construction

Keywords: HIGH Rise Buildings, Form, Structure, New Trends, Architectural Design, Structural Form

ANALYSIS OF THE RELATIONSHIP BETWEEN THE AIRCRAFT PERFORMANCE PARAMETERS AND THE EGT PARAMETER BY USING MULTIPLE REGRESSION ANALYSIS

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Abstract:

In literature, there are lots of methods for using aircraft engine performance analysis. In all of these methods, observing the Exhaust Gas Temperature-EGT parameter has very important situation. In this study by using multiple regression analysis, data of aircraft (is travelling from Antalya Airport to Sabiha Gokcen Airport) is analyzed and the relationship between the flight performance parameters and EGT parameters are evaluated. The results of the analysis show that the flight performance parameters of aircraft (like N2, altitude, air speed, ground speed, pitch, AOA (angle of attack), roll, heading, vertical acceleration, latitude acceleration, longitude acceleration, speed break, TAT (true air temperature), air/ground flight performance parameters) and EGT parameters have meaningful relationship. The results of this study are used as a pre-study for the aircraft online failure estimation model.

Keywords: Aircraft Engine Performance Analysis, Flight Performance Parameters, Egt Parameters, Multiple Regression Analysis

DISSOLVED OXYGEN AND CHLOROPHYLL A LEVELS IN AN URBAN STREAM, DEĞIRMENDERE, NORTHEAST TURKEY

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Abstract:

Dissolved oxygen (DO) in waterbodies is a vital indicator that determines quality of aquatic systems. The deficient or excessive DO concentration in rivers leads to adverse effects on aquatic environments, such as mortality of benthic fauna, fish kills, and habitat loss thus level of DO in natural equilibrium is very important. The aim of this study is to determine and evaluate the spatial and temporal variation of DO concentration and saturation, water temperature (Tw), pH, specific conductivity (SC), chlorophyll a (Chl-a) concentration, and air temperature (TA) in the Değirmendere Stream, Eastern Black Sea Basin, Turkey. A yearlong FIELD study was conducted in five monitoring stations selected on the main branch. The HIGHest DO concentrations varying between 11.40 and 12.34 mg/L were monitored in the winter as a result of the lowest seasonal Tw values, while the lowest concentrations varying between 8.68 and 9.59 mg/L were determined in the summer due to the HIGHest Tw values. Tw, pH and Chl-a showed a steadily increasing trend along the stream, and were at their HIGHest values: 16.02 °C, 8.35, and 1.67 mg/L, respectively, regarding the annual mean values. Pearson correlation analysis showed that the DO concentration was negatively but significantly correlated with Tw (up to R = -0.996) and TA (up to R = -0.919).

Keywords: Dissolved Oxygen, Değirmendere Stream, Water Temperature

DEVELOPMENT OF THE PLC STARTING SYSTEM FOR TRAMS DRIVEN BY DC SERIES MOTOR

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Abstract:

Trams which run on tracks along public urban streets are quite convenient way in public transportation. The payback period is very short for trams due to the ability for HIGH capacity passenger transportation. In this study, a PLC control system design of the tram automation process is intended for Konya. In our country DÜWAG type trams driven by the D.C. series motor type imported from Cologne in Germany, are used for public transportation. This system works as the operator of the tram runs the resistance system for D.C. series engine control. During this control process there could be some defects caused by operator mistakes leading to uncomfortable transportation for the passengers. With the help of this study is has been aimed to minimize these operator mistakes and motor defects. Driving of the D.C. series motor was performed using the designed PLC control system that makes the whole transportation system visual and helps to find the possible defects for eliminate them. Additionally the reduction of unnecessary power losses occurring on the resistance system during the transportation was achieved and consequently energy saving is provided.

Keywords: Plc, Automation Process, Public Transportation

SURVEY FOR CONTROL STRATEGIES AND APPLICATION AREAS OF PWM RECTIFIERS

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Abstract:

Pwm recitifiers are ac to dc rectifiers which have switches to rectify and regulate output voltage. There are so many APPLICATION areas of pwm rectifiers like telecommunication, power ELECTRONICS and ELECTRICAL MACHINE drivers because of HIGHER input power factor and allowable output harmonics. So, in last decades there are so many research for pwm rectifiers. This paper is one of them. It analyzes the mathematical model of Pwm rectifiers and helps researchers to choose inductor and capacitor values and switching strategies of pwm rectifiers. While analyzing pwm rectifiers, table contents and graphics are used for optimizing output values. After analyze and conclude some results from pwm rectifiers explained some disadvantages of pwm rectifiers. This disadvantages are HIGHER cost and complexity when it is compared with other ac-dc converters. Moreover there are two types of pwm rectifiers. These are three phase and one phase rectifiers and they are analyzed and compared with other single phase and three phase converters . To control pwm rectifiers microprocessors are used so we also consider control strategies and control TECHNIQUES with microprocessors for pwm TECHNIQUES. As a result this paper is prepared for researchers to find almost everything about pwm rectifiers when they need.

Keywords: Pwm Rectifier, Control Pwm, Pwm TECHNIQUES, Pwm APPLICATIONs

A MATHEMATICAL MODEL FOR SIMULTANEOUS FORMATION OF HUMAN-MACHINE CELL PROBLEM IN CELLULAR MANUFACTURING SYSTEMS

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Abstract:

The efficient design and successful implementation of cellular manufacturing systems necessitate the consideration of four basic components which are human, equipment, operating rules and material. In this study by taking account these basic components a comprehensive mathematical model is proposed to form part-MACHINE and human cells simultaneously. The model considers alternative routings, part demands, and it allows subcontracting and lot splitting. The objectives are minimizing the operation time, the number of purchased MACHINEs and their set up time, subcontracting cost, the number of intercellular movements of parts and the number of employed MACHINE operators simultaneously. All the terms are unified as cost minimization. The proposed model is analyzed with a sample problem of which data set adapted from the literature. The model performance is investigated according to cpu time, the number of nodes and the number of iterations by using different size of problems. The result shows that the proposed mathematical model is a candidate for efficient and usable tool in small and medium sized problems.

Keywords: Cellular Manufacturing, Human-MACHINE Cell Formation, Skills, Mathematical PROGRAMMING

EFFECT OF CROWN MARGIN DESIGN ON THE STRESS DISTRIBUTION IN MANDIBULAR FIRST MOLAR RESTORED BY MEANS OF IPS E-MAX: A FINITE ELEMENT METHOD

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Abstract:

The purpose of this study was to evaluate the effect of the stress distribution of the crown margin design localization of critical sites in mandibular first molar under functional loading by using finite element analysis ENGINEERING tools. 2-dimensional teeth modeled by transferring the anatomical structure from the Wheeler [1].

Two dimensional finite element model of a mandibular first was presented. The bite force of 50N, 100N and 200N was APPLIED vertically to the tooth longitudinal axis. Three models were considered to be restored with IPS E-max with a different margin design. Stress distribution was investigated using finite element analysis.

Keywords: Mandibular First Molar, All-Ceramic Restoration, İps E-Max, Finite Element Method

BIOSORPTION OF CADMIUM(II) IONS FROM AQUEOUS SOLUTIONS BY ORIENTAL HORNBEAM

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Abstract:

Cadmium is dangerous heavy metal for the environment and human health due to its toxicity. The common use of cadmium in various INDUSTRIAL activities such as electroplating, metallurgy, phosphate fertilizers, pigments, nuclear and Ni–Cd batteries causes the cadmium release into the environment. Several treatment methods including precipitation, ion exchange by ionic resins, electrodialysis and ultrafiltration have been proposed for removal of cadmium from wastewaters. However, each of these processes has restrictions and disadvantages. Biosorption is a promising alternative method to treat heavy metals, mainly because of its low cost and HIGH metal binding capacity. In this study the biosorption of cadmium ions from aqueous solution by Oriental hornbeam (Carpinus orientalis) was studied in batch systems. The removal of cadmium(II) from aqueous solution was investigated under conditions such as values of two initial concentration (15 and 30mg/L) and contact time (3h). Batch studies indicated that the biosorption efficiency decreased with increasing initial concentration of cadmium(II). It was observed that the removal efficiency at 10 and 30 mg/L of initial cadmium ions were found 95.88 and 73.83%, respectively. Biosorption equilibrium was reached within 15 min. Further increase in contact time did not show an increase in biosorption. In conclusion, abundant and cheap biosorbent of Oriental hornbeam, is a potent candidate for efficient biosorbent capable of removing cadmium(II) from aqueous solutions.

Keywords: Oriental Hornbeam, Cadmium(İi), Heavy Metals, Biosorption

CHEMICAL DEPOSITION OF ZNO NANO FILM AT DIFFERENT ZINC SOURCE AT ELECTROLYTE

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Abstract:

Synthesized of ZnO nano MATERIALS has been ultimately gone up own specific properties including HIGH excition band energy (60 meV) and proper band gap (3.3 eV). For these properties ZnO nano films have been used as photoanode at photoelectrochemical cell which water splitting via solar light irritation. ZnO nano MATERIALS are synthesized with use different TECHNIQUES including atomic/molecular layer deposition, hydrothermal method[4], electrochemical deposition method and chemical method. Chemical deposition technique is generally chosen to obtain different morphology ZnO nano structure because of cheaper and not take long time than other TECHNIQUES. Our study in that scene, ZnO nano films have been synthesized used chemical deposition method more different electrolyte condition than literature. Indium doped tin oxide(ITO) was chosen substrate to deposition ZnO film on its surface. 0.001 M zinc citrate dehydrate– 0.001 M hexamethylenetetramine (HMT) ethanoic solution has been used deposition bath at 70 °C. Using that technique was obtained surface morphology of ZnO nano films were characterized Scanning Electron Microscopy(SEM). Photoluminescence(PL) property of the electrodes were investigated with Fluorescence Spectrometer LS 55. Photoelectrochemical cell(PEC) measurements were examined in a convenient three-electrodes cell, an electrochemical analyser Gamry (interface 1000) and a 300W Xe lamp solar simulator (100 mWcm-2).

Acknowledgment:

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Keywords: Chemical Deposition, Zno Nano Film, Photoelectrochemical Cell

GENERATING HYDROPOWER MAP OF TIGRIS RIVER

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Abstract:

Hydropower is known as the most reliable, efficient and common type of renewable energy. The energy of a flowing river can be harnessed using large scale hydroelectric power plants, small scale dams or hydrokinetic turbines. The energy independency of developing countries can be provided by employing only natural resources. The aim of this study is to generate the hydropower map of Tigris River Basin to be used in hydropower production works in Turkey. The discharge rates of ungauged sites have been predicted by statistical regression analysis using long-term-averaged discharge data of 34 flow measuring stations. The channel cross sections were determined by making hydraulic geometry analysis using 10 different cross section measurements. Then, the discharge map of the basin have been generated. Consequently, the hydropower map is produced based on the discharge and cross section data of both gauged and ungauged sites considering basin's topology.

Keywords: Hydropower, Tigris River, Power Map, Discharge

SMART CLEANER FOR SOLAR PANELS

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Abstract:

Depending on the weather conditions, outside on the glass material of the photovoltaic panels where sunlight passes through occurs unwanted contamination with the time. This contamination occurred on the photovoltaic panels blocks and prevents the essential sunlight passing through the glass material. This causes to the voltage and desired efficiency reduction of the panels since the electricity production on the panels is closely related to the sun radiation. In this study, design and implementation of a mechanism which detects and cleans the possible contamination on the glass material of the photovoltaic panels was performed. To verify, the panel surface was contaminated artificially and after the threshold value is reached, the implemented mechanism starts to detect and clean the undesired contamination. Consequently it was observed that after the cleaning process of the panels, the former output values were achieved for the electricity production.

Keywords: Solar Panel, Surface Cleaning, Electricity Production, Efficiency

A NOVEL METHOD FOR REACTİVE POWER CONTROL RELAYS

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Abstract:

Reactive power is a kind of power that is desired not to be drawn from a grid by loads. Minimizing the reactive power drawn from the point of common coupling by the customers that have the rated values above some certain values is mandatory due to some legal obligations. In practice, the compensation of reactive power has been conventionally achieved by switching the contactors in order to activate or deactivate the capacitors. Here, the control signals of contactors are produced by a reactive power control relay. In this paper, a novel method for the determination of capacitors that must be activated or deactivated in order to provide reactive power compensation by reactive power control relays is presented. The method, unlike existing classical methods that use the values of powers, performs grid side reactive power compensation by controlling the values of inductive/capacitive reactances. For this purpose, firstly, total reactance values of load + capacitor banks are computed by using voltages and currents of grid side and then, necessary switching actions are fulfilled. Developed method provides fairly good reactive power compensation both in the case voltages deviate from their rated value and even in the presence of harmonics. The validity of the suggested method is demonstrated by a series of simulations that have been done in Matlab/Simulink environment.

Keywords: Reactive Power Control Relay, Reactive Power Compensation, Conventional Compensation, Reactance

EFFECTS OF VOLTAGES TO THE EQUIVALENT CIRCUIT PARAMETERS OF TRANSFORMERS

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Abstract:

The equivalent circuit parameters which are a function of physical structure of the transformers provide important information about the status of the transformers. These parameters can give the possibility of monitoring the status of a transformer. These parameters which can change according to many factors can also change depending on the voltages APPLIED to the transformers. With true understanding of these changes, the evaluations through the transformers parameters will be better. For instance, knowing the changes in the value of iron core resistance according to voltage deviations can help to understand the changes of the iron core losses. For the monitoring of loss change through the parameters, firstly the direction and rate of the changes in these parameters with the voltages should be well known. In this study, the effects of the voltages that are APPLIED to transformer on the equivalent circuit parameters are investigated by using a series of experiments done on a transformer rated of 5kVA, 380V/220V. These results are also evaluated by using theoretical knowledge.

Keywords: Transformer, Equivalent Circuit Parameters, Effects Of Voltage, İron Losses

THE PRODUCTION OF POLYURETHANE FROM VEGETABLE OIL-BASED POLYOLS AND MODELLING OF THERMAL PROPERTIES

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Abstract:

The polyols are produced from the vegetable oils in three consecutive steps which are epoxidation, hydroxylation and purification. The polyurethane produced by the vegetable oil-based polyols with different catalysts was examined to determine the characteristic properties such as thermal conductivity, the structures of porosity.

The polyurethane produced from the different resources is being compared one another in terms of thermal properties. The thermal properties of the polyurethane produced from the vegetable oils have improved by trying to use different type of catalyst. The improvement in the thermal properties of polyurethane is quite important in terms of energy efficiency since polyurethane is used for insulation in the building.

Several types of polyurethane structures are generated to the fractal models the of porous media, and the effective thermal conductivity in these structures is simulated by the finite difference and finite element methods. The influences of the thermal conductivity of solid, the thermal conductivity of the gasses, the porosity, the size and spatial distribution of pores on the effective thermal conductivity of these structures are analyzed in detail. The calculated results indicate that the relation of the effective thermal conductivity with the thermal conductivity of solid and thermal conductivity of gasses conforms to a power function, and the relation of the effective thermal conductivity with porosity conforms to an exponential function. The results obtained from the finite element method and finite difference method used to determine the temperature distribution in different fractal models were found to be very close to each other. The results for thermal conductivities obtained from present study appear to be compatible with the results obtained from the equations developed based on experimental data.

Keywords: Vegetable Oils, Polyols, Polyurethane, Effective Thermal Conductivity, Modelling

DESIGN AND DEVELOP FOR DISASTER MANAGEMENT INFORMATION SYSTEM

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Abstract:

Disasters are the events which have negative effects on the life. Turkey generally is subject to large scale natural disasters due to negative effects of its GEOLOGICAL, topographical and climactic characteristics. The loss can be minimized by working and measurements which should be taken before, during and after the catastrophe. The work which should be done before and after a disaster is examined in " Design and Developmentfor Disaster Management Information System". The primary mission of the Disaster Management is to reduce the loss of life and property. To be ready for rescue in every case is possible by very well organization before the disaster.

Large earthquakes that occurred in 1999 in Turkey revealed the need to review the concept of disaster management, Law No. 5902 was put into practice in our country, a new model of disaster management. This model is referred to as 'Integrated Disaster Management System', for the prevention of damage caused by the disaster and emergency situations early detection of hazards and risks, disaster losses that may occur before the measures to be taken to prevent or minimize, effective intervention and coordination in disaster and emergency situations in an integrated manner to ensure the execution of the work and the aftermath of a disaster requires improvement.

In this study, for the disaster recovery and reconstruction efforts aim to make a disaster management information system design and develop via using UML database schemas. The data needed for this study were primarily post-disaster. Then, selected as a pilot area Eregli Sofular Village, in Eregli District Temenler Village in Çaycuma District introduced. The data used in the studies were identified and added to the system software.

Keywords: Disaster Management İnformation System, Recovery And Reconstruction

THE EFFECTS OF BEAK TRIMMING ON THE GENERATED PECKING SOUNDS AND FEED INTAKE OF LAYING HENS

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Abstract:

Beak trimming on poultry serves to reduce or inhibit undesirable behaviours, such as inter-bird pecking, aggression and cannibalism. The degree and type of behavioural modifications that ocur following beak trimming are somewhat determined by the age of trimming and the severity of trimming performed. Earlier studies have resulted in a reduction of feed intake that has in part been attributed to the trimming –induced changes in a birds ability to grasp and manipulate feed. In this research, 60 laying hens were used to investigate the effects of beak trimming on the generated pecking sounds and feed intake of chickens using an innovative method based on sound analysis. The pecking sounds and feed intake of beak trimmed chickens were compared to the results of the non-treated control group. Furthermore, the pecking sounds and feed intake of beak trimmed chickens were compared before and after beak trimmed. The results showed that the total pecking sounds and feed intake of treated group decreased in the day after beak trimming and remained significantly lower than the non-treated control group for three days ($P<0.05$). The results also showed that there was a significant differences between the pecking sounds and feed intake of chickens before and after beak trimming. Since the correlation between the beak trimming and pecking sounds of laying hens was very HIGH ($R2=0.982$) the results suggest that this pecking sound detection system has potential to be used as a tool to assess the effects of beak trimming on the generated pecking sounds and feed intake of laying hens. The most importand advantage of this system is that measurements can be performed automatically and continuously with a non-invasive and non-intrusive way.

Keywords: Sound Analysis, Beak Trimming, Feed İntake, Pecking Sounds, Laying Hens

AUTOMATIC DETECTION AND LOCALISATION OF SICK ANIMALS BY SOUND TECHNOLOGY

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Abstract:

In recent years, numerous APPLICATIONs in the framework of precision livestock farming for animal production have been reported. Precision Livestock Farming is a management system developed utilizing the latest developments in technology which can works in real time with fully automated monitoring and control systems to continuously (7/24) follow the animal production, impact on the environment and health and welfare of animals, by using different modelling TECHNIQUES which can predict the realization of important events such as illness and allows the taking the necessary precautions. As an example of this system, it was shown that the cough sounds of animals analysed in real time with sound technology and reduce the use of antibiotics by providing early detection. For early detection, several studies conducted in recent years on pigs, an automatic classification algorithm was developed by examining the sounds characteristics of animals. Together with the classification of the cough sounds of animals, the location of the sick animals within the farm was also provided automatically.

The first purpose of this study, is to share with interested researchers that the further technological APPLICATIONs and some examples in Europe to assist farmers by automatically and continuously monitoring health and welfare of animals. The second purpose of this study is to represent that how the sound technology used to continuously monitor health of the pigs which is intensively produced in Europe.

The third and the most important purpose of this study is to submit of attention to scientists who interested in precision livestock farming on this system which is not used yet in Balkan countries. Additionally, it was aimed to start discussions on the advantage and disadvantage of this system whether it can be integrated to the pig, cattle, sheep and poultry breeding facilities in Balkan countries.

Keywords: Sound Technology, Localisation, Cough, Animal Welfare, Balkan Countries.

ROUTE OPTIMIZATION OF ELECTRIC TRANSMISSION LINES WITH ABC ALGORITHM

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Abstract:

Finding the best route in electric transmission line (ETL) projects is a difficult process since there are many complex parts of the routing processes. These parts consist of determining the relevant criteria and sub-criteria; calculating the weights of these criteria (the importance values of the criteria to each other); collecting, digitizing, converting to raster format and all other map processes; assigning the weights to the maps; getting the Total Weighted Surface Raster Map (TWSRM) by combining all the maps with the Geographic Information Systems (GIS) and finding the optimum route on TWSRM.

Criteria determination and weighting of these criteria are crucial phases since one forgotten criteria or one wrongly calculated weight of an important criteria can change the course of the project by causing a great financial loss for the project. Besides, the last part of the routing process is the most difficult one since there are endless possible routes to be compared with each other. Many algorithms have been developed for finding optimum routing solutions for the problem. One of the most successful and used tool is "Cost Distance" (CD) toolbox embed in the GIS software. But it has some disadvantages like making many curves or turns with big angles in the proposed route. In ETL works the curves on the route increases the cost of the project.

In this study, ABC algorithm was used for the route optimization problem for a possible ETL on a previously prepared sample TWSRM. The results of the proposed algorithm was compared with CD tool's results in order to present the performance of the algorithm. As a good alternative for researchers, the ABC algorithm gave better solutions for ETL optimization problems.

Keywords: ELECTRICAL Transmission Lines; Artificial Bee Colony Algorithm; Gis; Route Optimization.

DOES FITNESS SCALING BOOST THE PERFORMANCE OF SINGLE OBJECTIVE GENETIC ALGORITHM?

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Abstract:

Fitness scaling is an important method to boost the performance of single objective genetic algorithm (SOGA). In this paper, an external parameter is systematically used to improve the performance of SOGA. A power-law fitness scaling method is used for this purpose. This method is named as gamma (γ) correction based fitness scaling (GCFS). GCFS is embedded SOGA algorithm and the efficiency of GCFS is tested by 6 different static gamma values (including 0.1, 0.2, 1, 2, 5 and 10) on two benchmarks (Ackley and Rastrigin test functions). According to the results, it is seen that SOGA converges the optimal solution of the benchmarks speedily and accurately. GCFS can be embedded on SOGA easily and without extra computational burden.

Keywords: Genetic Algorithm, Fitness Scaling, Gcfs.

ENRICHMENT OF TAILINGS AT ETI MINE-HISARCIK WASTE DAM BY USING THERMAL PROCESS

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Abstract:

In this study, the possibility of enrichment for the waste product, which come out after the enrichment process in Emet Boron Works Hisarcık concentrator plant and stored in tailings dam and causing both environmental problems and also economic loss, has been searched. For this purpose the chemical, physical and physicochemical characterization studies have been made with the samples taken as representative. In this study it is find out that the sample taken from the Hisarcık tailings dam includes % 19,1 B_2O_3 and as a result of mineralogical investigations it is determined that the sample includes colemanite, calcite and illite minerals.

Microwave experiments; in the three different grain size such as ; +0,5, -0,5+0,125, -0,125 mm, different time (10, 20, 30, 40, 50, 60 minute) and microwave power levels (360, 600, 800 watt) are classified as concentrate and waste after being subjected to microwave energy. As a result of this experimental work; after the exposure of microwave energy to the +0,5 mm grain size waste sample (at 600 watt power for 40 minutes) concentration have been carried out with 93.48% efficiency and 43.65 % B_2O_3.

Keywords: Boron, Beneficiation,Recovery Of Tailings.

HYDROLOGICAL AND HYDROGEOLOGICAL ANALYSIS OF HISTORICAL KAYIŞDAĞI WATERS OF ISTANBUL

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Abstract:

Istanbul used to have good quality drinking waters that have been supplied from sources in nearby surrounding regions. These water resources have come up today with increasing value although their quantity and quality have been gradually decreased at some extent over the years due to disorganized urbanization. Historical Kayışdağı Waters are still considered as one of the Istanbul's most natural, delicious and best quality water supply. In Kayışdağı Waters has flow rates about 200-250 m3/day in winters and 100-150 m3/day in summers which are collected from seven springs and delivered to 27 public water fountains in Anatolian part of Istanbul. Today, Kayışdağı Spring Waters are protected and managed by Istanbul Water and Sewerage ADMINISTRATION (İSKİ). In this study, hydrological and hydrogelocial characteristics of Kayışdağı Waters are investigated as a research project for İSKİ, which involves in determination of water potential subject to f hydrological variables and land use/land cover changes. It also involves determination of water quality, potential risks and recommended treatment options to reach its renowned historical status. To achieve these goals, 8 observation wells were drilled which were used to monitor groundwater levels 14 month biweekly. Water quality samples were also taken monthly from these wells and springs. As a result of statistical analysis, it was found that 10 days moving average precipitation data is correlated with biweekly measurements of spring discharges and groundwater levels. Water quality in the springs are found better than that of wells. This suggest that water in the spring comes out from the fractured quartz rocks although water in the wells are affected from shallow subsurface drainage from clay layer overlay the rocks. Kayışdağı is the only recharge area of the springs that still needs to be protected from urbanization effects to keep the good quality of water.

Keywords: Kayisdagi,Groundwater Flow

SYNTHESIS, CHARACTERIZATION AND THERMAL DECOMPOSITION KINETICS OF ABC TRIBLOCK COPOLYMER SYNTHESIZED BY ROP AND ATRP

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Abstract:

In this study to examine thermal degradation mechanism and kinetic parameters of the poly(1,2-epoxy-3-phenoxy propane-b-ε-caprolactone-b-benzyl methacrylate), poly(PEPP-b-Pε-CL-b-PBMA) triblock copolymer synthesized by ring opening polymerization (ROP) and atom transfer radical polymerization (ATRP). ABC type block copolymer was characterized by FT-IR, 1H-NMR. Thermogravimetric analysis (TGA) was used at different heating rates. Polymer was heated from room temperature to 500oC with heating rate of 5, 10, 20, 30 oC/min-1 under a nitrogen atmosphere. TGA curves showed that the thermal decomposition occurred in one stage. The activation energies (Ea) of thermal decomposition were determined using the method of Kissinger's, Flynn–Wall–Ozawa and Tang which does not require knowledge of the reaction mechanism at different conversions. Average Ea values for ABC polymer were calculated 196.36 Kj/mol, 193.65 Kj/mol and 194.90 Kj7mol, respectively.

Keywords: Abc Triblock Copolymer, Thermal Properties, Activation Energy, Ring Opening Polymerization

DRY SLIDING WEAR BEHAVIOUR OF MG–AL–TI ALLOYS WITH ZN ADDITION

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Abstract:

Magnesium is receiving great attention for ENGINEERING APPLICATIONs, particularly its cast alloys. This investigation focuses on the as-cast microstructure and MECHANICAL properties of permanent-mould cast Mg–Al alloys. In this study, the effects of Zn additions with varying amounts on the microstructure, tensile strength and wear resistance of the Mg5Al1Ti alloy produced by casting method were investigated. The percentages of Zn added to the master alloy are 0.5%, 1%, 2% and 4%. Optical microscope (LOM), X-ray diffraction analysis (XRD) and SEM were used for microcharacterization. The sample investigated by means of X-ray diffraction (XRD), optical microscopy (OM), scanning electron microscopy (SEM), energy dispersive spectroscopy (EDS) and standard tensile testing. Hardness test with the low-force hardness scale of 0.5 HV and wear test in pin-on-disk type testing MACHINE under the loads of 5N-40N in total 12000 m slide distance. As a result of the microstructural characterization, Mg17Al12 grain boundary intermetallic was formed in α–Mg matrix by small amount of Zn additions whereas the microstructures having HIGHER Zn additions showed differences. MgZn phase was formed by 4% Zn addition. The tensile strength and wear resistance of Mg5Al1Ti alloys has increased with %4 Zn addition.

Keywords: Magnesium Alloys, Casting, Microstructure, Wear.

EFFECT OF MN ADDITION ON THE CORROSION BEHAVIOR OF MG5AL1TI ALLOY

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Abstract:

One of the major causes of magnesium alloys is low corrosion resistance. Alloying the material with manganese may reduce the corrosion rate to acceptable levels. In this study, the effects of Mn addition with varying amounts on the microstructure, and corrosion resistance of the Mg5Al1Ti alloy produced by casting method were investigated. The percentages of Mn added to the master alloy are 0.5% - 4%. Optical microscope (LOM), X-ray diffraction analysis (XRD) and SEM were used for microcharacterization. As a result of the microstructural characterization, Mg17Al12 grain boundary intermetallic was formed in α–Mg matrix by small amount of Mn additions whereas the microstructures having HIGHER Mn additions showed differences. Al6Mn phase was formed by 4% Mn addition. The corrosion rate of a Mg5Al1Ti alloy correlates with Mn ratio in the alloy and intermetallics. %4 Mn addition of Mg5Al1Ti master alloy was the best corrosion resistant alloy among the tested alloys.

Keywords: Magnesium Alloys, Casting, Microstructure, Corrosion.

HYDROGEOCHEMICAL PROPERTIES OF ILICA THERMAL SPRING

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Abstract:

Ilıca thermal spring is located in Seydişehir town, about 90 km southwest of Konya Province in the Central Anatolia, Turkey. It has a temperature of 31.3 oC, with total dissolved solids ranging from 741 to 786 mg/l. The Ilıca thermal spring has low Na and K contents but HIGH Ca and HCO3 concentrations and ionic abundances are Ca> Mg > (Na + K) and HCO3 > Cl > SO4. According to AIH classification, the spring is Ca-Mg-HCO3 water type. Cold ground waters are mainly of Ca-HCO3 and Ca-Mg-HCO3 types, with total dissolved solids ranging from 282 to 702.5 mg/l. The chemical geothermometers APPLIED in the Ilica thermal spring yielded ranging from 52 to 59 °C according to the silica geothermometers. The spring are undersaturated with respect to gypsum and anhydrite minerals, and oversaturated with respect to calcite, dolomite and aragonite at discharge temperatures corresponding to travertine precipitation in the discharge area. The calcite, dolomite and aragonite minerals possibly caused scaling when obtaining the thermal waters in the Ilıca thermal area. Based on the results of δ18O, 2H and 3H isotope analyses, the Ilıca thermal spring has a deep circulation and a meteoric origin. The meteoric waters infiltrate along fractures and faults, get heated at depth with the HIGH geothermic gradient and then returns to surface through hydrothermal conduits. The δ13C ratio for dissolved inORGANIC carbonate in the spring is between 0.76 and 1.33 ‰, indicating that it originates from the dissolution of marine carbonates.

Keywords: Geothermometry, HydrogeoCHEMISTRY, İlıca Thermal Spring, İsotope, Seydişehir

HYDROGEOCHEMICAL AND ISOTOPIC INVESTIGATION OF THE SEYDIŞEHIR-ILICA THERMAL SPRING, TURKEY

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Abstract:

Ilıca thermal spring is located in Seydişehir town, about 90 km southwest of Konya Province in the Central Anatolia, Turkey. The Ilıca thermal spring has a temperature of 31.3 oC, with total dissolved solids ranging from 741 to 786 mg/l. It has low Na and K contents but HIGH Ca and HCO3 concentrations and ionic abundances are Ca> Mg > (Na + K) and HCO3 > Cl > SO4. According to AIH classification, the Ilıca thermal spring is Ca-Mg-HCO3 water type. Cold ground waters are mainly of Ca-HCO3 and Ca-Mg-HCO3 types, with total dissolved solids ranging from 282 to 702.5 mg/l. The chemical geothermometers APPLIED in the Ilica thermal spring yielded ranging from 52 to 59 °C according to the silica geothermometers. The spring are undersaturated with respect to gypsum and anhydrite minerals, and oversaturated with respect to calcite, dolomite and aragonite at discharge temperatures corresponding to travertine precipitation in the discharge area. The calcite, dolomite and aragonite minerals possibly caused scaling when obtaining the thermal waters in the Ilıca thermal area. Based on the results of δ18O, 2H and 3H isotope analyses, the Ilıca thermal spring has a deep circulation and a meteoric origin. The meteoric waters infiltrate along fractures and faults, get heated at depth with the HIGH geothermic gradient and then returns to surface through hydrothermal conduits. The δ13C ratio for dissolved inORGANIC carbonate in the spring is between 0.76 and 1.33 ‰, indicating that it originates from the dissolution of marine carbonates.

Keywords: Geothermometry, HydrogeoCHEMISTRY, İlıca Thermal Spring, İsotope, Seydişehir

THE EFFECT OF HALITE CRYSTALLIZATION ON GEOMECHANICAL PARAMETERS OF GRANITIC ROCKS, TURKEY

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Abstract:

Granitic rocks are use in a widespread manner as exterior cladding and interior lining, ornamental stone, paving stone and different purposes in various ENGINEERING projects, on the other hand, granitic rocks used as building material can be degraded by exposure to environmental factors such as salt crystallization, freeze-thaw, wet-dry, acid and thermal effects in the process of time. Salt crystallization is one of the most important environmental factors caused weathering of rocks under natural conditions. Central Anatolia Crystalline Complex includes granitic rocks with different colors and textures. In this study, to determine mineralogical and petrographical properties of selected granite samples within Central Anatolia Crystalline Complex, their thin sections were prepared. The most common minerals observed in the rocks are feldspar, quartz, mica (biotite), and accessory minerals, and texture is hypocrystalline porfiritic preponderantly. Additionally, in order to determine the effect of salt crystallization on granite, physical and MECHANICAL tests including porosity (n), water absorption in weight (Aw), dry weight loss (DWL), P-wave velocity (Vp), uniaxial compressive strength (σc) and Bohme abrasion values (Δv) have been carried out on the samples. Based on the physico-MECHANICAL properties of granite samples, it can be concluded that salt crystallization affects the physical and MECHANICAL properties of the granites though they have HIGH resistances to weathering.

Keywords: Building MATERIALS, Granitic Rocks, Halite Crystallization, Physico-MECHANICAL Properties,

ESTIMATION OF UNIAXIAL COMPRESSIVE STRENGTH FROM POINT LOAD STRENGTH, POROSITY, DRY DENSITY AND P-WAVE VELOCITY

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Abstract:

The prediction of the uniaxial compressive strength (UCS) from indirect methods is widely used for the preliminary investigations. In this study, the possibility of predicting the UCS from the physical-strength properties (dry density, porosity, P-wave velocity and point load test) was investigated for magmatic rocks. For this purpose, magmatic rocks were collected from 59 different locations in Anatolia of Turkey. The UCS and the physical-strength tests were carried out on the samples in the laboratory. The UCS values were correlated with the physical-strength values and strong relations were obtained. We used dry density (ρd), porosity (n) and point load strengths (PLT) values of magmatic rocks in this model. This model is very reliable (R2 = 0.832) for predetermination of uniaxial compressive strengths of magmatic rocks.

Keywords: Magmatic rocks, Porosity, Statistical model, Uniaxial compressive strength

EFFECT OF TICN ADDITION ON THE MICROSTRUCTURE AND MECHANICAL PROPERTIES OF PM STEELS

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Abstract:

In this work, the effects of TiCN additions on the microstructures and tensile behaviours of microalloyed powder metallurgy (PM) steels were investigated. The microstructure of the microaloyed PM steels was characterised by optic microscope, SEM and EDS. Results indicated that 0.2 wt. % TiCN added PM steel showed the HIGHest values in yield strength (YS) and ultimate tensile strength (UTS). However, when the amount of TiCN content increased from 0.2 to 0.5 wt.%, yield strength and ultimate tensile strength decreased. Elongation also tends to increased with increasing TiCN content.

Keywords: Powder Metallurgy; Powder Metallurgy Steels; Ticn; Microstructure

WEAR BEHAVIOR OF CRYOGENICALLY TREATED TIN CARBIDE CUTTING TOOL WHILE FACE MILLING OF INCONEL 718 SUPERALLOY

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Abstract:

Inconel 718 superalloy is one the most-used superalloy due to its outstanding properties in aerospace industry. However, Inconel 718 is known to be a difficult to cut material due to the properties of this material such as HIGH deformation hardening and low thermal conductivity and inclusions of hard carbide particles in its chemical composition. In this study, for improving wear resistance of TiN coated carbide cutting tools, cryogenic treatment was applied. Cryogenic treatment of carbide cutting tools is widely accepted nowadays for extend the tool life. In this study cryogenically treated TiN and untreated TiN coated carbide cutting tool were used in face milling Inconel 718 superalloy at dry condition. In milling operations on Inconel 718, surface roughness and wear length were recorded in relation with cutting length. Wear mechanisms of carbide cutting tools were determined with scanning electron microscopy (SEM) and energy dispersive spectroscopy (EDS). Abrasive and adhesive wear mechanism was found as main failure mechanisms. Cryogenically treated TiN coated carbide cutting tool gives best wear resistance in milling operation, and thus provides longest tool life.

Keywords: Tool Wear, Coated Carbide Cutting Tool, Hard Milling, İnconel 718, Cryogenic Treatment

A CONTOUR-BASED MOVING OBJECT SEGMENTATION ALGORITHM IN H.264/AVC BITSTREAM

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Abstract:

Moving object segmentation in compressed domain has very important role for multimedia APPLICATIONs, such as Video Surveillance, Video Optimization and Object-Based Video Coding. In this work, a new algorithm for the moving object segmentation is presented by using the motion vectors and DCT coefficients, obtained from the H.264 bitstream. For object segmentation, two different masks are implemented. The first object segmentation mask is created by applying Spatio-Temporal filters to the motion vectors and the second one is created by applying a Canny Edge Detector to DC image, obtained from DCT coefficients. At the end, object mask which is a combination of these two masks can be used for segmentation of moving objects

Keywords: Moving Object Segmentation, H.264 Bitstream, Motion Vector, Dct Coefficient

NUMERICAL SIMULATIONS OF COMPOSITE SANDWICH PANELS UNDER LOW VELOCITY IMPACT

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Abstract:

This study adresses the low velocity impact behaviour of composite sandwich panels with glass fibre-reinforced polymer face and PVC foam core. The sandwich structures is becoming increasingly popular in aerospace and marine industries and other areas where lightweight MATERIALS with HIGH in-plane and flexural stiffness are needed. Impact mechanism develops strongly with surface conditions, and becomes more apparent on the metal surface whereas the damage may initiate inside the composite MATERIALS, such as along interfaces between the layers rather than on the surface of the composite material. Therefore, the prediction of the initiation and propagation of the damages in the composite MATERIALS needs various damage models to be considered. In this study, impact behaviour was investigated for varios fibre angle and impact energy levels of composite sandwich panels. Material non-linearities were considered in the explicit analysis. The dynamic response of foam core sandwich panels was studied using ABAQUS/Explicit. The variations of contact force, kinetic energy histories and damage area were showed and also the capability of energy absorbing of the panels was investigated.

Keywords: Low Velocity İmpact, Composite, Sandwich Panel, Pvc Foam, Finite Element Method

ADSORPTION OF BORON FROM AQUEOUS SOLUTIONS BY MODIFIED CHITOSAN DERIVATIVES

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Abstract:

Boron is one of the essential micronutrient elements required for the normal growth of most plants. It has a significant effect on plants in regard to nutrition and toxicity. At the same time the range between deficiency and excess of boron for animals and human beings is very narrow. The World Health Organization defines boron level of 0.3 mg/l as the non-observe deffect level (NOEL) for drinking water. HIGH boron levels in drinking water can be toxic to human beings. Therefore, boron removal is very important in terms of human health and AGRICULTURAL products in HIGH quality.

Boron can be removed by reverse osmosis, precipitation, electrodialysis, filtration etc. Adsorption is a very useful and economical technique at low boron concentration. In this study, adsorption method has been used for removal of boron using chitosan and its modified derivatives. For this purpose, two modified chitosan derivatives were prepared in order to compare their adsorption properties for boron removal from aqueous solutions. The first chitosan adsorbent (Cs) was cross–linked with glutaraldehyde (GCs), while the second (MCs) was cross-linked with glutaraldehyde and functionalized with magnetic nanoparticles (Fe3O4). Characterization of the adsorbents has been determined using a FT-IR spectroscopy.

Optimum pH, concentration and contact time on boron adsorption were investigated using the adsorbents. According to the data, both modified chitosan adsorbents can be used successfully for the removal of boron on account of environmental properties and separation advantages.

Keywords: Boron, Chitosan, Magnetic, Removal, Adsorption

A POISSON MODEL EVALUATION OF EARTHQUAKE HAZARD PARAMETERS FOR THE EAST ANATOLIAN FAULT

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Abstract:

The purpose of this study; The EAF estimated earthquake hazard parameters using the Poisson model in the between years 1900-2015. Firstly, for this purpose, the EAF divided into 5 seismic source regions with tectonic structure and focal mechanism solutions and epicentral distribution of occurrence earthquakes. The Region 1 (Bingöl-Karlıova) was the Karlıova Triple Junction, the Region 2 (between Pütürge-Palu) was the Elazığ-Malatya, the Region 3 (Tut and Sürgü Faults) was the Adıyaman-KAHRAMANMARAS, the Region 4 (Karataş-OSMANIYE Faults) was the Adana and the Region 5 (between Kırıkhan-Islahiye) was the GAZIANTEP -Antakya that taken into the regions. The 5 different seismic source regions determined the relationships between the cumulative number-magnitude which estimated a and b parameters using the equation of LogN=a-bM in the Gutenberg-Richter. Later, annual occurring the number of earthquakes and return periods of occurring earthquakes estimated for the next 5, 10, 20, 50 and 100 years with Poisson model. A homogenous earthquake catalog for Ms magnitude equal or larger 3.5 prepared in the period between 1900 and 2015. The probabilities of the earthquake occurring estimated for the next 10, 20, 30, 40, 50, 60, 70, 80, 90 and 100 years in the 5 different seismic source regions. The chi-square test APPLIED to Poisson model determined as α=0.05 in this study. The HIGHest earthquake occurs probabilities estimated into 5 different seismic source regions in the next years. According to, the computed earthquake hazard parameters, the most dangerous region was the Bingöl-Karlıova (Region 1) and this region estimated that %89 with an earthquake occur probability for a magnitude 6 which the return period 44.9 year, %70 with an earthquake occur probability for a magnitude 6.5 which the return period 83.9 year, %47 with an earthquake occur probability for a magnitude 7 which the return period 157 year.

