EJONS

International Congress on Mathematic, Engineering and Natural Sciences-III

April 21-22, 2018
Mardin - TURKEY

The Book of Abstracts

Editors
Dr. Mehriban EMEK
Zhuldyz SAKHI

IKSAD Publishing House
Issued in May 1, 2018

ISBN 978-605-9885-73-7

Institute Of Economic Development And Social Researches

CONGRESS BOOK

THE BOOK OF ABSTRACTS

EJONS International Congress on Mathematic, Engineering and Natural Sciences - III

April 21-22, 2018
Mardin / TURKEY

Editors

Dr. Mehriban EMEK
Zhuldyz SAKHI

Institute Of Economic Development And Social Researches Publications®
(The Licence Number of Publicator: 2014/31220)
Golbaşı / ADIYAMAN - TURKEY
TR: +90 342 606 06 75 USA: +1 631 685 0 853
E posta: ejonsjournal@gmail.com
www.iksad.org
www.iksadkongre.org
Published in May 1, 2018

ISBN –978-605-9885-73-7

CONGRESS ID

NAME OF CONGRESS

EJONS International Congress on Mathematic, Engineering and Natural Sciences – III

TYPE OF PARTICIPATION

Keynote and Invited

DATE AND PLACE

April 21-22, 2018 Mardin / TURKEY

ORGANIZATOR

Institute of Economic Development and Social Researches

HEAD of CONGRESS

Professor Dr. Osman ERKMEN

HEAD OF ORGANIZING COMMITTEE

Mustafa Latif EMEK

COORDINATOR

Zhuldyz SAKHI

ORGANIZATION COMMITTEE

Dr. Feda REHIMOVA

Dr. Mariam OLSSON

CONGRESS PHOTOGRAPHS

Published On Iksad Congress Page At Facebook

CONGRESS LANGUAGES

English, Turkish

SCIENTIFIC ADVISORY BOARD

CONGRESS PROGRAMME

DATE		HEAD OF SESSION	WORKSHOP NO	WORKPLACE
21.04.2018 Saturday / Hour **09^{00}-12.^{00}**		Prof.Dr.Oktay MUHTAROĞLU	WORKSHOP 4	1st floor
TIME	**AUTHORS**	**PAPER**		**DISCIPLINE**
09.^{00}/09.^{10}				
09.^{10}/09.^{20}	Assoc.Prof.Dr. Nilüfer TOPSAKAL & Prof. Dr. Rauf AMIROV & Dr. Abdullah ERGÜN	ON GLM TYPE MAIN INTEGRAL EQUATION FOR SINGULAR STURM-LIOUVILLE OPERATOR WHICH HAS DISCONTINUOUS COEFFICIENT		MATHEMATICS
09.^{20}/09.^{30}	Prof.Dr.Oktay MUHTAROĞLU & Assoc.Prof.Dr. Kadriye AYDEMİR & Hayati OLĞAR	EIGENFUNCTION EXPANSIONS ASSOCIATED WITH THE DISCONTINUOUS SCHRÖDINGER OPERATORS		MATHEMATICS
09.^{30}/09.^{40}	Prof.Dr. Oktay MUHTAROĞLU & Assoc.Prof.Dr. Kadriye AYDEMİR & Hayati OLĞAR	LOWER BOUND ESTIMATION FOR EIGENVALUES OF THE BOUNDARY VALUE PROBLEM WITH INTERACTION CONDITIONS		MATHEMATICS
09.^{40}/09.^{50}	Özkan ÇELİK & Meral SÜER	DELTA SETS OF SOME PSEUDO-SYMMETRIC NUMERICAL SEMIGROUPS		MATHEMATICS
09.^{50}/10.^{00}	Mehmet Şirin SEZGİN & Meral SÜER	BETTI NUMBERS OF SOME TELESCOPIC NUMERICAL SEMIGROUPS		MATHEMATICS
10.^{00}/10.^{10}	Prof.Dr.Oktay MUHTAROĞLU & Assoc.Prof.Dr. Kadriye AYDEMİR & Hayati OLĞAR	AN ALTERNATIVE APPROACH TO DISCONTINUOUS BOUNDARY VALUE PROBLEMS		MATHEMATICS
10.^{10}/10.^{20}	Assoc.Prof.Dr. Nilüfer TOPSAKAL & Prof. Dr. Rauf AMIROV	INVERSE PROBLEM FOR A CLASS OF DIRAC OPERATORS		MATHEMATICS
10.^{20}/10.^{30}	Dr. Hacer BOZKURT & Prof. Dr. Yılmaz YILMAZ	EQUIVALENT NORMED QUASILINEAR SPACES		MATHEMATICS
10.^{30}/10.^{40}	Prof.Dr. Oktay MUHTAROĞLU & Assoc.Prof.Dr. Kadriye AYDEMİR & Dr. Hayati OLĞAR	OPERATOR-PENCIL TREATMENT OF STURM-LIOUVILLE SYSTEMS WITH JUMP CONDITIONS		MATHEMATICS
10.^{40}/10.^{50}	Dr. Tuğba MERT	SPACELIKE RULED SURFACE IN HYPERBOLIC 3-SPACE		MATHEMATICS
10.^{50}/11.^{00}	Assoc.Prof.Dr. Sedat İLHAN & Prof.Dr. H. Özlem GÜNEY	SECOND HANKEL DETERMINANT BOUNDS FOR ANALYTIC FUNCTIONS RELATED TO K-FIBONACCI NUMBERS		MATHEMATICS
11.^{00}/11.^{10}	Assoc.Prof.Dr. Sedat İLHAN & Prof.Dr. H. Özlem GÜNEY	TOEPLITZ DETERMINANTS FOR A SUBCLASS OF ANALYTIC FUNCTIONS RELATED TO FIBONACCI NUMBERS		MATHEMATICS
11.^{10}/11.^{20}	Prof.Dr. H. Özlem GÜNEY	THE SUBORDINATION RESULT FOR A SUBCLASS OF UNIVALENT FUNCTIONS		MATHEMATICS
11.^{20}/11.^{30}	Prof.Dr. H. Özlem GÜNEY & Assoc.Prof.Dr. Sedat İLHAN	BOUNDS ON THIRD HANKEL DETERMINANT OF ANALYTIC FUNCTIONS RELATED TO FIBONACCI NUMBERS		MATHEMATICS
11.^{30}/11.^{40}	Prof.Dr. H. Özlem GÜNEY & Assoc.Prof.Dr. Sedat İLHAN	COEFFICIENT ESTIMATES FOR A SUBCLASS OF ANALYTIC BI-UNIVALENT FUNCTIONS CONNECTED WITH FIBONACCI NUMBERS		MATHEMATICS
11.^{40}/11.^{50}	Assoc.Prof.Dr. Sedat İLHAN & Ahmet ÇELİK	SOME RESULTS IN SATURATED NUMERICAL SEMIGROUPS		MATHEMATICS
11.^{50}/12.^{00}	Dr. Hacer BOZKURT & Prof. Dr. Yılmaz YILMAZ	SOME NEW PROPERTİES OF INNER PRODUCT QUASİLİNEAR SPACES		MATHEMATICS

DATE		HEAD OF SESSION	WORKSHOP NO	WORKPLACE
21.04.2018 Saturday / Hour **09^{00}-12.^{00}**		Assoc.Prof. Dr. Cihat ABDİOĞLU	WORKSHOP 5	1st floor
TIME	**AUTHORS**	**PAPER**		**DISCIPLINE**
09.^{00}/09.^{10}	Assoc.Prof.Dr. Cihat ABDİOĞLU & Dr. Mustafa ÇEVİK	"GELİN TANIŞ OLALIM; FEN VE MATEMATİĞİ EĞLENCELİ KILALIM" PROJESİNİN 8. SINIF ÖĞRENCİLERİNİN MATEMATİK BAŞARILARINA VE ÜSTBİLİŞSEL FARKINDALIKLARINA ETKİSİNİN İNCELENMESİ		SPECIAL EDUCATION
09.^{10}/09.^{20}	Assoc.Prof.Dr. Cihat ABDİOĞLU & Dr. Mustafa ÇEVİK	EVALUATION OF THE CURRENT MATHEMATICS CURRICULUM IMPLEMENTED IN HIGH SCHOOLS BY VIEWS OF SCHOOL ADMINISTRATORS		SPECIAL EDUCATION
09.^{20}/09.^{30}	Dr. Süleyman EDİZ	ESKİ VAN ŞEHRİNDEKİ TARİHİ CAMİLERİNDEKİ SÜSLEMELERİN GRUP YAPILARI		EDUCATION
09.^{30}/09.^{40}	Assoc.Prof.Dr. Cihat ABDİOĞLU & Dr. Ece YETKİN ÇELİKEL & Dr. Angsuman DAS	SOME RESULTS ON A NEW GRAPH OF A RING		EDUCATION
09.^{40}/09.^{50}	Dr. Meral KORKMAZ &Dr.Yusuf Ziya ÖLÇÜCÜ	APPLICATION OF HYDRAULICS IN GIS DATABASE: THE CASE OF ELAZIG AKKUSAGI POND		CONSTRUCTION
09.^{50}/10.^{00}	Assoc.Prof. Dr. Ömer KILIÇ & Dr. Zeyneb KILIÇ	ECO - FRIENDLY ALTERNATIVE ENERGY SOURCES		CONSTRUCTION
10.^{00}/10.^{10}	Haydar ERTAŞ	TUNCELI-ÇEMİŞGEZEK FOUND IN THE HISTORIC CASTLE AND YELMANIYE MOSQUE NATURAL STONE DECOMPOSITION		CONSTRUCTION
10.^{10}/10.^{20}	Dr. Aziz İlhan & Dr. Haydar ERTAŞ Sanal sunum	INVESTIGATION OF THE SOLAR ENERGY POTENTIALS OF THE TUNCELI, ELAZIĞ AND MALATYA PROVINCES AND THEIR PRACTICALITY		CONSTRUCTION
10.^{20}/10.^{30}	Prof. Dr. BAHTIYAR A. MEHMETOĞLU Ebru Çopuroğlu	USE OF n-DIMENSIONAL DEBYEAPPROXIMATION ON THE ASSESMENT OF THE ISOBARIC HEAT CAPACITY OF URANIUM OXIDE		
10.^{30}/10.^{40}	Dr.Öğr.Üyesi Hüseyin Bayraktar Sanal sunum	INVESTIGATION OF THE FRIDAY MOSQUE BELONGING TO THE ORHAN GAZI PERIOD OF THE CONSTRUCTION TECHNIQUE AND THE FORMATION PROCESS		ARCH.
10.^{40}/10.^{50}	Semih AÇIKBAŞ & Sebahattin ALBAYRAK & Mehmet Arif ÖZYAZICI	STATUS OF ALFALFA SEED GROWING IN TURKEY AND ALFALFA SEED PRODUCTION		ARCH.
10.^{50}/11.^{00}	Dr. Faruk AKSOY, Prof. Dr. İbrahim TÜRKOĞLU	MARDİN ÖRNEĞİ ÜZERİNDE OTEL İŞLETMELERİNİN WEB SAYFALARININ DEĞERLENDİRİLMESİ		
11.^{00}/11.^{10}	Assoc.Prof.Dr. Ömer GÜLLÜ & Dr. Cihat ÖZAYDIN & Enise ÖZERDEN	DETERMINATION OF CONTACT PARAMETERS OF THE AL/PSP/P-SI MIS DIODE		ENGINEERING
11.^{10}/11.^{20}	Enise ÖZERDEN & Dr. Cihat ÖZAYDIN & Assoc.Prof.Dr. Ömer GÜLLÜ	ELECTRICAL CHARACTERIZATION OF THE AL/P-SI SCHOTTKY DIODE WITH ORGANIC INTERLAYER		ENGINEERING
11.^{20}/11.^{30}	Enise ÖZERDEN & Dr.Cihat ÖZAYDIN & Assoc.Prof.Dr. Ömer GÜLLÜ	ELECTRICAL PROPERTIES OF THE AL/METHYL RED/P-TYPE INP SEMICONDUCTOR DEVICE		ENGINEERING

11.30/11.40	Dr.Faruk AKSOY, Prof. Dr. İbrahim TÜRKOĞLU	BİLGİSAYAR TEKNOLOJİLERİ MEZUNLARINA YÖNELİK İŞ DÜNYASININ BEKLENTİLERİ ÜZERİNE BİR ARAŞTIRMA	
11.40/11.50	EBRU ÇOPUROĞLU Prof. Dr. BAHTIYAR A. MEHMETOĞLU	A COMBİNED METHOD FOR HEAT CAPACITY STUDY ON URANIUM NITRIDE	
11.50/12.00			