Keywords: The East Anatolian Fault, Earthquake Hazard, Poisson Model

EFFICIENCY EVALUATION OF CROW SEARCH ALGORITHM IN BENCHMARK FUNCTIONS FOR OPTIMIZATION

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Abstract:

Metaheuristics algorithms are the algorithms that utilize a simple approach as a solution technique of search and optimization problems and are recently getting strong and becoming more popular due to their advantages. They are population based TECHNIQUES and begin to search the solution with multiple points. They have good reputation and wide acceptability as being powerful tools for many different FIELDs such as management SCIENCE, ENGINEERING, computer, etc. and new versions of these algorithms have been proposed. Due to the philosophy of continually searching the best and absence of the most efficient metaheuristic algorithm for all types of problems, novel algorithms or new variants of current algorithms are being proposed. Crow Search Algorithm (CSA) is the most current nature inspired metaheuristic algorithm proposed in 2016 and based on intelligent behavior of the crows in obtaining better food sources. This paper explains the operators of CSA used in optimization and search problems and represents the comparative results obtained from current metaheuristic algorithms for different benchmark functions. CSA is one of the newest metaheuristic algorithm and there is only one work in the related literature. Although no optimization has been implemented for its parameters and no variants have been proposed, obtained results from the experiments are promising. CSA seems a simple and efficient global optimization algorithm that may efficiently be used in many complex search and optimization problems. Its variants with optimized parameters may be proposed for more efficient solutions in future works.

Keywords: Global Optimization, Metaheuristic Algorithms, Crow Search Optimization

CHAOTICALY INITIATED FLOWER POLLINATION ALGORITHM FOR SEARCH AND OPTIMIZATION PROBLEMS

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Abstract:

Metaheuristics algorithms are recently getting strong and becoming more popular due to their many advantages. In spite of the preponderance of plant life, surprisingly little inspiration has been drawn from botanical activities and processes for the design of novel metaheuristic algorithm for search and optimization problems. Flower Pollination Algorithm (FPA) is one of the recently proposed botanic based metaheuristic algorithm inspired by the flow pollination process of flowery plants. Although initial pollen population have great importance for the performance of the FPA, they have randomly generated in the studies. In this paper, Chaotically Initiated Flower Pollination Algorithm (CIFPA) has been proposed and sequences generated from different chaotic maps have been used for generating initial pollen population of FPA. By this way, enhancing the global convergence and preventing to stick on a local solution has been intended. The experimental results obtained from FPA and CIFPA for different benchmark functions show that the APPLICATION of chaotic maps instead of random sequences in initial pollen population generation step may be a possible strategy to improve the performance of the original FPA in terms of convergence speed and accuracy. Different chaotic maps may also be used for different parameters of FPA and its variants with optimized parameters may be proposed for more efficient solutions in future works.

Keywords: Chaos, Flower Pollination Algorithm, Metaheuristic Algorithms, Optimization, Performance

LENGTH–WEIGHT RELATIONSHIPS FOR SOME BARBUS SPECIES IN TURKEY

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Abstract:

Length-weight relationships provide useful information about population dynamics and fish stock assessments. For this reason length–weight relationships for Barbus pergamonensis Karaman 1971, Barbus lacerta Heckel 1843 and Barbus tauricus Kessler 1877 from different basins of Turkey are reported in this research.

Fish specimens were sampled from different basins in 2014-2015. Fish specimens were sampled using electrofishing in all streams. The relationship between length and weight was calculated using the Ricker (1975) length-weight relation model; W=a.(TL)b equation

This study provides length-weight relationships parameters for some Barbus species. Allometric coefficient b of the Barbus pergamonensis, Barbus lacerta and Barbus tauricus is 3.1365, 2.9302 and 3.0299 respectively. Information of these LWRs will be useful for researchers especially studying conservation BIOLOGY of the fishes.

Keywords: Barbus Pergamonensis, Barbus Tauricus, Barbus Lacerta, Length-Weight Relationships

REDUCTION OF KETOXIME DERIVATIVES BY LIALH4

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Abstract:

Synthesis of amines is an objective for drug discovery.1 One of the ways to obtain amines is by the reduction of the C=N double bond of ketoximes.2 LiAlH4 has been used with success in reducing a number of types of ORGANIC compounds.

In this work, we report the synthesis of amino alcohols starting from keto esters via reduction of O-benzyl and O-methyl oxime ethers. For this purpose, we used LiAlH4 as catalyst. O-benzyl and O-methyl oxime ethers could be prepared by the reaction of keto esters with O-methylhydroxylamine hydrochloride and O-benzylhydroxylamine hydrochloride. The synthesized oximes were purified chromatographically. The structures of these new oximes were identified with IR, NMR and GC-MS methods. In the second part, the reduction reactions of synthesized oxime ethers with LiAlH4 were investigated. As a result of these experiments optimum reaction conditions were determined. The synthesized amino alcohol compounds were purified by column chromatography and their structures were determined by IR, 1H-NMR and GC-MS.

Acknowledgments

This work was supported by TÜBITAK (The Scientific and Technological Research Council of Turkey), Scientific Research Projects, project number: 214Z232.

Keywords: Amine, Reduction, Oxime Ether

ECONOMICAL AND ENVIRONMENTAL INVESTIGATION OF THERMALLY INSULATED AND NON-INSULATED BUILDING IN OSMANIYE, TURKEY

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Abstract:

In this paper, economical and environmental performance of thermally insulated and non-insulated for a sample building located in OSMANIYE. Turkey is presented. Thermal performance of building is determined according to TURKISH Standard 825 (TS 825) ''Thermal Insulation Requirements for Buildings". The yearly energy needs of the building (Q) rating limited energy needs (Q') then it is investigated whether compliance with standards. The total heat transfer coefficients used in the building construction elements are evaluated as recommended in TS825 equations and contained with exception the principle and provision of the standard.

Keywords: Thermal İnsulation, Building, Degree-Day Concept

SYNTHESIS, CHARACTERIZATION AND VISCOSITIES OF AMPHIPHILIC POLYESTER COPOLYMER SYNTHESIZED BY ROP

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Abstract:

Amphiphilic polyester copolymers were prepared using ε-caprolactone (ε-CL) and containing epoxy ring compounds (1,2-epoxy-3-phenoxy propane and 2-[(naphthalen-1-yl oxy)methyl] oxirane by ring opening polymerization (ROP). Polymerization was performed at 120 oC in oil bath used benzyl alcole as a initiator and Sn(Oct)2 as a catalyst. Copolymers including different proportion of ε-CL were characterized FT-IR, 1H-NMR, TGA and DSC. Reduced viscosities (ηsp/c) of the 2 mg/mL polymer solutions were measured with Ubbelohde viscometer that was placed in thermostatically controlled water bath. From the flow times, relative and specific viscosities were determined. The HIGHest intrinsic viscosity is, the more compatible polymer and solvent are. Intrinsic viscosity [η] is the viscosity of a infinitely diluted polymer solution. According to results, the linear plots indicate that, for complete dissolution is occurring and that we are working in the appropriate range of concentrations. In all copolymers good linear fits were obtained, with values of intrinsic viscosity ranging from 0.60 to 6.23 for P(NMO-co- ε-CL) and from 0.84 to 6.23 for P(EPP-co-ε-CL).

Polymers	Intrinsic viscosity [η]
PNMO	0.6
P(NMO-co-ε-CL%19)	1.99
P(NMO-co-ε-CL%31)	2.59
P(NMO-co-ε-CL%42)	2.99
P(NMO-co-ε-CL%52)	4.50
Pε-CL	6.23

Keywords: Ring Opening Polymerization, İntrinsic Viscosity, Amphiphilic Polyester Copolymer

PESTS OF OLIVE FRUITS AND INTEGRATED PEST MANAGEMENT STRATEGIES IN TURKEY

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Abstract:

Olive is a naturally grown one of the major crops in the Mediterranean region of Turkey for thousand years. Olive and olive oil are essential components for the Mediterranean diet and are largely consumed in the world. Insect and mites negatively effect olive production causing the crop losses, low fruit quality and tree death. In this study, a wide-ranging of survey was conducted in seven provinces in Mediterranean region of Turkey between 2008 and 2013. Olive trees were sampled based on the representative number of trees in each orchard (at least 5% of trees in each orchard). Trees were sampled at random branches from four cardinal directions (north, east, south and west). Bactrocera oleae (Rossi) (Diptera: Tephritidae), Aceria oleae (Nalepa) and Tegolophus hasani (Acarina: Eriophyidae), Coenorrhinus (Rhynchites) cribripennis (Desbrochers) (Coleoptera: Attelabidae), Prays oleae Bern. (Pyradidae), Palpita unionalis (Hübn.) (Pyralidae), Cacoecimorpha pronubana (Hübner) and Lobesia botrana (Denis & Schiffermüller) (Tortricidae), Gymnoscelis rufifasciata (Haworth) (Geometridae) and Zelleria oleastrella (Mill.) (Yponomeutidae) (Lepidoptera), Aonidiella aurantii (Maskell), Hemiberlesia lataniae (Signoret), Leucaspis riccae (Targioni Tozzetti) and Parlatoria oleae (Colvée) (Diaspididae) (Hemiptera) were determined as pests of olive fruits. Among those, B. olea was found as the most important pest species in that its larva feeds on olive fruits. In addition to B. oleae, A. oleae and P. unionalis were determined to be widely distributed pests in olive groves in seven provinces. However, Tegolophus hasani was found solely in one orchard in Mersin province of Turkey. Integrated Pest Management (IPM) strategies have been developed to control olive pests in Turkey for last decades.

Keywords: Olive, Pest Species, Fruit, Turkey

ENVIRONMENT AND COST COMPARISON OF WARM MIX ASPHALT TECHNOLOGY APPLICATION IN TURKEY

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Abstract:

In Turkey which is provided with HIGHways in passenger transport by 95%, and 92% of freight transport Hot Mix Asphalt (HMA) is used in large quantities in especially municipialities. In recent years, several studies have been carried out to develop a new product which is more environmentally friendly and energy saving that can be used instead of HMA due to increasing environmental awareness and HIGH fuel costs in the World. Thanks to "Warm Mix Asphalt Technology" (WMA) ,which was placed the first FIELD experience in Germany in 1999, asphalt mixture can be produced at lower temperatures ranging from 20°C-50°C than HMA. Using WMA also provide significant advantages such as extension of performance life of pavement, reduction of greenhouse gas emission, contrubition to worker health, extension of construction season and carrying to long distance. WMA is very newly technology for our country yet which is used in especially USA and among Europe countries and was APPLIED a test road as trial in only Ankara and Sivas.

In this research study, literature informations are given about WMA and advantages and disadvantages are listed on issues such as environment, fuel consumption and workmanship as compared with HMA. Production cost of WMA is calculated by using "Unit Cost Calculation Method" for our country conditions and demonstrated differences from HMA in terms of metarials and equipments. In addition, in case of accessing under the our country conditions which is used WMA rates in the developed countries in the world is calculated monetary value that can bring benefits in terms of environmental and fuel consumption and importance of the WMA usage is revealed.

Keywords: Warm Mix Asfalt, Wma, Environment And Cost Comparison, Advantages

PREDICTIVE MODELLING OF SURFACE ROUGHNESS IN THE ELECTRO-DISCHARGE MACHINING OF DIE STEELS

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Abstract:

Electric discharge machining (EDM) is the one of the important non-traditional machining processes and it is widely used as a standard machining process in manufacture of FORMING tools to produce moulds and dies. The method is based on removing material from a work piece by means of a series of repeated ELECTRICAL discharges, produced by electric pulse generators at short intervals, between an electrode and a part being MACHINEd in dielectric fluid medium. In this work, it is considered to examine the effects of machining parameters on shaped mold surface roughness. Selected machining parameters are pulsed current, pulse time and pulse pause time. Mathematical models have been developed for surface roughness prediction using Response Surface Methodology.

Keywords: Edm, Rsm, Pulse Time, Pulse Current, Pulse Pause Time, Surface Roughness

THE BEST VEHICLE ENGINE SYSTEM SELECTION USING VIKOR AND TOPSIS METHODS

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Abstract:

Today, in parallel with the rapid depletion of fossil fuels, alternative engines used in vehicles begin to increase rapidly. Although more options are available for vehicle engines using fossil fuels, the importance of other engine systems also begin to rise. Because, expected features from vehicles is increased compared to the past. Besides the price; power, torque, acceleration, and emission values have become very important. Therefore, the engine systems which meet these features become more advantageous.

In this study, VIKOR and TOPSIS methods are used for determining the best vehicle engine system among six main engine systems (gasoline, diesel, LPG, hybrid, ELECTRICAL and hydrogen). For this purpose, six main criteria and their weights about six vehicles which use these engine systems are determined by ten experts. Then, by using the catalog data of vehicles, criteria and criteria weights are analyzed by using VIKOR and TOPSIS methods separately. The results of these methods are compared and it is determined that the vehicle which use the ELECTRICAL engine systems are the best one.

Keywords: Vehicle Engine Systems, Selection, Mcdm, Vikor, Topsis.

EFFECT OF RIPENING STAGE ON PHENOLIC PROFILE AND ANTIOXIDANT ACTIVITY OF HAWTHORN (CRATAEGUS ORIENTALIS) FRUIT

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Abstract:

Hawthorn fruit is used for medicinal purposes especially to treat mild hearth diases, except for food consumption, and its biological effects are generally attributed to phenolic compounds. The aim of this study was to investigate the changes of individual phenolic compounds as ripening progresses. Naturally grown fruits were collected at the stages of immature (green), semi mature (yellow) and mature (orange) ripeness in Beyşehir, Konya. Methanolic extracts of fruits were analyzed for total phenolics, DPPH antioxidant activity and individual phenolic compounds by HPLC. Total phenolic contents were determined as 818.3, 974.2 and 1957.4 mg GAE/100 g DW for immature, semi mature and mature fruits, respectively. As ripeness increased, total phenolic content and antioxidant activity of fruits increased. Procyanidin B2, (-)-epicatechin, chlorogenic acid, epigallocatechin gallate, rutin and kaempferol-3-O-glucoside contents also increased during ripening. No significant differences were observed for procyanidin B1 content of fruits at different stages of maturity.

Keywords: Crataegus Orientalis, Hawthorn, Phenolic Profile, Antioxidant Activity

UNION/FIND BASED IMAGE SEGMENTATION AND PERFORMANCE ANALYSIS

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Abstract:

Union/Find(UF) is a data structure provides efficient way to disjoint set elements into subsets. The elements of a set must have equivalence relations with eacher other to apply union/find data structure. Equivalence relations has three properties; reflexive, symmetric, transitive. Union/Find has been used to solve problems have different nature and APPLICATION areas. UF has two main functions operate on elements of a set; union and find functions. The union function merges two subsets into one set and the find function finds subset of given an element. There are four main different algorithms or approaches to implement UF data structure; quick-find, quick-union, weighted-quick-union and path-compressed-weighted-quick-union. The approaches are interesting in the context of algorithm analysis. Because the complexity analysis of the approaches are quite various each other altough they do same jobs. The UF has been used in many kind of APPLICATION such as simulation of percolation theory, social data mining, dertermining equivalence of finite state MACHINE, implementing of Kruskal's minimum spanning tree and image processing operations.

We used the UF for image segmentation and examinate complexity of the different UF approaches on image segmentation process theoriticaly and practicaly. Process of image segmentation split a image into parts based on specifiend features are generaly pixel's colors and locations. Image segmentation help to understanding of an images by reducing details and removing nonsignificant properties. The UF provide useful tools to merge similare pixels to form regions. To segment an image first of all each pixels in the image assumed as a subset. Then merging operation of the pixels are executed to reduce number of region until reaching detemined number of region.

Keywords: Union/Find Data Sturucture, İmage Segmentation, Performace Analysis

SCREENING OF PROBIOTIC PROPERTIES OF FOOD-BORNE YEASTS

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Abstract:

Probiotic properties of food-borne-yeasts strains were evaluated in vitro by their acid and bile salt tolerance, bile salt hydrolyse, hemolytic activity, antagonistic effect, biofilm production, aggregation activity and cholesterol assimilation. The results showed that P. kudriavzevii PCF126, P. kudriavzevii PCF113 and C. humilis PCF118 strains exhibited resistance to acidic conditions. All yeasts were found as tolerant 0.5% and 1.0% oxalic acid. None of the yeast strains did not show any antagonistic effect and hemolysis. K. marxianus PCF114 and S. cerevisiae PCF115 strains also produced middle level EPS. It was observed that microorganisms had HIGH level co-aggregation between 46% and 87%. In addition, all of the 14 strains in this study showed cholesterol assimilations between 10.1% and 87.5%. These findings demonstrated that these organisms could be used potential probiotics with the abilities of having a resistance to low acid and bile salts, having the activity of bile salt hydrolyse, auto aggregation, co aggregation and cholesterol assimilation.

Keywords: Food-Borne Yeast, Probiotic Properties

SEPARATION/PRECONCENTRATION OF SOME METAL IONS IN VARIOUS BIOLOGICAL AND ENVIRONMENTAL MATRIXES

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Abstract:

Separation and preconcentration procedures have a very important role for sample preparation, removing process and inORGANIC and ORGANIC trace analysis in environmental and analytical purposes. Separation procedures based on solid-phase extraction have been widely used to remove certain components of the sample, commonly toxic metal ions and/or harmful ORGANIC compounds from various samples. Recently, there are increasing interest to bacterial biomass due to their potential adsorption APPLICATIONs. In the present work, we developed a solid phase extraction method for Beryllium (Be) and Aluminum ions from water samples using Rhodococcus ruber bacterial biomass (RrBB). The experimental parameters that affected the extraction efficiency of the method such as pH, flow rate and volume of the sample solution, concentration of eluent, amount of adsorbent, and effect of common matrix ions were investigated and optimized. The adsorbed Be and Al ions on RrBB were eluted with 5 mL of 1 mol L-1 HNO3 solutions and their concentrations were determined by HIGH-Resolution Continuum Source Flame Atomic Absorption Spectrometry (HR-CS FAAS). The optimum pH value for quantitative sorption of Be and Al ions was found between 6.5 and 8.5. The Preconcentration factors were found as 120 for Be and 150 for Al. The developed method was successfully APPLIED to various Biological and Environmental matrices for separation of beryllium and aluminum.

Acknowledgement: The authors would like to express appreciation for the support of the sponsors (The Scientific and Technological Research Council of Turkey [TUBITAK] Grant no: 110T111 and Ahi Evran UNIVERSITY Grant no: TIP.E2.16.004).

Keywords: Preconcentration, Separation, Beryllium, Aluminum, Rhodococcus Ruber,

CROSS SECTION CALCULATIONS OF (N,GAMMA) AND (GAMMA,N) REACTIONS OF SOME ISOTOPES IN STEEL USED IN NUCLEAR REACTORS

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Abstract:

One of the most important subject for nuclear reactor safety is shielding the radiation caused by HIGH neutron flux produced in reactor core. Shielding systems should provide safe environment both for electromagnetic systems and reactor personnel.

Nuclear reactor shielding systems have to slow down fast neutrons, absorb instantaneous gammas produced by thermal and slow neutron reactions. Also, they have to decrease secondary gamma production. Due to these reasons (n,gamma) and (gamma,n) reaction cross sections are very important for nuclear reactor shielding systems.

In this study, (n,gamma) and (gamma,n) reaction cross sections have been investigated with equilibrium and pre-equilibrium reaction models for Cr52, Zn68 and Mo100 which are the components of steel grades used in nuclear reactors. (n,gamma) reaction cross section calculations have been performed in 2 - 20 MeV energy region with PCROSS program code for Weisskopf-Ewing and Full Exciton Models and ALICE/ASH program code for Equilibrium, Hybrid and Geometry Dependent Hybrid Models. (gamma,n) reaction cross section calculations have been performed in 2 - 50 MeV energy region with PCROSS code for Weisskopf-Ewing Model and ALICE-2011 code for Hybrid Monte Carlo Simulation Model. Moreover, we compared our results with experimental and evaluated data obtained from literature.

* This work has been supported by YUZUNCU YIL UNIVERSITY, OFFICE of Scientific Research Projects 2013-FBE-D005.

Keywords: Equilibrium, Pre-Equilibrium, (N,Gamma) Reactions, (Gamma,N) Reactions

NEUTRON SPECTRUM CALCULATIONS IN APEX FUSION REACTOR WITH FLINABE BLANKET USING MCNPX PROGRAM

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Abstract:

One of the most important subjects in fusion reactor design is nuclear reactions occurring in structural MATERIALS. In APEX (Advanced Power Extraction) fusion reactor design, main aim was to increase reactor power output and lifetime of first wall by using liquid blankets. Reactions like (n,α), (n,t), (n,xn) and (n,γ) are important nuclear reactions taking place in blanket, the first wall and shield. (n,t) and (n,xn) reactions have a significant importance for tritium production and neutron economy . Moreover, one has to know number of nuclear reactions which decrease life time of first wall and shield and cause structural defects. Therefore, neutron energy and flux have profound impact.

In this study, we simulated APEX fusion reactor with FLiNaBe blanket by MCNPX program. Moreover, we calculated neutron spectrum in blanket, first wall and shielding region of reactor.

*This work has been supported by YUZUNCU YIL UNIVERSITY, OFFICE of Scientific Research Projects 2008-FBE-YL018

Keywords: Apex, Mcnpx, Fusion Reactor, Neutron Spectrum

ULTRA-WIDEBAND WAVEFORM DESIGN BASED ON ARTIFICIAL BEE COLONY OPTIMIZATION

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Abstract:

The signals, used for UWB communication cover a wide spectrum, spread over a wide frequency range. So they are likely to make a distortionary interference with other existing communication systems. In order to reduce or prevent this interference, the change of Equivalent Isotropically Radiated Power (EIRP) distributions' limit values for UWB systems according to the frequency had been determined by Federal Communications Commission (FCC) in 2002. Also, the UWB signal generation suitable for the spectral distribution mask has become one of the major working area.

One of the main methods used in the literature related to the signal generation suitable for the UWB spectral distribution determined by FCC is the signal combination method. In this method, the signals that meet the emission mask limits are generated by handling different combinations of a selected base signal. In the signal combination method, the combination of Gaussian signal derivatives constitute an important part of the related works. However, some problems occur in the APPLICATION of this method due to the obtaining derivatives.

In this study, the design of the waveforms suitable for FCC mask was handled for UWB signal emission. In the suggested method, the gaussian modulated sinusoidal signals were used as the base signal. UWB signals were designed to meet FCC emission mask with linear combination by optimizing the amplitudes, spectral positions and band widths of these signals. The artificial bee colony (ABC) algorithm is used as the optimization method.

With the proposed model, a linear signal combination model that generates UWB signals that have HIGH spectrum utilization efficiency and compliant with FCC emission mask has been demonstrated. With the implemented method, optimum combination of the gaussian signals produced as analogue has been provided in certain number. Thus, it minimizes the production costs and system complexity of selected model to generate UWB signal.

Keywords: Ultra Wide Band, Uwb Waveform Design, Uwb Pulse Shaping, Artificial Bee Colony

AN IMPROVED BACTERIAL FORAGING OPTIMIZATION WITH INITIAL POSITION STRATEGY FOR RETAINING WALL PROBLEM

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Abstract:

In the bacterial foraging optimization (BFO) algorithm, the initial positions of each bacterium in the swarm are initialized randomly in the search space like the other swarm-based algorithms. The performance of the BFO algorithm is significantly affected by the distance between the initial position and the optimum solution point. Therefore, the selection of the initial position based on knowledge obtained from previous experiences can be a good choice. Thus, the initial position strategy will reduce the number of analysis required to achieve optimal solution.

In this study, the bacterial foraging optimization with initial position strategy was APPLIED for optimum design of reinforced concrete retaining walls (RCRW), which are one of the important problems in geoTECHNICAL and structural ENGINEERING. In the design procedure of RCRWs, design variables are firstly selected based on previous design experiences and this variables are checked in terms of external and internal design criteria. In this work, the preliminary sizes for RCRWs given in literature were selected as initial position strategy. The effects on the performance of the proposed strategy were investigated for three different RCRW problems. The results show that the initial position strategy reduces the required number of iterations for optimum solution. The convergence rate of the proposed strategy is much better than the randomly generated one. Besides, the comparison of the results of the BFO with initial position strategy and the classic BFO demonstrated that the initial position strategy provides better results for a less number of iterations.

Keywords: Bacterial Foraging Optimization, İnitial Position Strategy, Optimization, Retaining Wall

DETERMINATION OF P(MMA-COMB-AN) COMB-TYPE COPOLYMER MONOMER REACTIVITY RATIOS

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Abstract:

In this study, Poly(MMA-comb-AN) comb-type copolymers was synthesed by Free Radical Polymerization. The conversion of the synthesized comb type copolymer were calculated from 1H-NMR spectra. Conversion of comb copolymer were determined aliphatic protons and integral height of the macromonomer dividing the group -OCH3 proton of MMA. MMA and acrylonitrile (AN) copolymer composition comprising units was determined as follows as eq.1. Kelen-Tudos and Finemann Ross parameters (K-T and F-R) was calculated from the initial monomer ratio and utilizing the polymer monomer ratios. Using the parameters of K-T and F-R, the graphs of the curves drawn and reactivity ratios for the offset; r1 and r2 values were found.

Eq.1:

$$C = \frac{\text{Integral heights of the -OCH3 proton}}{\text{Integral height of aliphatic protons}} = \frac{3m1}{5m1+3m2}$$

m1 + m2 = 1, m1 and m2 values of equality and the help available

m1; The mole fraction of the MMA-macro monomer

m2; The mole fraction of Acrylonitrile unit

Keywords: Comb-Type Copolymer, Monomer Reactivity Ratio, Kelen-Tudos And Finemann Ross

THERMAL DECOMPOSITION OF POLY[Ɛ-CL-B-(MMA-COMB-BMA)] AND POLY(MMA-COMB-BMA) COMB-TYPE COPOLYMERS

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Abstract:

In this study, Poly[ε-CL- (MMA-comb-BMA)] the comb-type copolymers was prepared by atom transfer radical polymerization (ATRP) and Poly(MMA-comb-BMA) comb-type copolymers was synthesed by Free Radical Polymerization[1]. Thermal decomposition temperatures were investigated by thermogravimetric analysis (TGA) at different heating rates. TGA curves showed that the thermal decomposition occurred in one stage. For this purpose, the comp-type polymers heating rate of 5, 10, 20 and 30 ° C / min from the room temperature was heated to 500 ° C under nitrogen atmosphere.The apparent activation energies of thermal decomposition for copolymer, as determined by the Kissinger's, Flynn–Wall–Ozawa and Tang methods. For example; according to ;the activation energy can also be determined using the method of Flynn–Wall–Ozawa, eq. (1), from a linear fitting of log β versus 1000/T at different conversions. Because of the fact that this equation was derived using the Doyle approximation, only conversions values in the range 5–20% can be used. For this study, the conversion values 3, 5, 7, 9, 12, 15, and 18% have used [2].

References :

[1] 1st International Conference on ORGANIC Electronic Material Technologies (OEMT2015) March 25-28, 2015, Elazığ, TURKEY

[2] Ho, B.C., Lee, Y.D., Chin, W.K., Thermal degradation of polymethacrylic, acid, Journal of Polymer Scıence Part A-Polymer CHEMISTRY,1992, 30, 2389-2397.

Keywords: Thermal Decomposition, Thermogravimetric Analysis, Kissinger'S, Flynn–Wall–Ozawa And Tang Methods

STUDY OF SERVICE DOGS' EDUCATION WITH AN ELECTRONIC COLLAR

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Abstract:

The development of connected objects in the FIELD of sport, health or even everyday life is growing stronger. In this paper, we present a study on service dogs' EDUCATION with an electronic collar (or connected collar - smart collar). The collar was designed, developed and tested in partnership with the association Handi'Chiens that educates service dogs for disabled people. The main requirements of the users are: first to locate their dog when it is away, out of sight or out of voice range and secondly to send simple commands (like: sit, wait, stop, come...) and receive feedback on their dog's activity (the dog is sitting, the dog is walking, the dog is running).

The collar incorporates a GPS, an inertial navigation unit and a long-range radio transmission network card (LoRa technology) to communicate with the smartphone. Moreover, users' voice commands are recorded directly with the smartphone and played by two speakers embedded in the collar.

The aim of the study was first to check the dogs' familiarization with the collar and second, to teach the dog to obey commands coming from its collar. The study was conducted on six different dogs during three months and was led by two professional educators of Handi'Chiens association. The results show that the dogs became used to the collar relatively easily and quickly learnt to obey. In particular we show that three types of reactions were detected in the early days: immediate familiarization, excitement or stress. During the phase of learning of the orders, the methodology was based on a mix of communication modalities: voice from the collar alone, body language of the educator, and the educator's voice mixed with the recorded voice.

We conclude by proposing a number of recommendations for the process of assistive dogs' EDUCATION respecting the animal.

Keywords: Service Dog, EDUCATION, Acceptability, Electronic Collar, Disabled People

IMPROVE THE CLASSIFICATION SUCCESS OF FATTY LIVER DISEASE BY USING FEATURE WEIGHTING METHOD

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Abstract:

This study aimed to increase the performance of classification of fatty liver disease by using one of the feature weighting methods, fuzzy c-means clustering based feature weighting method. To classify the fatty liver disease, eleven different blood test analysis values such as AST, ALT, LDL, and HDL were used as feature vector. Data set was obtained from the specialists at Amasya UNIVERSITY Sabuncuoğlu SEREFEDDIN Research and APPLICATION Hospital. Firstly, raw data of 300 patients was classified by means of five different classification algorithm such as k nearest neighbor (k-NN), Multi-Layer Perceptron (MLP), support vector MACHINE (SVM), Naïve Bayes and decision Tree. Then, these classified data was weighted by means of fuzzy c-means clustering based feature weighting method and was once again classified by means of the aforementioned five different classification algorithms. Results showed that 60% of the classification success of fatty liver illness increased up to the level of 90%.

Keywords: Feature Weighting, MACHINE Learning, Fuzzy C-Means Clustering, Fatty Liver

MODELLING THERMAL CONDUCTIVITY OF CEMENT COMPOSITES CONTAINING WASTE EXPANDED POLYSTYRENE

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Abstract:

Thermal conductivity plays a significant role for insulation of the buildings. Modeling of the effective thermal conductivity used heterogeneous or composite MATERIALS. The porosity is the most important factor that determines the effective thermal conductivity of the porous media, but the size and spatial distribution of pores, especially the spatial distribution of the bigger pores, do have substantive influence. New models were simulated by the fillers in the mixture and the distribution of pores for the effective thermal conductivity. The new created models were compared with the empirical results. In this study, the waste expanded polystyrene (EPS) was used in a mixture of cement and tragacanth resin in order to produce a new concrete material. The amount of the resin in the mixture was 0.5%, 1% and 1.5% of the total volume. The new samples were subjected to some tests to find out some thermal and MECHANICAL properties. It was concluded that, when EPS and resin ratios of the samples increased, the density, thermal conductivity, compressive strength and tensile strength decreased, but the porosity increased. The change in the physical properties shows that, some artificial pores are formed in concrete blocks which allow to increase the insulation characteristic of the material.

Keywords: Waste Expanded Polystyrene, Cement, Thermal Conductivity, Modeling

EVALUATION OF SOME PROBIOTIC PROPERTIES OF LACTOBACILLUS CASEI STRAINS ISOLATED FROM TURKISH LAVAŞ CHEESE

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Abstract:

In this study, six Lactobacillus casei isolated from TURKISH Lavaş Cheese, were screened for their potential use as probiotics. The isolates were examined in terms of their ability to survive at pH 2.0, 2.5, pH 3.0, bile salt hydrolyse, hemolytic activity, antagonistic effect and antibiotic resistance. Most of L. casei strains showed some important probiotic characteristics such as survival rate of 80% after 2 h of incubation at pH values of 2.5 or 3.0, and 90% in 0.3% bile salts. Although no hemolytic activity was detected in vitro assay for the treated (neutralized to pH 6.5 and treated with catalase) cell-free culture supernatant of strains, four untreated culture supernatants showed varying degrees of antagonistic activity against Escherichia coli. Staphylococcus aureus, Pseudomonas aeruginosa and Salmonella enterica. Moreover, resistance against the antibiotics vancomycin and streptomdycin was also observed. Together, these results suggest that these four strains might be good probiotic candidates.

Keywords: Lavaş Cheese, Lactobacillus Casei, Probiotic Properties.

PREDICTION OF THE DYNAMIC RESPONSE OF REPEATED LOW VELOCITY IMPACT ON ADHESIVELY BONDED PLATES

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Abstract:

A three-dimensional (3-D) finite element analysis (FEA) was performed to study the repeated transverse low velocity impact behaviour of adhesively bonded jo,nts having similar adherends. Adhesive bonding is an effective joining technique and has been widely APPLIED in various industries. Compared to other joining methods such as welding, adhesive bonding is relatively easier to perform and does not require excessive enterprise costs. The adhesively bonding plate is subjected by a mass at one time in single impact, but sometimes multiple impact load can occur simultaneously and/or non-simultaneously. Single and multiple times impact loads were conducted for the different impact energy levels. Abaqus/Expiclit finite element package programme was used for the NUMERICAL simulations. Plates and adhesive were used as aluminum 2024 and Araldite 2015 in NUMERICAL analysis, respectively. The variations of the contact force, kinetic energy histories and central impact region were investigated under single and multiple times low velocity impact loads.

Keywords: Repeated İmpact, Adhesive, Adhesively Bonding Joint, Nonlinear Finite Element Method

HISTORICAL BATTALGAZI DISTRICT MALATYA, TURKEY; ITS TOURISM POTENTIAL, PROBLEMS AND SOLUTION PROPOSALS

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Abstract:

Historical surroundings are among important elements for the sustainability of cultural heritage. Contribution of such city parts to cultural tourism is also large since they function as a bridge between past and future. It is emphasized in Convention Concerning the PROTECTION of World Cultural and Natural Heritage (UNESCO 1972) that such unique values are not only owned by the geography they are located but also by commonly all mankind. In this respect, cultural tourism is an effective tool to protect historical and cultural heritage and may provide significant economic incomes.

BattalGAZI District (Ancient Malatya) is evaluated whose history dates back to Palaeolithic period in the scope of the present study. The District has been one of the most important junctions from Antique period to date between Anatolia, Middle East and Eurasia geography. As the first settlement area of the city of Malatya, BattalGAZI District, tries to sustain its historical tissue inherited today. Historical tissue in the District cannot reflect its cultural identity completely due to various reasons such as lack of maintenance and wrong restorations. Performance of historical remains the district shelters in its body is very low and inefficient. Aim of the present study is to offer solution proposals for BattalGAZI district to develop tourism by determining its cultural tourism potentials. Thus, cultural tourism may overtake responsibility to protect cultural heritage.

Keywords: Cultural Tourism, Historical Environment, BattalGAZI , Malatya.

ECONOMICAL ANALYSIS OF EFFICIENCY ENHANCEMENT PROJECTS (THERMAL INSULATION, LIGHTENING, SOLAR COLLECTOR) OF A SAMPLE BUILDING

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Abstract:

The main goal of this study is to investigate the economic analysis of some efficiency enhancement projects such as thermal insulation, lightening and solar collector APPLICATION for a sample building. TURKISH Standard 825 (TS 825) ''Thermal Insulation Requirements for Buildings'' is used for determining of yearly energy needs of the building (Q). LED bulbs are considered instead of inefficient lightening. Lastly parabolic solar collectors are considered for hot water needs of households. Simple payback period and net present value methods are used for economic analysis.

Keywords: Thermal İnsulation, Lightening, Solar Collector, Energy Efficiency İn Buildings, Ts825

ACOUSTIC HEATING ON DROPLET-BASED ANALYSIS

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Abstract:

New microfluidic technologies enabled to develop advanced lab-on-a-chip (LOC) APPLICATIONs for various areas. Sound based actuation, micro-mixing, and sensing are some of the common TECHNIQUES used for such new generation devices. Moreover, surface acoustic wave (SAW) is an emerging technique for heat required APPLICATIONs such as polymerase chain reaction (PCR) which is used to make multiple copies of a segment of a DNA (Deoxyribonucleic acid).

This work is based on the APPLICATION of travelling acoustic waves to an electrochemical sensing platform. Both the acoustic transducer and the sensing electrodes were micro-fabricated via photolithography. The substrate used for the transducer was a piezoelectric material (LiNbO¬3) while the analytical electrodes were fabricated on a thin glass slide. The sensing unit was also including a droplet trap which was surrounding the sensing electrodes. The purpose of the trap was to keep the shape and location of the droplet as constant. The sample was in a droplet from and pinned on the sensing electrodes. A polydimethylsiloxane (PDMS) layer was sandwiched between the sensing and heating units to bond them to each other. This layer was used to block the dragging force of the leaky sound waves and convert them to the heat energy.

The temperature of the sample was gradually increased by varying the power of the RF signal of the SAW transducer. The increment of the temperature changed the physiochemical characteristics of the sample due to the growing number of HIGH energy collisions. Consequently, the reaction rate, therefore, the measured amperometric results were increased.

The results obtained from the electroanalytical unit showed that the SAW technology can be used as a fast and HIGHly controllable heating mechanism for numerous microanalytical devices. Furthermore, the PDMS appeared as a suitable material to eliminate the pressure waves and convert from MECHANICAL into heat energy.

Keywords: Surface Acoustic Wave (Saw), Heater, Electroanalysis, Lab-On-A-Chip (Loc)

INVESTIGATION ON COMBINING ELECTROCHROMIC DEVICES AND ORGANIC SOLAR CELLS AND THEIR APPLICATION AREAS: A REVIEW

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Abstract:

In this work, transparencies of ORGANIC-based solar cells (OSCs) and APPLICATION areas have been studied. OSCs have various advantages such as cost effectiveness, low weight, and flexible, transparent and wearable photovoltaic. OSCs have been more demanding on the market than silicon-based or compound SEMICONDUCTOR-based solar cells due to ease of manufacturing and more APPLICATION areas. The efficiencies of OSCs are about 10% in spite of all these advantages. However, large potential surface areas that covered by OSCs can collect solar energy to production a very huge amount of electricity. Recently, It should become more effectual and can compete with silicon technology by improving the performance of the OSCs. Furthermore, research on the combining electrochromic (EC) devices and transparent solar cells has been done. The convenience of OSC-EC devices has been analyzed and has been suggested as large energy-saving devices for building APPLICATIONs.

Keywords: ORGANIC Solar Cells, Electrochromic Devices, Transparency

ELECTRONIC, OPTICAL AND DYNAMICAL PROPERTIES OF CSGECL3 CRYSTAL: A FIRST PRINCIPLES STUDY

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Abstract:

Energy band structure, optical and dynamical properties of CsGeCl3 compound in paraelectric and ferroelectric phases were investigated using projector augmented wave (PAW) method based on density functional theory-generalized gradient approximation (DFT-GGA) and density functional theory-local density approximation (DFT-LDA) by ABINIT package. The calculated band structures show that this crystal in ferroelectric and paraelectric phases has a SEMICONDUCTOR property with a direct band gap at HIGH symmetry points of R and T with values of 0.82 and 1.63eV, respectively. The obtained band gaps are in good agreement with experimental and theoretical results. Furthermore, the photon energy dependence of linear complex dielectric functions and temperature dependence of some thermodynamic properties of CsGeCl3 crystal were investigated in ferroelectric and paraelectric phases.

Keywords: Electronic Band Structure, Complex Dielectric Function, Density Functional Theory, Abinit, Csgecl3

MICROSTRUCTURE AND MECHANICAL PROPERTIES OF ALC AND TICN ADDED PM STEELS

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Abstract:

In this work, microstructure and tensile behaviours of AlC and TiCN added PM steels were investigated. The microstructure of the PM steels was characterised by optic microscope, SEM and EDS. Results indicated that 0.2 wt. % (AlC-TiCN) added PM steel showed the HIGHest values in yield strength (YS) and ultimate tensile strength (UTS). However, when the amount of Nb content increased from 0.2 to 0.5 wt.%, yield strength, ultimate tensile strength and elongation decreased.

Keywords: Powder Metallurgy; Powder Metallurgy Steels; Alc; Ticn; Microstructure

INVESTIGATION OF ELECTRONIC AND OPTICAL PROPERTIES OF PEROVSKITE PARAELECTRIC BATIO3 CRYSTAL BY DFT UNDER VARIOUS PRESSURES

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Abstract:

In this study, structural, electronic and optical properties of paraelectric BaTiO3 crystal of perovskite ABO3 form were investigated under various pressures using local density approximation based on ab-initio pseudopotential method and density functional theory. The obtained equilibrium lattice constants and pressure dependence of energy band gap were compared with results of previous studies and good agreement with the available experimental and theoretical results was reached. Furthermore, the properties of photon energy dependence of linear complex dielectric function of paraelectric BaTiO3 crystal were investigated as a function of pressure and pressure dependence of static dielectric constant and refractive index were determined.