DATE		HEAD OF SESSION	WORKSHOP NO	WORKPLACE
21.04.2018 Saturday / Hour **13.00-15.00**		Assoc.Prof. Dr. Zehra YÜCEDAĞ	WORKSHOP 4	1st floor
TIME	**AUTHORS**	**PAPER**		**DISCIPLINE**
13.00/13.10	Berat SÜER & Assoc.Prof.Dr. Zehra YÜCEDAĞ & Assoc.Prof.Dr. Mustafa AVCI	SOLUTIONS OF GINZBURG-LANDAU- TYPE EQUATIONS INVOLVING VARIABLE EXPONENT		E-BA
13.10/13.20	Dr. Lütfi AKIN	COMPACTIFICATION OF FRACTIONAL MAXIMAL OPERATOR IN WEIGHTED AND VARIABLE EXPONENTLEBESGUE SPACES		E
13.20/13.30	Assoc.Prof.Dr. Zehra YÜCEDAĞ & Assoc.Prof.Dr. Mustafa AVCI	MULTIPLICITY RESULTS FOR A CLASS OF □□□XP KIRCHHOFF TYPE EQUATIONS INVOLVING VARIABLE EXPONENT		E
13.35/13.40	Dr. Lütfi AKIN	ON TWO WEIGHT CRITERIONS FOR THE HARDY LITTLEWOOD MAXIMAL OPERATOR IN BFS		E
13.40/13.50	Assoc.Prof.Dr. Zehra YÜCEDAĞ & Assoc.Prof.Dr. Mustafa AVCI	EXISTENCE RESULTS FOR A CLASS OF NONLOCAL PROBLEMS INVOLVING LAPLACIAN		E
13.50/14.00	Berat SÜER & Assoc.Prof.Dr. Zehra YÜCEDAĞ & Assoc.Prof.Dr. Mustafa AVCI	A CLASS OF NONLOCAL ELLIPTIC EQUATIONS IN ORLICZ-SOBOLEV SPACES		E
14.00/14.10	Dr. İbrahim KOÇ & Dr. Şenol YILDIZ & Prof. Dr. Erdal Necip YARDIM	THE EFFECTS OF WOOD VINEGAR AND PESTICIDES ON ARTHROPODS (USING PITFALL TRAP SAMPLING) IN WHEAT AGROECOSYSTEMS		ENGINEERING
14.10/14.20	Dr. İbrahim KOÇ & Dr. Şenol YILDIZ & Prof. Dr. Erdal Necip YARDIM	DETERMINATION OF EFFECTS OF WOOD VINEGAR AND PESTICIDES ON SOME YIELD PARAMETERS IN WHEAT AGROECOSYSTEMS		ENGINEERING
14.20/14.30	Prof.Dr. I. M. Askerov & E. Somuncu	Calculations of Second and Third Virial Coefficients for Some Alternative Fuels		
14.30/14.40	Prof.Dr. I. M. Askerov & E. Somuncu	Evaluation of Relative Permittivity Using Second Virial Coefficients		
14.40/14.50	Prof.Dr. Bahtiyar MEHMETOĞLU & Hatun ÇAÇAN	ANALITICAL EVALUATION OF SECOND VIRIAL COEFFICIENT WITH MORSE POTENTIAL FOR METAL PLASMA STATES.		PHYSICS
14.50/15.00	Prof.Dr. Bahtiyar MEHMETOĞLU & Hatun ÇAÇAN	A NEW ASSESSMENT METHOD OF SECOND VIRIAL COEFFICIENT WITH MORSE POTENTIAL FOR NON- METAL PLASMAS AT HIGH TEMPERATURE		

DATE		HEAD OF SESSION	WORKSHOP NO	WORKPLACE
21.04.2018 Saturday / Hour **13.00-15.00**		Prof.Dr. H. Özlem GÜNEY	WORKSHOP 5	1st floor
TIME	**AUTHORS**	**PAPER**		**DISCIPLINE**
13.00/13.10	Prof. Dr. Osman ERKMEN	PROBIOTICS AND PREBIOTICS - A REVIEW		
13.10/13.20	Dr. Seda OĞUR & Yusuf DAYAN	BİTLİS YÖRESİNE AİT BAL VE BİTLİS-AĞRI YÖRESİNE AİT ARI SÜTLERİNİN BAZI PATOJEN BAKTERİLER ÜZERİNDEKİ ANTİMİKROBİYAL AKTİVİTELERİ		
13.20/13.30	Dr. Mahir TİMUR	ANTIOXIDANT AND ANTIMICROBIAL ACTIVITY OF NEW CHITOSAN HYDROGELS		
13.35/13.40	Dr Seda OĞUR & Yusuf DAYAN	BİTLİS MERKEZ İLÇESİNDE EĞİTİM GÖREN OKUL ÖNCESİ DÖNEMDEKİ BAZI ÇOCUKLARIN OBEZİTE PREVALANSİ		
13.40/13.50	Prof.Dr. Rauf AMİROV & Dr. Sevim DURAK	ON THE SOLUTIONS OF THE SINGULAR DIFFERENTIAL EQUATIONS		CHEMISTRY
13.50/14.00	Hatice KARAER YAĞMUR	SYNTHESIS AND APPLICATIONS OF POLY(PYRROLE-CLAY) COMPOSITES		CHEMISTRY
14.00/14.10	Dr. Engin YILMAZ	A THEORETICAL DOCKING STUDY ON PROSTATE CANCER		CHEMISTRY
14.10/14.20	Dr. Murat SÜNKÜR &Dr. Deniz BARIŞ CEBE & Hayriye ARAL & Assoc.Prof.Dr. Tarık ARAL	SYNTHESIS OF C 2 -SYMMETRICAL CHIRAL TETRAAMIDES AND THEIR ENANTIOMERIC RECOGNITION ABILITY TOWARDS AMINO ACIDE ESTHERS		CHEMISTRY
14.20/14.30	**Murat Yolcu** & Mehmet BAŞHAN & Veysi KIZMAZ & İsmail YENER & Elif İpek SATAR	EFFECT OF LAMBDA-CYHALOTHRIN, A PYRETHROID PESTICIDE, ON PHOSPHOLIPID FRACTION IN THE GILL OF OREOCHROMIS NILOTICUS		CHEMISTRY
14.30/14.40	Dr. Ezman KARABULUT	AÇISAL HAREKETLERİN ATOM-İKİATOM KİMYASAL REAKSİYONLAR ÜZERİNDEKİ ETKİSİ		
14.40/14.50	Dr.Muhittin KAYA	THE INHIBITORY EFFECT OF SOME FLAVINOIDS ON HBV AND HCV		
14.50/15.00	Dr. Aziz İLHAN & Dr. Haydar ERTAŞ Sanal sunum	EXAMINATION OF BUILDING CONTROL APPLICATIONS IN CONSTRUCTION SECTOR IN TERMS OF SOME VARIABLES: TUNCELI AND ELAZIG PROVINCE SAMPLE		

DATE		HEAD OF SESSION	WORKSHOP NO	WORKPLACE
21.04.2018 Saturday / Hour **15.00-17.00**		DR. Yıldırım TOSUN	WORKSHOP 4	1st floor
TIME	**AUTHORS**	**PAPER**		**DISCIPLINE**
15.00/15.10	Dr. Burak EFE	ERGONOMIC MATERIAL HANDLING EQUIPMENT SELECTION USING FUZZY LOGIC APPROACH		ENGINEERING
15.10/15.20	Mehmet Akif YERLİKAYA & Dr. Burak EFE & Dr. Ömer Faruk EFE	A NOVEL INTERVAL TYPE-2 FUZZY NUMBER BASED QFD APPROACH FOR MOBILE PHONE SELECTION		ENGINEERING
15.20/15.30	Mehmet Akif YERLİKAYA & Dr. Burak EFE & Dr. Ömer Faruk EFE	TALEBİN BELİRSİZ OLDUĞU SİPARİŞ TOPLAMA SİSTEMLERİNDE BULANIK YAKLAŞIMLA ÜRÜN ATAMA PROBLEMİ		ENGINEERING
15.30/15.40	Akif YERLİKAYA & Assoc.Prof. Dr. Feyzan ARIKAN	DEPO ÜRÜN ATAMA PROBLEMİ İÇİN EN İYİ ALTERNATİF KONUMUN KRİTİK VİKOR İLE BELİRLENMESİ		ENGINEERING
15.40/15.50	Murat BİNİCİ	EXAMINATION OF SIMULATION SOFTWARES AND PACKAGES USED IN THE MODELING OF DISCRETE- EVENT PROCESSES		ENGINEERING
15.50/16.00	DR. Yıldırım TOSUN	MICROWAVE ACTIVATED DESULFURIZATION OF TURKISH COALS AND LIGNITE, ŞIRNAK ASPHALTITE – MODIFIED PNEUMATIC FLOTATION		ENGINEERING
16.00/16.10	DR. Yıldırım TOSUN	RECOVERY OF HEMATITE FROM THE ASPHALTITE BOILER'S BOTTOM ASH BY COLUMN FLOTATION –PLANT MODELLING		ENGINEERING
16.10/16.20	DR. Yıldırım TOSUN	MICROWAVE PYROLYSIS OF COAL SLIME AND WOOD STRAW BY PYRITE FOR ACTIVE CARBON PRODUCT		ENGINEERING
16.20/16.30	Sinan ANLAŞ & İnanç ÖZGEN	AN EVALUATION ON THE PAEDERUS DERMATITIS RISK IN SOUTH-EASTERN ANATOLIA, TURKEY		ENGINEERING
16.30/16.40	Sinan ANLAŞ & İnanç ÖZGEN	REVIEW OF THE STAPHYLINIDAE (INSECTA: COLEOPTERA) FAUNA OF MARDIN PROVINCE IN TURKEY		ENGINEERING