Keywords: Band Structure, Optical Properties, Density Functional Theory, Batio3

PHYSICAL, MECHANICAL AND RADIATIONAL PROPERTIES OF HEAVYWEIGHT CONCRETES USED FOR STRUCTURAL AND RADIATION SHIELDING PURPOSES

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Abstract:

In APPLICATIONs of concrete for counterweight and for shielding against hazardous radiation as well as in various other APPLICATIONs that involve use of heavyweight concrete, the most significant method of mix design involves use of heavyweight aggregates. Similar to normal weight concrete, approximately 75% of the volume of heavyweight concrete is occupied by aggregates. This paper presents an experimental study that was carried out to investigate the influence of heavyweight aggregate type on the physical and MECHANICAL properties, fracture behaviour under bending and radiation shielding performance. Concrete samples were produced using iron ore, steel mill scale, two types of barite, steel slag which are heavyweight aggregates available in Turkey and magnetite as a natural mineral heavyweight aggregate imported from Netherlands. In all concrete samples produced, water/cement ratio, cement content, maximum aggregate size and the combined grading of aggregate used in the mixture were kept constant. In addition to the MECHANICAL properties such as compressive strength, modulus of elasticity and splitting tensile strength, the fracture behaviour under bending was also investigated. Experimental results show that the type of heavyweight aggregate used affects the properties of heavyweight concretes. In terms of basic MECHANICAL properties, the best performances were obtained when iron ore and steel slag were used while the HIGHest fracture energy values were reached in concretes with steel mill scale, magnetite or the mixture of steel slag and iron ore. The second objective of this research was to evaluate the radiation shielding properties of heavyweight concrete with iron ore, steel mill scale and two types of barite or steel slag used as aggregates. The experimental results showed that the attenuation coefficient varied from 0.224 to 0.265 1/cm. On the other hand, there is reasonably good agreement between theoretical and experimental results of linear attenuation coefficients.

Keywords: Heavyweight Concrete, HIGH-Density Aggregate, Counterweight Concrete, Shielding Radiation

BUTANOL PRODUCTION FROM AGRO-INDUSTRIES WASTE UNDER ANAEROBIC CONDITIONS

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Abstract:

This study covers biobutanol production from coconut shell. In recent years, depletion of oil reserves and adverse environmental effects of fossil fuels, have drawn attention to usage of renewable energy sources. Biobutanol can be described as a next generation biofuel or recognized as a candidate liquid biofuel in terms of energy density, less corrosivity and engine compability. Biobutanol was produced via clostridium bacteria specie (clostridium acetobutylicum) with anaerobic Acetone- Butanol – Ethanol (ABE) fermentation. Different process parameters were experimented in order to increase butanol efficiency. Reduced sugar amounts were determined via DNS method (3,5 dinitrosalicylic acid) with using cellulosic raw material.

Coconut shell is abundant and low-cost agro-INDUSTRIAL residue to use butanol production in Asia. In this study, coconut shell is used as a source and tryptone yeast extract acetate, TYA which includes glucose, yeast extract, tryptone, CH3COONH4, MgSO3.7H2O, KH2PO4, FeSO4.7H2O, is used as a medium. End of the study, 9,69 g/L biobutanol and little amounts of acetone, butyric acid, acetic acid and ethanol were produced.

Keywords: Biobutanol, Fermentation, Abe, Clostridium

ENHANCEMENT OF CORROSION RESISTANCE OF DYES INCLUDING SYNTHETIC AND NATURAL ADDITIVES

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Abstract:

Corrosion is most detrimental effect that causes economical and material loss various INDUSTRIAL sectors including MARITIME. In this study, experiments were carried out to increase usage life of paints that used on vessel and gain more resistance to sea water damage. Scope of experiments, natural and synthetic additives were used. Shellac as a natural polymer, different boron chemicals and silane based additive as a synthetic polymer were added to solvent and water-borne paints. Physical and MECHANICAL properties of paints comprehensively investigated. Optimization method was used to reduce number of experiment and determine optimum process parameters accurately. Experimental study covers various physical and corrosion tests. Test results showed paints can be used under harsh environmental conditions and more resist to salt concentrated water. Additives increase the resistance of dyes compared to reference – additive free- dye and also usage life was significantly increase. Optimum additive amounts were determined thanks to optimization method.

Keywords: Paint, Shellac, Silane, Boron, Corrosion

CHARACTERIZATION AND OPTIMIZATION OF PELLETS WITH BINDERS FOR ENERGY PLANTS

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Abstract:

Energy demand in developed countries, is HIGHER than compared to undeveloped countries. In parallel with the growth in the world population, the need for Energy has also increased. Nowadays fossil and renewable energy sources are used to satisfy the energy needs. The world's most important primary energy source is petrol. Developing technology, increasing world's population, energy consuming, reducing petrol sources and increasing environmental problems such as climate change, air pollution have led to the investigations of alternative renewable energy resources. Biomass is one of renewable energy resources. The term of biomass covers a broad range of MATERIALS that as fuels or raw MATERIALS being all derived from the living organism. Due to the calorific value, biomass energy used for produce energy in Turkey covers a significant portion of renewable energy sources.

In this study, various energy plants have been pelletized to determine their burning behaviors. With this aim, plants and binders have been mixed in various amounts with the use of Taguchi Optimization Method. Consequently, it was seen that heat, humidity and ash values of pellets showed desired results.

Keywords: Energy Plant, Biomass, Taguchi, Renewable

A STUDY ON SOLVENT BASED PAINTS INCLUDING BORON CHEMICALS

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Abstract:

Turkey is rich in mineral diversity and its mining activities go back to ancient ages. Turkey hosts 72% of its boron reserves. More than 230 different types of boron minerals are known in nature. Boron minerals are being used to improve flame retardant properties in different APPLICATIONs. Optimization methods are APPLIED to studies for INDUSTRIAL APPLICATIONs. One of these is Taguchi Method. Taguchi method is a statistical method to improve the quality of manufactured goods, and more recently also APPLIED to ENGINEERING, BIOTECHNOLOGY etc. In recent years, there has been increasing demand for the use of paints that can provide some important features.

In this study, paints were prepared after homogenization of additives used as boron chemicals. The most effective parameters were determined using the Taguchi method of experimental statistics. Consequently, it was seen that the positive results were obtained by using boron chemicals as additives. Physical and MECHANICAL results showed that the paints containing additives will be provided for use in different industries.

Keywords: Taguchi, Boron, Paint, Additive, Mineral

TORREFACTION: A STUDY OF TURKISH APPLE BRANCH BIOMASS

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Abstract:

Turkey is an AGRICULTURAL country, therefore tons of AGRICULTURAL waste occurs every year. In the recent years, studies on use of AGRICULTURAL waste as an energy source by increasing the energy density have become interesting. Torrefaction is one of the processes used for this aim. This method covers thermochemical conversion of raw biomass into useful solid fuel in order to be convenient for coal fired power plants. It is also defined as the mild form of pyrolysis which increase energy density, HHV (HIGHER heating value), grindability and hydrophobicity of the biomass by a small decline of its mass and energy content. In this study; torrefaction is performed to TURKISH apple tree branches collected from Isparta region. The temperature was set up between the range of 250°C- 350°C for 2, 2.5 and 3 hours. Particle sizes of raw MATERIALS were 250µm, 450 µm and 1 mm. At the end of this study the calorific value, volatiles, mass decline and mass amount analysis were carried out to establish the optimum parameters.

Keywords: Torrefaction, Biomass, Renewable Energy

DIELECTRIC MEASUREMENTS OF CACTUS USING ARCH FREE SPACE METHOD AT X-BAND FREQUENCIES

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Abstract:

This paper presents the measurement of dielectric constant of opuntia which is one of the cactus species. The opuntia has flat parallel face and about 2.5cm length spines and there is no research in literature about dielectric measurement of opuntia. Arch free space measurement method was utilized to measure the dielectric constant of opuntia in the frequency range from 8.2 to 14 GHz (X-band). Effect of spines on dielectric constant is also showed. The measurement system was set up with two horn antennas, one of them is receiver and other is transmitter, a network analyzer, sample holder, arch-type metal structure and a computer. The error coefficients were identified by TRL calibration technique (Thru, Reflect and Line standard). After calibration, the accuracy of the system was checked by using samples whose dielectric properties are known. The network analyzer was used to measure S-parameters of opuntia in an X-band. The dielectric constant was calculated by using the measured S-parameters by oblique incidence wave theory.

Keywords: Arch Free Space Measurement, Trl Calibration, Opuntia Cactus, Dielectric Measurement, Oblique İncidence Wave Theory

POSSIBLE UTILIZATION OF PAINT SLUDGE IN RECYCLED COMPOSITE MATERIALS

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Abstract:

Waste paint sludge is an INDUSTRIAL hazardous material generated mainly by AUTOMOTIVE, appliance, and other manufacturing industries involving metal dyeing. The current methods for the disposal of the waste by land filling and incineration are still not completely effective and the wastes continue to pose environmental threats after treatment. To use the waste as a supplementary material in process industries, especially incorporating it in the raw MATERIALS mixture, could be a viable solution for the elimination of the waste paint sludge. To this end the convenience of admixing the waste sludge in the raw MATERIALS composition in the production of marketable products has to meet certain standards and requires extensive research. The ORGANIC solvent content is the major source of the environmental hazard. The use of paint sludge waste in composite MATERIALS will constitute positive outcome arising from the environmental aspects due to the evaluation of waste. In this study, the use of paint sludge, from the white goods industry, as reinforcement was investigated. The purpose of the study was to recycle the abundant amount of waste paint sludge coming from the process. We investigated the effects of using the paint sludge, as a reinforced material, on the properties of polymer - waste rubber composites and the availability to use it in recycle MATERIALS. For this purpose, we determined the compressive strength, impact strength and flexural strength of the obtained composite MATERIALS. We also investigated the surface and structural aspects of the MATERIALS by SEM and FTIR analyses.

Keywords: Paint Sludge, Waste Management, Recycled MATERIALS, Composite MATERIALS, Waste Rubber

OPTIMIZATION OF CARBON MONOXIDE PRODUCTION FROM SOYBEAN

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Abstract:

Carbon monoxide poisoning bring about death and serious injuries. At this point, investigation and determination of carbon monoxide (CO) sources are of vital importance. In this study, soybean was used as a source of CO production. Optimum reaction parameters have been determined by changing the conditions of reaction, which were waiting period (h), salt concentration (%) and humidity rate (%). The most efficient parameters have been determined by Taguchi optimization method. Unlike traditional statistical methods, the Taguchi method that aimed low cost and HIGH quality was used in determining of optimum process parameters by examining of experimental conditions at three levels of each three parameters. This method is thought to be an alternative of the classical optimization methods. As a result, it was seen that positive results were obtained on CO production from soybean.

Keywords: Carbon Monoxide, Poisoning, Taguchi, Soybean

EFFECT OF MAGNETIC FIELD INTENSITY ON THE RECOVERY OF LEUCITE MINERALS BY MAGNETIC SEPERATION

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Abstract:

Leucite which occurs with alkaline lava in nature, is a potassium aluminium silicate (K[AlSi2O6]) mineral. According to the results of chemical analysis for the ore taken from the Afyon region, it was determined that there was a content of 5.4% Fe2O3 in ore. It was aimed to remove the gangue minerals having magnetic properties as they are not desired in advanced technology MATERIALS by means of dry belt magnetic seperators with HIGH intensity. The influence of different FIELD intensities (4000, 6000 and 10000 Gauss) and blade angles (100, 105, 110 and 120°) on the seperation was performed. During the experimental works, Fe2O3 content was reduced to 1.02% by a FIELD intensity of 10000 Gauss together with a blade angle of 100°. As the content of Fe2O3 should be under 0.5% for the advanced technology MATERIALS, the result obtained was found to be insufficient and for the future works, it is planned to use wet magnetic seperators with HIGH intensity.

Keywords: Blade Angle, Magnetic FIELD İntensity, Leucite, Magnetic Seperation.

A NUMERICAL STUDY ON ROCK BARRIERS IN UZUNGÖL REGION

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Abstract:

Uzungöl which is located on the Eastern Black Sea Region, is one of Turkey's most important tourism centers. Due to the mountainous nature of the region, rock falls occur during transportation line between. Thus, it consists of a variety of risks on the way to the tourism region.

In this study, the detailed dimensional drawing has been done in a risky area between Trabzon and Uzungöl. The maximum speed and energy of rock that could fall on the road is calculated by Rocfall program. Based on analysis, the HIGHest energy was found to be 100 KJoule and the jump height of rock was found as 0.85 m and the maximum bounce speed was calculated as the 8 m/sec. in the most critical cross-section.

In the second part of study, rock barriers were modeled using ABAQUS finite element (FE) software. Absorbed energy for varying shaped barrier was computed using the F.E. models.

As a result a rock barrier system was designed to carry safely falling rocks with maximum speed and energy. The designed rock barriers were expected to be APPLIED in disaster risk zones of HIGHway between Trabzon and Uzungöl.

Keywords: Finite Element, Rock Barrier, HIGHway, Disaster, Rock Fall

NUTSHELL AS REINFORCING FILLER IN THERMOPLASTIC COMPOSITES

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Abstract:

Mechanical properties of recycled polyethylene composites filled with nutshell flour (NSF) were investigated. Polymer composites were formed by single screw extrusion compounding. All polymer composites formulations were compression molded into a hot press for 3 min at 170 °C. Compression molded composites were prepared from NSF and recycled high density polyethylene (R-HDPE) with and without maleic anhydride-grafted polyethylene (MAPE) at 30, 40, 50 and 60 wt % contents of the NS flour. The flexural and tensile modulus of the composites significantly increased with increasing the filler content while the flexural and tensile strength significantly decreased. The MAPE improved the interfacial adhesion between nutshell flour and polymer matrix. This study demonstrate that NS has the potential to be effectively recycled as filler in HDPE composites.

Keywords: Nutshell, HDPE, Polymer Composites, Mechanical Properties

INVESTIGATING THE ELECTROMAGNETIC SHIELDING EFFECTIVENESS SIMULATIONS OF METAL COMPOSITE FABRICS

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Abstract:

This paper presents the investigation of electromagnetic shielding effectiveness (EMSE) simulation of weft knitted fabric made of yarns blended with metal fiber filaments 50µm in diameter. In researches related with this study, the EMSE are mainly obtained by experimental testing and no suitable fabric structure design for simulation is available. It is hard to design and draw the fabric in 3D. Thus fabric structures are generally regarded as metal plane or metal plain with some apertures on it. This may result in inaccurate readings of shielding effectiveness (SE) values. In this study, in order to accomplish this problem and minimize the error, the weft knitted fabric structure with inserted copper wire and 1mm2 apertures, was designed both as metal plain with apertures on it and a real structure of the fabric, where one continuous yarn forms courses across the fabric, on simulation software Computer Simulation Technology (CST) Studio. Afterwards, SE simulations had been carried out for both models and the results had been compared with each other. The results indicate that the latter model has better degree of EMSE than former one which is the evidence of the fact that for SE simulations metal planes cannot be substituted as fabrics' structures.

Keywords: Elctromagnetic Shielding, Shielding Effectiveness, Shielding Fabric, Fabric Simulation

INVESTIGATION OF BEARING CAPACITY OF CENTRALLY LOADED STRIP FOOTINGS NUMERICALLY AND EXPERIMENTALLY

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Abstract:

Foundations are the elements that transfer the loads acting on them to the soil medium safely and economically. Safety condition expresses satisfaction of bearing capacity and settlement criteria at the same time. Bearing capacity can defined as the ultimate base pressure that foundation soil can sustain. Settlement criterion can be thought as level of compression occuring in foundation soil that does not cause any damage and trouble with the usage of the structure it supports.

In this study, load-settlement behaviour of strip footing was investigated experimentally and NUMERICALly. For this purpose, ultimate load of centrally loaded model shallow strip footing resting on unreinforced sand were determined under plain strain conditions. Sand was placed in the tank so that having a relative density of 0.74. NUMERICAL modelling of the experimental study was done by using Plaxis 2D finite element software. Different material models was used for the modeling of the sand and load-settlement curves were obtained NUMERICALly.

In this way, it was investigated and compared load-settlement relationship between experimental and NUMERICAL model results used different material models.

Keywords: Strip Footing, Settlement Condition, Bearing Capacity, Finite Element

THE RELATIONSHIPS AMONG INNOVATION COMPONENTS: AN EMPIRICAL STUDY ON TURKISH SMES

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Abstract:

An organization must be innovative to have a competitive advantage by developing new products, processes, novel marketing, and organizational methods. In order to become innovative, firms have to develop and improve their innovation capabilities. There are a lot of innovation models including components and their relationships in literature. In this study, innovation model was evaluated based on system approach as three basic components: innovation input, innovation process and innovation output. Inputs consists of innovation culture and resource; process includes product, process, organizational, and marketing innovation; output focuses on short term outputs of innovation. Innovation culture determines how much innovation resources are allocated to innovation activities and affects the entire process of an innovation. Furthermore, innovation inputs are turned into innovation outputs by innovation processes. The main objective of this study is to show the relationships among innovation components. For this purpose, a survey was conducted to obtain data from 366 SMEs in Turkey. After data gathering, measurement model and structural model were established by employing two phase approach presenting by Structural Equation Modeling (SEM). For the measurement model, confirmatory factor analysis was conducted to validate measurements by providing reliability, validity, and goodness of fit. In the second phase, all validated variables are put together by establishing the relationships from the literature to obtain the structural model in order to validate the model. According to the results, there are positive relationships between innovation input components and innovation process. Moreover, innovation process has a positive influence on innovation output while there is no significant relationship between innovation input components and innovation output. Innovation process also mediates the relationship between innovation input components and innovation output. This model can be evaluated by innovation leaders to overview their firm's innovation path and can be used by researchers to compare it with other innovation models.

Keywords: İnnovation, Sem, Model, Components

THE EFFECT OF BORON ADDITION TO AISI 304 STAINLES STEEL ON CUTTING FORCES DURING TURNING

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Abstract:

In this present study, the effect of boron addition to AISI 304 at various amounts was investigated to determine the effect of boron on cutting forces. The machining tests were carried out through single point turning process. Four different groups of AISI 304 specimens alloyed with various amounts of boron were subjected to machining tests and their machinability were investigated based on cutting force criterion. Cutting forces were investigated through roughing and finishing. For roughing KCM 25 and for finishing KCM15 grade cutting tools were used. According to the results alloying of the AISI 304 with boron results in increases in yield strength and hardness. Increasing yield strength and hardness cause the increasing cutting forces. The lowest cutting forces were observed at the 200 m/min cutting speed, 0.9 mm cutting depth and 0.09 mm/rev feed rate.

Keywords: Boron, Aisi 304, Cutting Forces

THE DEVELOPMENT OF WELL INFORMATION SYSTEM USING GIS: A CASE STUDY OF THE BATI RAMAN OIL FIELD IN TURKEY

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Abstract:

The oil industry has wide and difficult ADMINISTRATION substructure which should be followed at all stages from drilling to the pipelines of system, and from refining to the end user. Moreover, it is seen that GIS is used in many different disciplines as an effective data management tool successfully. Because of the increasing popularity and the functional development of GIS in recent years, many petroleum companies have started using the technology as the preferred tool for planning, analysis, and management. Within this frame, the aim of the study is to establish GIS-based well information system. For this purpose, firstly, tabular and graphical data were created by analyzing the drill holes data and the map MATERIALS such as topographical, GEOLOGICAL, drilling locations, porosity distribution, permeability distribution, reservoir thickness, pipelines and the site plans of the Bati Raman oil FIELD in Turkey, and then they were combined under the GIS environment. For this reason, the graphical and the non-graphical data and the logical and the topological relations between these data; the relational database management system (RDBMS) was established with the possibility of processing as integrated and therefore, carrying out the analysis based on the position. Thanks to RDBMS, conditional analysis performed on graphical and tabular database then it was presented that all attributes in the database or other statistical information that can be created with the questioning can be reached on the wells which are selected from screen. Consequently, an information standard was formed by terming system and connection elements easily and quickly. Thus, the complexity and clutter of data was prevented. Owing to the instant monitoring of attributes that contain the maintenance and repair information available in the database, it is obvious that operating costs will be reduced in the long term.

Keywords: Bati Raman Oil FIELD, Gis, Reservoir Evaluation, Reservoir Management

DETERMINATION OF RESERVOIR CAPACITIES USING DESIGN METHODS

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Abstract:

The storage reservoirs are designed to eliminate the surplus and deficit between input data, namely the flow, and requirements such as energy production, irrigation, river transportation water. The storage volume depends on three factors: magnitude and variability of the river flows, the size of the demand, and the degree of reliability.

In this study, the relationships between reservoir capacity, yield and reliability are investigated for a certain reservoir named as Çine Dam in the southwestern Turkey. For analyzing of the reservoir capacity, monthly and annual mean flow data on the years of 1938–1980 of Büyük Menderes stream has been used. The required reservoir capacity is tried to be estimated by using minimum flow, Alexander, Dincer, Gould's Gama, McMahon, Gould's synthetic data, behavior analysis and Moran and Gould probability matrix methods. Preliminary and final design methods have been compared. Based on the obtained results.

The "Minimum Flow Method" gives a very large storage volume while "Alexander Method" gives smaller storage volume. If compared with two methods above, "Dinçer Method" gives the largest storage volume. Gould's Gamma Distribution Method is more effective by the estimation of larger storage volumes if it is worked with annual data. At the stage of preliminary design, the most effective methods are Alexander, Dinçer and Gould's Gamma Method, respectively. "Monthly Water Budget Method" that is one of the critical period approach-methods, may be applicable under various operation-conditions as considered evaporation and all other losses and monthly and seasonal variation of the requirements Therefore, the method can be used safely in the design stage. Monthly Water Budget, Gould and Moran Probability Matrix Methods give relatively closer results to each other. Monthly Water Budget Methods gives longer un-impounding probability compared with Gould and Moran Probability Matrix Methods.

Keywords: Low Flow Hydrology, Critical Period, Probability Matrix Method, Reservoir Capacity-Yield-Reliability Relationships

A CLASSIFICATION METHOD FOR IMAGES CONTAINING HUMAN USING FACE-BODY RELATION

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Abstract:

Classifying images have been one of the most studied topics in image processing for several purposes such as pose estimation, face detection, object recognition etc. Also, images of people on the Internet may contain nudity that are considered offensive by some people and more importantly used to tempt and abuse children or vulnerable. The goal of the study is to detect nude images more accurately and effectively. For this purpose, after obtaining faces in an image, related bodies are estimated according to general face-body ratio. Obtained body areas are checked one by one using three different color spaces together for the best skin pixel detection – YCrCb, HSV, and NormRGB. To classify, total number of skin pixels and total pixels are respectively calculated for each body area and checked against a threshold that is relative to face-body ratio of current body. Since the method works only vertical bodies and some bodies may be deviated from vertical line of corresponding faces, a number of rotations were used in the study in order to detect non-vertical images. For testing, randomly chosen images were taken and categorized by human eye first and given to the generated algorithm. The accuracy has been observed by the generated algorithm over classic methods, which evaluate a whole image, for the same test images. The main reason of using face-based rotational nudity classification is that skin pixels that are on faces increase nudity ratio and must be eliminated when giving decision. Another advantage of this method is to avoid the time wasted on searching whole image, instead specific areas are taken into consideration with the help of increased technology in face detection.

Keywords: İmage Classification, Color Spaces, Face Detection, Nudity Detection, Face-Body Ratio

DETERMINATION OF OPTIMAL REACTION CONDITIONS IN THE POLYCONDENSATION OF L-LACTIC ACID UNDER THE FRAME OF "ENHANCED MICROWAVE SYNTHESIS"

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Abstract:

Despite various studies [1-5] on microwave (MW) assisted polylactic acid (PLLA) synthesis, PLLA has not yet been synthesized under continuous MW irradiation to assess thoroughly the "specific MW effect " on polymerization.

In this study, a multimode MW reaction system irradiated by constant, continuous MW power at 2.45 GHz was set-up where isothermal conditions was ensured by circulating a coolant liquid (o-xylene) through a coil immersed in the reactor. Solvent-free-polycondensation reaction of L-lactic acid was studied in this system to investigate the advantages of continuous MW irradiation at different reaction conditions. Five process variables namely, catalyst type, amount of catalyst, temperature (T), reaction time (t) and MW power density (P) were considered in the experimental plan.

Optimal reaction conditions were determined considering various criteria such as polymer yield, polymer production rate, MW energy consumption average molecular weight and weight distrbution of PLLA polymer.Furthermore, conventional heating (CH) polymerization (without MW irradiation) was also conducted under the same optimal conditions for comparison purpose. The results revealed that, polymerization rate and average molecular weight in MW system were HIGHER than CH counterparts.

This work was financially supported by the Scientific and TECHNICAL Research Council of Turkey (TUBITAK, Project No. 114M067)

Keywords: L-Lactic Acid, Solvent-Free-Polycondensation, Simultaneous Cooling Method, Experimental Microwave System

DESIGN OF X-KU BAND HORN ANTENNA ARRAY FOR SATELLITE BROADCASTING

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Abstract:

Designing receiver antenna in a fixed position for satellite broadcasting at the X-Ku (10.8-12.75GHz) download frequency band has been increasingly becoming popular. As an alternative to parabolic antenna, horn antenna array is preferred due to some advantages such as HIGH directivity, low VSWR, narrow beamwidth and broad bandwidth.

In this study, the single element of pyramidal horn antenna and the feed network of planar array using rectangular waveguide are designed at 12GHz. The feed network consists of three components such as rectangular waveguide, H-type T-junction and E-plane bend. H-type T-junction is preferred due to lack of the phase difference between output ports. Impedance matching of H-type T-junction is made by using septum and iris inside waveguide. All simulations are performed with CST Studio Suite program. The operating frequency of the rectangular waveguide for TE10 mode is set to 12GHz. The metal surface of antenna is made of copper. Designed single horn element has 18.1dB directivity, -21dB return loss over 10-14GHz frequency band and, -9.6dB side lobe level.

Three sets of array antennas as 2x2, 4x4 and 8x8 are designed and simulation results are obtained. The gain values of three arrays are respectively 24.1dB, 30.3dB and 36.3dB. It is clear that as the number of array's elements increases, gain values increases however losses of antenna increases due to reflection and surface roughness. It is investigated that when size of aperture of horn antenna is enlarged to increase gain, the level of grating lob between antenna elements unfortunately increases. But, when the size of aperture of horn antenna is narrowed, return loss level of bend component increases because physical space is not enough for the radius of bend component. So the distance between the antenna elements is optimally determined as 2.75x3.5 λg.

Keywords: Horn Antenna Array, Feed Network, X-Ku Band

THE SYNTHESIS AND CHARACTERIZATION OF FE/ZNO NANORODS AND DYE SENSITIZED SOLAR CELLS APPLICATIONS

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Abstract:

Dye sensitized solar cell can usually be formed a photoanode with TiO2, ZnO, SnO2 etc. layer coated with photosensitizer dye, a redox electrolyte and a platinum counter electrode. ZnO has been investigated as a promising alternative photoanode material for DSSCs APPLICATION. The ZnO have been developed a numerous nanostructures such as nanoplate, nanoparticle, nanowire, nanotube, nanosheet etc. The conversion efficiency of typical DSSCs prepared by ZnO is lower than the TiO2. The main reason of lower conversion efficiencies is the lower adsorption of sensitizers on ZnO surface. We have synthesis a small amount iron doped ZnO photoanode. It is known that the efficiency of DSSCs prepared by ZnO SEMICONDUCTORs is lower than the TiO2 due to both the solubility problems of ZnO and the lower adsorption of sensitizers on ZnO surface than TiO2.

In this study, ZnO and Fe/ZnO nanorods were synthesized using via microwave assisted hydrothermal (MWHT) methods. The ZnO and Fe/ZnO nanorods were characterized via X-ray diffraction (XRD), FIELD emission scanning electron microscopy (FE-SEM) and UV-vis spectrophotometry. Dye sensitized solar cells have been assembled by these ZnO and Fe/ZnO nanorods photo electrode and N719 dye as sensitizer. The cell efficiency of DSSC based a ZnO and Fe/ZnO photoanode were 3.07% and 3.67%, respectively.

Keywords: Zno Nanorod, Fe/Zno, N719, Dye Sensitized Solar Cell.

EMOTION RECOGNITION FROM SPEECH SIGNAL

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Abstract:

Conversation signals are considered as one of the fastest natural communication methods among people. The topic of emotion identification through conversation signals has attracted attention by researchers in order to make human and MACHINE communication quicker and more efficient. In this study, EmoSTAR database which consist of four emotion classes as Angry, Neutral, Happy and Sad was used. Database includes totally 393 TURKISH and English speech examples. Having two different language examples is sufficient in terms of showing emotions independent from pronunciation and language. For this database, the topic of emotion classification is investigated by using different features adding Mel Frequency Cepstral Coefficients (Mfcc), in addition, zeroth Mfcc, energy and first-second derivatives from each speech signal. Furthermore, while Mfcc was extracting, the length of frame and scroll-time were changed in order to study the effect of it on the results. Obtained features were evaluated using Support Vector MACHINEs (SVM), K Nearest Neighbor (k-NN) classifier and cross-validation method and success rate was obtained as 98.7 %. Also, in this study EmoDB was used as a test set and verification between different database were performed. The final phase of this study, dimension reduction process has been done by using principal component analysis and thus it is seen that good results has obtained in terms of processing time and success rate.

Keywords: Speech Signal, Emotion Recognition, Support Vector MACHINE, K Nearest Neighbor, Mel Frequency Cepstral Coefficients

THE EFFECT OF POLYPROPYLENE FIBER ON HORIZONTAL DEFORMATION OF SPLITTING-TENSILE STRENGTH OF CONCRETE

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Abstract:

In this study, the effect of polypropylene fibres in different characteristics on splitting-tensile strength of concrete was analyzed. Moreover, horizontal deformation of samples in splitting-tensile strength was measured. Horizontal deformation value is the deformation value at the instant of failure in splitting-tensile experiment of sample. Eight (8) kinds of polypropylene fibres were used in the mixtures. Three (3) different ratios were added from each fibre type into fibrous concrete mixtures. 25 series of samples were obtained together with control concrete sample. 15x30 cm cylinder samples were used as experiment sample. Experiments were carried out for 7 days and 28 days for each mixture. 7 days and 28 days splitting-tensile strength and horizontal deformations of samples were compared. It was observed that polypropylene fibre additive increased 7 and 28 days of splitting-tensile strength of concrete. Polypropylene fibre additive increased 7 days of splitting-tensile strength of concrete up to 92.99% compared to control sample. It has increased 28 days of splitting-tensile strength up to 80% compared to control sample. 28 days of splitting-tensile strength were HIGHER than 7 days of splitting-tensile strength. When horizontal deformations measured during splitting-tensile strength were analyzed, horizontal deformation values of sample of 7 days increased in all samples compared to control sample. 28 days of horizontal deformation values decreased in most of the samples compared to control sample. In some of the fibrous mixtures, 7 days of horizontal deformation values were HIGHER than 28 days of horizontal deformation. This can be explained as that as the concrete gains strength after 28 days, it becomes more brittle. As a result, it can be said that polypropylene fibre increases splitting-tensile strength of concrete and horizontal deformation value significantly.

Keywords: Polypropylene Fibres, Splitting-Tensile, Horizontal Deformation.

THE EFFECT OF PLASTICIZER ADDITIVE AND POLYPROPYLENE FIBER IN DIFFERENT RATIO ON ABRASION, WATER ABSORPTION AND DENSITY OF HARDENED CONCRETE

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Abstract:

In this study; the effect of polypropylene fibre additive and PLASTICizer additive in different ratios on vertical abrasion, water absorption and density of hardened concrete was analyzed. Water-cement ratio was stabilized in all mixtures. Water-cement ratio is 0.52. Hyper-PLASTICizer chemical additive was used in the mixtures. Additive ratios in mixtures are 06%, 0.8%, 0.9% and 1.1% of cement weight. 25 series of samples were obtained together with non-fibrous control sample. Vertical abrasion, water absorption and density tests were done 28 days of samples. Each experiment was done at least on two samples and averages of experiment results were obtained. Vertical abrasion test was done on 70x70x115 mm samples with F80 alumina emery powder. As a result of the experiment, abrasion width on samples was measured. Abrasion width of C12, D6, D12 and E12 were lower than control mixture. In other words these mixtures exhibited less abrasion compared to control mixture. Abrasion width of other mixtures was HIGHER than control sample. 70x70x115 mm samples were used as well in water absorption experiment. While water absorption value of control sample was 3.43%, water absorption values of polypropylene fibre reinforced concrete vary between 2.76% and 4.63%. It was observed that polypropylene fibre additive generally increases water absorption value of concrete. However, water absorption value was lower than control samples in every D added mixtures. Cubic (15x15x15 cm) and cylinder (15x30 cm) samples were used for density experiment. Density of cubic samples varies between 2.39 and 2.42, density of cylinder samples varies between 2.39 and 2.43. Polypropylene fibres and chemical additive ratio have but little effect on density of concrete.

Keywords: Polypropylene Fibres, Abrasion, Water Absorption, Hyper-PLASTICizer, Density.

PCA AND ANN-BASED EXPERT SYSTEM IN MEDICAL DIAGNOSIS SYSTEM

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Abstract:

Expert systems; in a particular area of expertise, based on information collected from real people, the ability to develop itself over time are also software. In this study, a hybrid system based on PCA (Principal Component Analysis) and ANN (Artificial Neural Networks) was proposed. This suggested study consists of two phases. In the first stage, PCR method was employed. This method was utilized to reduce the variance structure of data set into less non-correlated variable. In the second phase, independent components obtained by PCR were used as input attributes to the ANN classification model. Simulated neural cells comprise neurons and those neurons form the network by connecting each other in various ways. In this study, ANN datum were used to classify. Two data sets from the UCI database were used to test the proposed PCA+ANN hybrid model. The primary data set is breast cancer data and the secondary data set is related to hepatitis disease. With the proposed PCA+ANN, the success rate of 96.34 % for breast cancer and 70.37 % for hepatitis B was obtained. In the case of direct APPLICATION of data set on ANN, 95.46% and 69.13% classification success rate was obtained respectively. According to the results, the pre-processing step of datum is seen as important. It attributes with pre-treatment step was made independently. ANN was obtained with HIGHER success rates. This study is also expected to provide a significant achievement in different MEDICAL data sets.

Keywords: Pca (Principal Component Analysis), Ann (Artificial Neural Networks),MEDICAL Data Set, Uci

INVESTIGATION OF ODOROUS VOLATILE ORGANIC COMPOUNDS RELEASED FROM AN ACTIVE LANDFILL FACILITY AND EFFECTS AT CLOSE VICINITY RESIDENTIAL AREAS

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Abstract:

Volatile ORGANIC compounds (VOCs) attract the attention of authorities due to their detrimental effects on environment and human health. People living in close vicinity of such emission sources are occasionally exposed to odor problem which is the most obvious effect of those sources.

Landfilling is the most widespread method used in Turkey for the disposal of solid wastes. Although, ENGINEERING methods during and after the landfilling process minimizes the undesired environmental effects of wastes, odorous compounds released to the atmosphere still remain as serious problem, especially for the people living in the surrounding residential areas.

Sampling in this study was conducted in the European side of Istanbul where one and the biggest of two landfill facilities is operated. Sampling points were selected to be inside the landfilling facility and at residential areas where complaints of odor problems are occasionally arise. Passive sampling method was used in this study. Adsorbent sample tubes were placed in the areas of interest and at least ten days of ambient air sampling was conducted. VOC species were then detected and quantified by GC-MS.

Total VOC concentrations were ranged between 50 and 850 ppm. VOC species with the HIGHest concentrations were m- and p- xylenes, 1,2,4-trimethybenzene, 1,4-diethylbenzene, n-decane, n-undecane. Concentrations observed in summer were considerably HIGHER than in winter. The HIGHest concentrations were observed at active landfilling lot, leachate collection-treatment unit and composting facility.

Keywords: Voc, Passive Sampling, Landfill Gas, Landfill Vocs

SIZE DISTRIBUTION AND IONIC CONTENT OF AMBIENT PARTICLES IN THE LABORATORY AND IN THE PROCESS AREA OF A COMPOSTING FACILITY

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Abstract:

Particulate matter can be generated through several processes. Formation processes determine the size distribution of particles which gives us important data about the fate of particles. Composition of particulate matter includes forensic about their actual sources. The aim of this study is to evaluate the impact of composting process to laboratory indoor air quality which is at close proximity to the composting facility. Sampling was conducted at two different points; one was inside the laboratory and the second was inside the composting facility.

A low volume cascade impactor was used to collect particulate matter. The impactor was operated for one week at each sampling point. Average size of the dominant particles was 10 µm inside the composting facility while 5.8 µm inside the laboratory. Particles were ultrasonically extracted in deionized water in order to determine ion concentrations. Ions of Ca+2, NH4+ and SO4-2 were investigated and quantified by ion chromatograph. NH4+ and SO4-2 had the HIGHest share in the finest size fraction at both laboratory and plant. Particles of 3.3 µm were enriched with Ca+2. Biological decomposition products were effective in the ionic composition of fine particles whereas MECHANICALly generated dusts formed the coarse particle fraction.

Keywords: Particle Size Distribution, İonic Content, Active Sampling

EFFECTS ON MICROSTRUCTURE AND MECHANICAL PROPERTIES OF THE ADDITIONAL 1 WT. % SI AND DIFFERENT COOLING RATE TO AZ91 MAGNESIUM ALLOYS

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Abstract:

In this study, the effects of silicon addition and different cooling rates on the microstructure and MECHANICAL properties of AZ91 magnesium alloys which are used in various industries have been investigated. For this aim, the AZ91 alloys have been poured to ceramic mould cooled with copper. Additionally, silicon element has been added in the 1 wt. % to AZ91 to obtain AZ91+1 Si alloy and changes of different cooling rates have been observed. Results showed that hardness of alloys has been increased with cooling rates increase and silicon addition to this alloy. Also, with silicon addition in the 1 wt. % to AZ91 that have been occurred Mg2Si phases. Depending on change in the cooling rate, phase of Mg17Al12 has been changed and thinner grains have been obtained.

Keywords: Mg Alloys, Az91, Cooling Rate, Microstructure

INVESTIGATION OF ANTIGENOTOXIC EFFECTS OF MELATONIN AGAINST SILVER NITRATE AND SILVER NANOPARTICLES-INDUCED GENOTOXICITY IN DROSOPHILA MELANOGASTER

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Abstract:

In recent years, human and environment are exposed to nanoMATERIALS increasingly but the effects of these MATERIALS on human health and the environment are discussed. Because of potential impacts of nanoparticles are discussing, different in vivo and in vitro studies should estimate for investigation genotoxic potential of these particles. Despite they have many advantages in INDUSTRIAL production, nanoparticles cause serious health problems. In many investigations, exposed of NPs emerged toxic, genotoxic and carcinogenic effects.

Therefore, investigation of the molecules have potential of against to genotoxic effects of NPs is important FIELD. The focus of this study the effects AgNO3 ionic forms and AgNP (40 nM) were investigated in Drosophila by using Single Cell Gel Electrophoresis (COMET) in Drosophila melanogaster haemocytes which are as blood cells of Drosophila are playing a function similar to mammalian blood cells. Alkaline COMET assay is fast, powerful and sensitive test to detect the single strand breaks in alkali labile lesions individual cells in DNA. Some nutritional supplements should be taken to support the cellular defence system for PROTECTION the organism.

Both AgNO3 (0,01, 0,1, 0,5mM) and AgNP (1, 5, 10 mM) all concentration in haemocytes Drosophila melanogaster, showed DNA single strand breaks. Melatonin all concentration (0.1, 0.5 ve 2.5 mM) studied an antigenotoxic activity against 0.5 mM AgNO3 and 10 mM AgNP concentration. 0.1 dose of Melatonin in all parameters showed antigenotoxic potential against both AgNO3 and AgNP (tail moment, tail length, and tail intensity), by the way 0.5 and 2.5 doses of Melatonin in tail moment, tail intensity showed antigenotoxic potential against only AgNP.

In conclusion, after the Comet assay, Melatonin demonstrated antigenotoxic effects against to ionic and nano form of silver genotoxicity.

Keywords: Nanoparticle, Silver, Comet, Drosophila, Melatonin

INVESTIGATION OF GENOTOXIC EFFECTS OF MULTIWALLED CARBON NANOPARTICLE BY DROSOPHILA SMART ASSAY

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Abstract:

Carbon nanotubes (CNTs) were discovered in 1991 and shown to have different physical and chemical properties. Their APPLICATION attracting in widespread areas including drug delivery. Because of their small size, large surface area to volume ratio and to able comprise chemicals they can extensive uses in medicine. This properties of CNTs release side effects of drug to non-target tissue in cancer therapy. In spite of MWCNTs (multi walled carbon nanotubes) widely usage in very different FIELDs due to their many advantages knowledge about their release on environment is insufficient. For this purpose, carbon nanotubes should be investigated in different toxicologic studies.

In this study, we tested four different concentrations (0.1, 1, 10 and 100 ppm) of multiwalled carbon nanotubes (CNT), NH2 functionalized carbon nanotubes (CNT-NH2) and COOH functionalized carbon nanotubes (CNT-COOH) by using the somatic mutation and recombination test (SMART) in Drosophila melanogaster. In SMART assay, the effects of these chemicals were evaluated according to genetic changes (point mutation, deletion, non-disjunction and recombination) in wing imaginal disc cells that lead to the formation of mutant tricomes. 0.1 and 1 ppm doses of CNT, all doses of CNT-NH2 and 1, 10, 100 ppm doses of CNT-COOH according to control group isopropyl alcohol, showed negative results in total spot categories. On the other hand other doses of CNTs showed incoclusive result.

Finally, tested CNPs did not showed genotoxic potential in Wing Somatic Mutation and Recombination Test in Drosophila.

Keywords: Multiwalled Carbon Nanoparticle, Genotoxic, Smart, Drosophila

SYNTHESIS AND OPTICAL CHARACTERIZATION OF EU3+ DOPED RED EMITTING CDTA2O6 PHOSPHORS

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Abstract:

Undoped and CdTa2O6:Eu3+ (0.5≤x≤3.0 mol%) phosphors were synthesized at 1100 □C for 12 hours by the conventional solid state reaction method. Synthesized CdTa2O6:Eu3+ phosphors were characterized by X-ray diffraction (XRD), Scanning electron microscopy (SEM), Energy dispersive spectroscopy (EDS) and Photoluminescence (PL) analyses. The PL spectra showed the presence of excitation peaks between 350 and 490 nm due to the 4f–4f transitions of Eu3+. The CdTa2O6:Eu3+ phosphors exhibited orange and red emissions at 591 nm and 614 nm in the visible region respectively. The Commission Internationale d'Eclairage (ClE) chromaticity coordinates of all the CdTa2O6:Eu3+ phosphors that excited at λex= 464 nm, located in the red region.

Keywords: Cdta2O6; Eu3+; Phosphors; Photoluminescence

MECHANISMS OF ISOSTASIC COMPENSATION IN CENTRAL ANATOLIAN LITHOSPHERE

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Abstract:

The existence of the earthquake potential of central Anatolian region has been investigated by analyzing the mechanisms of isostatic compensation. Central Anatolia region is located in a large area. It is surrounded by North Anatolian fault zone, East Anatolian fault zone, the Cyprus and Hellenic arcs. Neotectonic regime of the region is consistent with westward escape of Anatolia. The average depths of Lithosphere-Asthenosphere Boundary (LAB) and Moho are respectively constrained at 74 km and 38 km from radially logarithmic amplitude spectra of EGM08 Bouguer anomalies. The geometries of LAB and Moho are estimated using the Parker-Oldenburg gravity inversion. The inversion indicates that LAB and Moho increase from west to the east and they are less undulated in the central part of the region. Isostasic Moho based on Local (Airy) and regional isostasy (Vening-Meinesz) model has also been estimated from the isostatic response of vertical loading. Accordingly, there are crustal roots beneath HIGHER surface elevations that cause mass defficiency in the eastern part of the central Anatolia. We observed that regional isostasic Moho conforms slightly with gravimetric Moho. The isostasic compensation rate is defined as the percentage of the difference between isostasic Moho and gravimetric Moho. The decrease in seismic activity in the eastern part of the region where compensation rates are about 100% and the increase in seismic activity in the regions where under compensation rates are less 90%. Our results are well correlated with seismic activities in the region. This study is being supported by TUBITAK, under the project number 115Y217.

Keywords: Bouguer Anomalies, İnversion, İsostasy, Compensation Rate, Seismic Activity

COMPARISON OF NANO AND MICRO SIZE OF CAO AND MGO ON THE PHYSICAL AND MECHANICAL PROPERTIES OF CEMENT PASTE AND MORTAR

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Abstract:

In this study, the effect of nano and micro size of CaO and MgO on the fresh and hardened properties of cement paste and mortar were experimentally investigated and compared to each other. 2.5%, 5.0% and 7.5% nano and micro size of CaO and MgO and the combination of 2.5% CaO + 2.5% MgO by weight of binder were used in mortar and paste mixtures. The water-to-binder ratio (w/b) was 0.30 and constant throughout the study. Setting times were carried out on paste; 7 and 28 days compressive strength, heat of hydration, ultrasonic pulse velocity (UPV) and 28 days linear autogenous shrinkage were determined on mortar mixtures. It was experimentally concluded when MgO decreased the compressive strength, nano-CaO, CaO and nano-MgO increased. The autogenous shrinkage decreased with the increase of all the additives content. But nano size MATERIALS have more effect than micro size the reducing autogenous shrinkage. The addition of nano-CaO, MgO and CaO additive significantly affects the initial and final setting times and postpones the initial setting time for about from 20 to 120 minutes. The setting times of nano-MgO are longer than other additives.

Keywords: Nano-Cao; Nano-Mgo; Cao; Mgo; Autogenous Shrinkage; Compressive Strength; Setting Time; Heat Of Hydration

HISTOCHEMICAL EVIDENCE FOR COPPER ACCUMULATION IN THE KIDNEYS OF LOGGERHEAD SEA TURTLE HATCHLINGS FROM DALYAN BEACH, TURKEY

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Abstract:

Heavy metals, such as copper (Cu) and zinc (Zn) have toxic effects on marine organisms. In this study, Cu accumulation in the kidneys of loggerhead hatchlings from Dalyan Beach, MUGLA, Turkey was investigated using orcein histochemical technique. Cu associated proteins were seen as dark purple deposits mostly in the apical portions of the cells of the lining epithelium and also in the tubules' lumen of some proximal convoluted tubules (PCT) and distal convoluted tubules (DCT) as extruded structures. Some of the hatchlings from different nests laid by different mothers showed HIGH-density of Cu in PCT and DCT, whereas the others showed low-density. Our histochemical results have shown that Cu is maternally transferred to the hatchlings, the amount of transferred Cu depends on the amount of Cu accumulated by the female sea turtle, and the density of the metals in the tissues can be used to estimate the pollution status of the water.

Keywords: Cu Accumulation, Caretta Caretta, Dalyan Beach, Heavy Metal, HistoCHEMISTRY

APPLICATION OF ATMOSPHERIC PRESSURE PLASMA TREATMENT IN LEATHER FINISHING

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Abstract:

In this study the effect of atmospheric pressure plasma treatment on leather surface properties in leather finishing process were investigated. The plasma treatments on leather samples were performed with a planar dielectric barrier discharge (DBD) at atmospheric pressure. Different gases (O2, N2) were used for activating the leather surface and thin layers on the top of the finished leathers were deposited by hexamethyldisiloxane (HMDSO) and tetraethyloxysilane (TEOS) precursors. Scanning electron microscopy (SEM) and atomic force microscopy (AFM) were employed to characterize the surface properties of the treated leathers. The surface state of the leathers were evaluated by contact angle measurements. After the plasma treatment, uneven surface of natural leather tends to smooth by ionic bombardment of the plasma. Experiments show that plasma treatment with TEOS and HMDSO improves the waterproofness of leather, while plasma activation with gases increases its hydrophilic property. We can conclude that APPLICATION of plasma treatment in finishing process can be useful for enhancing the hydrophobic properties of leathers.

Keywords: Atmospheric Pressure Plasma, Leather, Finishing, Coating

INFLUENCE OF NANO-CLAY ON PROPERTIES OF CEMENT PASTE AND MORTAR

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Abstract:

This study focused on the influence of the nano-clay, at an addition of 1.5, 3 and 4.5% by mass of binder, on the properties of cement paste and mortar. Water/binder ratio was 0.30 and kept constant throughout the study. Setting time and volumetric autogenous shrinkage testes were carried out on paste; 7 and 28 days compressive strength, heat of hydration, ultrasonic pulse velocity (UPV) and 28 days linear autogenous shrinkage were determined on mortar mixtures. It was experimentally concluded the lowest autogenous shrinkage was observed for nano-clay15 and it has decreased autogenous shrinkage by 43 percent when compared to the control sample and when the content of nano-clay increases, their effects on the autogenous shrinkage decreases. Nano-clay decreased the compressive strength compared to the control specimen. However, the compressive strength of specimen containing nano-clay increased with the increasing of nano-clay content. Compared to control sample, the duration of between the initial setting time and the final setting time and the heat of hydration increased by using nano-clay.

Keywords: Nano-Clay, Autogenous Shrinkage, Compressive Strength, Setting Time, Heat Of Hydration

ESTIMATION OF THE FLOW VELOCITY EFFECTED BY SUBMERGED VANES WITH REGRESSION MODELS

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Abstract:

Water structures are also made in order to reduce erosion and flood damage, as well as the more effective use of limited water resources. The most important design parameters for these structures which costs high is river flows that flow rate indirectly. The flow rate must be known in the problems of rivers slope protection, bed protection and sediment transport. Submerged vanes placed at the base of the stream are easy to build, economical and effective regulating structure compared to other water structure. Submerged vanes changing the sediment and velocity distribution reduce the slope and bed erosion at vanes downstream. River section properties, vane section properties and vane arrangements are the main factors affecting velocity distribution. In this study, some experiments are made for finding effect on the flow velocity downstream of the vanes at some conditions such as different channel width/channel depth (B/d), submergence/vane height ratio (S/H), the Froude number (Fr), vane arrangement, vane length/vane height (L/H) and the approach angle (α) in rectangular open channel. End of this study it was seen that the effect of vanes to the discharge increased when the water level is low and vane length is more effective than the height of the vanes, vane effect increased as approach angle increased. Generated linear and nonlinear regression models have been quite good and given similar results. The coefficient of determination obtained from linear and nonlinear regression models (R^2) were obtained 0.81 and 0.84 and the root mean squared error (RMSE) 1.02 and 0.97, respectively.

Keywords: Submerged Vane, Multiple Linear Regression, Non-Linear Multiple Regression, Flow Velocity

THE MODELING OF GROUNDWATER QUALITY PARAMETERS USED IN AGRICULTURAL IRRIGATION

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Abstract:

The quality of AGRICULTURAL irrigation water in AGRICULTURAL production is one of the most important factors. In this context, the opening of the observation wells for monitoring groundwater quality is extremely important. In this study, Turkey's Nevşehir province in intensive farming a groundwater levels in the area to monitor the quality parameters of the State Hydraulic Works (DSI) was carried out in accordance with the data obtained from observation wells by drop. Water quality parameters measured in a total of 10 observation wells made in the years 1997 to 2013 were examined in this context, depending on the time. As quality parameters, pH, EC, Na, K, Ca, Mg, HCO3, Cl, SO4, NO2, Sodium Absorbsion Rate (SAR), B, Na%, statistically using a water class and hardness of time depending on the linear regression approach as it modeled. As a result of this study; Irrigation water quality parameters have been identified strong relationships depending on the time (pH; R2=0.87, EC; R2=0.80, Mg; R2=0.87, Na; R2=0.88, K; R2=0.92, HCO3; R2=0.81, B; R2=0.82, Ca; R2=0.68, Cl; R2=0.66, SO4, R2=0.92, Na%; R2=0.2, SAR; R2=0.86, and water hardness; R2=0.92). Irrigation water as the class average was found C3-S1. Each chemical parameters of the linear regression model with linear equations are created. Heavy fertilizing and AGRICULTURAL sprayings with rainfall and irrigation washed into the ground water conducted in AGRICULTURAL areas affect the water quality negatively. Instead of chemical fertilizers and pesticides in this context ORGANIC origin on the quality of the APPLICATION making the ground water will be caused to positive effects

Keywords: AGRICULTURAL İrrigation, Groundwater Quality, Turkey

EXPERIMENTAL STUDY ON THE PERFORMANCE OF A WATER-WATER HEAT PUMP

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Abstract:

In this research, a water-water heat pump system, a type that is not often used in Turkey and the World, was experimentally modeled. The experiments were performed under the conditions of simulated heat source temperature values of 20 °C, 30 °C and 40 °C. Inlet and outlet water temperatures of the evaporator and condenser, water flow rates in the evaporator and condenser circuits, pressures at the compressor inlet and outlet and power consumption of the system were measured. The heating coefficients of performance were calculated based on the measurements. It was found that the maximum temperature in the energy storage tank was about 50.6 °C. For the heat source temperatures of 20 °C, 30 °C and 40 °C, the heating coefficients of the performance of the system became 3.36, 3.43 and 3.69, respectively, 6 min. after the start time of the experiments and then they were decreased to 1.87, 1.83 and 1.77 with increasing water temperature in the condenser tank. The mean uncertainty value of the measurement parameters was found to be about ±2.47%. Finally, the results of this study support the idea that waste water can be used heat source and the energy quality level of a waste low grade temperature heat source can be increased by using a heat pump system for the purpose of meeting hot water need as well as floor heating system requirements.

Keywords: Water-Water Heat Pump, Copheat; Energy Enhancement

PRECONCENTRATION OF COBALT IONS IN WATER SAMPLES WITH ACTIVATED CARBON FROM VINE SHOOTS AND ITS DETERMINATION BY HR-CS FAAS

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Abstract:

In the recent years, the development of new methods to determine the trace elements in different matrices has been widely investigated. Atomic absorption spectrometry is nowadays the most common method for trace metal determination in various MATERIALS. The levels of metal ions in natural samples are usually lower than the detection limit of most instruments, and metals which usually exist in very complex matrix environments. Direct analysis of metals without using a sample preparation technique is impossible due to interferences. Solid phase extraction (SPE) has become a preferred method at enrichment of many metal ions prior to their analysis by FAAS and other TECHNIQUES.

Cobalt is used in electroplating because of its attractive appearance, hardness and resistance to oxidation. Additionally, it is an essential trace element, and forms part of the active site of vitamin B12. The amount needed is very small and the body contains only about 1 mg. Co (II) in large doses is carcinogenic.Therefore, the separation and determination of Cobalt ions from various samples important to protect public health.

In the present study, recovery and separation parameters of cobalt ions from aqueous solutions on activated carbon from vine shoots (ACVS) were investigated. Co ions were determined by HIGH Resolution Continuum Source Flame Atomic Absorption Spectrometry (HR CS-FAAS). Analytical parameters such as precision and accuracy of the method have also been determined. The optimum pH value for quantitative sorption of Co (II) was found between 3.5 and 4.0. The preconcentration factor was 170. In optimized conditions. a relative standard deviation and detection limit were found to be 2.1% and 0.43 µg L-1 respectively. The method was successfully APPLIED to determine the trace amounts of cobalt in different water samples.

Keywords: Separation, Preconcentration, Adsorption, Cobalt, Activated Carbon, Vine Shoots

THE DAMAGE OF THE GALL MIDGE RESSELIELLA (CLINODIPLOSIS) OLEISUGA (TARGIONI-TOZZETTI) (DIPTERA: CECIDOMYIIDAE) ON OLIVE TREES

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Abstract:

The olive trees (Olea europaea L.) was originated from Mediterranean countries and has been cultivated for centuries in this region. The olive fruit is a major AGRICULTURAL product in terms of being a source of olive oil in the Mediterranean region. In addition, olive tree is used for fine woods, and olive leaves are used as a medicine. Resseliella (Clinodiplosis) oleisuga (Targioni-Tozzetti) (Diptera: Cecidomyiidae) adults laid eggs in crevices in the bark. The larvae develops under the bark lived together. They cause necrosis of the bark around the oviposition site and then dried shoots and death branches, brown foliages and dried young fruits are seen. A survey was carried out to determine the damage of Resseliella oleisuga and infestation levels in olive orchards in seven provinces of the Eastern Mediterranean and South eastern Anatolia regions. The sampling area is nearly 35.500 km^2 and ranging from 33-37º north hemisphere meridians and 36-38º north hemisphere parallels. The 5% of 1000 trees for each orchard were examined and trees were sampled at random on each tree branches from four cardinal directions (north, east, south and west). Results revealed that R. oleisuga was determined in olive orchards in all seven provinces. The average occurrence of this pest is 27% in olive orchard and it reached the HIGHest rate with a 36% in Hatay province and least rate was 18% in Mersin province of Turkey. It was followed by KAHRAMANMARAS with 34%, GAZIANTEP with 33%, Kilis with %31, OSMANIYE with 22% and Adana with 19%. The number of trees damaged varied from by 13% to 0.05%.

Keywords: Olive, Damage, Branches, Resseliella Oleisuga, Turkey

NUMERICAL INVESTIGATION OF THE WATER ENTRY OF A CYLINDER AT VARIOUS ENTRY VELOCITY

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Abstract:

Slamming is a phenomenon that is emerged in front and bottom of ships at sailing in rough sea conditions. Slamming produces large impact forces in a short time period. This impact force can cause local fatigue damages and also generate vibrations effecting the entire body of ships. The present work has investigated this phenomenon by a NUMERICAL simulation of the impact problem of 3D dimensional cylindrical shapes by dropping them onto the free surface of water. This entry process is the fluid-solid interaction problem which should be analyzed by coupling solid and fluid properties in the same NUMERICAL approach. A commercial non-linear finite element code, LS-DYNA is used for the simulation. LS-DYNA multi-MATERIALS eulerian fluids / lagrangian solid coupling capabilities are used to examine the slamming phenomenon. The interaction of two phases has been performed with the help of this coupling method.

Validation of the NUMERICAL studies has been made through previously presented experimental results. The experimental setup is consisted of water basin and one sliding mechanism with supporting four aluminum abutments to perform the free fall experiments. Flexible circular cylinder was also used in the experiments and entrance velocities were adjusted by changing the drop heights. The results were compared with the NUMERICAL results via both snapshots of the penetration process and the impact forces under the same hydrodynamic conditions. The analysis of pileup characteristics, coefficients and impact forces for both NUMERICAL and experimental results were provided and compared.

Keywords: Water Entry,Ls Dyna, Solid-Fluid İnteraction

REDUCING TRAFFIC CONGESTION BY OPTIMIZING THE OUTPUT OF WORKING HOURS USING GENETIC ALGORITHMS

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Abstract:

Due to the large number of vehicles in traffic in the rush hour in large cities, traffic is often jammed. In this study, especially in the end of the working hours, aimed to set up to minimize the traffic gridlock. For this, working out of OFFICEs will be set to different times that is a kind pipelining APPLICATIONs. This is an optimization problem and Genetic Algorithms method is used.

In our project, a real traffic light controlled intersections are selected and this junction is formed Pac junction in Iskenderun.

The density of traffic at intersections Pac were calculated by counting the vehicles. Business locations in the selected region for this work, 6 schools, Municipality of Iskenderun, Iskenderun State Hospital Block, a Business inn, ISKENDERUN District and near a bank. Car of the employees of these institutions have been evaluated separately.

The shift end time of Institutions is set different time periods in 10 minutes interval. In experiments in reducing traffic density it has been improved by 18%.

Keywords: Genetic Algorithms, Optimization, Traffic Gridlock

INVESTIGATION OF THERMAL, MECHANICAL PROPERTIES AND ABRASIVE WEAR BEHAVIOUR OF PUMICE PARTICLE, SHORT CARBON FIBRE AND POSS REINFORCED PPS

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Abstract:

Polyphenylene sulfide (PPS) is semi-crystalline thermoPLASTIC polymer with HIGH glass transition and HIGH melting temperature. It possesses HIGH dimensional stability, good MECHANICAL properties and easy manufacture. PPS is widely used in various APPLICATIONs, especially in the AUTOMOTIVE industry, due to its good MECHANICAL properties, non-flammable behavior and inherent resistance against many chemicals and HIGH temperatures. In addition, PPS exhibits very low creep at HIGH temperatures. However, it has a lower elongation to break, a HIGHER cost and a quite brittle material with low impact strength. In order to improve these adverse effects, fibre or/and particle filled polymer composites can produce. In this study, PPS is reinforced with two different sizes pumice particles (<100µm, >100µm), short carbon fibre, phenylisooctyl POSS (PPOSS) and isooktilphenyl POSS (IPOSS). PPS and reinforced PPS were prepared via melt blending in a twin-screw micro-compounder. The samples were produced by injection moulding. Thermal, MECHANICAL properties and abrasive wear behavior of this reinforced PPS were investigated. The samples were evaluated by means of differential scanning calorimeter (DSC), dynamic mechanic analysis (DMA) and tensile test. Abrasive wear behavior of samples was investigated by using abrasive wear tester. According to test results, wear rate was increased by carbon fibre and pumice reinforced PPS. While MECHANICAL properties of PPS was improved only pumice and only carbon fibre addition, addition of pumice and carbon fibre simultaneously was deteriorated MECHANICAL properties. To overcome this result, POSS was added to composites.

This study was supported scope of 114M785 numbered 1001 project by TUBITAK. Thank TUBITAK due to their contribitions and support.

Keywords: Polyphenylene Sulfide (Pps), Abrasive Wear, Poss

EXPERIMENTAL MODAL ANALYSIS OF A POLYURETHANE SANDWICH PANEL

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Abstract:

Polyurethane (PU) sandwich panels are widely used in ENGINEERING APPLICATIONs because PU foam has good vibration and acoustic properties as well as favorable thermal properties. Moreover, the top and bottom layers of the panel are corrugated in order to improve its strength properties. Depending on its place and type of APPLICATION, different densities and reinforcement thicknesses of PU foam may be preferred and currently a variety of PU sandwich panels can be found on the market. In this study, the vibration characteristics of a standard PU foam sandwich panel, with corrugated top and bottom steel layers, are investigated. The modal properties of an example sandwich panel, which currently exists on the market, are determined by using experimental modal analysis (EMA). Additionally, ANSYS finite element software is used to determine the natural frequencies and mode shapes of this test sample. The results have been comparatively presented.

Keywords: Natural Frequency, Modal Damping, Modal Test, Polyurethane Foam, Vibration İsolation

RISK ASSESSMENT OF HAZARDOUS WASTE

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Abstract:

Hazardous substances are estimated to be generated about 1.5 million tons in Turkey. Some amount of these wastes recycled and about 35 percent of wastes eliminated in disposal facilities. Recovering, recycling or suitable disposing of hazardous wastes are generally insufficient in a lot of countries. Insufficient waste transportation, handling and disposing methods lead to the important public and environmental risks, threatening hazardous waste management.

Transport of hazardous waste must abide by international rules and standards for packaging, labeling and transport of waste. However some accidents during transportation of hazardous MATERIALS could cause a lot of serious health and environmental problems. Therefore estimating of accidents and release rates is essential for risk assessments in HIGHway transportation of hazardous MATERIALS. Although there is a lot of analytical modeling for transportation of hazardous MATERIALS, the models in terms of providing environmental data are inadequate.

This study aimed to investigate some risks related with scenario of truck accident carrying solvent waste and interpretation of hazards. By using hazard assessment model some outputs are obtained such as distribution of the hazardous waste, reaching time to receiver, affected people and environment. With the model work possible harmful effects on humans and the environment will be prevented. In addition to, the impact on people and the environment which is irreversible will be prevented or reduced.

Keywords: Accidents, Hazardous Wastes, Solvent, Risk Assessment

INVESTIGATION OF MODAL PROPERTIES OF A PLATE REINFORCED BY POLYURETHANE FOAM WITH DIFFERENT THICKNESSES

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Abstract:

In this study, the effects of the thickness of polyurethane foam (PU), which is widely used in vibration isolation on plate vibrations, are investigated by using experimental modal analysis (EMA) and finite element (FE) methods. A number of test samples are prepared by applying the PU foam with different thicknesses onto one surface of a steel plate. The test samples, each with different PU foam coating thicknesses, are tested using the EMA technique. The samples are suspended by cords in order to satisfy certain free boundary conditions. The modal properties are determined by using measured frequency response functions. Additionally, the plates are modelled by ANSYS finite element software and vibration analysis is performed. The results have been comparatively presented. It is observed that PU foam affects the natural frequencies and modal damping of the plate.

Keywords: Natural Frequency, Modal Damping, Modal Test, Polyurethane Foam, Vibration İsolation

FREE VIBRATION BEHAVIORS OF WIND TURBINE TOWERS FOR VARIOUS GEOMETRICAL CHARACTERISTIC PARAMETERS

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Abstract:

Frequency characteristics of wind turbine tower structures have a practical importance in rotor resonance prevention and seismic response analysis. For this purpose, the present study provides a parametric analysis focusing on the free vibration behaviors of wind turbine towers with different geometrical characteristic parameters and base support conditions. The geometrical parameters investigated are the ratio of top and bottom radius, the ratio of top and bottom wall thickness, the ratio of slenderness and the ratio of diameter and thickness. Moreover, fixity and circular foundation resting on elastic subsoil conditions are examined as wall base support conditions. The finite element models of the towers are created in structural analysis software SAP2000 automatically with the help of OAPI (Open APPLICATION PROGRAMMING Interface) feature of SAP2000. . The OAPI functions employed in code developed in MATLAB to supply two-way data flow between SAP2000 and MATLAB during pre and post processing. The nacelle-rotor turbine system with blades is considered as rigid non-rotating mass at the top of the tower for structural analysis models. And, the soil foundation is considered as elastic half-space represented by linear springs. The natural frequencies of the wind turbine tower for various base conditions and geometrical properties are presented in tabular and graphical formats. As a result of the NUMERICAL analyses it can be stated that particular natural frequencies of the tower can be obtained reliably by altering certain geometrical parameters and considering soil-foundation-tower interaction.

Keywords: Wind Turbine Tower, Free Vibration, Open APPLICATION PROGRAMMING İnterface

OPTIMUM DESIGN OF SPACE TRUSS BRIDGES INCLUDING SOIL-STRUCTURE INTERACTION

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Abstract:

In the present study the influence of soil-structure interaction on the optimum designs of steel space truss bridges are investigated. The optimization algorithm utilized in the design process is the metaheuristic harmony search (HS) method. The subsoil foundation is modelled using the three-parameter Vlasov elastic foundation model. This model takes the shear behavior of the soil into account unlike one-parameter Winkler model. Structural analyses required in the optimization algorithm are conducted in the structural analysis software SAP2000. The interaction between optimization algorithm coded in MATLAB and SAP2000 is provided with the help of OAPI (Open APPLICATION PROGRAMMING Interface) feature of SAP2000. For this purpose, a code is developed in MATLAB utilizing OAPI functions to provide two-way data flow between SAP2000 and optimization algorithm in all optimization processes. The optimum designs are carried out by selecting suitable sections from a specified list including W-profiles taken from American INSTITUTE of Steel Construction (AISC). The stress limitations in accordance with the provisions of AISC-ASD (American INSTITUTE of Steel Construction-Allowable Stress Design), and the maximum lateral displacement are APPLIED to steel space truss bridges as design constraints. The optimal design process inwhich the design objective is the minimization of the weight of the bridges is performed for the cases with and without subsoil effect. As a result of the optimization process it can be stated that the consideration of soil-structure interaction results with heavier space truss bridges.

Keywords: Harmony Search, Vlasov Foundation, Open APPLICATION Programing İnterface, Space Truss Bridge

ENERGETIC AND EXERGETIC APPROACH TO A GEOTHERMAL ENERGY POWERED ORGANIC RANKINE CYCLES

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Abstract:

Energy is very essential in daily life and industry. Required energy can be supplied from fossil fuels such as coal, oil, natural gas. Since these resources damage the environment and increase greenhouse gas rate, alternative energy resources can be used for different APPLICATIONs such as power generation, refrigeration and air conditioning. Rankine cycle can be commonly used for power generation. However, ORGANIC Rankine cycle can be preferred instead of Rankine cycle at low source temperatures. In this study, a thermodynamic analysis of a reheat ORGANIC Rankine cycle is performed. The evaporator heat energy is supplied from geothermal energy. R245fa is selected as a working fluid. Energy and exergy balance equations for the thermodynamic model is provided according to the first and second law of thermodynamics. The results such as power output, thermal efficiency, exergy destructions rates and second law efficiency are evaluated as function of Turbine inlet temperature.

Keywords: ORGANIC Rankine Cycle, Geotermal Energy, Exergy

A PARAMETRIC STUDY OF A REHEAT ORGANIC RANKINE CYCLES (ORC)

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Abstract:

Energy is very essential in daily life and industry. Required energy can be supplied from fossil fuels such as coal, oil, natural gas. Since these resources damage the environment and increase greenhouse gas rate, alternative energy resources can be used for different APPLICATIONs such as power generation, refrigeration and air conditioning. Rankine cycle can be commonly used for power generation. However, ORGANIC Rankine cycle can be preferred instead of Rankine cycle at low source temperatures. In this study, a thermodynamic analysis of a reheat ORGANIC Rankine cycle is performed. The evaporator heat energy is supplied from geothermal energy. R142b is selected as a working fluid. Energy and exergy balance equations for the thermodynamic model is provided according to the first and second law of thermodynamics. The results such as power output, thermal efficiency, exergy destructions rates and second law efficiency are evaluated as function of evaporator and condenser pressures.

Keywords: ORGANIC Rankine Cycle, Geotermal Energy, Exergy

OPEN-ENDED COAXIAL PROBE DESIGN FOR DIELECTRIC PERMITTIVITY OF BIOMEDICAL TISSUES

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Abstract:

It can be displayed in different states of matter and the living tissue in the microwave ENGINEERING and BIOMEDICAL FIELDs with using some of properties of electromagnetic waves. But in order to characterize the matter or tissue, it is necessary to know its dielectric permittivity. Thus we can know how much energy the matter would absorb the in a specific frequency.

In order to measure dielectric permittivity of matter we can use some methods such as transmission line, free space, resonant cavity and open-ended coaxial probe. However, in the BIOMEDICAL FIELD the coaxial probe should be used in order to determine liquids and tissues permittivities. In this method not only liquid, semi-solid and powder matters but also biological matters' permittivities can be demonstrated by finding the reflection coefficent.

In this study, publication in the literature were examined. Then in this way it is aimed to design a coaxial probe with CST Microwave Studio and examine its parameters in 2.45 GHz frequency that is the frequency of microwave heating and BIOMEDICAL imaging.

In this measurement the probe's scattering parameter (S11) is determined. This value is equal to reflection coefficient (Γ). The we can find the load impedance and probe's total capacitance. This capacitance will change as a function of the permittivity of the material under test. For that reason we can demonstrate the permittivity from only reflection coefficient by coexial probe.

In order to show this method's success, an open-ended coaxial probe is designing in the frequency of BIOMEDICAL imaging. The probe's cavities and dimentions will have been showed via CST and probe's total capacitance will have been found from the parameters we would obtain from CST. Finally the probe's results will have released and its success will be discussed.

Keywords: Dielectric Constant, Em Simulation, Loss Factor, Open-Ended Coaxial Probe, Permittivity

SCHEMATIC IMPLEMENTATIONS OF FIR DIGITAL FILTERS ON ALTERA FPGA

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Abstract:

Digital filters, which are one of the most important elements in ELECTRONICS ENGINEERING APPLICATIONs such as communication and BIOMEDICAL are used to eliminate unwanted signals. Digital filters can be implemented on the embedded systems such as microcontroller, Digital Signal Processor (DSP), and Floating Point Gate Array (FPGA). An FPGA is an integrated circuit in which hardware structure can be changed after the production according to the desired function. FPGA technology is used in a wide spectrum area from consumer ELECTRONICS to aerospace and defense industries. In this study, we investigate the FPGA schematic implementations of finite impulse response (FIR) digital filters on Altera DE2-115 module without requiring any other software packages such as DSP Builder and Matlab Simulink. First of all, a low pass FIR digital filter is designed by using Matlab filter design and analysis tool (fdatool) program. Then, the designed filter is implemented and simulated on Matlab for a given input signal. After that, for three conventional structures (namely direct-form, transposed direct-form, and symmetric direct-form) in literature, the designed filter is implemented schematically on Quartus-II software and then each project containing different structure implementation is compiled. Compilation results demonstrate that the transposed direct-form method provides better results in terms of the number of elements used in the implementation. Moreover, the digital filters implemented by each structure are then simulated by UNIVERSITY Program Vector Wave File (VWF) simulation program on Quartus-II software. Simulation results show that the obtained results are the same as the ones obtained on Matlab, which confirms that the schematic designs are successfully implemented. Finally, the implemented digital filters are realized and successfully tested on Altera DE2-115 module.

Acknowledgements: This study is supported by the Scientific Research Projects Unit of Abant Izzet Baysal UNIVERSITY with the project number 2016.09.03.1009.

Keywords: Fir Filter, Fpga, Matlab, Quartus-İi, Altera De2-115

TRIBOLOGICAL PERFORMANCE OF SHORT CARBON FIBER AND PUMICE PARTICLE REINFORCED PPS/PA66 BLEND

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Abstract:

Poly(Phenylene Sulfide) (PPS) is a HIGH performance, semi-crystalline thermoPLASTIC polymer. It shows superior properties such as chemical and HIGH temperature resistance, dimensional stability etc. Therefore, by dint of its HIGH crystalline structure it also carry good MECHANICAL properties at elevated temperatures. Owing to these properties PPS find area of utilization automobile industry, ELECTRICAL and electronic components and MECHANICAL APPLICATIONs. On the other hand its brittle structure and its price restrict PPS's further APPLICATIONs. Polyamide 6.6 (PA66) is also used lots of ENGINEERING APPLICATIONs because of its good heat resistance, processability, HIGH MECHANICAL properties and ductility. However it has some disadvantages such as poor dimensional stability, degrading by UV, difficult bonding etc. To overcome disadvantages of these polymeric MATERIALS, they can blend in each other as a matrix material. In this study this PPS/PA66 blend is reinforced with short carbon fiber and two different sizes pumice particles (<100µm, >100µm). PPS/PA66 blend and reinforced blends were manufactured by twin screw extruder and samples were produced by injection moulding. Samples were characterized by means of thermal and MECHANICAL testing. Also tribological behavior of the MATERIALS was investigated with adhesive wear testing by using pin on disc tester. During the pin on disc test period, the adhesive ball fixed on load arm and samples were located on rotating disc with friction radius of 5 mm. All samples were tested under normal load of 20 N and 250 rpm rotating speed along with 150 m sliding distance. According to test results while CF and big size pumice reinforced hybrid composite samples given best wear resistance, unreinforced PPS/PA66 blend, as expected given lowest wear resistance results.

This study was supported scope of 114M785 numbered 1001 project by TUBİTAK. Thank TUBİTAK due to their contributions and supports.

Keywords: Pps/Pa66 Blends, Pumice, Carbon Fibre, Adhesive Wear

PERFORMANCE ANALYSIS OF EXPONENTIAL-HAMMING WINDOW BASED FIR FILTERS FOR NOISE REDUCTION IN ECG SIGNALS

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Abstract:

Many people suffer from heart related problems which are incerasing day by day. Therefore, it is very important to detect these problems earlier because they may cause heart attacks. Electrocardiogram (ECG) measurement is an important method in the diagnosis of cardiovascular related problems. Easy implementation, short-duration, cheapness and being invasive (painless) are among the most important advantages of this method. ECG signals are the biopotential signals which are generated by the result of the heart's ELECTRICAL activity and measured by electrodes over the skin surface. It is very important for these biopotentials of the heart to be transmitted noise-freely, displayed and recorded. But when acquiring ECG signals by electrodes, the ECG signal get distorted by different artifacts which must be removed otherwise it will convey an incorrect information regarding the patients heart condition. ECG signals are very low frequency signals of about 0.5Hz-100Hz and digital filters are very efficient for noise removal of such low frequency signals. In this paper we have studied the performance of Finite Impulse Response (FIR) filters based on Exponential-Hamming window family, which was proposed by the author of this paper, for noise removal of ECG signals. To remove the noise artifacts in ECG signals, three kind of FIR filters (namely low pass, HIGH pass, and notch) are designed and implemented on Matlab. Simulation model is built on Matlab to test the performance of the proposed designed filters. From the simulation results it is observed that the filters designed by Exponential-Hamming window can provide better noise reduction from ECG signals than the ones designed by the other windows in literature in terms of Signal to Noise Ratio (SNR).

Acknowledgements: This study is supported by the Scientific Research Projects Unit of Abant Izzet Baysal UNIVERSITY with the project number 2016.09.03.1009.

Keywords: Ecg, Noise Reduction, Fir Digital Filter, Exponential-Hamming Window, Matlab

THE ROLE OF BORON COMPOUNDS IN PROVIDING FLAME RETARDANCY TO CELLULOSIC TENT FABRIC

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Abstract:

This work deals with the influence of boron compounds such as borax (Na2B4O7.10H2O) and boric acid (H3BO3) on the thermal and flame retardant properties of cellulosic tent fabric. The sodium lauryl ether sulfate (SLES) was used as an anionic surfactant into the boron compounds for preparing flame retardant solutions in order to increase the wettability of the fibers. The cellulosic tent fabrics were treated by impregnation method with the prepared solutions in different concentrations. Thermal and flame properties of treated and untreated cellulosic fabrics were determined by thermogravimetric analysis (TGA) and limit oxygen index (LOI) test. The results showed a reducing in weight loss of all fabrics treated with the boron compounds during TGA, and HIGHest LOI value was observed to be 28,1% in the solution containing 15% borax and 1% surfactant. These results represented that the boron compounds could be used as flame retardant in the INDUSTRIAL APPLICATIONs of cellulosic fabrics.

Keywords: Boric Acid, Borax, Flame Retardant, Cellulosic Fabric

PRIORITIZATION OF MACHINE FAILURES WITH PARETO ANALYSIS IN PANEL RADIATOR MANUFACTURING PROCESS

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Abstract:

Competition, globalization and changing in customer demands affect companies directly nowadays. Companies aim to cope with competition, meet customer expectations and decrease costs for surviving. Achieving these objectives depends on HIGHER availability of equipment comprise the system in a company. In addition, when a breakdown occurs, correct action should be conducted immediately. Therefore, failure types should be classified according to downtimes and frequencies of them. Maintenance department should prepare maintenance plans by taking the classification into consideration. In this study, downtimes and failure frequencies in panel radiator manufacturing process were investigated and Pareto analysis which is one of the approaches for statistical process control was carried out for classification the failure types in the manufacturing process. Thanks to pareto analysis, failure types of MACHINEs were prioritized.

Keywords: Maintenance Planning, Pareto Analysis, MACHINE Failure.

THE THERMAL STRESS ANALYSIS OF ONE- AND TWO-DIMENSIONAL FUNCTIONALLY GRADED CIRCULAR PLATES FOR IN-PLANE SINUSOIDAL HEAT FLUX

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Abstract:

This study addresses thermal residual stress analysis of one- and two-dimensional functionally graded clamped hollow circular plates under in-plane sinusoidal heat flux for different compositional gradient exponents.

The gradients of the material properties of the hollow circular plates were assumed in-plane according to a power-law distribution in as far as the volume fraction of the constituent, not through the plate thickness direction. The transient heat condition and Navier equations in polar coordinates describing the two-dimensional thermo-elastic model were discretized using finite-difference method, and the set of linear equations were solved using the pseudo-singular-value method. In order to determine the effect of the plate material properties on the thermal strain and stress states, the plates were designed as one-dimensional functionally graded circular plates (1D-FGCP) and two-dimensional functionally graded circular plates (2D-FGCP).

According to the result of the study 1D-FGCP and 2D-FGCP exhibited similar in the temperature distributions, but different in the stress and strain distributions. In case of 2D-FGCP compared to in case of 1D-FGCP, the levels of temperature and stress had similar, however levels of strain increased. When the compositional gradient exponent was changed from ceramic-rich to metal-rich compositions, the stress levels were not affected considerably, whereas the stress distributions changed. As for that the strain levels increased and distributions were affected considerably with the increasing of the exponent of compositional gradient.

The study showed that two-dimensional graded is necessary to calculate correctly the actual stress and strain levels and distributions subjected to sinusoidal heat flux in the functionally graded circular plates.

Keywords: One- And Two-Dimensional Functionally Graded Circular Plate,Finite Difference Method, Thermal Residual Stress Analysis

FINITE ELEMENTS MODELLING OF THE GAS METAL ARC WELDING PROCESS

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Abstract:

Gas Metal Arc Welding (GMAW) operation has been modeled in ABAQUS using its welding interface extension. The welding operations and their APPLICATION for a variety of metal manufacturing are briefly stated in the paper. The GMA welding operation in 3D finite element (FE) models are presented. FE simulations were carried out to examine the stress-strain distributions and metal distortions due to thermal expansions around welding line of the sample. The impact of operation parameters and geometry of the weldment have been evaluated with and without the consideration of residual stresses and strains induced from the FORMING processes prior to welding. Based on the given welding parameters, the simulation evaluates the welding material properties and the internal stresses in addition to the expected distortion. For this reason, finite element analysis APPLIED on the welding process can be used not only to have better understanding of the GMAW operations but also can be a useful mathematical tool for future process development and control with the view of optimizing welded product properties and quality.

Keywords: Gmaw, Welding Material Distortion, Welding Simulation, Welding İn Abaqus

MODELLING OF WEAR ON A CAM PROFILE

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Abstract:

Life prediction for dynamic systems is an important concern for MACHINE designers to consider for TECHNICAL and economic reasons Wear of components is often a critical factor influencing the product service life. Although wear is a commonplace phenomenon, it is by no means an uncomplicated one; on the contrary, the mechanisms and theory of wear are very complex function of the system which includes material properties, operating conditions (load,speed), contact geometry,surface roughness, and environment (lubrication, temperature). Therefore, predictions of wear based on the forces and slip velocities calculated using the unworn first cycle geometry will not accurately predict a mechanism's useful life. This is because there is a coupling between the contact conditions and the geometry of the components, which are changing as they wear.

The evolution of the geometry of different two-dimensional cams as a result of wear is studied using three complementary approaches: a closed form analytical expression, a computer simulation, and the development of an experimental apparatus.Using an Archard's wear constant, a closed form expression describing the coupled evolution of the contact loads and wear for a two-dimensional cam with a flat-faced follower is developed. This method has potential for predicting the shapes into which cams and followers will wear in service.The cam and follower profiles are modified according to the amount of wear estimated, and new cam and follower profiles are obtained

Keywords: Cam, Follower, Wear, Wear Rate

NSSR MARKERS REVEAL HIGH GENETIC DIVERSITY IN PINUS BRUTIA TEN. POPULATIONS

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Abstract:

TURKISH red pine (Pinus burtia Ten.)is the most important forest trees in the Mediterranean basin which are distributed over a broad area. TURKISH red pine has a total area of 5.4 million hectares of distribution in Turkiye, comprising 24% percent in forested areas. In this study, the genetic diversities of 36 populations of TURKISH red pine from Turkey chosen according to their characteristics such as climate from Turkey were studied nSSR (6 loci) markers 108 alleles for nSSR were determined. 11 of 73 alleles (%15) for nSSR were private for the species. AMOVA results nSSR revealed that the total genetic diversity among was partitioned as %15 between species, %7 among populations, %14 among individuals within population and %79 within individuals. Genetic diversity was HIGHER in the HIGH/middle elevation populations and geographically close populations than others. The most convenient populations for for forestry practices such as selection of seed sources and in situ conservation activities should be determined with strong emphasis on the consideration of geographic region and elevation gradients. Furthermore, we suggest that the populations having HIGH genetic diversity and private haplotypes and/or alleles, at first, should be considered in the studies for the determination of the inheritance of the adaptive characteristics in these species in the future.