16.40/16.50	Dr.Serhat ŞAP & Prof. Dr. Hanbey HAZAR & Dr. Emine ŞAP (SANAL SUNUM)	BİR DİZEL MOTORDA YANMA ODASINDAN EGZOZ ÇIKIŞINA KADAR TERMAL BARİYER KAPLAMANIN ETKİSİ	ENGINEERING
16.50/17.00	Dr.Serhat ŞAP & Prof. Dr. Hanbey HAZAR & Dr. Emine ŞAP (SANAL SUNUM)	İÇTEN YANMALI BİR MOTORUN PİSTON YÜZEYİNE SERAMİK KAPLAMANIN ETKİSİ	ENGINEERING

DATE		HEAD OF SESSION	WORKSHOP NO	WORKPLACE
21.04.2018 Saturday / Hour **15.00-17.30**		Prof. Dr. Hüsamettin BULUT	WORKSHOP 5	1st floor
TIME	**AUTHORS**	**PAPER**		**DISCIPLINE**
15.00/15.10	Öğr.Gör.Uğur YÜCEL & Dr. Dr.Murat AYAZ & Koray ERHAN	COMPARATIVE STUDY OF ENERGY EFFICIENCY IN LIGHTING CONTROL SYSTEMS FOR INDOORS		ENGINEERING
15.10/15.20	Prof. Dr. Hüsamettin BULUT & Mak Müh. Ahmet KAHRAMAN & Assoc.Prof. Dr. Merve ŞENTÜRK ACAR	KATI YAKIT KULLANAN İKİ FARKLI MISIR KURUTMA TESİSİNİN ENERJİ VE MALİYET ANALİZLERİNİN KARŞILAŞTIRILMASI		ENGINEERING
15.20/15.30	Assoc.Prof. Dr. Nadir İLTEN & İsmail CANER	HASTANELERDE ISIL KONFOR KOŞULLARININ BELİRLENMESİ		ENGINEERING
15.30/15.40	Prof. Dr. Hüsamettin BULUT & Mak Müh. Ahmet KAHRAMAN & Dr.Öğr. Üyesi. Merve ŞENTÜRK ACAR	LPG YAKITI KULLANAN YATAY TIP MISIR KURUTMA TESİSİNİN ENERJİ VE MALİYET ANALİZİ		ENGINEERING
15.40/15.50	Faruk ORAL & Öğr.Gör.Ahmet YAKIN & Assoc.Prof. Dr. Rasim BEHÇET & Emre GÖNEL. (sanal sunum)	CONTRIBUTION TO THE CITY'S ECONOMY OF AGRICULTURAL PRODUCTS DRIED BY SOLAR ENERGY IN MALATYA PROVINCE		ENGINEERING
15.50/16.00	Öğr.Gör.Ahmet YAKIN & Assoc.Prof. Dr. Rasim BEHÇET & Emre GÖNEL & Dr..Abdulmutalip ŞAHİNASLAN	AN ALTERNATIVE ENERGY RESOURCE FOR AGRICULTURAL MACHINERY:HYDROGEN		ENGINEERING
16.00/16.10	Assoc.Prof. Dr. Nadir İLTEN & İsmail CANER	HASTANELERDE SOĞUTMA DÖNEMİ ENERJİ TÜKETİMİ ANALİZLERİ VE OPTİMİZASYONU		ENGINEERING
16.10/16.20	Öğr.Gör.Ahmet YAKIN & Assoc.Prof. Dr. Rasim BEHÇET & Emre GÖNEL & Dr..Abdulmutalip ŞAHİNASLAN	THE EFFECT OF EMISSIONS FROM VEHICLES ON ENVIRONMENT AND HUMAN HEALTH IN THE PROVINCE OF MALATYA		ENGINEERING
16.20/16.30	Assoc.Prof. Dr. Rasim BEHÇET & Dr.Ahmet YAKIN & Arş Gör. Emre GÖNEL & Dr.. Faruk ORAL (sanal sunum)	SOLAR ENERGY IRRIGATION SYSTEMS IN MALATYA		ENGINEERING
16.30/16.40	Dr. Yakup ANIT	BATMAN İLİ YAPI TEMEL TAŞI VE ZEMİN KALKERLEİNİN JEODİNAMİK ETÜDÜ		
16.40/16.50	Dr. Yakup ANIT	CIZRE YERLEŞIM ALANINDAKI HEYELANLAR, JEOTEKNIK ANALIZI, OLASI HEYELAN TEHLIKEDEĞERLENDIRMESI VE HARITALAMASI		
16.50/17.00				

DATE		HEAD OF SESSION	WORKSHOP NO	WORKPLACE
22.04.2018 Sunday / Hour **09.00-12.00**		Assoc.Prof. Dr. Şule BARAN	WORKSHOP 4	1st floor
TIME	**AUTHORS**	**PAPER**		**DISCIPLINE**
09.00/09.10	Zübeyde KUMBIÇAK & Ümit KUMBIÇAK & Hatice POYRAZ & Şeyma CİVAN & F. Anıl SIRLIBAŞ	CHROMOSOMAL ANALYSIS OF MICARIA DIVES (LUCAS, 1846) (ARANEAE: GNAPHOSIDAE) FROM TURKEY		N.S
09.10/09.20	Eray BOLAT & Aslıhan İPEK & Assoc.Prof. Dr. D. Duygu KILIÇ	EXAMINATION OF HEAVY METAL (CO, FE, MN, NI) ACCUMULATION PARAMETERS AND INVESTIGATION OF BIOMONITOR PROPERTIES IN EUPHORBIA RIGIDA M.BIEB SPECIES.		N.S
09.20/09.30	Ercan CACAN & Merve USTA	SENSITIZATION OF TUMOR CELLS TO APOPTOSIS WITH THE PROTEASOME INHIBITION		N.S
09.30/09.40	Huzeyfe HURİYET & Tolga ÇAVAŞ & Özgür VATAN & Neylan ORAL & Melika BEKTAŞ & Nilüfer ÇİNKILIÇ	INVESTIGATION OF THE IN VITRO CYTOTOXIC AND GENOTOXIC EFFECTS OF MONTIVIPERAXANTHINA (GRAY 1840) VENOMS ON HEALTHY AND CANCER EPITHELIAL LUNG CELL LINES		N.S
09.40/09.50	Neylan ORAL & Huzeyfe HURİYET & Duygu İNCİ & Özgür VATAN & Melika BEKTAŞ & Nilüfer ÇİNKILIÇ & Tolga ÇAVAŞ & Rahmiye AYDIN	INVESTIGATION OF ANTICANCER ACTIVITY IN VARIOUS CELL LINES OF NEWLY SYNTHESIZED COPPER COMPLEXES		N.S
09.50/10.00	Derya ÇİFTÇİ & Dr. Mustafa Cemal ÇİFTÇİ	COLEOPTERA (INSECTA) DIVERSITY OF ILISU DAM BASIN		N.S
10.00/10.10	Dr.Ercan CACAN	MODULATION OF ANTI-TUMOR IMMUNE RESPONSES BY A PROTEASOME INHIBITOR		N.S
10.10/10.20	Zübeyde KUMBIÇAK & Dr. Ümit KUMBIÇAK	A FIRST KARYOTYPE DETERMINATION OF ZELOTES LONGIPES (L. KOCH, 1866) (ARANEAE: GNAPHOSIDAAE) FROM TURKEY		N.S
10.20/10.30	Assoc.Prof. Dr. Şule BARAN	KNOWN AND NEWLY RECORDED GYMNODAMAEID MITES (ACARI, ORIBATIDA, GYMNODAMAEIDAE) FROM KIZILCAHAM, TURKEY		N.S
10.30/10.40	Zübeyde KUMBIÇAK & Dr. Ümit KUMBIÇAK & Hatice POYRAZ & Şeyma CİVAN & F. Anıl SIRLIBAŞ	CYTOGENETICAL DATA OF ALOPECOSA FABRILIS (CLERCK, 1757) (ARANEAE: LYCOSIDAE) FROM CENTRAL ANATOLIA		N.S
10.40/10.50	Assoc.Prof. Dr. D. Duygu KILIÇ & Emine Ebru TUNA & Prof. Dr. H. Güray KUTBAY & Burak SÜRMEN	İNVESTIGATION OF THE USABILITY OF LEPIDIUM DRABA L. (=CARDARIA DRABA) WHICH IS SPREAD NATURALLY IN PHYTOREMEDIATION METHOD		N.S
10.50/11.00	İsmail KOCAÇALIŞKAN & Şenay VURAL KORKUT & Ezgi CİBALİ & Merve YALÇIN	JUGLON'UN SALATALIKTA (Cucumis sativus L.) KATALAZ ENZİMİ ÜZERİNE ETKİLERİ		N.S
11.00/11.10	İsmail KOCAÇALIŞKAN & Şenay VURAL KORKUT & Merve YALÇIN & Ezgi CİBALİ	JUGLON'UN SALATALIKTA (Cucumis sativus L.) DOPA OKSİDAZ AKTİVİTESİ ÜZERİNE ETKİLERİ		N.S
11.10/11.20	Aslıhan İPEK & Eray BOLAT & Assoc.Prof. Dr. D. Duygu KILIÇ	REMOVAL OF METALLİC POLLUTİON FROM TREATMENT SLUDGE BY CHELATE SUPPORTED PHYTOREMEDİATİON METHOD USİNG SOME AGRİCULTURAL CROPS		N.S

DATE		HEAD OF SESSION	WORKSHOP NO	WORKPLACE
22.04.2018 Sunday / Hour **09.00-12.00**		Dr. Süleyman ADAK	WORKSHOP 5	1st floor
TIME	**AUTHORS**	**PAPER**		**DISCIPLINE**
09.00/09.10	Assoc.Prof. Dr. Ahmet ALKAN & Dr. Kamil DOĞAN & Turab SELÇUK & Yük.Lis.Öğr.	BT GÖRÜNTÜLERİNDE SAFRA KESESİ TAŞININ MORFOMETRİK ÖZELLİKLERİNİN BELİRLENMESİ		E.E

	Mustafa PINARLI &Yük.Lis.Öğr.M.Nedim EKERSULAR		
09.10/09.20	Dr. Süleyman ADAK & PhD. öğrencisi Hasan CANGİ & Prof.Dr.Ahmet Serdar YILMAZ	MATHEMATICAL MODEL FOR COMPUTING OUTPUT VOLTAGE OF PV SOLAR MODULE DEPENDENT ON TEMPERATURE AND IRRADIANCE	E.E
09.20/09.30	Turab SELÇUK & Dr. Abdullah BEYOĞLU & Seda Arslan TUNCER & Merve SEVER & Assoc.Prof. Dr. Ahmet ALKAN	RETİNAL KADRANLARDAN GÖRÜNTÜ İŞLEME TEKNİKLERİYLE GENİŞ AÇILI FUNDUS GÖRÜNTÜLERİNİN OLUŞTURULMASI	E.E
09.30/09.40	Dr. Öğr.Üyesi .Koray KARABULUT & Dr.. Doğan Engin ALNAK & Arş. Gör Ferhat KOCA.	STUDY OF THE EFFECTS OF LOCATİON ANGLES FOR SEMİ SPHERES ON THE HEAT TRANSFER AND FLOW STRUCTURE IN CONVERGİNG-DİVERGİNG CHANNELS	E.E
09.40/09.50	Umut Şükrü YAŞAR & Assoc.Prof. Dr. Yunus AKALTUN	PLC CONTROLLED SILAR MACHINE MANUFACTURING	E.E
09.50/10.00	Dr.Burak YILDIRIM & Dr. Mahmut Temel ÖZDEMİR **sanal sunum**	TURKEY AND WORLD TRENDS 2017 İN PHOTOVOLTAİC APPLİCATİONS	E.E
10.00/10.10	Turab SELÇUK & Seda Arslan TUNCER & Dr. Abdullah BEYOĞLU & Merve SEVER & Assoc.Prof. Dr. Ahmet ALKAN	GLOKOM TANISI İÇİN OPTİK ÇANAK-OPTİK DİSK ORANININ ÖLÇÜLMESİ	E.E
10.10/10.20	Dr. Süleyman ADAK & Hasan CANGİ Prof.Dr. Ahmet Serdar YILMAZ	SIMULATION AND ANALYSIS HARMONICS IN POWER SYSTEM INCLUDING NONLINEAR LOAD	E.E
10.20/10.30	Dr.Burak YILDIRIM & Dr. Mahmut Temel ÖZDEMİR sanal sunum	AN OVERVIEW OF THE POWER OF WIND ENERGY IN THE WORLD	E.E
10.30/10.40	Dr. Kağan Koray AYTEN	TRAJECTORY TRACKING CONTROL OF LINEAR ROBOTIC PLATFORM BASED ON SLIDING MODE CONTROL	E.E
10.40/10.50	Dr. Ahmet DUMLU	DESIGN OF AN ELECTROMAGNETIC FIELD CONTROLLED SYSTEM FOR PARAMAGNETIC MICROPARTICLES	E.E
10.50/11.00	Dr. Nur Hüseyin KAPLAN	INSPECTION OF ENERGY TRANSMISSION LINES BY UNMANNED AIR VEHICLE	
11.00/11.10	Dr. Eyuphan MANAY	NUMERICAL ANALYSIS OF CONVECTIVE HEAT TRANSFER FROM COILED WIRE INSERTIONS WITH STRAIGHT TAPES	ARCH.