Keywords: TURKISH Red Pine, Nssr, Genetic Diversity, Adaptive

GENOTOXICITY OF MICRO AND NANOPARTICLES OF MAGNESIUM OXIDE (MGO) ON ROOT MERISTEM CELLS OF ALLIUM CEPA BY COMET ASSAY

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Abstract:

The nanotechnology industry, a rapidly growing industry, can have substantial impacts on economy, society and environment. Magnesium oxide nanoparticles (MgO NPs) are used in ELECTRONICS, catalysis, ceramics and as an antibacterial agent. In spite of the diverse use, very few studies have been reported with concern to their genotoxic potential.

In this study, the genotoxic potential of micro and nanoparticle (<50 nm) of using Single Cell Gel Electrophoresis (SCGE, Comet Assay) in Allium cepa root meristem cells. Alkaline COMET assay is fast, powerful and sensitive test to detect the single strand breaks in alkali labile lesions individual cells in DNA.

Allium cepa root meristem cells were exposed for 18 hours with four different concentrations (1, 2, 5 and 10 mM) of micro and nanoparticles of MgO. 1 and 2 mM concentrations of microparticles and 1 mM concentration were induced the single strand break in DNA.

Our results showed that micro and nanoparticles of MgO induced the genotoxicity especially low doses, while HIGHER doses were not statistically significant in all parameters (tail moment, tail length, and tail intensity) compared with negative control distilled water.

Keywords: Magnesium Oxide, Comet Assay, Genotoxicity, Dna Damage

CHEMICALLY COLOR REMOVAL FROM TEXTILE WASTEWATER WITH OXIDIZING AND REDUCING AGENTS

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Abstract:

The TEXTILE industry consume large amounts of water and chemicals for dyeing and finishing processes. Due to the variety of ORGANIC and inORGANIC compounds both the dyeing as well as used in other operations, influences the resulting waste water's characteristics. Colored wastewaters which discharged to recipient waters, reduces the light transmission in water medium, and thus adversely affect the photosynthetic activity. Also accumulation of dyes in some aquatic organisms, increases the risk of toxic and carcinogenic products occurrence. In this context, color removal processes of the TEXTILE industry wastewaters which containing dyes have ecologically importance. Chemical purification methods for the TEXTILE waste waters, has been the most sought-after method for many years. Because, the changes which needs to be made in the quality of waste water, can be easily adjusted with the chemical type and dose. Chemical methods such as chemical precipitation, oxidation and flocculation has been used for the TEXTILE waste water treatment, but fragmentation of dye molecules by the reduction have not been studied. Also there are many oxidizing agent has to work on. In this study, chemically color removal of TEXTILE wastewater which obtained from a cotton dyeing plant were studied with a strong oxidizing agent and a strong reducing agent. Sodium hydrosulfite was used as strong reducing agent and sodium perchlorate monohydrate was used as strong oxidizing agent. After adding 1,3,5 g/L of chemicals, color removal values were determined with Hach DR 5000 spectrophotometer according to Pt-Co unit. Also ORGANIC material removal potentials were determined with GC-MS headspace analysis. Results shows that sodium hydrosulfite has a good potential for both color and ORGANIC material removal from TEXTILE wastewater.

Keywords: TEXTILE Wastewater, Color Removal, Oxidizing Agent, Reducing Agent

ADSORPTION OF CERTAIN PESTICIDES IN APPLE JUICE WITH ACTIVATED CARBON PRODUCED FROM PULP OF POMEGRANATE PEEL

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Abstract:

The pesticide residues in the fruits which used in the production of fruit juice and similar products, exceeds to the end product during the production process. in the juice production plants various methods have been APPLIED to the fruit juice, for the removal of pesticides. One of the most effective method in this pesticides removing methods is to filter the juice with commercial activated carbon. in this study, the activated carbon used for the removal of pesticides was obtained from pomegranate pulp, which is occurring as a waste at the end of juice production process. Thus, a product occurring as a waste can be evaluate as a useful product again. Conversion of pomegranate pulp to activated carbon was conducted in an tubular type oven at 700 °C under nitrogen media. The obtained activated carbon was treated with apple juice, containing 100 µg/L carbendazim, thiacloprid and deltamethrin at different doses and pesticide removal performance of that new activated carbon was investigated. As a result, 90% of the carbendazim, 55% of thiacloprid and %86 of deltamethrin was removed from fruit juice with that new activated carbon. In addition, FT-IR spectrum were taken for the surface characterization of obtained activated carbon, before and after the adsorption experiments. Taking advantage of these spectrums, surface pesticide binding mechanism of activated carbon was explicated. The resulting activated carbon also used in removing pesticides from pomegranate juice, but it has shown opposite effects in the product quality. But it has no opposite effects on the quality of apple juice.

Keywords: Pomegranate Peel, Pesticides, Adsorption, Activated Carbon

PROCESS DESIGN FOR THE RECYCLING OF TETRA PAK COMPONENTS

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Abstract:

The Tetra Pak packaging which was originally designed and developed for milk is widely used in the packaging of many foods and beverages. It is important to recycle and recovery of Tetra Pak's due to the different types of recyclable MATERIALS included 75% paper, 20% polyethylene and 5% aluminum. There are serious problems in recycling of composite beverage cartons that completed their lifetime and became a waste. A larger part of this packaging waste is disposed in landfills. Therefore, our priority should be perFORMING scientific studies for management of this waste and operating with appropriate management alternatives.

In this study, assessment methods and processes of waste composite drinks cartons are researched, and an alternative way is shown which separately recovers cartons, paper, aluminum and polyethylene. Tetra Pak films were cut into over 40 mm pieces, and charged to the reactor with stirring with chloroform. Thus paper, aluminum and polyethylene dissolves in chloroform. The resulting polyethylene and solvent liquid was transferred to distillation unit. The mixture of aluminum and paper remaining in the reactor was boiled and stirred until it turns into a pulp. Filtration of water is ensured by waiting the pulp on the fine sieve and the percentage of remaining solid is determined by analysis at the end of this waiting period. Thus only aluminum is remaining in the reactor. With the designed system, the waste amount of countries going to the solid waste storage areas will decrease and the PROTECTION of our environment will be provided. Tetrapak recovery will be a long-term economic investment. Recycling sector will be a step more advanced. The study will also result in allowing new technologies and reducing raw material needs.

Keywords: Tetra Pak. Recycle, Process Design

EVALUATION OF ANTIOXIDANT CAPACITY OF PARONYCHIA ARGYROLOBA SEEDS

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Abstract:

The genus Paronychia Miller (Illecebraceae) is distributed in warm and dry regions of the world In Turkey the plants are found in Irano-Turanian and East-Mediterranian phytogeographic regions and is represented by 28 species, 20 of which are endemic to Turkey & East Aegean Islands.

The main objective of the present study was to analyze the antioxidant capacity and phenolic content of methonolic and aqueous extracts of Paronchia argyroloba naturally grows in Anatolia region. TEAC (trolox equivalent antioxidant capacity), TPC (total phenolic content) and DPPH (free radical scavenging activity) of each extracts were incestigated. As a results, a positive correlation was determined between total phenolic content and antioxidant capacity.

Keywords: Paronchia Argyroloba, Teac, Dpph, Phenolic Content

APPLICATION OF DEEP EUTECTIC SOLVENTS ON WOOD CHEMISTRY

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Abstract:

Wood is one of the renewable and natural INDUSTRIAL raw MATERIALS and wood cell wall is a complex entity with cellulose, lignin, hemicelluloses and minor low molecular-weight components in its structure.

There are different chemicals used as solvent (i.e. sulfuric acid, sodium hydroxide, nitric acid, diethyl ether, petroleum benzene, acetone, methanol, dichloromethane) in conventional methods for the extraction of these components from cell wall to analyse wood. However with increasing demand for analytical methods, whether the chemicals used in these methods should be less harmful or should have less toxic effect has become an issue of discussion. The harmful effects of chemical solvents on human health and environment is now seen as a problem. Research on alternative environmentally-friendly solvents has been made and deep eutectic solvents (DES) emerged as alternatives to ORGANIC solvents. Green technology aims to reduce the negative effects to human and environment in the FIELD of CHEMISTRY. Moving from the benign Solvents & Auxiliaries principle of green CHEMISTRY, DES saves time and energy and because it could be recycled, it does not leave waste behind. By changing such physical characteristics as temperature and pressure and by using new green solvents, green technology enables to develop new and environmentally-friendly solvent extraction TECHNIQUES.

In this study, the area of use for des and the advantages it may provide for wood CHEMISTRY were investigated. For this purpose, national and international literature review was conducted and presented as a review paper to propose that des can suggest a novel and environmentally-friendly alternative to other solvents which would add a green approach to CHEMISTRY of wood.

Keywords: Deep Eutectic Solvents, Wood CHEMISTRY, Green CHEMISTRY.

ANGIOTENSION CONVERTING ENZYME I INHIBITORY ACTIVITY OF MACROLEPIOTA SP. (PARASOL MUSHROOM)

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Abstract:

Angiotension converting enzyme I (ACE; peptidyldipeptide hydrolase EC 3.4.15.1) plays an important role in the control of blood pressure and participates in the body's renin-angiotensin-aldosterone hormonal system to regulate blood pressure. it is recommended to inhibit ACE activity in patients suffering from hypertension. Compared to chemosynthetic drugs, ACE inhibitors derived from natural sources such as food proteins are believed to be safer for consumption and to have fewer adverse effects. Some edible mushrooms have been reported to significantly reduce blood pressure after oral ADMINISTRATION.

The main purpose of the present study was to that the screening of inhibitory effects on ACE enzyme of Macrolepiota sp. (parasol mushroom) mushroom extracts. Parasol mushroom is a basidiomycete fungus, prominent fruiting body resembling a parasol. It is a fairly common species on well-drained area and found solitarity or in groups and fairy rings in pastures and occasionally in woodland. Parasol mushroom is globally widespread in the temperate regions.

ACE enzyme was purified from sheep lung; 349 fold with a yield of % 1.5 by using ammonium sulfate precipitation followed by ConA-Sepharose 4B and LiSINOPril-Sepharose affinity chromatography.

As a result; Macrolepiota sp. extracts were significantly inhibited ACE activity. The results indicate that Macrolepiota sp. might have a potential antihypertensive effect.

Keywords: Angiotension Converting Enzyme İ, Macrolepiota Sp., Sheep Lung, Ace İnhibitory Activity

DIPEPTIDYL PEPTIDASE IV INHIBITORY ACTIVITY OF ALCHEMILLA VULGARIS L.

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Abstract:

Type 2 diabetes mellitus (T2DM) is a common metabolic/endocrine disorder throughout the world and cause serious MEDICAL problems to human health. Dipeptidyl peptidase IV(DPPIV) enzyme is closely associated with the T2DM disease and responsible for the degradation of glucose dependent insulinotropic polypeptide (GIP) and glucagon-like peptide-1 (GLP-1) that play a pivotal role in glycemic regulation. One of the new approaches to the management of type 2 diabetes mellitus (T2DM) is inhibiton of DPP-IV enzyme. There is a growing interest to develop natural DPP-IV inhibitors that will be potent without undesirable side effects.

In this study; DPPIV inhibitory activity of the aqueous and methanolic extracts obtained from natural herbal source Alchemilla vulgaris were tested. The aqueous extracts showed the more inhibitory activity on the enzyme than methanolic extracts. IC50 value was calculated for the aqueous extract as 16.9 µg/ml.

Herewith Diprotin-A was used as reference standard. The results indicated that aqueous extracts of A. vulgaris had the significantly inhibitory effect on DPPIV. The results suggest that aqueous extracts would be a beneficial ingredient for nutraceuticals and pharmaceuticals acting against DPPIV inhibition.

Keywords: Dipeptidyl Peptidase İv, Type 2 Dibetes, Enzyme İnhibition, Aqueous Extract

AN ALGORITHM TO DETERMINE THE IDEAL HOP LENGTH FOR MINIMUM ENERGY CONSUMPTION IN WSNS

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Abstract:

A wireless sensor network (WSN) consists of numerous sensor nodes operating with battery and communicating over wireless medium. The unique features of wireless sensor networks such as ease of installation, self-organization, low requirements of maintenance etc. make them have great APPLICATION potential in various FIELDs ranging from military to health APPLICATIONs, from disaster relief to INDUSTRIAL APPLICATIONs. One of the most attractive properties of WSNs is that they can be deployed in harsh networking environments where traditional systems are difficult to be installed. However, replacing or recharging batteries of sensor nodes is quite difficult in this kind of APPLICATIONs. Since the WSN lifetime depends on the lifetime of the sensor nodes and a sensor node with exhausted battery is regarded as "dead" node, energy efficiency becomes one of the most significant design issues for WSNs.

The energy consumption could be minimized by adjusting the distance between the nodes which is called as hop length. In the literature, the best hop length is determined to minimize the energy consumption during data transmission for a given distance between source and destination when the sensor nodes are deployed equidistantly. In this paper, an algorithm is proposed to present the required number of sensor nodes in a simple 1-D linear WSN topology when the hardware data of the Mica2dot sensors is given. The distinctive feature of our proposed algorithm is that it gives the ideal hop number and the number of sensor nodes required for minimum energy consumption directly without calculating energy consumption values for each hop number.

Keywords: Wireless Sensor Network, Energy Efficiency, İdeal Hop Length

DRYING MODEL OF ROUGH RICE BASED ON GENETIC ALGORITHM

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Abstract:

In this study, drying of rough rice has been investigated by the method of genetic algorithm. An Arrhenius type diffusion coefficient has been defined with three parameters. The optimum values of this parameters for each drying condition was investigated with genetic algorithm. It has been shown that the results of the theoretical model are convenient with the experimental results.

Keywords: Rough Rice, Drying, Diffusion Coefficient, Genetic Algorithm

TROLOX EQUIVALENT ANTIOXIDANT CAPACITY, TOTAL PHENOLIC CONTENT AND FREE RADICAL SCAVENGING ACTIVITY OF CHROZOPHORA SP.

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Abstract:

The genus Chrozophora (Euphorbiaceae) comprises monoecious herbs and undershrubs. The genus is widespread Europe, Africa and Asian. Chrozophora species are native to temperate regions and their names "bambul otu" in Alaşehir-Manisa, Turkey. Medicinal plants are very important for therapeutical usage. Chrozophora species and their extracts have been used for alternative therapy.

The main objective of the present study was to analyze the antioxidant capacity and phenolic content of extracts of Chrozophora sp. naturally grows in Manisa and its environ. Aqueous extracts were used for antioxidant activity tests and TEAC (trolox equivalent antioxidant capacity), TPC (total phenolic content) and DPPH (free radical scavenging activity) of each extracts were investigated. As a results, a positive correlation was determined between total phenolic content and antioxidant capacity.

Keywords: Chrozophora Sp., Teac, Toc, Dppd

EFFECTS OF CUTTING PARAMETERS ON SURFACE ROUGHNESS OF DIFFERENT POLYMERS

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Abstract:

Surface quality of a material is much affected by cutting parameters. This study aims creating a model that explains surface roughness in terms of machining parameters like cutting speed and feed rate. A full factorial experiment was designed via Minitab 17 software. Two different polymer MATERIALS were studied. The work piece MATERIALS were polyethylene and polypropylene. The samples were MACHINEd with a band saw at different cutting speeds and feed rates. After that surface roughness of samples was measured. All experiments were repeated three times and the mean values were used at analysis of variance. The direct and interaction effect of parameters was plotted. Then a mathematical model was created to predict surface roughness with respect to cutting speed, feed rate and material type. At the end of the study verification test was performed with optimum parameters to check if the model could predict surface roughness close to real result.

Keywords: Surface Roughness, Cutting Speed, Feed Rate, Polyethylene, Polypropylene

COMPUTATIONAL INVESTIGATION OF A GAS COOLED, FULL VACUUM AND MAGNETIC BEARED FLYWHEEL ENERGY STORAGE SYSTEM IN RESPECT OF ENERGY STORAGE CAPABILITY AND EFFICIENCY

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Abstract:

Much of the increase in the developing world's energy use sources from growing population and emerging technological advances. That increases interests for importance of electricity generation and storage technologies. In this context, using the Flywheel Energy Storage Systems to meet energy storage needs and support power systems become familiar and their usage in energy management practices have been spreading day by day.

FESS has been used in many areas such as integration of renewable generation, traction systems, INDUSTRIAL APPLICATIONs, energy management systems. Like other energy storage systems, FESS also has fundamental dynamics that affect on energy storage capability and efficiency.

In this study, a computational investigation has been held on gas cooled, full vacuum and magnetic beared flywheel energy storage system in respect of storage capability and efficiency. Computational investigation argues that losses about increased thermal stress, rotor loss, self-discharge of FESS in regard of vacuum rate cooling-heat transfer rate, effects of magnetic bearing. To reduce these losses, and to get HIGH power density and energy efficiency, optimal conditions (vacuum ratio, thermal management, etc.) of FESS have been revealed by computational comparisons. Results HIGHlight those critical considerations about design principles of HIGHly efficient FESS technologies.

Keywords: Fess, Computational İnvestigation, Magnetic Beared Flywheel,Efficiency

MODBUS/TCP INDUSTRIAL PROTOCOL BASED DIESEL GENERATOR SET CONTROLLER DESIGN AND EVALUATIONS ON POWER GENERATION PERFORMANCES

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Abstract:

Diesel generators are prominent for their HIGH reliability and low use of fuel which makes them largely applicable to industries. They are also used as standby power supplies in case of sudden interruption thus aiding in the continuation of manufacturing operations.

A generator set (genset) controller allows the user to monitor and control the proper functioning of these generators. Some of the existing genset controllers provide functionalities such as remote starting and stopping of the engine, reading the generator's power measurements, modifying adjustable parameters and many more.

Nowadays, MODBUS/TCP has become one of the most widely used network protocol in INDUSTRIAL APPLICATIONs for establishing connections amongst products such as PLCs, I/O devices etc. Its ability to run over nearly all communication media makes the establishment of MODBUS/TCP connection on an existing or new INDUSTRIAL floor quite easy.

In this paper, a generator set control will be designed for monitoring and controlling of diesel generators. Different generator parameters of two diesel generators will be acquired in real time and proper control measures will be taken accordingly. Qt C++ software will be employed in the design of an interactive user interface that works efficiently with the established MODBUS/TCP protocol connection. By using a data acquisition system, evaluations on electricity power generation performances have been discussed in respect of principles of designed genset controller.

Keywords: Diesel Generator Set Controller, Modbus/Tcp INDUSTRIAL Protocol, Power Generation Performances

ANTIFUNGAL AND LARVICIDAL ACTIVITIES OF SOME UNDERGROUND NATURAL MINERAL WATER FROM GUMUSHANE REGION OF TURKEY

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Abstract:

Antifungal and larvicidal effects of the some underground natural mineral waters obtained from the Gumushane region of Turkey on white-rot (Coriolus versicolor,) and brown-rot (Gloeophyllum trabeum) fungus (Basidiomycetes) and larvae (Lyctus brunneus) were studied. Fungal and larvicidal experiments were performed on Scots pine wood samples (Pinus sylvestris L.). We used non-concentrated underground natural mineral water and concentrated mineral water (via evaporation) in ratios of 10% 25%, 50%, and 75%. To evaluate the results, we measured the concentration of specific minerals in the mineral waters such as calcium (Ca), sodium (Na), magnesium (Mg), boron (B), manganese (Mn), potassium (K), and cobalt Co). The results show that the antifungal effects increased with increasing concentrations of underground natural mineral water.

Keywords: Wood PROTECTION, Natural Mineral Water, C. Versicolor, G. Trabeum, Lyctus Brunnes

SYNTHESIS OF NANO-PETAL LIKE ZNO AND EXAMINING OF PRECURSOR CONCENTRATION EFFECTS

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Abstract:

Zinc oxide is a multifunctional and important SEMICONDUCTOR that has a range of APPLICATIONs in ELECTRONICS and electrotechnology. It has unique physical and chemical properties, such as HIGH chemical stability, HIGH electrochemical coupling coefficient, broad range of radiation absorption and HIGH photostability,

Nanostructured ZnO has been synthesized via a wide range of TECHNIQUES especially the solution methods have much more attractive than the others because of low temperature processing conditions, easy composition control and homogeneity, easy fabrication and low cost. In this work, we aimed to synthesize and characterize nanostructured ZnO powders from precursor solution with different molarity by homogenous precipitation route. Several zinc precursors have been used: nitrate, chloride, perchlorate, acetylacetonate and alkoxides such as ethoxide and propoxide, but the most often used is the acetate dihydrate. Because of their low cost, facility of use, and commercial availability, metal salts are interesting as precursors and could be more appropriate for large-scale APPLICATIONs. In our work, ZnO nanopowders were synthesized from homogeneous solutions with precursor of zinc acetate dihydrate (Zn(CH3COO)2·2H2O). Distilled water was used as solvent. Nanopetal like powders were heat treated in a furnace at 400 °C. General morphologies and detailed structural characterizations were obtained by using scanning electron microscope (SEM). Qualitative analyses of the synthesized coatings were performed using X-ray diffraction (XRD) and Raman spectroscopy.

Keywords: Zno, Nanopowder, Nano-Petal Like, Solution Route, Concentration Effect

THERMODYNAMIC ANALYSIS OF WASTE HEAT RECOVERY OF COAL DRYING SECTION IN CEMENT FABRIC USING ORGANIC RANKINE CYCLES (ORC)

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Abstract:

One of the most energy consuming industries in the world is cement industry and it composes 12-15 % of the total INDUSTRIAL energy consumption. The coal drying section is one of the most energy consuming sections in a cement factory. Before the coal enters the rotary kiln, it first goes to the coal drying section to reduce the moisture in it. About exhausted heat of 2.5MW is wasted from the chimney of this section. In order to utilize this heat and evaluate the heat recovery capacity, an ORGANIC Rankine cycle (ORC) was adapted to system. Energy and exergy analyses were carried out using various ORGANIC working fluids as a function of condenser temperature and evaporator pressure. The optimum operation conditions and the best working fluid were determined.

Keywords: ORGANIC Rankine Cycle, Coal Drying Section, Exergy Analysis, Cement Fabric

SYNTHESIS AND CHARACTERIZATION OF A NEW FAST SWELLING POLY(EPMA−CO−METAC) AS SUPERABSORBENT POLYMER FOR ABSORBENT

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Abstract:

A novel superabsorbent polymer poly(2,3-epoxypropyl methacrylate-co-2-(methacryloyloxy)ethyl trimethyl ammonium chloride), p(EPMA-co-METAC), was prepared simply by free radical aqueous copolymerization reaction of 2,3-epoxypropyl methacrylate (EPMA) and 2-(methacryloyloxy)ethyl trimethyl ammonium chloride (METAC) using N,N ′-methylenebisacrylamide (MBA) as a cross-linking agent and ammonium persulfate (APS) as a free radical initiator. The chemical structures of hydrogel were confirmed by FTIR and elemental analysis. The swelling behavior of the hydrogel samples was investigated under different experimental conditions such as time, pH, ionic strength and different media. In the second part of this study, the superabsorbent hydrogels were tested for the removal of an anionic dye, i.e., Coomassie Brilliant Blue G-250 (CBB), a molecule having a marked amphiphilic character, from aqueous environment. Finally, isotherm adsorption data of dye on hydrogels were modeled according to Langmuir and Freundlich isotherm models. The results revealed that the experimental data was correlated by both of them. Also, the kinetic parameters for the adsorption process of the dye were investigated based on the different kinetic models such as pseudo-first-order and second-order models and the adsorption kinetics followed well the pseudo-second-order model. Novel superabsorbent polymer samples also show good anionic dye absorbency and excellent swelling ability. As a result, p(EPMA-co-METAC) hydrogel appeared to be suitable for the removal of CBB from aqueous solutions.

Keywords: Superabsorbent Polymer • 2,3-Epoxypropyl Methacrylate • 2-(Methacryloyloxy)Ethyl Trimethyl Ammonium Chloride • Dye Adsorption

THE USE OF COLOR IN PLANTING DESIGN : THE PREFERENCE OF LANDSCAPE ARCHITECTURE STUDENTS

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Abstract:

Even if structural landscape elements come to the forefront in landscape design studies, plants are used as the essential MATERIALS of landscape ARCHITECTURE which is an ecological based discipline. Plants as being spatial design elements can be evaluated in terms of their ecological, aesthetical and functional characteristics. It is important to consider planting design principles in order to establish harmony between the structural and planting landscape elements in planting design projects. Plants are evaluated according to their size, shape, color, texture etc. characteristics, and offer many different usage possibilities in design projects within the aesthetical concept. Plants are introducing the impact of color into the landscape design projects through their characteristic parts such as leaves, flowers, seeds, stems and fruit. In the scope of this study, plants were assessed around the context of their color characteristics. Determination of the factors that influence the color choice for plant selection in the planting design projects which have been produced by landscape ARCHITECTURE undergraduate students in the project studio was aimed in this paper. Around this context, a questionnaire was created to be APPLIED to undergraduate students of the landscape ARCHITECTURE department. The composed questionnaire was APPLIED to 2nd, 3th and 4th grade undergraduate students who had succeeded in the landscape design projects. The questionnaire results were digitized and analyzed by using SPSS 22.0 statistical software. In conclusion, personal preferences were shown to be effective in the plant color selection in planting design projects of landscape ARCHITECTURE department students. Based on these questionnaire results, proposals were developed in order to use the accurate color in the planting design.

Keywords: Landscape Design, Planting Design Project, Color Selection, Plant Preference.

EXAMINATION OF THE LEVEL OF RESIDENT PERCEPTION TOWARDS ENVIRONMENTAL PROBLEMS: BARTIN CITY (TURKEY)

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Abstract:

Humanity forms the environment they live in in time accordance with the requirements of the age. Within the context of landscape planning and design APPLICATIONs, the enhancement of meeting the social needs and quality of life as well as ensuring the sustainability of all natural, cultural, ecological, economical and aesthetical values of the living environment are among the important targets. Therefore, different professional disciplines is working on environmental issues on the agenda at national and international level. In terms of increasing the livability and sustainability of cities for individuals, the attitude towards the problems of the people's living environment at the local level is important. In this context, because of having the importance of natural and cultural characteristics, Bartın City is selected as the research area. To determine and examine the level of perception of Bartın City residents towards environmental problems, a questionnaire was carried out. Ultimately, the level of perception regarding the environmental problems of Bartın City residents were determined, and evaluations and recommendations were made for the development of modern environmental awareness.

Keywords: Environmental Problems, Level Of Perception, Sustainability, Modern Environmental Awareness, Bartın.

EFFECT OF THINNING ON RAINFALL INTERCEPTION IN ORIENTAL BEECH (FAGUS ORIENTALIS LIPSKY) STANDS IN DUZCE, TURKEY

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Abstract:

Forest thinning plays an important role in regulating the hydrological cycle by altering ecosystem water balances. Rainfall interception is one of the major elements of forest water cycle. It represents rainwater loss evaporated from leaves, branches and stems of trees during and after rainfall. It has also important influences on water yield of forested watersheds. In this study, we examined the effect of thinning intensity on rainfall interception in pure, natural and even-aged oriental beech stands (Fagus orientalis Lipsky) in Duzce, Turkey. For this purpose, 0% (control), 23% (moderate) and 47% (heavy) of the stand basal area were removed from the stands by thinning treatments. Each thinning treatment was APPLIED in one plot. Some parameters of precipitation were measured using installed systems in order to determine throughfall and stemflow. The gross precipitation was measured on a nearby clearing. And then, interception was calculated as the difference between gross precipitation and the sum of throughfall and stemflow. After the thinning, we monitored 41 rain events during 17 months. Interception was decreased 41% in moderate thinning plot and 61% in heavy thinning plot in comparison with control plot. These results provide useful information for understanding the changes in interception processes decreased by thinning, and for determining a more precise forecast of the effects of forest management practices on water resources in the watershed. As a result, heavy thinning treatments can be APPLIED to the beech forests having similar sites and stand characteristics for increasing water yield.

Note: The study was supported by a research grant from Duzce UNIVERSITY (No: BAP-2011.02.02.074).

Keywords: Fagus Orientalis, İnterception, Oriental Beech, Thinning

INVESTIGATION OF DRY DEPOSITION FLUXES OF ATMOSPHERIC PARTICULATE MATTERS IN DENİZLİ, TURKEY BY BERGERHOFF METHOD

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Abstract:

In the scope of this study, particulate matters in ambient air were sampled at two different sites in Denizli, Turkey from April 2015 to May 2015. Bergerhoff Method was used for sampling. Dry deposition fluxes of particulate matters were calculated. The average dry deposition fluxes were calculated as 282.1±45.1 mg m-2 day-1 at Site 1 and 152.1±29.0 mg m-2 day-1 at Site 2. The minimum flux was determined as 115.4 mg m-2 day-1 at Site 2 on May 4-6, 2015 period, while the maximum flux was observed as 338.5 mg m-2 day-1 at Site 1 on April 27-29, 2015 and May 14-16, 2015 periods. It has been shown that the fluxes at Site 1 was approximately twice of the fluxes at Site 2. It can be said that Site 1 was exposed to more particulate matter pollution because this site was an area under the effect of traffic.

Keywords: Bergerhoff Method, Particulate Matter, Dry Deposition, Flux, Ambient Air.

ANESTHETIC ACTIVITY OF CLOVE OIL (EUGENOL) ON THE VAN LAKE PEARL MULLET (CHALCALBURNUS TARICHI (PALLAS 1811))

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Abstract:

The use of clove oil (eugenol) as an anesthetic for Van Lake Pearl Mullet (Chalcalburnus tarichi), an endemic cyprinid fish species of Van Lake basin, was examined. Induction times were determined to be >21, <4, <3, <2, < 2 and ≥1 min at 20, 40, 50, 60, 80 and 100 mg/L clove oil concentrations, respectively. Recovery times upon 10 min of exposure to eugenol were determined respectively to be >3, >4, >3, >4, >6 and >7 min. Clove oil can be considered as a suitable anesthetic for Chalcalburnus tarichi and an optimum anesthetic concentration of 50 mg/L is recommended.

Keywords: Anesthesia, Eugenol, Pearl Mullet

A NOVEL S-BOX ALGORITHM BASED ON PHYSICAL ENTROPY SOURCES

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Abstract:

Substitution boxes (S-boxes) are an important part of symmetric encryption systems. Since this structures is the only nonlinear part of a block cipher. Therefore, the S-box should be constructed such that, its nonlinearity is as HIGH as possible. This paper discusses an efficient S-box design based on continuous measurement of soil radon gas. The main contribution of this paper is proposed entropy source. Natural and geophysical observations are not usually regular and, these observations can be used as entropy source. Security evaluations of the proposed design strategy show that generator can provide HIGH quality random bit sequences.

Keywords: Cryptography, Substitution Boxes (S-Boxes), Entropy Source,

CRYPTANALYSIS OF A NEW IMAGE ENCRYPTION SCHEME BASED ON A CHAOTIC FUNCTION

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Abstract:

Cryptography based on nonlinear systems and chaos theory has been developed a model which is a new and efficient way to cope with the security problems of image encryption. However, cryptanalysis works of proposed new model show that proposed chaos based image encryption schemes is not secure. François et al. proposes a novel chaos-based bit-level permutation scheme for secure and efficient image cipher. To overcome the drawbacks of conventional permutation-only type image cipher, the proposed scheme introduced a procedure through a bit-level shuffling algorithm. The encryption operations are realized by chaotic function and XOR operator. In this study, we analyze the security weaknesses of the proposal. Both theoretical analysis and experimental simulation indicate that the plain image can be recovered exactly from the cipher image without the secret key.

Keywords: Chaos; Cryptography; Cryptanalysis; Chosen-Plaintext Attack.

STRUCTURAL, ELASTIC, ELECTRONIC, PHONON AND THERMODYNAMIC PROPERTIES OF RUTI

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Abstract:

The structural, elastic, electronic, phonon, and thermodynamic properties of RuTi alloy which crystallize in B2 (CsCl) structure are analyzed by using the pseudo-potential plane waves approach based on density functional theory calculations within the generalized gradient approximation (GGA). The calculated equilibrium parameter, bulk modulus and second order elastic constants are obtained. Electronic band structure is plotted and it is found that this compound is metallic in nature. The ductility of this metarial is determined by calculating the bulk to shear ratio B/GH. Phonon frequencies and density of states are obtained. Thermodynamic properties of this compound are obtained through the full quasi-harmonic model. The temperature dependence of bulk modulus, thermal expansion coefficient, heat capacity are successfully estimated.

Keywords: Density Functional Theory, Elastic Constants, İntermetalics, Phonons

INVESTIGATION OF USING BIOFUELS IN MOBILE POWER PLANTS IN TERMS OF PERFORMANCE, EMISSION AND COST

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Abstract:

In this study, biodiesel is produced from oils that have different characteristics applying the trans-esterification of acid and base catalyzed. It is seen that to be appropriate for the TS-EN 14214 standards these values obtained from fuels. Produced biodiesel have mixed with fuel (5%, 10% and 20%) and tasted in three-cylinder direct injection diesel engine. The engine performance characteristics and exhaust emission changes were examined in comparison with diesel fuel. In addition, electricity production costs in the long-term use of biodiesel in diesel generators is calculated. Experimental results are indicated that biodiesel and mixed fuels show similar characteristics. With increasing biodiesel percentage in the fuel specific, the fuel consumption and exhaust temperature has increased. Compared to diesel fuel in the use of biodiesel, while CO, HC and smoke emissions decrease, NOx, CO2 and O2 have increased.

Keywords: Diesel Engine, Biodiesel, Mobile Power Plants

POSITION CONTROL OF SERVO MOTOR BY USE OF MATLAB OPC TOOLS WITH PLC

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Abstract:

The study has performed the position control of the servo motors moving independently in two axes. The motor position data have been calculated from Matlab program whereas transferred to PLC via OPC tools. The communication between Matlab and PLC has been realized by using KEPServerEX OPC software. The variables of KEPServerEX OPC interface are processed in the software, the real positions are read and the desired new position information are sent using Matlab OPC tools. The new position data arriving to PLC via OPC tools are transferred to the serve motor driver through CanOPEN protocol whereas the motor position controls are then performed. The driver and the functions of motor power, home, absolute position, sudden stop and error correction are controlled from Matlab. The practice included the use of Schneider brand LMC058 PLC, Lexium servo motor driver and servo motor

Keywords: Kepserverex, Matlab, Opc, Plc

IMPROVED GREEDY ALGORITHMS

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Abstract:

This paper proposes a robust greedy algorithms which utilize Lorentzian robust weighting function and partially known support as a prior knowledge to reconstruct sparse signals. The greedy algorithms; Orthogonal Matching Pursuit (OMP), and Compressive Sampling Matching Pursuit (CoSaMP) are modified to use robust weighting of the residuals and robust estimation. In addition, prior signal information is incorporated in the recovery process to improve the reconstruction performance. The resulting algorithms show better performance than the standard greedy algorithms for impulsive noise environments and outliers.

Keywords: Greedy Algorithms, Compressive Sensing, Omp, Cosamp.

LENGTH–WEIGHT RELATIONSHIPS OF CYPRINION MACROSTOMUS (HECKEL, 1843) POPULATIONS IN THE BOTAN STREAM WHICH UPPER TRIBUTARIES OF THE TIGRIS RIVER, SIIRT, TURKEY

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Abstract:

Length–weight relationships (LWRs) of Cyprinion macrostomus (Heckel, 1843) have been determined in the Botan stream which upper tributaries of the Tigris River, Turkey. Fish samples have been caught from depths of 1-10 m in three different stations by bottom trawl between February 2012 and February 2013. The length-weight relationship values of b, a and r2 have been determined as 2.868, 0.00003 and 0.859 respectively. The growth type was determined as negative allometries ($b < 3$; t-test, $P > 0.05$). In addition, this study includes first records LWR of Cyprinion macrostomus in the Botan stream of Turkey. The results would be useful for the PROTECTION of the presence sustainable fisheries in the freshwater.

Keywords: Cyprinion Macrostomus, Length–Weight Relationships

A REVIEW ON VIBRATION ANALYSIS OF CARBON NANOTUBES BASED ON NONLOCAL CONTINUUM THEORY

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Abstract:

This paper reviews recent research studies on the APPLICATION of the nonlocal continuum theory in vibration analysis of carbon nanotubes. Various size dependent continuum theories which are the nonlocal elasticity theory, strain gradient theory, the modified couple stress theory, the micropolar theory and the surface elasticity theory are introduced and reviewed to include the small scale effect. The applicability of nonlocal continuum models and the necessity of the small-scale parameter are discussed. A general introduction of the nonlocal beam model for the analysis of vibration is presented. Summary and recommendations for future research are also provided.

Keywords: Vibration, Nanobeam, Nonlocal Continuum Theory, Small-Scale Effect

CONSTRUCTION OF IRREDUCIBLE POLYNOMIALS OVER FINITE FIELDS WITH EVEN CHARACTERISTIC

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Abstract:

Factorization of polynomials over finite FIELDs has a special interest for both theoretical and practical importance. So irreducible polynomials over finite FIELDs takes place in the center of the theory of factorization. At this point one of the main tools for construction a new irreducible polynomial from a known irreducible polynomial over a finite FIELD is the composition of polynomials. In this study, by using composition of polynomials which is due to Cohen, we construct new irreducible polynomials over finite FIELDs with characteristic 2 from given irreducible polynomials.

Keywords: Factorization İn Finite FIELDs, İrreducible Polynomials Over Finite FIELDs

ULTRASONIC ASSISTED DRILLING OF ALUMINIUM 7075-T6

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Abstract:

In this study, a hybrid manufacturing method was developed by applying ultrasonic vibrations to the drilling process. Ultrasonic vibrations were APPLIED to the workpiece via ultrasonic generator and transducer. Ultrasonic vibration widely has been APPLIED to the drill in the previous studies. There are few studies in the literature about the topics of vibration APPLIED to the workpiece with same TECHNIQUES. The aim of the study is to investigate the effect of cutting forces and surface roughness on surface quality of workpiece by applying ultrasonic vibrations.

In the study, aluminum alloy (AA7075-T6) was selected because of increasing use in many areas such as aviation, aerospace, computers and health. Uncoated HSS (HIGH speed steel) drill type was used in the experiments. Experiments were performed at different feedrates and different rotation speeds, at different frequencies and different amplitudes.

According to the results of the experiments, the improvement in surface roughness with increasing speed of rotation was observed in experiments without vibration. In experiments with ultrasonic vibration assistance, much better results were conducted in terms of the vibration-free drilling in surface roughness. Best surface smoothness was observed at HIGH amplitude and low frequency values. It is determined that the cutting forces don't affect significantly by the change of rotational speed in vibration-free drilling. In the vibrating drill a slight reduction is provided in cutting forces.

Keywords: Drilling, Utrasonic Vibration, Ultrasonic Assisted Drilling, Aa-7075

GROWTH AND REPRODUCTION PROPERTIES OF CAPOETA TRUTTA (HECKEL, 1843) POPULATION FROM BOTAN STREAM, SIIRT REGION, TURKEY

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Abstract:

In this study, it has been investigated the growth and reproduction properties of Capoeta trutta living in Botan (Siirt) stream, between February 2012-February 2013. Total of 354 individuals including 156 men, 157 female and 41 immature belonging to Capoeta trutta were taken for this purpose. Population male/female ratio is 0.99/1.00 and age range is I-IX. The mean fork length is 242.75 mm and the mean weight is 191.55 g. von Bertalanffy growth parameters are L_∞=742.34 in females and L_∞ = 719.78 in males. Gonadosomatic index (GSI) rates are between 0.22-7.51 for females and 0.27-6.81 for males. Reproductive period of C. trutta individuals in Botan stream are between May and July. Mean fecundity 17,704 egg/fish and mean egg diameter ranged from 0.43-1.08 mm.

Keywords: Capoeta Trutta, Growth, Reproduction, Botan Stream

THE EFFECT OF FIN SPACING ON FORCED CONVECTION HEAT TRANSFER OVER HORIZONTAL TUBE WITH CONICAL FINS

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Abstract:

In this study, the effect of fin spacing on forced convection heat transfer over a horizontal tube with conical fins was investigated experimentally. The experiments were carried out at three different fin spacing (10, 12 and 15 mm) in order to determine the best fin spacing. Working fluids used in the experiments were water as hot fluid and air as cold fluid. The temperature of hot fluid was 65 °C. The cold fluid was entered to the test section at eight different air flow velocities (2 – 20 m/s). Moreover, inclination angle of conical fins placed on a horizontal tube was 45°. Experimental results showed that heat transfer rates for 15 mm fin spacing were HIGHER than those for 12 mm fin spacing at HIGH Reynolds number while these rates were approximately equal at low Reynolds number. In addition, the heat transfer rates for 10 mm were lower than those for 12 mm and 15 mm at all Reynolds number.