DATE		HEAD OF SESSION	WORKSHOP NO	WORKPLACE
22.04.2018 Sunday / Hour **13.00-15.00**		Prof. Dr.Engin ÖZDEMİR	WORKSHOP 4	1st floor
TIME	**AUTHORS**	**PAPER**		**DISCIPLINE**
13.00/13.10	Elif ARANCI ÖZTÜRK & Fırat ELİBOL & Edip ERCEK & Mustafa SÜNER & Hatice YEGİN & Mustafa BOYRAZLI	SOĞUKTA SERTLEŞEN PELET ÜRETİMİNDE ÇAM REÇİNESİNİN BAĞLAYICI OLARAK KULLANILMASININ PELET ÖZELLİKLERİ ÜZERİNE ETKİSİ		ENG
13.10/13.20	Prof. Dr. Engin ÖZDEMİR & Koray ERHAN & Merve ALTUNKAYA	DEVELOPMENT OF PERSONAL DRIVING MODE ALGORITHM FOR HYBRID ELECTRIC VEHICLES TO INCREASE EFFICIENCY		ENG
13.20/13.30	Koray ERHAN & Gökçe VAROL & Prof. Dr.Engin ÖZDEMİR	REGENERATIVE BRAKING POWER IMPROVEMENT FOR ELECTRIC VEHICLE BY USING GENERATOR AND BATTERY CAPACITY		ENG
13.35/13.40	Venhar ÇELİK ÖZGEN	A NEW SYNTHETIC BIOLOGY TOOL: ESAI/ESAR QUORUM SENSING NEGATIVE REGULATOR SYSTEM		ENG
13.40/13.50	Venhar ÇELİK ÖZGEN	UNDERSTANDING CONTACT-DEPENDENT INHIBITION (CDI) BY SYNTHETIC BIOLOGY APPROACH		ENG

DATE		HEAD OF SESSION	WORKSHOP NO	WORKPLACE
22.04.2018 Sunday / Hour **13.00-15.00**		Dr. Nizamettin TURAN	WORKSHOP 5	1st floor
TIME	**AUTHORS**	**PAPER**		**DISCIPLINE**
13.00/13.10	Dr. Öğr.Üyesi Ebru İfakat ÖZCAN & Osman SERDAR	PRELIMINARY STUDY LENGTH- WEIGHT, LENGT-LENGTH RELATIONSHIPS AND CONDITION FACTOR OF TIGRIS SCRAPER (CAPOETA UMBLA (HECKEL, 1843)) FROM PÜLÜMÜR RIVER, TURKEY		N.S
13.10/13.20	Dr. Öğr.Üyesi Nizamettin TURAN & Hamdiye SAKMAN	DETERMINATION OF EFFICIENCY AND SOME YIELD PRODUCTS OF VARIOUS VACCINES (VICIA NARBONENSIS L.) VARIETIES AND LINES ADDED IN THE SIIRT ECOLOGICAL CONDITIONS		N.S
13.20/13.30	Dr. Öğr.Üyesi Gülen ÖZYAZICI & Betül BAYRAKLI & Elif ÖZTÜRK & Aylin ERKOÇAK & Safiye Pınar ÖZER & Zühal KALCIOĞLU	USAGE OF THE COMPOST OBTAINED FROM ORGANIC TEA PROCESSING WASTE PRODUCTS IN ORGANIC TEA PRODUCTION		N.S
13.35/13.40	Osman SERDAR & Dr. Öğr.Üyesi Ebru İfakat ÖZCAN	RELATIONSHIPS BETWEEN FISH LENGTH AND OTOLITH LENGTH IN THE POPULATION OF CAPOETA UMBLA (HECKEL, 1843) FROM KARASU RIVER		N.S
13.40/13.50	Dr. Öğr.Üyesi Gülen ÖZYAZICI & Dr. Öğr.Üyesi Mehmet Arif ÖZYAZICI & Orhan DENGİZ	DETERMINATION OF FERTILITY CONDITION AND POTENTIAL NUTRITION PROBLEMS OF THE POTATO (SOLANUM TUBEROSUM L.) GROWN SOILS		N.S
13.50/14.00	Erdal CACAN & Kağan KOKTEN & Mahmut KAPLAN	DETERMINATION OF YIELD AND QUALITY CHARACTERISTICS OF SOME ALFALFA (Medicago sativa L.) CULTIVARS IN THE EAST ANATOLIA REGION OF TURKEY AND CORRELATION ANALYSIS BETWEEN THESE PROPERTIES		N.S
14.00/14.10	Erdal CACAN & Kağan KOKTEN & Hava Şeyma YILMAZ & Mahmut KAPLAN	EVALUATION OF SOME PEA (Pisum arvense L.) LINES AND CULTIVARS IN TERMS OF HERBAGE YIELD AND FORAGE QUALITY		N.S
14.10/14.20				
14.20/14.30	Dr. Meral KORKMAZ	VARIATIONS IN SCOURDEPTH AROUND THE BRIDGE ABUTMENT		CONST.
14.30/14.40	Dr. Meral KORKMAZ	IMPROVEMENT OF ALUVIAL GROUND WITH INJECTION METHOD		CONST.
14.40/14.50	Dr. Aziz İlhan & Dr. Haydar ERTAŞ Sanal sunum	ASSESSMENT OF STRUCTURAL INSPECTION APPLICATIONS IN THE CONSTRUCTION SECTOR IN TERMS OF INDIVIDUALS WORKING IN THE SECTOR		CONST.
14.50/15.00				

DATE		HEAD OF SESSION	WORKSHOP NO	WORKPLACE
22.04.2018 Sunday / Hour **15.00-17.00**		Dr. Müge SAKAR	WORKSHOP 4	1st floor
TIME	**AUTHORS**	**PAPER**		**DISCIPLINE**
15.00/15.10	Assoc.Prof. Dr. Seydi Battal Gazi KARAKOÇ & Gökhan TÜRK	A COLLOCATION METHOD FOR SOLVING THE MODIFIED KDV EQUATION		MATH.

15.10/15.20	Burak Yasin) YALÇIN(doktara öğrencisi & & Dr.. Meral SÜER	THE SPECIAL GAPS OF SOME ARF NUMERICAL SEMIGROUPS	MATH.
15.20/15.30	Assoc.Prof. Dr. S. Melike AYDOGAN & Prof. Dr. Shahram REZAPOUR & Dr. Müge SAKAR	SOME FIXED POINT RESULTS IN GENERALIZED METRIC SPACES	MATH.
15.30/15.40	Assoc.Prof. Dr. Seydi Battal Gazi KARAKOÇ & Gökhan TÜRK	NUMERICAL SOLUTIONS OF GR-RLW EQUATION USING COLLOCATION METHOD WITH SEPTIC B-SPLINES	MATH.
15.40/15.50	Adnan CANBULAT & Dr. Fethiye Müge SAKAR	INITIAL FABER POLYNOMIAL COEFFICIENT ESTIMATES FOR A SUBCLASSES OF M-FOLD SYMMETRIC AND BI-UNIVALENT FUNCTIONS	MATH.
15.50/16.00	Yüksek Lisans Öğrencisi: Naci TAŞAR Doktor Öğr Üyesi .Fethiye Müge SAKAR	INITIAL COEFFICIENT BOUNDS ON SOME SUBCLASSES OF M-FOLD SYMMETRICBI-UNIVALENT FUNCTIONS	MATH.
16.00/16.10	Assoc.Prof. Dr.S. Melike AYDOGAN & Dr. Müge SAKAR & Prof. Dr. Shahram REZAPOUR	SOME RESULTS ABOUT COMMON FIXED POINT THEOREMS FOR MULTI-VALUED MAPPINGS	MATH.

DATE		HEAD OF SESSION	WORKSHOP NO	WORKPLACE
22.04.2018 Sunday / Hour **15.00-17.15**		Dr. Abdulkadir AYDIN	WORKSHOP 5	1st floor
TIME	**AUTHORS**	**PAPER**		**DISCIPLINE**
15.00/15.10	Dr. Abdulkadir AYDIN	COMPARISON OF EXTRACORPOREAL SHOCK WAVE THERAPY AND WRIST EXTENSOR SPLINT APPLICATION IN THE TREATMENT OF LATERAL EPICONDYLITIS: A PROSPECTIVE RANDOMIZED CONTROLLED STUDY		HEALTH
15.20/15.30	Abdulkadir AYDIN & Dr. Ramazan ATİÇ Ramazan ATIÇ & Zekiye SEVINÇ AYDIN & Celil ALEMDAR & Mehmet KARAKOÇ & Kemal NAS & Serda EM	EFFECTS OF THE USE OF CONVENTIONAL VERSUS COMPUTER-AIDED DESIGN/COMPUTER-AIDED MANUFACTURING SOCKETS ON CLINICAL CHARACTERISTICS AND QUALITY OF LIFE OF TRANSFEMORAL AMPUTEES		HEALTH
15.30/15.40	Dr. Hasan KARAGEÇİLİ & Dr. Emrah YERLİKAYA & Dr. M. Oğuzhan KAYA	DETERMINATION OF THE SKIN CANCERS INCIDENCE AND EVALUATION OF PATIENTS SERUM PARAMETERS		HEALTH
15.40/15.50	Dr. Hasan KARAGEÇİLİ & Dr. Emrah YERLİKAYA & Dr. M. Oğuzhan KAYA	EVALUATION OF SOME BIOCHEMICAL PARAMETERS OF SICKLE CELL ANEMIA PATIENTS WITH HEALTHY INDIVIDUALS		HEALTH
15.50/16.00	Dr. Ramazan ATİÇ	CLINICAL AND RADIOLOGIC RESULTS OF OPEN REDUCTION AND FIXATION WITH LOCKED PLATE SCREWS IN PROXIMAL HUMERUS FRACTURE DISLOCATION		HEALTH
16.00/16.10	Dr.Yasemin OĞUZ GÜNER **(SANAL SUNUM)**	KRONİK HASTALIKLARIN TEDAVİSİNDE OYUN TERAPİSİ DESTEĞİ		HEALTH

DATE		HEAD OF SESSION	WORKSHOP NO	WORKPLACE
22.04.2018 Sunday / Hour **17.00-20.00**		Prof. Dr. İbrahim Halil GÜZELBEY	WORKSHOP 4	1st floor
TIME	**AUTHORS**	**PAPER**		**DISCIPLINE**
17.00/17.10	Prof. Dr. İbrahim Halil GÜZELBEY Edip Öztürk Dr.. M. Hanifi DOĞRU	INVESTIGATION OF FATIGUE LIFE OF NEW DESIGNED GATLING GUN STRIKER		
17.10/17.20	Assoc.Prof. Dr. Numan Şarlı & Prof.Dr.Mustafa Keskin	INFLUENCE OF THE DISTANCE BETWEEN THE YBA-CORE AND CUO-SHELL ON THE SUPERCONDUCTING PROPERTIES IN THE YBCO		
17.20/17.30	Merve ŞENTÜRK ACAR & Fatih ÜNAL	ANN BASED OPTIMIZATION OF VAPOUR COMPRESSION REFRIGERATION SYSTEM WITH GROUND SOURCE HEAT PUMP		
17.30/17.40	Dr. Güldem ÜRER	A STRUCTURE CALCULATION FOR HYDROGEN LIKE MENDELEVIUM		
17.40/17.50				
17.50/18.00	Prof.Dr.Mustafa Keskin & Assoc.Prof. Dr. Numan Şarlı	MAGNETIC PROPERTIES OF THE BINARY NICKEL/BISMUTH ALLOY		
18.00/18.10	Dr. Güldem ÜRER	AN ALLOWED AND FORBIDDEN TRANSITION PARAMETER CALCULATION FOR HYDROGEN LIKE MENDELEVIUM		
18.10/18.20	Prof. Dr. İbrahim Halil GÜZELBEY Yüksel ERASLAN Dr.. M. Hanifi DOĞRU	AERODYNAMİC PERFORMANCE COMPARİSON OF DİFFERENT AİRFOİLS		
18.20/18.30	Prof.dr. Teoman Ayhan & Dr.. Betul Sarac (Sanal sunum)	COMPRESSED AIR STORAGE WITH RENEWABLE ENERGY RESOURCES		

POSTER PRESENTATIONS

DATE	WORKSHOP NO	WORKPLACE
21. 04.2018 / 22.04.2018	POSTER PRESENTATIONS	1st floor
AUTHORS	**PAPER**	**DISCIPLINE**
Assoc.Prof. Dr. Şule BARAN	SECOND RECORD OF MACHUELLA TURCICA BARAN Y AYYILDIZ, 2007 (ACARI, ORIBATIDA) FROM TURKEY	
Assoc.Prof. Dr. D. Duygu KILIÇ & Emine Ebru TUNA & Prof. Dr. H. Güray KUTBAY& Burak SÜRMEN	HEAVY METAL ACCUMULATION (NI, FE, CO, MN) IN SISYMBRIUM ALTISSIMUM L. SPECIES THAT IS SPREAD AT AMASYA PROVINCE'S ROADSIDE.	
Enise ÖZERDEN & Cihat ÖZAYDIN & Ömer GÜLLÜ	THE CALCULATION OF ELECTRONIC PARAMETERS OF THE AL/PSP/N-TYPE SILICON SCHOTTKY BARRIER DIODE	
Dr. Murat SÜNKÜR &Dr. Deniz BARIŞ CEBE & Dr. Hayriye ARAL & Assoc.Prof. Dr. Tarık ARAL	ENANTIOMERIC RECOGNITION OF 1-ARYLETHYLAMINES USING C 2 - SYMMETRICAL CHIRAL TETRAAMIDES	
Dr.Murat YOLCU & Prof. Dr. Mehmet BAŞHAN & Dr. Öğretim Üyesi Veysi KIZMAZ & Dr.Dr. İsmail YENER &Prof. Dr. Elif İpek SATAR	EFFECT OF LAMBDA-CYHALOTHRIN, A PYRETHROID PESTICIDE, ON TOTAL LIPID FRACTION IN THE GILL OF OREOCHROMIS NILOTICUS.	
Dr. Cihat ÖZAYDIN & Enise ÖZERDEN & Associate Prof.Dr. Ömer GÜLLÜ	ELECTRICAL ANALYSIS OF THE METAL/SEMICONDUCTOR CONTACT WITH RHODAMINE 101 ORGANIC INTERLAYER	
Associate Prof.Dr. Ömer GÜLLÜ & Dr. Cihat ÖZAYDIN & Enise ÖZERDEN	ANALYSIS OF ELECTRONIC PARAMETERS OF THE AL/ANILINE GREEN/P-TYPE SILICON DIODES	