Keywords: Conical Fin, Fin Spacing, Heat Transfer, Forced Convection

IMPORTANCE AND DISTRIBUTION OF THE CEREAL MAIN NEMATODES IN BOLU, TURKEY

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Abstract:

Cereal nematodes, Heterodera spp. (cyst) and Pratylenchus spp. (root lesion) species cause significant yield losses for wheat growing areas worldwide. A survey on cereal crops (wheat, barley and oat) was carried out at several sites in the Bolu province of Turkey during 2014 and 2015 growing seasons. For the first time, presence of the Pratylenchus spp. and Heterodera spp. was revealed in Bolu province of Turkey. Two species belonging to the genus of Pratylenchus (Pratylenchus thornei and P. neglectus) infested 73 % surveyed areas and were identified in the most locations and. The cereal cyst nematodes, Heterodera filipjevi, was found in most of areas surveyed and its frequency was 83 % in central district of Bolu. This study HIGHlights the distribution of the cereal nematodes associated with cereal in winter wheat areas of Bolu. Therefore, further comprehensive surveys are indispensable to determine the distribution, frequency as well as identification of plant parasitic nematodes species more accurately, particularly Heterodera and Pratylenchus species in cereal growing areas of Bolu.

Keywords: Wheat, Cereal Nematodes, Occurrence, Frequency, İdentification

THE PLANT PARASITIC NEMATODES ASSOCIATED WITH POTATO IN BOLU, TURKEY

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Abstract:

Plant parasitic nematodes especially Globodera, Meloidogyne and Pratylenchus species cause significant yield losses for potato growing areas worldwide. This study was conducted during 2014-2015 growing season to determine the genera of nematodes associated with potato producing areas of Bolu province of Turkey. Population densities of plant parasitic nematode were determined in 100 soil and root samples collected from 75 cereal growing districts. Thirteen genera of plant parasitic nematodes and free living nematodes were found associated with cereals. Among the plant parasitic nematodes Pratylenchus, Pratylenchoides, Paratylenchus, Merlinius, Helicotylenchus and Tylenchorhynchus were the main nematodes, associated with potato crops. The Globodera and Meloidogyne were found to be the most important damaging plant-parasitic nematodes. However, the other most important nematodes Pratylenchus (84 %). Results also indicated that the genus Pratylenchoides (20 %), Paratylenchus (28 %), Merlinius (32 %), Helicotylenchus (34 %) and Tylenchorhynchus (22 %) were widely distributed. In addition, all the genera are reported here for the first time in the cereal growing areas of Bolu province in the west black sea region. This study HIGHlights the distribution of the plant parasitic nematodes associated with potato FIELD of the Bolu. Therefore, further comprehensive surveys are indispensable to define the distribution, frequency as well as identification of plant parasitic nematodes species more accurately, particularly Globodera and Meloidogyne species in cereal growing areas of Bolu.

Keywords: Potato, Parasitic Nematodes, Occurrence, Frequency.

INFLUENCE OF THINNING ON REDUCING SUMMER DROUGHT STRESS IN ORIENTAL BEECH FOREST IN DUZCE, TURKEY

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Abstract:

Intensify of summer drought is predicted to increase in Turkey depending on climate chance. In adaptation process to summer drought, some changes in forest composition can occur. Beside the positive effects of thinning on growth of residual trees, it also can reduce drought-effects for several genera, especially on coniferous trees. Despite oriental beech is one of the most-wide spread tree species in broadleaves species in Turkey, there are not many studies showing the correlation between thinning and drought in oriental beech forests in Turkey. The aim of this study was to examine the effect of thinning on reducing summer drought stress in 32 years old pure and natural oriental beech forest in Duzce, Turkey. A thinned plot where 40% of the basal area was removed and a control site were established in 2010. Five years after establishment, midday xylem-water potential was measured on nine trees from different social classes in two stands and additionally volumetric soil water content was monitored in each stands in August and September. The volumetric soil content in root density zone and midday xylem-water potential of trees were significantly HIGHER on thinned sites then the control sites. Suppressed trees were less exposed to water stress then dominant and codominant trees both in thinned and control sites. The short-term results support that heavy thinning can have an effect on reducing summer drought stress in oriental beech forests.

Acknowledge: This research was supported by Duzce UNIVERSITY with the project number BAP-2015.02.02.357

Keywords: Summer Drought, Oriental Beech, Water Potential, Soil Water

CORROSION BEHAVIOUR OF ALSİ12/B4C COMPOSITES

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Abstract:

In this study, the effects of matrix compounds on the corrosion behaviour of AlSi12-XMg matrix composites reinforced by 60 % B4C particles were analyzed. The microstructure analysis of the composite MATERIALS showed that the porosities accumulated around B4C reinforcement particles. By increasing Mg addition, there was considerable decrease in the porosity volume ratios. Corrosive properties showed two different attitudes in two different solutions. In NaCl solution, there was an increase in corrosion resistance with Mg addition, while in H2SO4 solution there was a decrease.

Keywords: Alsi12-Xmg/B4C, Corrosion Behaviour

A STUDY OF RENEWABLE ENERGY IN A PORT FACILITY BY USING SOLAR ORGANIC RANKINE CYCLE SYSTEMS

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Abstract:

ORGANIC Rankine Cycle (ORC) system can generate electric energy by running at low temperatures. It is an alternative way of environmentally friendly, safe and cheap electric energy production. As a heat source which can be inducted to the system by a waste heat of any kind of INDUSTRIAL processes, solar energy etc. Therefore, recently range of APPLICATION has been increasing widely speed in waste heat recovery facilities, or geothermal facilities and for electric energy production in residence. On the other hand, global climate change is one of the vital problems for a healthy world future. As it affects all sectors, MARITIME transportation is affected by means of precautions to prevent causes of climate change as well. Correspondingly energy efficiency in ship operations has developed as an innovative solution in recent years. Because, ships consume plenty amount of energy while both navigating and berthing in port. In order to minimize environmental pollution caused by ships, usage of renewable energy sources is important. Supporting ships from a port facility energy source is called Onshore Power Supply (OPS). For this purpose, usage of ORC systems that can run with solar energy in ports as OPS is proposed in this paper.

Keywords: Efficiency, Energy, Environment, MARITIME, Ops, Ports

EFFECT OF MG ADDITION ON THERMAL CONDUCTIVITY OF AL/B4C COMPOSITES

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Abstract:

In this study, the effects of matrix compounds on the thermal conductivity behaviour of AlSi12-XMg and AA1050-XMg matrix composites reinforced by 60 % B4C particles were analyzed. The microstructure analysis of the composite MATERIALS showed that the porosities accumulated around B4C reinforcement particles. By increasing Mg addition, there was considerable decrease in the thermal conductivities of composites. Thermal conductivity results there was a 37 % decrease with 4 % Mg addition in AA1050 matrix composites while the decrease was 3,4 % in AlSi12 matrix composites.

Keywords: Alsi12-Xmg/B4C, Aa1050-Xmg/B4C, Thermal Conductivity.

EFFECTS OF HIGH COPPER CONCENTRATIONS ON PERFORMANCE OF ANAEROBIC PROCESS

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Abstract:

Copper is a common heavy metal found in wastewaters from INDUSTRIAL processing of paper, pigments, metals, fertilizers, and effluents from mines. Copper is a trace element that is required by microorganisms as vital cofactors for metalloproteins and certain enzymes. However, at HIGH concentrations it may be toxic and inhibitory to anaerobic microorganisms. The toxic effect of heavy metals include ion displacement and/or substitution of essential ions from cellular sites and blocking of functional groups of important molecules, e.g., enzymes, polynucleotides, and essential nutrient transport systems.

In this study, the effect of HIGH copper concentrations on performance of anaerobic process was investigated using four laboratory scale upflow anaerobic sludge blanket (UASB) reactors. While three reactors were fed with synthetic wastewater containing HIGH copper concentrations, one reactor was intended for control. The tested copper concentrations were 500, 750, and 1000 mg l-1. The COD removal efficiency was significantly decreased with time for all copper concentrations. Although copper removal efficiencies between 70 and 90% during experimental period were obtained, effluent copper concentrations were very HIGH.

Keywords: Heavy Metal, Copper, Anaerobic Process, Uasb

PERFORMANCE ANALYSIS OF EXPONENTIAL-HAMMING WINDOW TO IMPROVE THE CONTRAST RATIO IN IMAGING SYSTEMS

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Abstract:

Contrast ratio is one of the most important metrics to measure the quality of an image. It is defined as the difference between the whitest and the blackest pixel values in terms of brightness or luminescence. The contrast ratio measure is important because it allows an imaging system to detect low-contrast objects lying next to HIGH-contrast object, which is quite useful in MEDICAL imaging APPLICATIONs. Imaging systems such as synthetic aperture radar (SAR) / the inverse synthetic aperture radar (ISAR), computerized tomography, and charge coupled device based x-rays construct images using inverse 2-D windowed DFTs on spatial frequency domain data. Since they are HIGHly influenced by the windows used, the characteristic of the window functions has a direct relation on the contrast ratio of the image. In this study, performance analysis of exponential-hamming window function, which has been recently proposed by the author of this paper, is investigated to improve the contrast ratio in imaging systems. Since the proposed window has two independent parameters, which are the window length and the adjustable alpha, their effects on the contrast ratio are analyzed for different length and alpha values by using the Matlab software program. Moreover, the simulation examples to compare the proposed window function with some window functions in literature are given to demonstrate the performance of the proposed window. The simulation results show that the proposed window function can improve the contrast ratio better than the other window functions.

Keywords: İmaging Systems, Contrast Ratio, Window Function, Exponential-Hamming Window Function

APPROACHES ON BIOLOGICAL CONTROL OF PESTS, INJURIOUS ON VEGETABLE CROPS IN PROTECTED CULTIVATION IN TURKEY

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Abstract:

This presentation summarizes observations made by the author during 1994-2015, while working at the Biological Control Research INSTITUTE, Adana, Turkey. Protected cultivation, widespread in the Mediterranean coast and Aegean region of Turkey involves growing crops, such as tomato, cucumber, pepper, eggplant in a protected environment such as greenhouse or PLASTIC tunnels. The most common pests of greenhouse grown vegetables in Turkey were determined as whiteflies Bemisia tabaci (Genn.), Trialeurodes vaporariorum (Westw.), leaf miner Liriomyza trifolii (Burgess), aphids Myzus persicae (Sulz.), Aphis gossypii Glov., thrips Thrips tabaci Lind., Frankliniella occidentalis Pergande, spider mite Tetranychus spp tomato leaf miner, Tuta absoluta (Meyrick).

The biological control approach to the management of insect and mite pests of Turkey greenhouse crops began during the middle of 1990's with initial researchs carried out at the IPM implemented greenhouses. Although the studies initiated earlier in order to investigate the possibilities of biological control measures against vegetable pests such as Macrolophus caliginosus, Amblyseius swirskii, Eretmocerus mundus and Encarsia formosa against whiteflies, Phytoseiulus persimilis against Tetranychus spp., Diglyphus isaea againsts leafminers, Orius laevigatus, Amblyseius swirskii against F. occidentalis, Aphidius colemani against aphids . After the introduction of T. absoluta, the new approaches on biological con- trol of tomato pests were employed using Nesidiocoris tenuis feeding with both nymphal stages of whitefly and eggs and larvae of T. absoluta in system.

The use of biological and integrated control methods in Tukey's protected cultivation is currently limited and APPLIED only at a rate of 1% on the total protected cultivation areas. Furthermore, control by chemicals was more reliable and less expensive than was control by biotic agents. However, I visited several growers engaged in trial biological or integrated programs who were optimistic about the development and implementation of biological control of pests in their industry.

Keywords: Protected Cultivation, Greenhouse Pest, Biological Control

NATURALLY OCCURRING PARASITISM WITH TRICHOGRAMMA BRASSICAE IN OSTRINIA NUBILALIS HBN (LEPIDOPTERA: NOCTUIDAE) POPULATIONS IN DÜZCE, TURKEY

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Abstract:

Small corn FIELDs are intertwined within the hazelnut orchards as main crops in Duzce province, located in Black Sea Region of Turkey. In recent years, the fall webworm, Hyphantria cunea (Drury) reached outbreak levels on hazelnut orchards and chemical agents represent the primary means used to control the population of H. cunea on hazelnut orchards. Frequent pesticide spraying against H. cunea may have an adverse effect on beneficial insects and disrupt the biological control of the European corn borer (ECB), Ostrinia nubilalis Hbn by Trichogramma species. Based on morphological characterisations and molecular TECHNIQUES, Trichogramma brassicae were identified. As a result of this study, natural occurrence of parasitoid, T. brassicae is still important in suppressing successfully of the ECB population in Duzce province of Turkey. It seems that this wasp species adapts well to corn FIELD. Two years fallowing the incidence of parasitism, T. brassicae parasitized more than 90 % of the eggs of ECB. Second generation borer attack hadn't resulted in stalk or tassel breakage and/or boring into the ear shanks in 2014 and 2015. In both years, larvae were extremely sparse. It would appear that T. brassicae was responsible for the total collapse of the host population. Parasitization of host eggs by T. brassicae in 2014 and 2015 were correlated with the time of collection (r=0.71 and 0.26, respectively). Reason for HIGH incidence of parasitism by T. brassicae possibly was HIGH overwintering survival and being available of alternate host of T. brassicae prior to August.

Keywords: European Corn Borer (Ecb), Ostrinia Nubilalis, Naturally Occuring Parasitism, Trichogramma Brassicae

DESIGN OF NEW TWO DIMENSIONAL DIGITAL FILTERS BY USING THE EXPONENTIAL-HAMMING WINDOW WITH APPLICATION TO IMAGE PROCESSING

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Abstract:

Digital image processing is a computer based technology to process a digital image, which is a representation of a two dimensional image as a finite set of digital values, by using some mathematical operations. It plays a very important role in many aspects of our daily life with APPLICATIONs such as television, photography, remote sensing, robotics, and MEDICAL diagnosis. Two dimensional digital filters are widely used in digital image processing to suppress either the HIGH frequencies in the image, i.e. smoothing the image, or the low frequencies, i.e. enhancing or detecting edges in the image. In this study, we design new two dimensional digital filters by using the exponential-hamming window function, which is recently proposed by the author of this paper for one-dimensional digital filters, and apply the designed filters in image processing. To be able to design two dimensional digital filters, first of all, circularly symmetric two dimensional window functions are generated by using Huang's method. Then, the two dimensional window functions are multiplied with the impulse response of the ideal two dimensional digital filters. After that, the characteristics of the designed filters are analyzed. Finally, simulation examples for two dimensional low pass, HIGH pass and band pass digital filters designed by the proposed method are given. The simulation results show that the proposed digital filters can provide good results in image processing APPLICATIONs.

Keywords: İmage Processing, Two Dimensional Digital Filter, Two Dimensional Window Function, Exponential-Hamming Window Function, Matlab

USING OF SVM SOUND RECOGNITION TECHNIQUE IN SOURCE SEPARATION OF PACKAGING WASTES: A NEW APPROACH FOR REVERSE VENDING MACHINES

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Abstract:

Reverse Vending MACHINEs (RVMs) are used in recycling of packaging wastes. RFID, barcode reading and image processing TECHNIQUES are used to identify waste type. Tagging packaging MATERIALS with an RFID tag is expensive to implement. To use barcode reading, waste should be undamaged which in waste management it may not always possible. Image processing requires expensive HIGH definition cameras. In this study, a sound recognition technique, which uses only cheap microphones, is used to identify the waste type.

165 units of packaging wastes namely metal, PLASTIC, glass and cardboard were used in this study. In order to generate sound, wastes were free fallen from a constant height. Generated sounds were recorded with dynamic and condenser microphones. For voice recognition studies, a model was developed by using Support Vector MACHINE (SVM) approach. Approximately 85% and 15% of the recordings were used in the trainings and tests, respectively.

SVM model identified waste type with minimum classification accuracy of 85.7% (94.6% glass, 91.1% cardboard, 85.7% metal, 89.9% PLASTIC) for dynamic microphone and 88.1% (94.6% glass, 90.5% cardboard, 88.1% metal, 92.3% PLASTIC) for condenser microphone. According to results, it can be said that proposed new approach could provide a HIGH separation performance for RVMs.

Keywords: Packaging Waste, Solid Waste Management, Sound Recognition

EXPERIMENTAL INVESTIGATION OF USAGE OF HYDROGEN AS ADDITIVE IN A SINGLE-CYLINDER GASOLINE ENGINE

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Abstract:

The performance of a gasoline-powered internal-combustion engine was experimentally determined with different hydrogen addition to the fuel. In the experimental study, a 4.5 kW generator was used, which was modified and equipped with measuring devices. Engine performance parameters were individually examined with gasoline and various hydrogen-gasoline mixtures. Exhaust temperature, engine speed, noise level and power increase were determined due to the hydrogen addition to fuel. In these experiments, hydrogen was fed into the engine with five different volumetric flow rates as 1.94 L/h, 2.49 L/h, 3.19 L/h, 4.42 L/h and 5.30 L/h. These experiments were repeated, and data was recorded with a data-acquisition system. The results were demonstrated graphically. As a result, it was observed that when the engine speeds increase, exhaust temperature and noise level decreases.

This study was supported by Research Fund of the Yalova UNIVERSITY. Project Number: 2012/BAP/048.

Keywords: Hydrogen, Gasoline, İnternal Combustion Engine, Power

EXPANDED PERLITE PARTICLE REINFORCED POLYPHENYLENE MATRIX COMPOSITES

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Abstract:

Polyphenylene sulfide (PPS) is a semicrystalline material. It offers an excellent balance of properties, including HIGH temperature resistance, chemical resistance, flowability, dimensional stability and ELECTRICAL characteristics. PPS must be filled with fibers and fillers to overcome its inherent brittleness. Because of its low viscosity, PPS can be molded with HIGH loading of fillers and reinforcements. These fillers and reinforcements will make a difference in the strength, surface properties, dimensional stability, ELECTRICAL properties and overall cost.

Because of its inherent flame retardancy, PPS is ideal for HIGH temperature ELECTRICAL APPLICATIONs.

Expanded Perlite is a kind of porous structure volcanic based material which is consist of significant amount of silica oxides (SiO2). Its low density and low price is made expanded perlite very useful as a filler material. For this reason expanded perlite added PPS matrix composites were prepared at various weight ratios (0, 1, 3, 5, 10 wt%). MATERIALS were characterized with scratch tests and MECHANICAL tests. As a result of these investigations, it is seen that expanded perlite can be used as a filler material in PPS matrix.

Keywords: Pps, Scratch Test, Perlite, Brittleness

THE SELECTION OF THE MOST SUITABLE IMAGES FOR CAMERA CALIBRATION

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Abstract:

Camera calibration is a pretreatment to determine the physical properties of a camera. In particularly, it has been used in the studies that are produce metric information from 2D images. In order to perform calibration, a planer calibration pattern is usually preferred. Images are taken at different angles by moving this pattern. Camera parameters are calculated with the help of the common points determined on these images. However, using different image sets may cause production of different parameters. Therefore the selection of the most suitable image subsets for camera calibration is a great importance for the success of the measurement. The complexity of creating a subset of images where the total number of images is much, increases exponentially.

In this study, it is demonstrated that the genetic algorithm can be used in order to select the most appropriate subset of the set of images. Different datasets containing chessboard pattern is used to measure the success of the genetic algorithm implemented. In the algorithm, the length of each chromosome is the same as the number of images and genes are encoded in binary. The Euclidean distance between the coordinates produced by calculated parameters and the coordinates of the orijinal image is taken as the fitness function. The study results showed that the mean error rate of the selected image subsets falls below 0.1 pixel per point.

Keywords: Camera Calibration, Genetic Algorithms, Selection İmage Subsets

THE USE OF CHITOSAN AS CLARIFICATION AGENT

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Abstract:

Clarification is an important step in the processing of fruit juice mainly in order to remove pectin and other carbohydrates which are present in the juice. Most often achieved through microfiltration enzymatic treatment or by using common clarifying aids like gelatin bentonite, silica sol, polyvinyl pyrrolidone or a combination of these compounds. However, these processes can be labor-intensive, time-consuming and discontinuously operated.

Chitosan (poly-b (1–4) N-acetyl-glucosamine) has been reported to have a number of potential INDUSTRIAL uses such as an adhesive, a paper-sizing agent, a chelating agent for metal ions and as fruit-juice clarifying aids. Chitosan (deacetylated chitin), being polycationic in nature, nontoxic and biodegradable, has been found to be an effective coagulating agent in aiding the separation of suspended particles from beverages. Several works have reported the successful APPLICATION of chitosan as a clarifying aid for apple, grape, lemon, orange and bayberry juices, besides wine and green tea.

Keywords: Clarification, Chitosan, Juice

ULTRAVIOLET RADIATION (UV) APPLICATIONS IN MILK INDUSTRY

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Abstract:

During the production of dairy products, some thermal processes such as pasteurization and sterilization are used commonly to inactive microorganisms. But as a result of thermal processes, loss of nutrient and aroma, non-enzymatic browning and organoleptic differentiation especially in dairy products are seen. Because of this, alternative methods are needed to provide microbial inactivation and as major problems are caused by HIGH temperatures, non-thermal processes are focused on. For this purpose, some methods such as ultraviolet radiation (UV), HIGH pressure (HP), pulsed light (PL), supercritical carbon dioxide (SC-CO2) or pulsed electric FIELD (PEF) are used in food. Ultraviolet (UV) light occupies a wide band of wavelengths in the non-ionizing region of the electromagnetic spectrum between X-rays (200 nm) and visible light (400nm). UV radiation affects the DNA of bacteria, viruses, fungi and other microorganisms exposed to it in such a way that prevents them from reproducing. UV radiation is one of the new processing technology in dairy industry. Possible APPLICATIONs of this technology include cold treatment of raw milk, reduction of bacteria not susceptible to thermal treatment, psychrotrophic reduction in refrigerated milk stored for prolonged periods, and bacteria reduction to improve milk quality in parts of the world where lack of a reliable energy supply and HIGH cost make on-farm refrigeration prohibitive.

Keywords: Ultraviole, Radiation, Milk, Food

NUMERICAL INVESTIGATION OF THERMAL&HYDRAULIC PERFORMANCE OF LOUVERED FIN HEAT EXCHANGERS WITH VARIOUS LOUVER ANGLES AND FIN PITCHES

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Abstract:

Louvered fins provide interrupted fin surfaces that cause a new start for boundary layer resulting in smaller thickness and encouraging flow destabilization. Hence, the average heat transfer coefficient of heat exchangers where air is one of the working fluids increases when compared to continuous surfaces without a prohibitive increase in the pressure drop. Observing flow structure characteristics around louvers are very important for designing and optimization purposes.

In this study the heat transfer improvement and the corresponding pressure drop amounts were investigated for louver angles of β=10°, 15°, 20°, 30°, 40° and fin pitches of Fp=2.5 and 4 mm and frontal flow velocities of V=1 m/s, 1.75 m/s and 2.5 m/s using CFD method and reported in terms of Colburn j-factor and Fanning friction factor f. Flow visualization results such as temperature and pressure counters and streamline patterns are also reported.

The flow was assumed to be turbulent and standard k-ϵ turbulence model was used to solve flow FIELD. It is investigated that increasing louver angle till to β=30°, enhances convective heat transfer while hydraulic performance decreases due to increased pressure drop. For louver angle β=40° local flow separations occurs, hence pressure penalty increases and convective heat transfer decreases, because flow does not follow louver direction. Fin pitch also important effect on flow structure about whether flow follows louver direction.

The authors would like to acknowledge the funding of The Ministry of SCIENCE, Industry and Technology under project contract number of 0649.STZ.2014, This study is prepared from ongoing Ph.D. thesis studies of Abdulkerim OKBAZ.

Keywords: Louvered Fins, Heat Transfer, Heat Exchanger, Pressure Drop, Turbulence, Heat Transfer Enhancement

INTERFERENCE-AWARE CHANNEL ASSIGNMENT FOR MULTI-CHANNEL MULTI-RADIO WIRELESS MESH NETWORKS

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Abstract:

Popularity of wireless communication accelerates researches on new technologies that are required to satisfy users' needs. Wireless mesh networks (WMNs) which are additional access technologies instead of being a renewed one, take an important place among next generation wireless networks. WMNs have several properties like quick installation, easy maintenance, low cost. Especially the capability of working without any infrastructure is the most outstanding advantages of WMNs. There are lots of studies aimed at WMNs, particularly channel assignment (CA) and routing methods for multi-channel multi-radio structures that provide HIGHER data capacity by considering interference.

One of these studies is DMesh (Directional Mesh) ARCHITECTURE which is the first ARCHITECTURE in which a single node uses multiple directional antennas with an omnidirectional antenna to increase network throughput. However, some deficiencies of DMesh ARCHITECTURE design make it show a lower performance. Its CA algorithm tries to find and assign a free channel for each new node. It works perfectly at low packet traffic densities, although when the traffic becomes heavy, the interference ratio starts to increase. Also, the nodes and antennas are placed manually to be able to provide the whole conditions which make it unpractical for real APPLICATIONs.

In this work, all of these advantages and disadvantages of DMesh are considered and a new interference-aware CA algorithm, called as iDMesh is designed to eliminate all possible interference. iDMesh tries to find all possible interferences at the beginning and assigns channels according to this information to minimize the interference. More realistic network environment in which all nodes locations and antenna angles are chosen randomly is taken into account. The simulation results of this study show that iDMesh provides significant improvements for DMesh with dynamic parameters such as traffic density and packet numbers and effectiveness against increasing traffic density under the same network characteristics.

Keywords: Wireless Mesh Networks, Channel Assignment, İnterference, Performance Analysis

DEGRADED IMAGE RESTORATION USING NEURAL NETWORKS

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Abstract:

Image processing systems are used in different APPLICATIONs. Many methods have been developed to reduce adverse effects of blurred and noisy images formed for various reasons. However, sometimes it is very difficult to converge to original image due to HIGH degradation. In order to determine this degradation rate and improve the quality of the picture, a neural network based system has performed including a database of various statistical statements. Three different interferences which are gaussian, blurring and speckle have been APPLIED to eight different images which are used in literature commonly like Lena, photographer, monkey etc. The inputs of neural network are some measures of degraded images such as peak signal to signal noise ratio (PSNR), mean absolute error (MAE), signal to signal noise ratio (SNR), universal image quality index (UIQI), Enhancement Measurement Error (EME), Pearson Correlation Coefficient (PCC), mean squared error (MSE), root mean squared error (RMSE). Output of neural network gives what is the original of the degraded image even it has much blurring effects or much noise. Furthermore, if degraded image is not in the database, the output is undefined. System proposed in this paper learned different algorithms of back propagation neural network including Levenberg-Marquardt training. One of the important matters is that the database has such images that have very low UIQI which means that a human being cannot predict the original image. 20 images were used as test images and the neural network has 90% accuracy.

Keywords: İmage Restoration, Neural Networks, Blurring

ENZYME RESISTANT STARCH AS A FUNCTIONAL FIBER

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Abstract:

Starch is the major source of carbohydrates in the human diet. Starch is present in many different fruits, vegetables, roots, and grains. Being a major constituent, starch contributes to the texture, body and organoleptic qualities of the prepared food. Food MATERIALS are generally consumed after being processed which includes heating, cooling, drying, roasting, deep-fat frying, etc. It is now well recognised that during such processing treatments the dietary starch partially undergoes physical modification leading to the formation of resistant starch (RS), that escapes from digestion in the small intestine but later is fermented by the gut microflora. The amylose/amylopectin ratio also influence food RS content. RS has been classified into five different types (RS1-5). RS is made up of different fractions: retrograded, physically inaccessible, chemically modified fragments, starch complexes with other related food components, etc. RS contents in food range between 0 and approximately 4%. This type of starch has been the subject of intensive investigations recently and may prove to be a source of dietary fiber. For health preventing or therapeutical effects, a HIGHER amount of RS in food is recommended. RS has been recognised as a functional fiber perFORMING an important role in digestive physiology. Similar to oligosaccharides, it escapes digestion and provides fermentable carbohydrates for colonic bacteria. RS has also been shown to provide benefits such as the production of desirable metabolites including short-chain fatty acids in the colon. In addition to its therapeutic effects, RS provides better appearance, texture, and mouthfeel than conventional fibers. At present, RS have drawn broad interest worldwide for both their potential health benefits and functional properties. As a functional fiber, its quality characteristics make possible the formulation of a number of food products (breads, snack crackers, muffins, etc) with better consumer acceptability and greater palatability than those made with traditional fibers.

Keywords: Enzyme, Starch, Functional Fiber

FLAXSEED AS A FUNCTIONAL FOOD

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Abstract:

Flaxseed is the seed from the flax plant (Linum usitatissimum L.) which is a member of the Linaceae family. Flaxseed consumption in various forms as a food ingredient and for its medicinal properties dates from 5000 BC since its cultivation; today it is mainly grown for INDUSTRIAL paint oil, polymers, and partly for baked goods. Recently, human consumption of flaxseed has increased dramatically, as it contains a large amount of fat, protein and dietary fiber. Chemical analysis of flaxseed averaged 30-40% fat, 20-25% protein, 20-28% total dietary fiber, 4-8% moisture, 3-4% ash, and the oil contains vitamins A, B, D and E, minerals and amino acids. Functional foods have had a large impact on the role of diet and health. Flaxseed is emerging as one of the key sources of phytochemicals in the functional food arena. In addition to being one of the richest sources of □-inolenic acid oil and lignans, flaxseed is an essential source of HIGH-quality protein and soluble fiber and has considerable potential as a source of phenolic compounds. Flaxseed has received a great deal of attention as a healthful food that reduces the risk of chronic diseases such as cancer and coronary artery disease. The medicinal properties of the seeds were known to the Greeks and Hippocrates recommended them for inflammations of the mucous membranes. The use of milled flaxseed in bakery products (bread, muffins, cookies) has become increasingly popular. Several researches were conducted on the effect of flaxseed on different bread formulations. The physicochemical properties of freshly baked and stored whole-wheat muffins with and without flaxseed meal and the consumer acceptability of muffins with flaxseed were also studied. It can be concluded that disease prevention abilities of flaxseed will increase its potential for use as a functional food and food ingredients.

Keywords: Flaxseed, Functional Food

SIMULATION AND INVESTIGATION OF TWO DIMENSIONAL MHD LAMINAR FLOW IN PARALLEL PLATE CHANNELS FOR DIFFERENT SURFACE STRUCTURES

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Abstract:

In this study, steady laminar flow and heat transfer of an ELECTRICALly conducting viscous fluid in parallel plate channels with uniform but not equal wall temperatures is investigated NUMERICALly in the presence of a transverse magnetic FIELD. NUMERICAL results are obtained for the cases of smooth and sinusoidal wall surfaces respectively for Br = 0, 0.05 and 0.1. and Ha = 0, 1, 2, 3, 4, 5. Effects of the Brinkman number and Hartmann number on the temperature and velocity distribution and local Nusselt numbers has been discussed.

Keywords: Mhd, Viscous Dissipation, Parallel Plate Flow, Comsol Multiphysics

SOME PROBLEMS ON GRAPH DECOMPOSITIONS

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Abstract:

Combinatorial design theory and graph theory are two of the major branches of discrete mathematics. The roots of the combinatorial design theory can be found in the recreational mathematics of the second half of the nineteen century, statistical theory of experimental design and geometry of the mid-nineteen century. Since then, the theory of combinatorial designs rapidly developed and became an active area of research of discrete mathematics that has connections with graph theory, linear and abstract algebra and number theory, and with various APPLICATIONs in areas such as coding theory, cryptography, and computer SCIENCE.

Although graph theory has a history of more than two centuries, it has received great interest only recently, and now it is an essential and powerful modelling tool in mathematical research, computer SCIENCE, biology, CHEMISTRY, social SCIENCEs and many more.

Most of the problems in design theory and graph theory are easy to explain, but they can be extremely difficult to solve and solutions generally involve innovative new combinatorial TECHNIQUES as well as advanced tools and methods of other areas of mathematics such as algebra, geometry and number theory. The most classical problems still remain unsolved.

A great number of design theory problems can be viewed in terms of decomposition of graphs into prescribed subgraph. One of the main problem in combinatorial design theory is the 2-factorization problem, that is, whether or not there exists a 2–factorization of complete graph Kv, where each of the 2-factors is of a prescribed type. In this study, first, two well-known 2–factorization problems, namely Oberwolfach and Hamilton-Waterloo problems, are discussed. Then some new solutions are given to these problems.

Keywords: Combinatorial Design, Graph Decomposition, Hamilton-Waterloo Problem

IMPACT OF RENEWABLE ENERGY SYSTEMS ON SPINNING RESERVE

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Abstract:

Generation and consumption of ELECTRICAL energy must be balanced all the time to ensure frequency, voltage and stability standards. In order to manage supply and demand imbalances, system operators use ancillary services which include various generation capacities and demand managements. In addition to this, the term spinning reserve is used to refer the capability of power system to cope with contingencies with the already synchronized generation. Spinning reserve is required to meet sudden increase in demand or to cover generation and transmission losses. In recent years, percentage of renewable energy systems (RES), especially wind farms, has been increasing significantly in power systems all around the world. As a result of this, increasing of intermittent generation units disable system operators to decide the amount of reserves and this fact reveal some problems. In this study impacts of RES to electric network are evaluated in economic and TECHNICAL aspects.

Keywords: Supply And Demand İmbalances, Renewable Energy Systems, Spinning Reserve

PSIM SIMULATION OF FLYBACK CONVERTER FOR P&O AND IC MPPT ALGORITHMS

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Abstract:

The output power of PV panels varies continuously depending on some environmental factors such as temperature, shading and solar radiation level and load conditions. PV panels have a nonlinear characteristic since they have different output power at different operating points. Therefore, dc-dc converters are required between PV panels and load to obtain the maximum power from the panels. In this study, the simulation of the flyback converter for two most commonly used MPPT algorithms specifically Perturb and Observe (P&O) method and Incremental Conductance (IC) method are achieved in PSIM and performance of the control TECHNIQUES are compared. The simulation results of P&O and IC MPPT algorithms are compared for different solar radiation conditions.

Keywords: Flyback, Maximum Power Point Tracking (Mppt), Perturb And Observe (P&O), İncremental Conductance (İc), Psim.

AN EXPERT SYSTEM APPLICATIONS IN THE EDUCATION

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Abstract:

Today, traditional methods are insufficient to meet the increasing need for knowledge and learning. Lived in Ephesus (535-475 BC) the philosopher Heraclitus said, "The only thing constant is change". Various methods and TECHNIQUES are improved, the use of intelligent TEACHING systems in EDUCATION, with progress in knowledge technology.

Each student's level of competence and learning is different. Intelligent tutoring systems, student-focused and allows students to be assessed individually.

In this study; new smart learning model has been introduced. One of the methods of artificial intelligence, expert systems have been used with backward reasoning.

Each student is evaluated on an individual basis. According to the result, the video sequence is determined by the expert system using a database has been created that contains lessons and videos and assessment exams. In this system, there are two main modules which are teachers and students modüle.

By using this method, a special EDUCATION can be given to the students from different places as per their understanding levels. While the time allocated for each student increases, costs for EDUCATION and training decrease. In this system, the teacher is moved to a course manager position directing the class according to the knowledge needs of the students rather than being a course repeater.

Keywords: Artificial İntelligence, Expert Systems, EDUCATION

PREDICTIVE PERSPECTIVE ON RESONANCE PROBLEM BY TESTING WITH ROTATING ELEMENTS

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Abstract:

In this research, resonance condition which is a common problem for mechanical constructions has been studied within perspective of oil starving failure in a bearing. A test setup designed, constructed and located in laboratory conditions. A bearing in the electrical motor, that is one of the compounds in the test setup, has been chosen for gathering data in acoustic, vibration and electrical consumption during the test. The aim of this research is testing condition monitoring of oil starving failure and resonance for studying comparison in different predictive maintenance approaches. Test has been implemented uder the electricity frequency of 40.5 Hz that induced the electrical motor for identifying the rotation speed. According to the analysis results, inspecting of oil starving failure and resonance problem has been detected as the most clearly by vibration analysis.

Keywords: Acoustic, Electrical Consumption, Oil Starving, Resonance, Vibration

REDUCING THE MASS OF THE LIGHTWEIGHT CONSTRUCTION ELEMENTS WITH SUPERABSORBENT POLYMERS

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Abstract:

The unit weight of normal concrete is to excess which used in building reinforced concrete structures, can cause major problems in the construction of HIGH-rise buildings and building large openings. Also, traditional concrete buildings are more affected by the earthquake, due to the increased number of dead load. Pumice lightweight blocks are one of the lightest construction MATERIALS available on the market. Which used in the construction of lightweight buildings especially for their insulating properties. The decreasing weight of pumice blocks, increases market share and their TECHNICAL properties develops. Sodium polyacrylate is a super absorban polymer can absorb 800 times its weight in distilled water, but only 300 times its weight in tap water. After water absorption it swells and its volume increases. Also it turns to original volume after desorption. In this study different ratios of sodium polyacrylate was added to pumice block mortar fort o obtain more porous and more lightweight building blocks. after obtaining samples were dried, weight loss and strength reduction was calculated for to determine optimum SAP amount.

Keywords: Polymer, Concrete Structure, Sodium Polyacrylate

INFLUENCE OF ZnS THICKNESS ON ELECTRICAL AND PHOTOELECTRICAL PROPERTIES OF ZnS/p-Si HETEROJUNCTIONS

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Abstract:

In recent years, zinc sulphide (ZnS) has a great interest because of its potential application in the optoelectronic industry. ZnS has a wide and direct band gap. It is an n-type II-VI semiconductor. Similar to other sulphide semiconductors it is a photoconductor and used in the fabrication of many devices such as solar cells and thin film transistors.

Many methods including sol-gel methods, thermal evaporation and sputtering have been used to deposit ZnS thin films on various substrates. Sputtering method is one of the most preferred methods. Homogenious and large area coating is possible using sputtering method.

The study contains the deposition of ZnS thin films by RF sputtering technique. Three ZnS films with different thickness were formed on p-Si semiconductors to obtain ZnS/p-Si heterojunctions. Key electrical parameters such as barrier height, ideality factor and series resistance values were calculated by the help of current-voltage measurements in dark. Furthermore, the photoelectrical characterizations of heterojunctions were examined using a solar simulator with AM1.5 global filter.

Keywords: Zns, Heterojunction, Electrical Properties, Photoelectrical Properties

PHOTOELECTRICAL AND ELECTIRICAL CHARACTERIZATION OF Ir(III) COMPLEX BASED ORGANIC-INORGANIC DEVICES

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Abstract:

Organic materials are promising candidates for next generation electrical and photo electrical devices due to their function and variety. Organic materials have been used in the fabrication of many devices including photovoltaic cells, gas sensors and optical data storage systems and light emitting diodes.

Organic inorganic devices give opportunity to benefit from both organic and inorganic materials in the same structure. In this study, Ir(III) complex based organic-inorganic heterojunction were obtained by forming a new Ir(III) complex thin film onto n-Si semiconductors by using sol-gel method and evaporating Au metal on the thin film. Electrical properties of the device including ideality factor, barrier height and series resistance were determined using their current-voltage (I-V) data. The photoelectrical characteristics of the device were examined under the light with 40-100 mW/cm2 illumination conditions. It was seen that light had strong effects on I-V characteristics of the device.

Keywords: Ir(III) Complex, Heterojunction, Electrical Properties, Heterojunction

TEMPERATURE DEPENDENT ELECTRICAL PARAMETERS OF NiO/n-Si HETEROJUNCTION

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Abstract:

In this study, it was aimed to obtain NiO/n-Si heterojunction and determine its temperature dependent electrical properties. For this aim, NiO thin films were growth on an n-Si semiconductor and a glass by radio frequency (RF) reactive sputtering technique. High purity Ni was used as target and oxygen was used as reactive gas. Al metal was evaporated to obtain front contact. Temperature dependent electrical parameters of Al/NiO/n-Si heterojunction were executed its current-voltage (I-V) measurements between 305 and 480 K in dark. It was seen that electrical parameters such as ideality factor, barrier height and series resistance were strongly sensitive to temperature. Furthermore, optical properties of thin film on a glass were analyzed by means of uv-vis data..

Keywords: NiO, Heterojunction, Electrical characterization

KYRGYZ ORTHOGRAPHY AND MORPHOTACTICS WITH IMPLEMENTATION IN NUVE

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Abstract:

This paper describes Kyrgyz morphology using the two level model of Koskemnieni with an implementation in the NÜVE framework. The morphology is given in 2 steps: morphophonemic processes and Kyrgyz morphotactics. Morphophonemic processes are described by the two level orthographic rules that are indeed lexical-to-surface transformations. Then Kyrgyz morphotactics -the rules of ordering the morpheme affixations- are defined as finite state MACHINEs(FSA). The implementation requires the orthography in the form of two level rules, the morphotactics in the form of a FSA along with a root/stem lexicon, and a suffix dictionary. NÜVE framework, which is the successor to our previous MACHINE translation framework DİLMAÇ, is used for morphological parsing and morphological MACHINE translation. The TURKISH morphology is already available in NÜVE. This new description will enable the implementation of a morphological MACHINE translator between Kyrgyz and TURKISH languages.

Keywords: Kyrgyz, TURKISH, Orthography, Morphotactics, Two-Level Morphology, Nüve, Dilmaç, MACHINE Translation

SEGMENTATION IMPROVEMENT FOR THE POORLY SEGMENTED IRIS IMAGES

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Abstract:

Iris recognition is an important and challenging problem that from all the perspectives other than security has provided a system to test the pattern recognition algorithms. The algorithms that are developed are tested on nearly perfect conditions. The mobility of the subject, the type of camera and wavelength used to capture the image, the relative light intensity in the background, the interference with the eyelids and eyelashes are all factors that may affect negatively one or more of the procedures that are performed in iris recognition. Segmentation is the first step that has to be successfully performed and unfortunately it does not have perfect accuracy. Here in this work we modify the standard procedure of segmentation of the iris. The modified segmentation algorithm is tested on the worst images of the CASIA iris database and we achieve an improvement in the segmentation efficiency from 87% to 92%. These images were then tested for matching using two different encodings. For one of the encodings we observe an improvement in accuracy from 99.54% to 99.8% (EER = 7.5% and EER = 2.3% respectively). The other one was independent of the segmentation technique resulting in an accuracy 98.05%.

Keywords: İris Recognition, Segmentation, Encoding, Accuracy, Eer

A COMPARATIVE STUDY OF ISOTROPIC AND ANISOTROPIC SKY MODELS TO DETERMINE OF OPTIMUM ORIENTATION ANGLES FOR PV ARRAYS

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Abstract:

The importance of solar energy has been increasing gradually by the years. The energy obtained from photovoltaics (PV) is directly proportionate to incident solar radiation on photovoltaic (PV) panels. To obtain the maximum energy from the sun, PV arrays are positioned according to optimum tilt and azimuth angle. In order to optimize orientation angles, the solar radiation on tilted surface needs to be analyzed taking into account its components, direct, diffuse and reflected. There are two main approaches for analyzing of the radiation which is named isotropic and anisotropic model. In this study, isotropic and anisotropic models are employed by using annual and seasonal value of solar radiation of İstanbul, Turkey. Then, results of sky models results are compared with the real solar irradiance belongs to İstanbul. Finally, results are considered to determine the optimum PV orientation for Istanbul.

Keywords: İsotropic Model, Anisotropic Model, Solar Radiation,

ULTRASONICALLY SPRAYED Sn DOPED CdO THIN FILMS

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Abstract:

Metal oxides have a great importance in semiconducting industry because of their simultaneously High transparency in the visible spectrum and low resistivity. Most of transparent metal oxides (TCOs) are n-type semiconductos. Modification of morphological, structural, optical and electrical properties of metal oxides has been extensively studied. Cadmium oxide (CdO) is one of the most studied metal oxides owing to its potential applications in optoelectronic devices and chemical sensors. In this study, undoped and tin (Sn) doped CdO films were deposited onto soda-lime glass (SLG) using ultrasonic spray pyrolysis (USP) with Sn concentrations of 1, 3 and 5%. The effect of doping level on structural, morphological and optical properties of the films were analyzed by using scanning electron microscopy (SEM), atomic force microscopy (AFM), X-ray diffraction (XRD) methods and uv-ivs data.

Keywords: Ultrasonic Spray, Sn Doping, CdO Thin Film

COMPENSATING CORRUPTIVE INFLUENCE OF ANTENNA SYSTEM IN UWB SYSTEMS

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Abstract:

Ultra Wideband (UWB) communication systems are based on communicating with the base band signals that spread over a wide frequency band. One of the major problems in UWB systems is radiation of the UWB signal from transmitter antenna with HIGH spectrum utilization efficiency. Ideally, in UWB systems, the used antenna for signal radiation having a flat amplitude response is requested in the operation frequency band. But all antenna's properties vary greatly depending on the frequency. Therefore, the waveform of radiated signal undergoes some kind of filtering process by the antenna structure. Deviations from the ideal situation occurs in the filter characteristic known as antenna transfer function. These deviations cause distortions in the spectral distribution of the signal produced by HIGH spectrum utilization efficiency. Consequently, the spectrum utilization efficiency of the signal radiating in the antenna output decreases.

In this study, to minimize the above mentioned problem, an optimization solution depend on antenna transfer function is presented. With the proposed method, original signal multiplies by a preliminary signal that the waveform will be changed properly before being fed into the antenna input. The production of the preliminary signal is based on obtaining the inverse of antenna transfer function with combination of gaussian signals. In this way, multiplied signal is filtered by antenna transfer function while passes through the antenna and only original signal is radiated from the antenna output.

With the suggested optimization, spectrum utilization efficiency of the radiated signal is greatly protected as HIGHly eliminate distortion of the original signal in the antenna output .

Keywords: Uwb, Antenna Transfer Function, Optimization

DRUG DISCOVERY INSPIRED BY NATURAL PRODUCTS FROM ENDOPHYTIC FUNGI ISOLATED FROM TURKISH HIGHER PLANTS

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Abstract:

Natural products play an important role in drug discovery, and about 30 % of all currently used drugs are derived from such compounds. Since the pipelines of pharmaceutical companies are currently rather empty, novel approaches to natural product-derived therapeutics are necessary. This area will be revolutionized by the fact that new methods in genome sequencing and bioinformatics will soon allow to gain a near to complete picture of the metabolic capabilities of an organism. Despite these powerful tools, still the most important prerequisite is to obtain unique (micro)organism to work with.

Currently, one of the most important sources of natural products is endophytic fungi. An endophyte is an endosymbiont, often a bacterium or fungus, that lives within a plant for at least part of its life cycle without causing apparent disease.

The main objective of the present study was to isolate and cultivated the the endophytic fungi from Ficus elastica a cultivated plant species. Herewith we discussed to its cultivation conditions such as temperature, media composition.

The study was supported by the TUBITAK (113S061).

Keywords: Endophytic Fungi, Ficus Elastica, TURKISH HIGHER Plant.

IN VITRO CULTIVATION OF MARINE DERIVED ENDOPHYTIC FUNGI PREUSSIA SP.

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Abstract:

An endophyte is an endosymbiont, often a bacterium or fungus, that lives within a plant for at least part of its life cycle without causing apparent disease.

The genus Preussia was rected by Fuckel in the year of 1866. The genus comprised species of bitunicate ascomycetes with non-ostiolate ascomata, which is containing dark brown multicelled ascospores with germ slits and covered by a gelationous sheath. Preussia includes species isolated from soil, wood and plant debris.

Here we studied on the endophytic fungi Preussia sp. obtained from Bonn UNIVERSITY (Germany). Preussia species was identified by molecular data derived from nuclear ribosomal DNA sequences, including the ITS1-5.8S-ITS2 region and the D1-D2 domains of the 28S rRNA gene, and a portion of the translation elongation factor 1α gene,

The study was supported by the TUBITAK (114S731).

Keywords: Preussia Sp., Endophytic Fungi, Marine Derived, Molecular İdentification

THE DENSITY AND DISTRIBUTION OF STINK BUGS, PIEZEDORUS LITURATUS (F.), DOLYCORUS.BACCARUM L. ON RED LENTIL IN SOUTHEAST ANATOLIA REGION, TURKEY

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Abstract:

The stink bugs, Piezedorus lituratus (F.) and Dolycorus.baccarum L. caused chalky spot damage on lentil seeds is a serious problem on red lentil production in Turkey. The studies were conducted in 2012 to determined density and distribution of the stink bugs on red lentil cultivated areas in Southeast Anatolia Region, Turkey. A survey of 56 lentil FIELDs in Adiyaman, Batman, DIYARBAKIR, Mardin and Sanliurfa provinces including 13 district was conducted. When the migration of adults from overwinter sites to lentil FIELDs ended, weekly surveys of plants, adult, and nymph density begun in each FIELD by using sweep net and a 0.25 m2 frame during April and until lentil harvesting.

The most common insect species occurring in the affected lentil FIELDs was the stinkbugs, (Piezedorus lituratus (F.) and Dolycorus.baccarum L.). During the survey, both stink bugs were determined in study areas, except D. baccarum in Batman province. The average adult D.baccarum was significantly HIGHER than that of P. lituratus (t=2.203, df=110; P=0.03). As a result of this, the average number of nymphal stages D. baccarum was significantly HIGHER than that of P. lituratus (t=2.393, df=110; P=0.018). Stink bugs population relatively was common in the areas (DIYARBAKIR and Sanliurfa provinces) which is close to overwintering areas. Conclusionly, management of stink bugs should be considered to prevent chalky spot damage in lentil FIELDs.

Keywords: Stink Bugs, Piezedorus Lituratus, Dolycoris Baccarum, Red Lentil, Distribution

THE STRUCTURAL, ELECTRICAL AND OPTICAL CHARACTERIZATION OF PBTEO SEMICONDUCTOR THIN FILM

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Abstract:

PbTeO crystals were grown on glass substrates with chemical bath deposition (CBD) at three hour deposition time and 50 °C. The structural and optical properties of the crystals were characterized by X-ray diffraction (XRD) and UV-VIS spectrophotometer, respectively. The optical band gap (Eg), optical transmission (T %), reflectivity (R %), absorption, refraction index (nr), extinction coefficient (k), dielectric constant (ε) of the thin film were obtained to be 3.30 eV, 19,41%, 29,87%, 0.6, 4.08, 0.05, 3.72, respectively. Optic and ELECTRICAL conductivities versus photon energy of the crystals were calculated. Its surface morphology was investigated by SEM. The thickness of film was measured by AFM, and was found to be 900 nm.

Keywords: Crystall Growth, Wet Chemical Method, Optical Conductivity, ELECTRICAL Conductivity, Egap.

INFLUENCES OF SB AND ZN ON PHYSICAL AND MECHANICAL PROPERTIES OF BI-SN EUTECTIC ALLOY

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Abstract:

The variations of thermal conductivity with temperature for Bi-Sn-Sb, Bi-Sn-Zn and Bi-Sn eutectic alloys were measured with Anter FL-2000 Model apparatus. The values of enthalpy of fusion (□H) and the specific heat (ΔCp) for Bi-Sn-Sb, Bi-Sn-Zn and Bi-Sn eutectic alloys were determined to be 36.4, 16.6, 46.2 J/g and 0.248, 0.122, 0.329 J/gK by differential scanning calorimeter (DSC) from heat flow curves during the transformation from eutectic solid to eutectic liquid. The ELECTRICAL conductivity values with the temperature for Bi-Sn-Sb, Bi-Sn-Zn and Bi-Sn eutectic alloys was obtained by using four-point probe technique. The microhardness values (Hv0.5) for the above alloys were determined to be 21.4, 22.8 and 20.7 with Vickers microhardness device, respectively. Also, the tensile strength and elongation values for the alloys were obtained by tensile test devices, respectively. The microstructures, grain sizes, broken surfaces and composition analyses of alloys were investigated by Scanning Electron Microscopy (SEM), X-ray diffraction (XRD) and Energy Dispersive X-Ray (EDX) analysis.

Keywords: ELECTRICAL Transport, Heat Conduction, Enthalpy, Heat Capacity, MECHANICAL Properties, Microhardness

HYDROGEN PRODUCTION BY SOLAR AND WIND HYBRID SYSTEM

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Abstract:

The main aim of this experimental study is to produce hydrogen from pure water by using PEM electrolysis with different kinds of energy source systems such as solar, wind and a hybrid system which is a combination of them. At different rates of solar radiation, first PV panels alone, then PV panels and wind turbines together were used. As a result to this experiment the current and voltage value of the system, the moment the system begins to work (the moment the system begins to produce hydrogen) and the volumetric flow rate of hydrogen were measured.

As a result, it is determined that PV panels or wind turbines working alone produce hydrogen at lower rates of voltage compared to hybrid systems, but also the current value of the system is lower. The current value and the volumetric flow rate of hydrogen are significantly HIGHER in hybrid systems.

Keywords: Energy, Renewable Energy, Solar, Wind, Hybrid System

ASSESSMENT OF AIR CONDITIONING SYSTEMS WITH VARIOUS DEHUMIDIFICATION CONFIGURATIONS FOR DIFFERENT LOCATIONS IN EUROPE

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Abstract:

Air conditioning systems using desiccant technology with the conventional air conditioning systems (for instancevapor compression cycle) has become suitable in hot and humid climates, especially in Mediterranean regions of Turkey. Desiccant MATERIALS can be classified as both solid and liquid.The solid desiccant cooling systems composed mainly of a desiccant wheel, heat exchangers, humidifier,and fans. In these systems, cooling process is usually provided by evaporative cooling.The development of the technologywas caused by the contribution of refrigerants used in conventional cooling systems to the depletion of the ozone layer. In this study, air conditioning systems with differentdehumidification configurations are evaluated by using model developed by the authors.Performance of the systems are investigated and compared with each other for different locations in Europe and results are considered.

Keywords: Dehumidification, Air Conditioning, Cop, Desiccant

A SYSTEMATIC APPROACH TO CRITICAL PARAMETER DETERMINATION FOR WEAR TESTING OF POLYPROPYLENE/TIO2-CLAY BASED COMPOSITES

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Abstract:

In this study, polypropylene/TiO2-clay based composite pellets were prepared using melt compounding method in a twin screw extrusion process and subsequently subjected to injection moulding. A systematic study of the friction and wear behavior of the composites was carried out using a custom-built ball-on-disc tribometer under dry sliding conditions. A 24 full-factorial experimental design was conducted to screen the significant factors influencing the wear resistance of the composites. Four factors, involving in the reinforcement type, reinforcement content, normal load, and sliding velocity, were selected to characterize the composites. For each factor, two levels were chosen to cover the experimental region. MINITAB Release 16 statistical software was used to analyze the experimental data in order to measure the effect of various factors and interactions on wear rate and coefficient of friction values using "the smaller the better" characteristic. Hardness values of the composites were determined with a Shore D hardness tester. Furthermore, wear tracks were characterized using SEM and EDX TECHNIQUES and the above-mentioned comparative properties were discussed. It was found that wear rate and coefficient of friction values of the samples were largely affected by the parameters selected for experimental design used in this study.

Keywords: Wear, Polymer Composite, Ball-On-Disc

THE EFFECT OF OPERATING PARAMETERS ON ENERGY CONSUMPTION IN THE TREATMENT OF PISTACHIO PROCESSING INDUSTRY WASTEWATERS (PPIW) USING ELECTROCOAGULATION PROCESS WITH IRON PLATE ELECTRODES

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Abstract:

The aim of study is to investigate the effect of operating parameters (such as stirring speed, initial pH, current density and supporting electrolyte concentrate) on energy consumption in the treatment of Pistachio Processing Industry Wastewaters (PPIW) using electrocoagulation process with iron plate electrodes. The energy consumption parameter is very important the for electrochemical processes. The largest expense in electrochemical treatment processes is specific energy cost since no additional chemicals are needed. It is a requirement in electrochemical treatment and in the determination of optimum working conditions that the conditions where the best removal is performed as well as the lowest energy consumption is provided should be taken into consideration. We have examined the effect of stirring speed, baseline wastewater pH value, current density and support electrolyte concentrations on the energy consumption. The obtained experimental results showed Increasing current density and stirring speed energy consumption increased. But, Increasing the supporting electrolyte concentration increased conductivity of wastewater and decreased energy consumption. In the pH experiment the HIGHest energy consumption is experienced at initial pH of 5. In the experiments lowest energy consumption values have been obtained 16.20 kWh/m3 (for 200 rpm); 11.70 kWh/m3 (for pH 9); 2.40 kWh/m3 (for 1 mA/cm2) and 9.90 kWh/m3 (for 100 mmol NaCl) respectively.

Keywords: Pistachio Processing İndustry Wastewaters, Electrocoagulation, Energy Consumption

HYDROGEOLOGICAL INVESTIGATION OF THE KURE (KASTAMONU) Pb-Zn-Cu MINING AREA

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Abstract:

The present study was conducted in Küre (Kastamonu) regions of Turkey, which has rocks with different origin and mining activity. The units indicating aquifer characteristics in the study area are Inaltı Limestone and Akgöl Formation consist of sandstone-shale alternations, altered andesite basalt and limestone. Pb-Zn-Cu ore deposits are generally found in the Akgöl Formation.

Keywords: Hydrogeology, Water Contamination, Water Quality, Küre (Kastamonu)

OPERATIONAL START-UP OF LAB-SCALE ANAEROBIC LANDFILL BIOREACTOR

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Abstract

To simulate landfill bioreactors, three lab-scale reactors were constructed at 1 m height and 30 cm diameter by using opaque PVC pipes. The reactors were equipped with several ports for collection and distribution of leachate and produced gas.

The feed solid wastes were taken from a compost recycling plant in Istanbul, Turkey where municipal solid wastes (MSW) are used for producing compost. Composition of the feed MSWs was found as 62% organic, 16% paper, 3.5% textile, 2% glass, 1% metal, 8% plastic, 3.5% stone, and 4% other. Before filling the reactors, bulk waste particles were cut into smaller sizes to less than 8 cm. Duplicate samples were taken from the unsorted MSWs to determine; water content, total solids (TS), volatile solids (VS), fixed solids (FS), pH, conductivity, ammonia (NH4-N), total kjeldahl nitrogen (TKN), total phosphorus (TP), oil and grease, and heavy metals (Ba, Cd, Cr, Cu, Mo, Ni, Pb, Zn).

The MSWs were compacted to density of 700 kg/m3 in the reactors which are placed into an isolated room where temperature was maintained between 32-36 oC to achieve the mesophilic conditions in the reactors. 1 L of seed sludge, obtained from anaerobic tanks of a municipal wastewater treatment plant in Istanbul, Turkey, was introduced to the reactors. Operation of the reactors was started by closing the all ports and lids, to make sure all the reactors were water tight. At the first month of operation, to stimulate the rainfall, 1 L/week distilled water was added to the reactors by using peristaltic pumps.

At the start-up period which is considered as first month, although 5 L distilled water in total has been injected to the waste bodies and it has been observed that 3.4 , 4.0 , and 3.0 L leachate was produced from Reactor-1, Reactor-2, and Reactor-3 respectively.

Keywords: Municipal Solid Waste (MSW) , Landfill Bioreactor (LBR) , Anaerobic Biodegradation , Leachate Recirculation , Landfilling

REMOVAL OF PARACETAMOL BY ULTRASOUND AND ELECTRO-OXIDATION

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Abstract:

To protect the environment, especially from pharmaceutical manufacturing wastewater, becomes a major social concern. These highly toxic pollutants which is chosen in this study as Paracetamol is widely preferable drug as analgesic and anti-pyretic, tends to have adverse effects on non-target organisms (i.e. anti-microbials) and nature. The objective of this study is removing the paracetamol.

Keywords: Electrooxidation, Ultrasound, Paracetamol, BDD, Pharmaceutical

ELECTROCHEMICAL TREATMENT OF TRANSPORT CONTAINER WASHING WASTEWATER

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Abstract:

Treatment of transport container washing wastewater by electrocoagulation, electrooxidation and combined processes have been studied on iron (Fe) and boron doped diamond (BDD) electrodes. The wastewater used in this study has been collected from a recycling plant in Gebze Organized Industrial Zone, Kocaeli-Turkey which washes barrel and transport containers by using high pressurized water before they are used again. This many different kind of organic and inorganic chemicals loaded wastewater is treated by using traditional chemical coagulation/flocculation technique that needs high chemical dosage and ends with so much sludge.

Keywords: Electrocoagulation, Electrooxidation, Container Washing Wastewater, BDD

ZNO PARTICLES FOR SUPERCAPACITOR ELECTRODES

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Abstract:

ZnO particles have been synthesized by hydrothermal technique using different types of precursor solutions for active materials of supercapacitor (SC) electrodes. The SC properties of ZnO particles were studied as a function precursor solution. The physical properties of the ZnO particles were analyzed with X-ray diffraction, scanning electron microscopy, and Raman spectroscopy. Moreover, the electrochemical performances of the obtained ZnO particles used as supercapacitor electrode are investigated by cyclic voltammerty, galvanostatic charge/discharge, and electrochemical impedance spectra tests in a 6 M KOH electrolyte at a scan rate of 5 mV/s. The specific capacitance values of the ZnO electrodes were measured to be around 5 F/g.

Keywords: ZnO, Supercapacitor

RGO / NIO NANO COMPOSITE POWDER FOR SUPERCAPACITOR ELECTRODES

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Abstract:

Reduced graphen oxide/nikel oxide (RGO / NiO) composite materials were synthesized using the hydrothermal method for supercapacitor electrodes. NiO nanoparticles used for composite materials were fabricated from nickel salts at 200 ^{o}C. Graphene oxide (GO) used for the production of RGO / NiO composite materials was synthesized by using Hummers method. Physical characterizations of synthesized GO, NiO and RGO/ NiO composite materials were performed by XRD, SEM, UV-Vis and Raman spectroscopy. The electrochemical performances of the obtained RGO/NiO particles used as supercapacitor electrode are investigated by cyclic voltammerty in a 6 M KOH electrolyte at a scan rate of 5 mV/s.

Keywords: Graphene oxide, NiO, supercapacitor

A REVIEW ON DYNAMIC MEMBRANE BIOREACTORS: COMPARISON OF MEMBRANE BIOREACTORS AND DIFFERENT SUPPORT MATERIALS, TRANSMEMBRANE PRESSURE

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Abstract:

Over the past three decades, membrane bioreactors are being considered as a very useful alternative for biological wastewater treatment thanks to the important advantages over conventional biological treatment. Membrane bioreactors gain the upper hand in respect to high quality effluent water by solid-liquid separation. In current review, focused on the advantages of dynamic membrane bioreactors. Dynamic membrane bioreactors that used different support materials dramatically reduce the initial investment and operating costs in comparison to membrane bioreactors. Instead of ultrafiltration and microfiltration membranes, different support materials such as mesh, non-woven and woven fabric cloth can be used as the support materials. Also, transmembrane pressure and critical flow play a significant role to understand fouling of membrane bioreactors. In this context, different support materials performance are examined in respect to transmembrane pressure and critical flow. In addition, extracellular polymeric substances (EPS) and soluble microbial products (SMP) play an important role in the fouling phenomenon of both membrane bioreactors and dynamic membrane bioreactors. This review outlines advantages of dynamic membrane bioreactors with regard to different support materials, transmembrane pressure, SMP, EPS analogically membrane bioreactors.

Keywords: Different support materials, Dynamic membrane bioreactors, Transmembrane pressure

THE COLOR REMOVAL PERFORMANCE OF CSTR REACTOR TREATING REAL TEXTILE WASTEWATER: EFFECT OF ADVANCED TREATMENT BY APPLICATION OF CHEMICAL COAGULATION

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Abstract:

The aim of this study is to determine performance of treating real textile wastewater by biological and chemical treatment that combined continuous stirred tank reactor (CSTR) and chemical coagulation, respectively. The real textile wastewater was used for CSTR weekly provided from real scale treatment plant. Later on, advanced treatment was applied to the effluent of CSTR. In this context, type and dose of coagulant, pH adjustment and the stirring speed and time were examined as advanced treatment. Initially, the most commonly used coagulant (Al2(SO4)3.14(H2O) was selected, later, FeCl3 was added in sufficient quantities (5 or 10 mg/L). Rapidly mixed each jar at 100 to 150 rpm for 1 minute with selected coagulants. The rapid mixing was helped to disperse the coagulant throughout each container. Then, the stirring speed reduced to 25 to 30 rpm and continued mixing for 15 to 20 minutes. To determine optimum pH for coagulation were tried various pH values (4 to 8) with jar testing and obtained results for selected two type coagulants were demonstrated in the results and discussion section. Consequently, in this study, the anaerobic biodegradability of the color-containing textile wastewater using a CSTR reactor and later on chemical coagulation were investigated. The obtained results demonstrated that chemical coagulation processes was inferred to be superior for the removal of both color and organic compounds from real textile wastewater.

Keywords: Chemical treatment, Coagulants, Color removal, Textile wastewater

TREND ANALYSIS IN RESOURCES OF WATER INTENDED FOR HUMAN CONSUMPTION IN BALIKESIR

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Abstract:

While demands of water resources for different usage purposes have been increased, world public have been started to be sensitive for water related problems, one of the main element. The aim of the management of water resources are to determine the amount and quality of the surface and ground water reservoir in currently or in the future; to evaluate the possibilities of the supply; to determine water demand of the public; to plan water resources; to regulate water consumptions; to balance water resources and to develop long term strategy for rational usage of the water resources.

Keywords: Trend Analysis, Seasonal Kendall Method, Water Management

DETERMINATION OF PRIORITY CONTAMINATION FACTORS IN LAKE OF MANYAS (BIRD PARADISE)

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Abstract:

Wetlands of which importance has been begun to understand better day by day, are rapidly contaminated as results of population growth, irregular urbanization, industrialization and agricultural activities. The Lake of (Bird) Manyas of Balıkesir, which is one of the most important wetlands protected with Ramsar Convention and hosts Bird Paradise National Park in is under the high pollution risks because of increasing industrial activities in its surrounding. Furthermore, in consequence of the lack of knowledge on the current pollution levels of the lake and the impact of industries on the lake, the management plans prepared to lake protection cannot be got in the act and not be executed in a seriously. For this reason, by determining the general state of the lake, taking of measures to minimize pollution and ensuring of sustainability of the ecosystem is of great importance.

In this study, to determine pollution level of the Manyas Lake and sectoral effects on, in addition to conventional parameters, other pollution parameters determined by considering of the lake stress elements were examined. In the monitoring stage, from the previously determined sampling points of the lake and streams, water and sediment samples were taken by manual sampling method and analysed to determine the type, amount and change of contaminants. Results obtained from the monitoring studies carried out in last four years compared with Water Pollution Control Regulations (WPCR) of Turkey. It was concluded that the main pollution parameters of the lake were determined as DO, COD, NO3, PO4, B, Al, Zn. According to the specified pollutants, wastes from agricultural activities, mining activities, poultry farms and slaughterhouses mostly reach to the lake. It is concluded that these sectors are the major stress factors for the lake.

Keywords: Wetlands, Manyas Lake, Bird Paradise, Contaminants, Monitoring

EXAMINING THE INTEGRATED MEASUREMENTS TOOLS TO DETERMINE THE DISPLACEMENTS OF STRUCTURES

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Abstract:

Advances in ENGINEERING and construction technology have led to the emergence of huge buildings. These sutructures are the indicators of modern life such as dams, bridges and towers. These massive structures have to be monitored continuously for health, security and economic reasons, and precaution should be taken for exceptional cases. Although mostly satellite-based measurements are used in the studies of continuous monitoring of such massive structures, the conventional measuring instruments are preferred too for several reasons. In this study, usability of GPS, Tiltmeter and Electronic Total Station instruments were examined for determining the displacements values of the movements of structures. Time series recorded by these three measuring instruments were analyzed and compared. The results of the study showed that using GPS, Tiltmeter and Electronic Total Station measurements, the long-period changes of displacements can be determined almost with the same accuracy.

Keywords: Structural Monitoring, GPS, Tiltmeter, Total Station, Time Series

ENERGY STRATEGICS PLANNING AND RENEWABLE ENERGY OPTIONS IN SAUDI ARABIA FOR THE COMING DECADES

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Abstract:

Saudi Arabia is one of the biggest oil productive country in the world. However, the geographical feature of SA, location, hazards climate and limited of water resources make the local consumption of energy is so high and increases rapidly by about 5% annually. Huge effort was spent by private and governmental sectors trying to resolve the energy issue and suggest the suitable actions need to be taken. This paper try to gather most of the important actions that took place for energy management and conservation in the country. Utilizing some kinds of the renewable energy and their feasibility are also discussed.

Keywords: Energy Management, Renewable Energy, Saudi Arabia

CRYSTALLIZATION OF APATITE

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Abstract:

The crystallization of apatite has been an important research subject recently. In this research, calcium phosphate in the apatite structure occurring naturally was sintered at 1150°C. The crystallinity, crystal size and crystal growth of sintered apatite was investigated. Natural apatite has plate-shape crystals and spherical grains agglomerated with overlapping of plate-shape crystals. The sintered apatite crystals developed as rod-shaped crystals 20µm in length and which tend to grow along the c-axis. The aspect ratios of the crystals were determined as 7-10:1.The lattice parameters of the sintered apatite decreased, while the crystallinity increased 10%.

Keywords: Apatite, Crystallization, Crystallinity, Sintering

INTERDISCIPLINARY HEALING ENVIRONMENT FOR THE AGEING POPULATION

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Abstract:

The physical environment is an important factor in the healing process and is proven to be beneficiary on health outcome in residential care (Laursen et al. 2014). Regarding future health visions and the European consensus, more care will be provided at the patients home with the intention to keep the ageing population at their homes. To provide an optimal healthcare at the patients home, a profound element of evidence is suggested. University College VIVES performs a scientific research for three years in a close cooperation with the field and the end-user, where a systematic review will be conducted about a healing environment at the homes of the ageing population. Participating educational programs are: bachelor in occupational therapy, bachelor of science in nursing, bachelor of speech language therapy and audiology, bachelor in nutrition and dietetics and bachelor in biomedical laboratory science. Students as well are participating to narrow the gap between theoretical research and applied research. The aim of this research is to outline a summary of interdisciplinary approaches regarding the physical environment at the homes of the ageing population to enhance a healing environment.

Keywords: Interdisciplinary, Healing environment, Ageing, Prevention

PVP-STABILIZED COBALT-PALLADIUM NANOPARTICLES-CATALYZED HYDROLYSIS OF HYDRAZINE BORANE FOR HYDROGEN RELEASE

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Abstract:

"Due to the energy related environmental global problems, hydrogen is regarded as the best solution [1]. But, there has been a big problem: storage of hydrogen [2]. Lightweight boron containing compounds (sodium borohydride, ammonia borane, hydrazine borane, and so on) with high density of hydrogen have been extensively studied as promising solid chemical hydrogen storage materials over the last fifteen years [3]. Among those, hydrazine borane (N2H4BH3, HB) has 15.4 wt % of hydrogen that surpasses the US DOE targets [4].

In this study, PVP-stabilized cobalt-palladium nanoparticles have been prepared by co-reduction of cobalt and palladium ions in the presence of PVP as a stabilizer. They are characterized by TEM, UV-Vis spectroscopy, XRD, and XPS techniques. They provide average turnover frequency of 45 min-1 and activation energy of 50.6 ± 2 kJ/mol in the hydrolysis of hydrazine borane."

Keywords: hdyrogen, hydrazine borane, cobalt, palladium, nanoparticle

DESIGN OF COLLISION WARNING SYSTEM FOR NON-SIGNALED RAIL LINES IN TURKEY

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Abstract:

This paper proposes a collision warning system for railway vehicles to be used in non-signaled rail lines in Turkey. The system consists of vehicle control unit (VCU), RF communication unit, sensors and display unit. V2V(vehicle-to-vehicle) communication is used to exchange information among the vehicles. The V2V packet comprises the vehicle's travelling information, such as message type, time stamp, vehicle type, position, speed, direction, length of the vehicle and position of antenna. The VCU calculates it's breaking distance and determines the collision risk by using approaching vehicle's information. The system alerts the driver with audible and light warning signals based on the level of the collision risk. The breaking distance for railway vehicles is 700 meters according to Turkish State Railway regulations. The breaking rate values for different speed, grade and breaking type are tabulated. The suitable breaking rate for a line is determined from this table in Turkish railway operation. In our study, a simulator is designed in MATLAB to test the proposed collision warning system. The tests results are obtained for the rail line located between Eskisehir and Ankara. The response of the system is obtained by applying different scenarios. The results show that the algorithm implemented in the VCU gives correct warnings for all scenarios and handles possible failure situations.

Keywords: intelligent transportation, collision warning system, vehicle-to-vehicle communication

DESIGN AND MULTIPHASE MODELLING OF A DOUBLE OUTLET CENTRIFUGAL PUMP

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Abstract:

"The centrifugal pumps are typical pumps which have one inlet and one outlet. In special conditions those pumps can work with double outlet. The most common method is using a valve to direct the flow to the desired outlet.

In this study, a double outlet pump has been designed and the flow is directed to desired outlet by changing the rotation of the impeller. A multiphase CFD model have been used for modelling the physics and two outlet pipes have been extended through a specified height to monitor the water levels. The inlet and outlet boundary conditions are set to zero to see the runout condition of the pump. It is modelled that air is entering through the pump body for backflow conditions of the outlets. The gravity effects are considered to calculate the static pressure at the outlets and k-ε turbulence model and Volume of Fluid (VOF) multiphase model are used to obtain the results. The mesh independence is provided to ensure the numerical solution. It is observed that the pump can work with a specific rotation speed and outlet pipe height to prevent the flow exit from both outlets. It is explored that the constraints has a critical role for designing such turbomachines."

Keywords: CFD, VOF, Centrifugal Pump

DESIGN AND MODELLING OF A MAGNETORHEOLOGICAL DAMPER BY CFD

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Abstract:

"The Magnetorheological (MR) dampers are dampers which are different from the classic dampers. MR dampers are filled with a magnetic-sensitive fluid and are controlled by a magnetic field. This gives a great advantage and flexibility to control the stiffness of the damper by changing the current which generates the magnetic field by a coil. The required magnetic field is obtained by using very small amount of energy and this makes the use of MR dampers more feasible.

In this study, it is intended to model an MR Damper by using a 2D axisymmetric model with a less amount of mesh number and computational cost. Instead of modeling a moving piston, it is preferred to move the boundaries, and keep the piston head stable. A dynamic mesh motion is applied at the boundaries of the domain. A constant magnetic flux is assumed at the edge of the coil through the gap inlet point. The behavior of the MR fluid on different magnetic flux densities is calculated from the datasheet of the producing company. The Non-Newtonian behavior of the fluid around the coil has been modelled with Herschel-Bulkley model. Three different coil-gap geometries has been applied and it is observed that the third geometry is capable of generate the bigger force for displacement."

Keywords: MR Damper, Herschel-Bulkley, Non-Newtonian Fluid, CFD

THE MONITORING SEDIMENT CONCENTRATION WITH ADV BACKSCATTER STRENGTH FOR DIFFERENT SEDIMENT SIZES

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Abstract:

Suspended sediment transport is an important parameter in hydrological studies, and it shows temporal changes depending on many factors, such as discharge flow and basin and climatic characteristics. Continuous sediment measurement has many difficulties due to these fluctuations. As an alternative method, Acoustic Doppler velocimetry can be used be used to estimate suspended sediment concentration (SSC) with the signal to noise ratio (SNR) in the water. In this study particles size affecting on SNR values was investigated with using four different sediment sizes groups (0-50, 50-100, 100-200 and 200-250 micron).The rults of study shows that SNR values had good relationships with SSC values for all sediment size groups, higher R2 values were obtained than turbidity measurements. (R2=0.9737-99.77). These relations were observed for lower than 40 dB and 1 g.l-1 sediment concentrations. The other point was SNR values are strongly affected from small chancing in sediment concentration. This property can be accepted as advantages for sensitive measurement for mentioned concentration intervals. As a result of this study it could be concluded that SNR values can be used as alternative methods for continuous sediment monitoring.

Keywords: sediment, signal-to-noise ratio, water pollution

THE SELECTION OF FLOW RATE TO PREVENT EROSION İN FURROW IRRIGATION

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Abstract:

The surface irrigation methods are commonly used to apply crop water requirement in our country and the world. The runoff losses decrease irrigation efficiency and caused soil losses, especially at furrow irrigation. Furrow rate and length are important parameter for water and soil losses and are determined depend on the soil texture and slope. Although many studies on the length of the furrow; there are significant shortcomings in the determination of non-erosive flow rate. Generally flow rate is determined as a function of only the slope; but it can be varied by the soil texture, infiltration and water advance features. In this study, different methods will investigate to determine non-erosive flow rate with using furrow geometry and flow velocity. As a result of evaluation of literatures, field observations and secondly semi-empirical method with the using more field data are recommended. For this aim maximum acceptable flow velocity was accepted as 0.13 m.s-1 for ''erosive silty soils''; and 0.21 m s-1 for ''more stable clay and sandy soils''. In this way, optimal flow rate using will contribute to more efficient water use and conservation of water and land resources

Keywords: Furrow irrigation, erosion, flow rate

LONG TERM PERFORMANCE OF AN PILOT ANAEROBIC DIGESTER FED BY MUNICIPAL SOLID WASTE & EFFECT OF TRACE METAL ADDITION

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Abstract:

The most of the metropolitan cities in Turkey have landfill which is the main waste management option for solid wastes exceeding 30 million tons per year. Anaerobic digestion seems to be more attractive due to the high CH4 content of the solid waste, which is beneficiary for Turkish renewable energy production targets in the frame of Kyoto protocol. In this study, anaerobic digestion of representative organic fraction of municipal solid waste was studied in the long run and the effect of trace element addition is also reported. A continual feeding of solid waste mixture with a dry matter of 5% for 160 days were carried out using a 100 L pilot scale anaerobic digester under mesophilic operation conditions. Hydraulic retention times and organic loading rates were kept 30 day and 3.0 kg oDM/m3.day, respectively. During the 160 days feeding period, daily and volumetric biogas production values were reported to be 30-146 L/day and 0.3-2.0 L/L/day, respectively. This corresponds to biogas production between 400 and 900 L/kg oDM, which means that between 40 and 100 m3 of biogas per wet ton of solid waste could be produced. As a follow up this study, trace element addition was also carried out after a batch Taguchhi Statistical optimization method using BMP protocol. Bioreactor then was fed with this Taguchhi recipe. Trace element addition resulted in unit biogas production varying 300 and 800 L/kg oDM, which did not provide any extra increase in biogas production but the main effect was the more stable operation of the bioreactor. In conclusion, there is tremendous amount of bio-methane production potential in Turkish solid wastes which could be exploited for environment friendly energy production either in the form of biofuel for public transportation or bioelectricity, which would provide great advantage for remedying the global warming impact of Turkey.

Keywords: Municipal solid waste, bio-methane, trace element

GEOGRAPHIC INFORMATION SYSTEM(GIS) AND ROADENG USAGE TO DETERMINE THE ENVIRONMENTALLY SENSITIVE FOREST ROAD ROUTE IN MOUNTAINOUS TERRAIN

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Abstract:

"Road between two known points and placing the various economic and environmental factors that require consideration is a highly complex engineering problems. Engineers, soil conservation and water resources, taking into account the total road construction, maintenance and handling cost is the lowest of the route is difficult to determine. Forest road construction and maintenance costs of raw wood is a significant proportion of the total cost of production. Of forest road network planning, forest villages transportation, production work, social needs, providing transportation to the recreation area, depending on the functional use of forests that are made according to the purpose.

In this study, by using GIS and Roadeng Technology planning forest road network planning was make zero line, curve, longitudinal profiles, cross sections, such as the amount of excavation and filling all the planning criteria are determined.

Roadeng of software for planning of forest roads; surveillance, compliance of the terrain and the location of the module were investigated. Look at the slope of the land and river maps with GIS software has been created.Roadeng numerical software made its way forest we have done with classical methods and technical processes are automatically offers more detailed and more quickly practitioners do on computers."

Keywords: Forest road network, forest road planning, Roadeng, GIS, Environmentally Sensitive

INTEGRATED WATERSHED MANAGEMENT APPROACHES FOR NATURAL RESOURCES REHABILITATION AND SUSTAINABLE RURAL DEVELOPMENT: MRWRP LEDIZ MICROCATCHMENT PLAN

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Abstract:

"Integrated watershed management approaches (IWMA) for natural resources rehabilitation and sustainable rural development are necessary for economic, social and environmental viability of nations. IWMA are vital to integrate natural resources with community livelihoods. It includes the rehabilitation of natural resource degradation, soil erosion, floods, landslides, rangeland, agricultural productivity, poor water quantity and quality, irrigation, degraded forests; and aims to improve livelihoods from an integrated watershed management scope.

As poverty is overwhelmingly rural, Murat River Watershed Rehabilitation Project (MRWRP) aims to improve livelihoods through rehabilitation and sustainable usage of natural resources. The linkage between poverty among upland village communities and the degradation of natural resources needs to be broken for the community to embark a more productive and sustainable livelihood strategy.

As a result of this study, 685 ha Soil and Erosion Control, 200 km Terrace, 36 unit Irrigation Pool, 125 km Forest Road, 107.000 unit Forest Tree Seedlings, 13.000 Fruit Tree Seedlings, 20 unit Housing Insulation, 250 unit Solar Energy, 50 unit Stove, 1200 m3 Greenhouse and 50 ha Pasture Closure has been implemented. Thus, in combining the regeneration of land and vegetation with increased agricultural productivity will improve the livelihood for the people living in watershed."

Keywords: Integrated Watershed Management; Natural Resources, Rehabilitation, Murat River

POTENTIAL THERAPEUTIC ROLE OF MESENCHYMAL STEM CELLS IN CANCERS: EXPLOITATION OF DELIVERY SYSTEM

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Abstract:

The required concentration of the drug has to be sent to the right location and at the desired time in order to increase the therapeutic efficacy. Mesenchymal Stem Cells (MSC) are increasingly become a suitable approach for drug delivery in cancer. The unique characteristic of MSCs that includes relative ease of isolation; the ability to differentiate into various functional cell types; the ability to be extensively expanded in culture and their ability to home to damaged tissues, tumors, and metastases makes them a good candidate for drug delivery. MSCs are non-immunogenic and non-toxic to the host thereby they become an ideal vehicle for tumor-selective drug delivery. Inhibition of tumor growth by prodrug-converting enzymes, cytokines, cytotoxic molecules or oncoloytic viruses can be achieved by MSCs. One form of cancer for which the use of MSC is receiving a great deal of attention is glioblastoma multiforme (GBM). GBM represents the most common form of malignant glioma. Despite many research and many advances in the treatment of this disease, there is no cure. Cytokines with pleiotrophic anti-tumor property is type I interferon (IFN) has gained attention in cancer gene therapy. Oncolytic virus is often neutralized by an immunological reaction before they can exert substantial antitumor effects. To overcome this problem, cellular vectors (i.e. MSCs) for oncolytic viruses are being explored. By using cells as vehicles, viruses are protected from the host immune system while being delivered to the tumor site. Toll-like receptors (TLRs) are a conserved family of receptors that recognize pathogen associated molecular. Also it has been showed that TLR are not only expressed in immune cells but also in MSCs. It has been demonstrated that if like other bone marrow-derived cells, hMSCs migration or recruitment is also driven by Toll-like receptors are a conserved family of receptors that recognize pathogen associated molecular. We want to test the hypothesis whether delivery of cytokine genes and apoptotic genes to the site of glioma could result in inhibition of the tumor growth. Moreover, we intend to delivery oncolytic virus to site of glioma to examine if they can kill the tumor cells.

Keywords: Mesenchymal Stem Cells, Drug Delivery, Cancer

TOLL-LIKE RECEPTORS AND NON-CODING RNAs IN CANCERS: A POTENTIAL FRONTIER FOR TRANSLATIONAL RESEARCH

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Abstract:

"Despite many research and many advances in the treatment, cancer remains one of the most challenging disease today. Toll-like receptor as pattern recognition receptors have been implicated in the regeneration of endogenous danger signals that are present in the body during disease. Recent studies showed that functional TLRs are expressed not only on immune cells, but also on cancer cells. On the other hand, the expressed TLRs sense molecules associated with tissue damage. Expression of TLR in the cancer cells and association of TLRs with tissue damage implicating their possible important role in tumor biology. Among the cancer we have chosen prostate cancer because it is role in chronic intraprostatic inflammation.

Small regulatory RNAs have recently emerged as important regulatory of gene expression. Recent profiling studies investigate whether aberrant expression of particular small regulatory RNAs correlate with particular disease state. There is a hypothesis that the differences in TLR distribution between different immune cell types could be result of differential miRNA expression. Furthermore, recently it is known that miRNA can contribute to the progression of many different types of cancer.

MicroRNAs belong to a small ncRNA group and are the most studied among ncRNAs; however, many more types of ncRNAs exist. One of the less characterized non coding RNA, long non coding RNA emerged as a very important non coding RNA that are involved also in cancer. In humans, the identification of abundant long non coding RNA (lncRNAs) >200 bp in length has catalyzed their characterization as critical components of cancer biology. 1800 lncRNAs expressed in prostate tissue, including 121 lncRNAs that are transcriptionally dysregulated in prostate cancer.In this study we intend to analyze whether much less characterized small regulatory RNAs, lncRNAs have interaction with TLR and have any regulatory role in TLR signaling as miRNA. Our study will be directed to define how TLR regulation can play role in the recognition of endogenous danger signals to identify the possible therapeutic target for prostate cancer. "

Keywords: Toll-like receptor, miRNAs, cancer

BEHAVIORAL MODELING OF 2.4GHZ RF POWER AMPLIFIER USING DATA MINING

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Abstract:

RF power amplifiers (PAs) used in communication systems should provide an appropriate output power value with sufficient gain, high efficiency and linearity. Output power of PA should be sufficient for real communication. One of the most important parts of transmitter blocks in wireless communication system is RF PAs. In particular, high power consumption, linearity, distortion and efficiency are most critical performance parameters of PAs. Transducer power gain (GT), power added efficiency (PAE%), input third order intercept point (IIP3), output third order intercept point (OIP3) and total harmonic distortion (THD) are major power amplifier performance parameters that give important insight about performance of PA while studying the behavior of PA. These performance parameters vary depending on the input signals applied to the amplifier input and the DC bias conditions. Behavioral modeling of 2.4GHz ISM band frequency power amplifier has been carried out in this study using data mining. Prediction models for the value of GT, PAE, IIP3, OIP3 and THD parameters of power amplifier have been created using models of ANFIS, YSA, KNN, KStar and M5Rules as a function of DC biasing conditions and input power. When the obtained results are compared it has been seen that ANFIS model has been given the best results for each performance parameter of 2.4GHz RF PA. As a result the subject of this study has been showed that ANFIS has showed very well behavior for modeling GT, PAE, IIP3, OIP3 and THD performance parameters of 2.4 GHz ISM band RF PA. In addition it has been observed that data mining methods could be used for modeling of the RF power amplifier performance parameters.

Keywords: RF Power Amplifier, Data Mining, Behavioral Modeling of Power Amplifier.

PRODUCTION AND EXPORTS OF LAUREL (LAURUS NOBILIS L.) IN TURKEY

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Abstract:

Laurel (Laurus nobilis L.) has belongs to Lauraceae family. It is is always green and could grow as far as from 2 m to 15 m. It is a plant with two protective cases and in the form of tree. The parts of it which are benefitted economically are its leaf and seed. Laurel (Laurus nobilis L.) is an aromatic herb which has important chemical composition and potential therapeutic effects. It is spread naturally in Turkey in the regions of Aegean, Mediterrian, and Black Sea costs. Based on 2015 data, there has been 35,873,957 $ exchange income for 12,739,957 kg laurel in Turkey. Turkey provides 90% of the world requirement of quality laurel leaf according to those values. The average number of countries to which laurel is exported each year is 72. In this study, the export of quality laurel leaf will evaluated for the last five years on the basis of countries.

Keywords: Laurel (Laurus nobilis L.), Export, Medicinal and Aromatic Plants

VIBRATIONAL SPECTRA OF THE [MLCl2] (M= Mn(II), Fe(II), Co(II); L= 2,2'-Bipyridine) COMPLEX FROM THEORETICAL CALCULATIONS

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Abstract:

The structural, electronic and vibrational spectral parameters of the [MLCl2] (M= Mn(II), Fe(II), Co(II); L= 2,2'-Bipyridine) donor-acceptor complexes have been studied by using HF/gen and DFT/mPW1PW91+iop(3/76=0572004280)/gen levels. Firstly, geometric parameters (bond length, bond angle, torsion angle) of the most stable form of the complex were determined the binding, reorganization, atomization, HOMO-LUMO (FMOs) and ionization potential energies have also been calculated by the DFT method. Secondly, infrared and Raman frequencies of its fundamental modes were calculated by using the selected method and basis sets. SQM calculations have been performed by using anharmonic frequencies and experimental data. The obtained results were found to be in good agreement with the corresponding experimental findings.

Keywords: Density Functional Theory, Raman Spectra, Infrared Spectra, 2,2'-bipyridine

ANALYZING TOTAL COST PARAMETERS PRIORITIES IN THE CATERING SYSTEM BY USING ANALYTICAL HIERARCHY PROCESS

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Abstract:

This paper aims to determine the relative weights of the decision criteria and priorities of alternatives which effective on the total cost of the catering system. Here Analytical Hierarchy Process (AHP, a Multi Criteria Decision Making method) is applied for getting the relative rankings of the catering cost parameters between the years of 2012 and 2014. Years were selected as criteria. Six parameters were identified as alternatives; cleaning, food, staff, consumption, energy and others. Selected parameters are widely used for different purposes of catering system and they can be used for common analysis of sub cost groups. Both conceptual and operational difficulties make the calculations complex and invariably cumbersome. The proposed approach enables the transfer of data, information, and knowledge between the different years related to catering processes. It also combines the characteristics of both the practical experiences of caterers with the output of a mathematical analysis model, to obtain more accurate knowledge that can be used for weight ranking, and accordingly process optimization. Moreover, studies that compare different cost factors in catering have not been found in the literature. This approach also helps caterers as well as catering planners for understanding priorities and weights of these alternative catering parameters to calculate budget and compare actual cost in each year.

Keywords: Catering, Total cost, AHP, Priorities, Weights

DESIGN AND IMPLEMENTATION OF A SIMPLE, AES-BASED SECURE MESSAGING PLATFORM

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Abstract:

Cryptography can be defined as a set of mathematical methods that works for providing information security, especially in terms of privacy and data integrity. Cryptographic methods aim to protect the information and also along with it - the sender and receiver of the information- from active or passive attacks during the transmission of information. In other words, cryptography consists of all of techniques used to convert the readable information into the condition that cannot be read by the unwanted parties. In this study, a multi-language messaging platform consisting of a web interface and a software application is proposed to enable secure communication between the sender and the receiver within an institution. Since the proposed platform is based on Advanced Encryption Standard (AES) in its web interface, it provides security required for messaging-based communication. For internal communication within an institution, the proposed platform is an alternative to popular e-mail services.

Keywords: Security threats, information security, cryptology, Advanced Encryption Standard (AES)

REDUCING MOTION BLUR BY CONSTRAINED CONTROL OF HELICOPTER VIBRATION

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Abstract:

In this paper, image blur which is the result of the relative motion between the camera mounted helicopter and the scene during exposure time is modeled and studied to be reduced by controlling the helicopter. First of all, the position of camera under the helicopter and its autopilot parameters are designed simultaneously. Since the blur is a function of the motion of helicopter, in order to reduce motion blur in the taken images, the motion of helicopter in exposure time is constrained via autonomous performance maximization. A stochastic optimization method is benefited for accomplishing this stage. Then, the blur is modeled by estimating the blur kernel using the motion of helicopter during camera integration time. After that the motion blur is added to images using the estimated blur kernel. Lastly, the performance of the constrained helicopter control is measured by the motion blur occurring in taken images.

Keywords: Helicopters, Control Theory, Image Processing, Blur Kernel

CONTROLLED RELEASE OF HEPARIN FROM PDPA-B-PDMA-B-PDPA / HEPARIN

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Abstract:

Heparin (HP) is a polyanionic biopolymer having sulfated glycosaminoglycan units. Recently, besides of their anticoagulant properties for thrombosis treatment, potential anticancer effects have been explored by researchers. Due to the polyanionic nature, heparin could be used to prepare polyelectrolyte complexes (PECs) with cationic polymers for the purpose of controlled release application.

In this study, we firstly synthesized precursor PDPA-b-PDMA-b-PDPA triblock copolymer via living polymerization and characterized by 1H NMR and GPC (gel permeation chromatography) analysis. The polycationic PDPA-b-QPDMA-b-PDPA derivatives synthesized by quaternization reaction of PDMA residues of triblock copolymer. The PDPA-b-QPDMA-b-PDPA triblock formed gels by the chain-end hydrophobic interactions with relatively high polymer concentration (10 wt%) at basic aqueous solutions. This behavior was proved by 1H NMR studies.

While the quaternized PDMA block is water-soluble at all pH values due to its cationic charge, PDPA block is soluble in acidic solution but less soluble at alkaline solutions. Therefore, the triblock copolymer was expected to give unimers at acidic pH, and “flower” micelles or gels at around pH 7.4 depending on copolymer concentration. PEC gel was obtained

according to the following procedure: The aqueous solution of cationic triblock copolymer and HP was mixed at pH 3. When the pH is adjusted to 8.0 with KOH addition, gelation was occurred.

In vitro release kinetics of HP from PEC gels were studied at pH 7.4. The salt effect on heparin release was examined by using phosphate-buffered saline of different ionic strengths (NaCl 0.05-1 M). Furthermore, effect of quaternization degree of triblock copolymer was also tested. Results showed that, novel PEC gel was a promising candidate to achieve sustained and controlled heparin release.

Acknowledgement

The authors would like to thank the Scientific and Technological Research Council of Turkey (TÜBİTAK) under project number 113Z584 for financial support of this work.

Keywords: Polyelectrolyte complex gel, heparin, triblock copolymer, controlled release

A NOVEL POLY[2-(N-MORPHOLINO)ETHYL METHACRYLATE] HYDROGEL: RAPID DESWELLING KINETICS AND POTENTIAL CARRIER FOR RELEASE OF IBUPROFENE

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Abstract:

A novel poly[2-(n-morpholino)ethyl methacrylate] hydrogel: Rapid deswelling kinetics and potential carrier for release of ibuprofene

Novel type triple responsive poly[2-(N-morpholino)ethyl methacrylate] (PMEMA) hydrogel was synthesized by using free radical chemistry. Due to the porous sponge-like structure, PMEMA gel was exhibited rapid swelling / deswelling properties in response to pH, salt and temperature. Such a rapid response are more crucial for biomedical application.

In this study, swelling and deswelling kinetics were examined. Temperature- and salt-induced deswelling rate was evaluated. It was observed that hydrogel was lost 75% of water within 4 min in response to salt effect, while it lost only %30 of water in response to temperature change within the same interval. Furthermore, controlled release experiments were also performed in simulated gastric (pH 1.2) and intestinal (7.2) pH. Ibuprofen was used as model drug. In conclusion, rapid response PMEMA gel could use as a promising carrier for a longer-term release of various drug.

Keywords: Hydrogel, 2-N-morpholinoethyl methecrylate, controlled release, rapid deswelling

INTERINSTITUTIONAL RELATIONS ANALYSIS IN THE SCOPE OF NATIONAL SPATIAL DATA INFRASTRUCTURE AND COMPARED WITH THE TEMPORAL TREND ANALYSIS

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Abstract:

Collaboration between all sectors who worked with spatial data, in terms of productivity and efficiency of the system is an extremely important dynamic. Collaboration between institutions or individuals is realized through informal networks that are not connected by the rules. Taking advantage of the network analysis can be put forward formally existing collaboration and communication networks and properties such as centrality, betweenness and density about it can be determined.

National Spatial Data Infrastructure (NSDI) is a technological network developed on the basis of cooperation between agencies. Continuing preparations for the infrastructure this process, to be a concrete indication of the the awareness and perception format towards NSDI, on the basis of Usak was conducted a pilot study. In this study examined the relationship between all the social aspects of the sector that doing business with spatial data, collaboration system of institutions that are not bound to a particular rule have tried to put forward with "Social networks" for the first time.

The questions in face to face survey with the institutions were selected to show the cooperation within the network. Existing operation in Usak has tried to put forward as versatile. The visual and numerical analysis was conducted using social network analysis (NetMiner). Additionally with the existing institutions, it was made in temporal trends analysis of browsing over social media. In study, two different analyzes were compared and examined the consistency of institutions between the results of analysis. As a result, it was understood that be consistent for the two different analysis results.

Keywords: NSDI, interoperability, social network analysis, organizational communication, organizational network, temporal trends

PAST, PRESENT AND FUTURE OF THE LICENSED SURVEY CADASTRE ENGINEERING OFFICES

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Abstract:

Cadastre; Human and regulating land relations, real property constituting the base of the main investment projects and development is required for the regulation of these goods. Throughout history, it was among the priority issues to take care of the country and was seen as a public service.

In recent years, seating on the agenda of the new understanding of public policy, the growing role of the private sector have showed the impact on the field of cadastre and reform process has been initiated. Land Registry and cadastre services in our country is affected by this process, In the technical aspects of the cadastral survey was conducted in the process of buying service from the private sector.

The purpose and scope of the law determined and concerning immovable property, The works designated under the cadastral technical services was decided to carry out by the licensed survey cadastre engineering offices. the activities, supervision and responsibilities with regulation of the jobs which they are authorized of this Office was proposed as the aim of the law.

with the start of operations of licensed survey cadastre engineering offices more efficient and fast execution of cadastral services and in the survey sector is aimed to provide employment. Institution; who has the service, controls, standards and put of rules have been in a position. The citizens are intended to attaining quality and fast service. However, from yesterday to today, disruptions that occurred in this process, problems and the defects are investigated what happens. With this situation, from related disciplines were received of the relevant disciplines. Opinions about yesterday, today and tomorrow of the licensed survey cadastre engineering offices are explained.

Keywords: Cadastre, The Licensed Survey Cadastre Engineering Offices, Private Sector, Geomatics engineering

APPLICATION OF STATISTICAL PROCESS CONTROL (SPC) FOR A MANUFACTURİNG OF GGG50 SPHEROIDAL GRAPHITE CAST IRON

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Abstract:

Spherodized graphite cast iron, having carbon content and silicium for various reasons, include the manipulation of properties required to achieve desired microstructures. One of important preferred cast irons is GGG50 in industry. Carbon Equivalent (CE) is an empirical value in weight percent, relating the combined effects of different alloying elements used in the making of cast iron to an equivalent amount of carbon. This value can be calculated using a mathematical equation. Statistical Process Control (SPC) is an effective powerful methodology for analyzing, monitoring, managing, and improving process performance. The method (XmR control chart and process capability index) are applied on data set about a GGG50 manufacturing company's product for CE values and the result are interpreted.

Keywords: Ductile Cast Iron, Statistical Process Control, Casting, GGG50

DETERMINATION OF SOME VEGETATION PROPERTIES IN KIZILOVA FOREST RANGELAND OF SOUTHERN TURKEY

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Abstract:

Forest rangelands are an important forage resource for Mediterranean countries, providing cheap forage and a reservoir of biodiversity. The aim of the study is to determine the plant-covered area, botanical compositions, aboveground biomass, underground biomass, rangeland condition and grazing capacity in a forest rangeland. A case study was conducted of Kızılova (Sütçüler) in Isparta district of Southern Turkey. Vegetation sampling was conducted in spring and autumn (2014-2015). "Line intercept" and "quadrat" methods were used in order to determine the rangeland flora of the case study area. 106 plant taxa belonged to 23 families; out of which 26 taxa of Asteraceae were determined, while 13 and 11 taxa were determined in Lamiaceae and in Poaceae respectively. The plant-covered area was found as nearly 57%. The botanical composition of rangelands' taxa is approximately 46.6% Poaceae, 31.3% Fabaceae and 22.1% of other families. The aboveground and underground biomass productions were calculated as 404.7 kg/da and 729.8 kg/da respectively. The results indicated that the average sufficient rangeland area per animal unit was 1.33 ha. The case study area of rangeland condition was established as "good". Results of the study were also discussed based on rangeland management.

Acknowledgement

Authors express their sincere appreciation to "TUBITAK" for financial support by project which numbered as 114O703.

Keywords: Forest rangeland, botanical composition, biomass production, rangeland condition, grazing capacity

DETERMINATION OF VEGETATION STRUCTURE OF THE CATOLUK FOREST RANGELAND IN ISPARTA PROVINCE (TURKEY)

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Abstract:

Rangelands in Turkey are common property and every individual who lives in a village has a right to graze their animals on them. The rangelands of Turkey are grazed 2 to 3 times higher than their grazing capacity. On the other hand forest gaps are regarded as grazing lands in most countries of the world. This research was conducted in Çatoluk Forest Rangeland, in the vegetation period of 2013. The study area is located within Isparta/Aksu district boundaries and its average altitude is about 1450 meters and also slopes about 10%. The aim of this study is to determine to the plant-covered area, botanical composition, aboveground biomass, underground biomass and rangeland condition. Transect and quadrat methods were used in order to determine the rangeland flora of the case study area. The main soil characteristic of the research area has been examined and texture class has been found as a clayey texture. It has been figured out that soil is in good level with the following features; slightly alkaline with the amount of pH 7.18, low chalky with the rate of 1.45%, with 4.75% of organic matter. The plant-covered area was found as nearly 43%. Additionally, the botanical composition of rangeland consists of 52.6% Poaceae, 18.1% Fabaceae and other families 29.3%. The aboveground and underground biomass yields were calculated as 331.2 kg/da and 398.8 kg/da, respectively. The rangeland condition was established as average.

Keywords: Isparta, forest rangeland, vegetation structure, plant-covered area, botanical composition

DETERMINATION OF STRUCTURAL, SPECTROSCOPIC AND CHIROPTICAL PROPERTIES OF ATENOLOL: A QUANTUM CHEMICAL STUDY

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Abstract:

Atenolol, a competitive 1-selective adrenergic antagonist is widely used in in blood pressure control as blocker. The different conformations or enantiomers of this molecule can influence its physico-chemical behavior and pharmacological activity, thus, determination of its characteristics is of utmost importance. In the present work, a quantum chemical study was carried out on the structural, spectroscopic and chiroptical properties of atenolol. The ground state equilibrium structure, vibrational spectra (IR, Raman and VCD) and optical rotations of studied compound were obtained using DFT(B3LYP) method applied with 6-311++G(d,p) basis set. The magnetic properties were pointed out via 1H and 13C NMR calculations using GIAO method. TD-DFT/6- 311++G(d,p) approach was used to predict the electronic features along with the UV-Vis and ECD spectra. All calculations were done for both (S) and (R) enantiomers of mentioned molecule, and results were compared with available previously reported experimental data.

Keywords: Atenolol, DFT, VCD, ECD

ANALYSIS OF SUSTAINABILITY CONCEPT ON NATIONAL PARKS WITH RESPECT TO TOURISM AND RECREATIONAL ACTIVITIES

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Abstract:

Tourism can support the protection of natural resources when local residents realize the value of their assets and want to preserve these resources. Tourism can also help the sustainable management of protected areas as an alternative for the growing number of travellers who are looking for different experiences to enjoy the natural environment. It is now accepted that despite problems tourism often creates opportunities for protected areas, tourism should be supported if its negative impacts are under controlled (WWF, 2011).Therefore, visitor impact management is ever more important as the number of tourists increases, and their distribution is often concentrated in major tourism destinations in ecologically vulnerable areas (Aloisi, 2002).

In Turkey, natural and biodiversity-rich areas are protected by several different statuses such as national park, nature park, nature reserve, nature monument, wildlife reserve, specially protected area, biosphere reserve and Ramsar site. As a result of the diversity of protection statuses, protected areas are managed under different laws, regulations or international conventions and by different authorities. Currently, about 7,24 % of Turkey's land area is protected mainly and these designations focus on forest, wetland and mountain habitats and include 40 national parks, 31 nature reserves, 184 nature parks, 80 wildlife reserves, 14 specially protected areas, 14 Ramsar sites and 1 biosphere reserve.

Most of these areas are recognized as tourism destinations in Turkey. Recently, the government has been encouraging ecological and cultural tourism in protected areas as a part of the National Tourism Strategy 2023 document in order to reduce pressure on the coastal environment and create alternative income resources for the least developed regions by diversifying tourism products and locations.

In this context, this study aims to provide clues for understanding recreational uses of national parks in Turkey by focusing on trends of visitors in national parks.

Keywords: National Parks, Tourism, Sustainability, Turkey

TEMPORAL VARIATION OF ORGANIC AND INORGANIC CARBON TRANSPORT FROM THE SOUTHEASTERN BLACK SEA (TRABZON PROVINCE) RIVERS

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Abstract:

The input of organic carbon being an indicator of organic pollution as well to the oceans provides crucial sources in food web of estuarine ecosystems. The Black Sea surrounded by six countries is the world's largest land-locked inland sea and its total length of the coastal zone is 4,340 km, of which 1,400 km is shared by Turkey. The Black Sea receives annually a considerable freshwater input from the rivers carrying substantial loads of organic matter, nutrients and anthropogenic pollutants and the coastal parts are highly affected by eutrophication.

The aim of this study is to determine the temporal variability of total organic carbon (TOC) and total inorganic carbon (TIC) carried from the eight Turkish streams to the Black Sea. The streams included in this study are Ağasar, Fol, Galanima, Değirmendere, Yomra, Karadere, Manahoz and Solaklı, within the boundaries of Trabzon Province, the most densely populated city located in the coast of Southeastern Black Sea. The water sampling studies have been monthly conducted in one station, which was selected at the point where the stream is discharging the Black Sea, for each stream during a period of ten months between March 2015 and December 2015.

Considering the mean values for each stream, TOC concentration fluctuated from 4.16 to 13.38 mg/L and the Stream Yomra being under immense pressure due to various kinds of anthropogenic activities among which sand and gravel mining is the most disastrous one was the most critical one. The streams showed high TOC yield during the summer and autumn months, corresponding to the seasonal trend of stream discharge. It was also found that TIC comprised the majority of the total carbon concentration, with mean percentages ranging from 67% to 84% in all of the streams.

Keywords: Black Sea, Total Organic Carbon, Trabzon

FORECASTING OF RESERVOIR LEVEL BY ARTIFICIAL NEURAL NETWORKS - A CASE STUDY OF YARSELI DAM, TURKEY

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Abstract:

Water reservoir systems are complex problems. Therefore, it needs systematic study and optimization techniques to assist its planning and management decisions. Reservoir operation is based on rules and to subjective judgments by the operators. In the present study, dam reservoir level is predicted using Artificial Neural Networks (ANN) method. Feasibility of ANN is evaluated using dam reservoir daily data, such as daily precipitation, total required daily released volume, total daily inflow water volume and daily reservoir level. The data were collected on daily basis measurement over 1796 days at the Yarseli Dam in the Mediterranean region of Turkey. A multi layer perceptron (MLP) is used as the ANN structure. ANN results are compared with conventional multi-linear regression (MLR), and autoregressive (AR(p)) model. The results show that reservoir level variaiton is successfully estimated using ANN and the solution is a viable alternative to other applied models.

Keywords: Dam Reservoir, Artificial Neural Networks, Level, Prediction, Multi layer perceptron, Autoregressive Model.

ESTIMATION OF DAM EVAPORATION LEVEL USING ARTIFICIAL NEURAL NETWORK METHOD

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Abstract:

Reservoir plays a vital function at various times and for different purposes such as the analysis and design of several water resources projects such dam construction, irrigation needs and flood control. Prediction of dam reservoir evaporation level is also important for operation, design of dam structure. In the present study, prediction of dam reservoir evaporation level is investigated using Artificial Neural Networks (ANN) method. Feasibility of ANN is evaluated using dam reservoir daily amount of evaporation data. The data was collected on daily basis measurements over 1095 days at the Çatalan Dam in the Mediterranean region of Turkey. A multi layer perception (MLP) is used as the ANN structure. The technique updates the weight and bias values according to Levenberg-Marquardt optimization. ANN results are compared with conventional multi-linear regression (MLR), and autoregressive (AR(p)) model. The models are analysed with statistics and graphs results. The results show that ANN model solution for dam reservoir level fluctuations can provide better performance prediction compared to those of the conventional statistical method.

Keywords: Artificial Neural Networks, Dam Reservoir, Evaporation, Prediction, Autoregressive Model.

INVESTIGATION OF WEAR STRENGTH OF FLY ASH BLENDED POLYMER MATERIALS

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Abstract:

Polymer matrix composites are gaining in popularity because of they have symmetrical and balanced material properties, production and use due to the ease of construction, aerospace and automotive structures for buildings. In addition, they do not conduct electricity and heat. Today, one of the new polymeric materials are epoxy based floor coating or adhesive materials field. When application of these materials on the surface, usage of filler materials is investigated in polymers for both is reducing the cost of the surface and increases the strength. One of the fillers is fly ash. In the study, mechanical, hardness, surface roughness, physical and chemical properties of polymer-based surface coating or adhesive materials that were produced using fly ash was characterized. Wear tests were performed with pin-on-disc under conditions of dry friction, 5, 10, 15 and 30 N load, 0.3 m/s slip velocity and 500 m distance. According to the results, it was observed that fly ash powders can be used in the polymer based covering or adhesive material. In this way, both environmental pollution would be decreased by evaluation of fly ash which is an environmental problem in our region, and competitiveness of the country and region basis would be increased by improving of the quality of existing products.

Keywords: Epoxy, fly ash, hardness, surface roughness, wear resistance.

EFFECT OF FLY ASH ON RHEOLOGICAL PROPERTIES OF EPOXY BASED POLYMERS

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Abstract:

Polymer matrix composites are used to make very light bicycles that are faster and easier to handle than standard ones, fishing boats that are resistant to corrosive seawater, and lightweight turbine blades that generate wind power efficiently. Usage of filler materials is investigated in polymers for both reducing the cost of the material and increase the strength. One of the fillers is fly ash. In the study, rheological properties of polymer-based composite materials such as viscosity, flow velocity and flow diameter that was produced using fly ash was characterized. According to the results, it was observed that fly ash can be used in the polymer based composite material. In this way, both environmental pollution would be decreased by evaluation of waste fly ash which is an environmental problem in world.

Keywords: Epoxy, fly ash, rheological properties, surface coating.

HEAT TRANSFER AND ENTROPY GENERATION ANALYSIS OF NANOFLUIDS FLOW OVER BACKWARD-FACING STEP

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Abstract:

A numerical investigation of heat transfer and entropy genaration in laminar forced convection of Al2O3/water, TiO2/water and ZnO/water nanofluids flow over backward facing step are presented. This study is performed for understanding the effects of types of nanofluids on heat transfer and entropy generation. The Reynolds number ranged from 75 to 225. Both of the step height and inlet height of the duct were 4.8 mm. As the downstream wall was subjected to constant and uniform heat flux of 2000 W/m2, the other walls were insulated.The nanoparticles volume fractions were kept constant at 4%. The average Nusselt number and average Darcy friction factor were obtained for each nanofluids. Also, entropy generation due to heat transfer and friction were presented for different types of nanofluid.

Keywords: Laminar flow, Nanofluid, Backward-facing step, Forced convection, Heat transfer, Entropy generation.

NUMERICAL ANALYSIS OF SIO2/WATER NANOFLUID FLOW OVER BACKWARD-FACING STEP

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Abstract:

Two-dimensional numerical simulation of steady state laminar forced convection flow and heat transfer in a duct having backward-facing step (BFS), using SiO2/water nanofluid is presented. This study was conducted for effects of nanoparticle volume fraction on flow and heat transfer characteristics. The Reynolds number ranged from 75 to 225. Both of the step height and inlet height of the duct were 4.8 mm. As the downstream wall was subjected to constant and uniform heat flux of 2000 W/m2, the other walls were insulated. The nanoparticle volume fraction was varied from 1.0% to 4.0%. The average Nusselt number and average Darcy friction factor were obtained for each nanoparticle volume fractions. Velocity and temperature profiles were analyzed. It is found from the results of numerical simulation that the Nusselt number increases with increasing the nanoparticle volume fraction and Reynolds number.

Keywords: Laminar flow, SiO2/water nanofluid, Backward-facing step, Forced convection, Heat transfer

THE EFFECT OF MICRO-PARTICLE-REINFORCED ADHESIVE ON TENSILE STRENGTH OF DOUBLE LAP JOINTS

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Abstract:

In this study, the influence of microscale particles Borax filler dispersion in the epoxy adhesive on tensile lap shear strength of adhesively bonded double-lap joints was experimentally investigated. Borax filler was used as additive material within the epoxy, having different mass ratios (5, 10, 15, 20, 25% wt). Test samples were produced by woven and plain S-glass fiber and they have same adhesive thicknesses for all interphases of two adjacent laminates. Tensile strength and load carrying capacities of them were determined by a series of mechanical tests using ASTM standards, then resulting failure and fractured surfaces were visualized and compared with each other.

Keywords: Double lap joint, adhesive, composite materials, borax -micro-particles

STUDY OF BULK MODULI OF FE(1-X) AL(X) ALLOYS

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Abstract:

Because Fe-Al alloys are an important industrial material, they continue to be subject to all kinds of work. We used different theoretical methods for this purpose to calculate the bulk moduli of the Fe(1-x) Al(x) alloy system from x=0 to x=0.4 and compared with the experimental results. Consequently, we tried to identify a suitable theoretical model approximately.

Keywords: Fe-Al alloys, bulk moduli

RESEARCH OF RETINAL AND IRIS IDENTIFICATION SYSTEMS

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Abstract:

Biometrics is the science that analyzes biological data and also the technology that measures biological data. Biometric systems make identification or identity verification by using measurable, distinctive physical and behavioral properties of humans. The most widely used biometrics techniques rely on finger prints, palm, hand geometry, iris, retina, face, ear shape, vein, signature, hand writing and voice identification of an individual. Iris identification systems and retina identification systems are the most accurate and reliable identifying techniques. Iris is a circular structure surrounding the pupil, which determines eye color. The iris is a very rich tissue and it has a unique texture. This texture is different for each individual and it will stay same throughout their lives. Iris identification systems use the mathematical pattern-identification algorithms and statistical methods on individuals' captured iris images. Retina, similar to iris, is unique for each person and has an unchanging texture throughout the life, except for some side effects of diseases. Retina that is located in the back side of the eye is responsible for vision. The mesh of blood vessels in retina is very complicated and distinctive. In retina identification systems, firstly, infrared light is radiated into the eye and blood vessels create unique reflections of this light. Retina identification is used in many areas from security systems to medical applications. This study examines and presents similarities and differences between two ocular biometric systems which are iris identification systems and retina identification systems. Analysis has also been carried out suing the findings of this study.

Keywords: Biometrics, Iris identification System, Retina identification System

THE EFFECTS OF HABITAT ON CALABRIAN PINE FIBER DIMENSIONS

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Abstract:

The aim of this study was to indicate the effect of growing areas on the fiber dimensions of Calabrian pine (Pinus brutia Ten.) woods. For this reason, test materials were cut from four different habitat of Turkey. In tests, the fiber diameter, fiber length, wall thickness and lumen diametres were measured on samples obtained from 2 to 4 meters of the logs taken from each of the growing areas. It was determined that the effect of habitat on the cell wall thickness and the fiber diameter, the lumen width, and the fiber lenght are significant at probability levels of $p < 0.001$, $p<0.01$, and $p<0.05$, respectively. The results were demonstrated that the highest fiber dimensions were obtained in Onikişubat and Bucak habitat located in semi-arid climates.

Keywords: Pine wood, habitat, fiber dimensions, climatic type

INVESTIGATION OF ANTI-TERMITE ACTIVITY OF WOOD TREATED WITH GEOTHERMAL FLUIDS FROM DIFFERENT REGIONS OF TURKEY

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Abstract:

The objective of this study was to investigate the anti-termite activity of geothermal fluids supplied from different regions of Turkey. Scotch pine treated with fluids either evaporated or non-evaporated obtained from Ankara, Afyon, Denizli and Eskişehir regions in Turkey. The increasing in the concentration of geothermal fluids significantly decreased the mass loss caused by termite, and increased the termite mortality. Mass losses of all wood samples treated with geothermal fluids were found lower than those treated with pure water. The highest mass losses were found in pure water and non-concentrated fluids provided from Denizli and Afyon (0%) while the lowest mass losses were found in wood treated with thermal fluid from Denizli (75%). The highest and lowest termite mortality was found in the samples treated with evaporated fluid from Denizli ff(75%) and pure water, respectively. This study indicated that geothermal fluids might be evaluated to protect wood material against termites when it was evaporated.

Keywords: Geothermal fluid, termite, Scotch pine, wood protection

AN EVALUUUATION FOR THE EFFECT OF THE NUMBER OF HOLES ON THE BLAST-INDUCED GROUND VIBRATIONS IN OPEN CAST BLASTING OPERATIONS

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Abstract:

In this study, effect of number of holes on blast induced vibrations has been investigated in open pit mines. The studies performed on an overburden panel in Garp Lignite Enterprise, Kutahya, Turkey. The number of holes of the blasts in this panel classified and blasting results evaluated by statistical methods. Drill-hole patterns of all blasting were the same form and charge amount of the blast holes was the same for all cases. Explosive charges are equal for all holes. It has been used the non-electric detonator for the ignition during blasting studies.

For measuring of the vibration of the blasts, seismographs have been used. The study has been performed in two steps. Firstly, the data obtained have been analyzed for each hole groups. Secondly, the all data has been analyzed together. Scaled distance- peak particle velocity graphs have been created for the statistical evaluation. In this way, equations and regression coefficients were obtained and these data have been compared.

Keywords: Vibrations, number of holes, blasting

COMPARING DYNAMIC RESPONSE OF AN EULER-BERNOULLI BEAM UNDER A CONCENTRATED MOVING LOAD ON LINEAR VISCOELASTIC FOUNDATION BETWEEN FEM AND GALERKIN METHOD

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Abstract:

Investigation of beams under moving loads on foundation problems have been studying for years. In this paper first of all a mathematical model of a simply-supported Euler-Bernoulli beam under moving load is presented. Moving load is concentrated load that forced on midpoint and foundation model is viscoelastic foundation. By using Galerkin Method, equation of motion is turned from PDEs to ODEs. After the solving equations of motion, displacement of the midpoint of the beam is plotted in Mathematica. Then the system modelled in Finite Element Method (FEM). Dynamic response of FEM and Galerkin Method was compared each other.

Keywords: galerkin, moving load, euler-bernoulli beam, FEM

ENERGY MANAGEMENT AND SUSTAINABILITY OF AGRICULTURAL SYSTEMS: CASE OF CANKIRI, TURKEY

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Abstract:

Growing population and the developments of the people's living standarts countinously increasing that it demands for energy in worldwide. Todays, using a large portion of the energy, which will be known run out in the near future from fossil-based sources, it reveals the environmental problems of global dimension. That case, instead of fossil fuel reserves are rapidly diminishing, and that caus environmental pollution, reveals the need for utilization of renewable and clean energy sources.

Nowadays, intensive agricultural production system is dependent on fossil fuels, it is carried out with limited water and intensive use of natural resources. At the same time, accommodating the needs of a growing world population, which decreases the influence of the climate change, especially soil and water resources, including energy resources, as well as in natural resources use makes it efficient and essential sustainable.

In this study; Central Anatolia Region and the provinces of Çankırı, with an average annual production of alternative energy sources that can be utilized in the agricultural field, aimed to determine the highest and lowest solar radiation exergy value. For this purpose; State Meteorology Affairs General Directorate, which is measured by months and regions based on solar radiation intensity and mean temperature data were utilized.

Keywords: Çankırı, energy, intensive, radiation exergy

USE OF DRIED PERSIAN LIME (CITRUS LATIFOLIA TANAKA) AS A FLAVORING IN FOOD AND MEDICINAL PLANT IN IRAN

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Abstract:

Lime (Citrus latifolia Tanaka) belongs to the family Rutaceae and probably originated in India. It may be then spread to the Middle East and other tropical and subtropical countries. Lime is one of the most important citrus trees and used mainly in fresh drinks, as well as a part of salads and is chief source of carbohydrates, protein, oil and vitamin C. Persian Lime, Tahiti lime or Bears Lime is a variety of lime. The Persian lime is believed to be a native to the old Persian region of the middle east and was possibly transported to Brazil via Australia. It is believed that the Persian lime was introduced to the USA via Tahiti, hence one of its three common names. This fruit is widely produced in Iran right now. Dried fruit of Persian lime is a lime that lost its water content, usually after having spent a majority of their drying time in the sun. Dried fruit of the Persian lime in Middle East, especially in Iran, is used as a flavoring in foods, whole, sliced or ground. In traditional medicine of Iran the dried fruits used as Stomach tonic, Carminative, appetizing, Antiseptic and etc. In this review paper, production and drying of the fruits and different uses of Persian lime in Iran are discussed.

Keywords: Persian lime, drying, fruit, Iran, flavoring

DETERMINATION OF THE BEST GROWING MEDIUM IN FLOAT SYSTEM FOR IMPROVING GERMINABILITY AND SEEDLING PRODUCTION IN TOBACCO (NICOTIANA TABACUM L)

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Abstract:

The direct-seeded of tobacco with float system has taken the attention of many farmers for seedling production. Peat is an important component of culture medium which is mainly imported. In order to study growing medium to replace peat in float system for improving germinability and seedling production, a research was carried out in the seedling nursery of Rasht Tobacco Research Station. This experiment was conducted in randomized complete design with 8 treatments and 3 replications. The treatments were peat, vermiculite, field soil, manure, sand, tree cortex compost and tea residue. Results of the variance analysis indicated that there were significant differences between growing mediums in terms of germination percentage, germination speed, collar diameter and root dry weight. The highest germination percentage and germination speed were observed in treatment 2, consisted of peat 50%+vermiculite 25%+field soil 25%. The highest collar diameter and root dry weight were found in treatment 6 including composted tree cortex compost 50%+ field soil 25%+ manure 25%. It can be concluded that local medium instead of imported ones, can be applied for tobacco seedling production.

Keywords: Seedling production, Float system, Peat, Vermiculite, Germination Speed

PROGRAM OVERVIEW

24 May		Airport transfers (***Only for Blue, Green and Orange Package ID Holders***)
	17:00-21:30	Sarajevo City Tour (***Only for Blue Package ID Holders***)
25 May	08:00-09:30	Registration
	09:30-10:20	Opening Speech & Speech by Invited Speaker (Prof.Dr. Harry Miller)
	10:20-10:40	Coffee Break
	10:40-12:20	Session 1
	12:30-13:30	Lunch (***Only for Blue, Green and Orange Package ID Holders***)
	13:30-15:00	Session 2
	15:10-15:20	Coffee Break
	15:20-16:50	Session 3
	17:00-17:20	Coffee Break
	17:20-19:00	Session 4
	19:30-20:30	Dinner in the Hotel Restaurant (***Only for Blue Package ID Holders***)
26 May	08:00-09:00	Breakfast (***Only for Blue and Green Package ID Holders***)
	09:00-10:30	Session 5
	10:40-11:00	Coffee Break
	11:00-12:20	Session 6
	12:30-13:30	Lunch (***Only for Blue, Green and Orange Package ID Holders***)
	13:30-15:00	Session 7
	15:10-15:30	Coffee Break
	15:30-17:00	Session 8
	17:10-17:30	Coffee Break
	17:30-19:00	Session 9
	20:00-22:00	Gala Dinner (***Only for Blue, Green and Orange Package ID Holders***) *MEETING IN THE HOTEL LOBBY*
27 May	**Social Program** (*Mostar – Blagaj – Pocitelj Trips*) **(Only for Blue Package ID Holders)**	
	8:00	Breakfast (***Only for Blue and Green Package ID Holders***)
	8:30	Departure to Mostar
	10:30	Visit to Pocitel and historical places
	12:00	Visit to Blagaj Dervish Lodge which is the first lodge of Sarajevo
	13:00	Lunch in Blagaj Dervish Lodge
	14:30	Visit to Mostar Bridge and Koska Mehmet Pasa Mosque
	19:00	Diner at Jablanica
	20:00	Departure to Sarajevo
	21:30	Arrival to Sarajevo
28 May	8:30	Breakfast (***Only for Blue and Green Package ID Holders***)
	9:00	Visit to Tunnel of Hope (***Only for Blue Package ID Holders***)
	10:00	Vrelo Bosne Trip (***Only for Blue Package ID Holders***)
	12:00	Free time
		Departure to Airport