PHOTO GALLERY


ATLAS


EJONS


SATURDAY
EJONS


KÜLTÜR VE MEDENİYE

Kongrede çekilen fotoğraflara erişmek için lütfen **IKSAD KONGRE TOPLULUĞU Facebook** grubuna üye olunuz…

FOREWORD

It is with deep satisfaction that I write this Foreword to the Proceedings of the EJONS- 3rd International Congress on Mathematic, Engineering and Natural Sciences held in Mardin, Turkey April 21-22, 2018. The high quality of the papers and the discussion represent the thinking and experience of men and women experts in their particular fields. Their contributions helped to make the Congress as outstanding as it will be. The papers contributed the most recent scientific knowledge known in the field of all steps of social sciences These Proceedings will furnish to scientific groups the world over an excellent reference book. I trust also that this will be an impetus to stimulate further study and research in all these areas.

It was eights years ago that İKSAD was established in Turkey and we did our first academic organization in Golbasi town of Adiyaman province in 2013. Since then we have organized numerius meetings, panels, congresses and conferences over diffirent issues via our futurest vision. That vision has expressed itself to-day in the enthusiasm and fine work of the Turkey and abroad mission.

In organizing process so many volunteers and professionals served. Here I would like to thank to Prof. Dr. Osman ERKMEN the head of Congress; many thanks go to the members of İKSAD Science Committees, the distinguished academics; Prof.Dr. Salih OZTURK, head of İKSAD Science Committee; Sefa Salih BILDIRICI, the senior advisor of IKSAD; Zhuldyz SAKHI, the general coordinator of congress, Damezhan SADYKOVA, Mariam S. OLSSON, and whole İKSAD team for that valuable organization.

Kind regards

MUSTAFA LATİF EMEK
President of Institution of Economic Development and Social Researches

CONTENTS

NOTIFICATIONS

ON GLM TYPE MAIN INTEGRAL EQUATION FOR SINGULAR STURM-LIOUVILLE OPERATOR WHICH HAS DISCONTINUOUS COEFFICIENT

Nilüfer TOPSAKAL
Cumhuriyet University Faculty of Sciences Department of Mathematics SİVAS
Rauf AMİROV
Cumhuriyet University Faculty of Sciences Department of Mathematics SİVAS
Abdullah ERGÜN
Cumhuriyet University Vocational School of SİVAS

Abstract

We consider the boundary value problem L for the equation:

$$ly := -y'' + \left[\frac{A}{x} + q(x)\right]y = \lambda\rho(x)y,\ \lambda = k^2,\ x \in I = (0,d)\cup(d,\pi)$$

with the boundary conditions

$$U(y): y(0) = 0, V(y): y(\pi) = 0$$

and with the jump conditions

$$\rho(x) = \begin{cases} 1, & 0 \le x < d \\ \alpha^2, & d < x \le \pi \end{cases}$$

where λ is spectral parameter; $A, \alpha \in R, \alpha \neq 1, \alpha > 0$, $d \in \left(\frac{\pi}{2}, \pi\right)$, $q(x)$-is a real valued bounded function and $q(x) \in L_2(0,\pi)$.

Boundary value problems with discontinuous coefficient often appear in applied mathematics, geophysics, mechanics, electromagnetics, elasticity and other branches of engineering and physics. The inverse problem of reconstructing the material properties of a medium from data collected outside of the medium is of central importance in disciplines ranging from engineering to the geosciences. For example, torodial vibrations and free vibrations of the earth, reconstructing the discontinuous material properties of a nonabsorbing media, as a rule leads to direct and inverse problems or the Sturm-Liouville equation which has discontinuous coefficient. [1-3]

In this study, we derive Gelfand-Levitan-Marchenko type main integral equation of inverse problem for singular Sturm-Liouville equation which has discontinuous coefficient. Then we prove the unique solvability of the main integral equation.

Key words: Inverse problem; Coulomb singularity; GLM type main integral equation.

References

[1] R. Kh. Amirov and N. Topsakal, On Sturm-Liouville operators with Coulomb potential which have discontinuity conditions inside an interval, Integral Transforms Spec. Funct. 19(12) (2008), 923-937.

[2] N : A. Nabiev Adiloğlu and R. Kh. Amirov, On the boundary value problem for the Sturm-Liouville equation with the discontinuous coefficients, Mathematical methods in the Applied Sciences, 36, (2013), 1685- 1700.

[3] A.M. Savchuk and A.A. Shkalikov, Sturm-Liouville operator with singular potentials, Mathematical Notes, 66(6), (1999), 741-753.

AMS (2000) classif: 34A55, 34B24, 34L05

Acknowledgement : This work is supported by the Scientic Research Project Fund of Cumhuriyet University under the project number F-562

EIGENFUNCTION EXPANSIONS ASSOCIATED WITH THE DISCONTINUOUS SCHRÖDINGER OPERATORS

Oktay Sh. MUKHTAROV
Prof. Dr. Gaziosmanpaşa University,Turkey
Kadriye AYDEMIR
Assoc. Prof. Dr. Amasya University, Turkey
Hayati OLĞAR
Dr. Gaziosmanpaşa University, Turkey

Abstract

In this study we shall investigate some problems of spectral analysis for an boundary value transmission problem coming from astrophysical theory of particle acceleration around shocks. This leads to a non-classical initial-boundary value problem for a partial differential equation that can be reduced by separation of variables to an Sturm-Liouville problem for which we establish some properties of the associated functions and formulate completeness and expansion theorems. We will present on the basic theory of Sturm-Liouville boundary value problem together with a discussion of some of the powerful methods that are used to solve the Sturm-Liouville boundary value-transmision problem(SLBVTP). Especially the paper focuses on eigenvalues and eigenfunctions of SLBVTP. The spectral theory of Sturm-Liouville problems with discontinuous and with additional transmission conditions is one of the actual branch of Sturmian theory due to their particular importance in solving many physical problems in physics, engineering, and other many sciences such as surface heat transfer, vibrations string, transverse displacements in a stretched string a vertically hung elastic bar, heat flow in a non uniform rod, circularly symmetric heat flow, and the like. We establish in this work the main properties of eigenvalues and eigenfunctions, find its asymptotic representation, moreover we uniqueness, and prove that the system of eigenfunctions forms complete set in suitable Hilbert space. The main results of this paper can also be applied to solve a various class of transmission problems.

Keywords: Sturm–Liouville problems, eigenfunction expansions, transmission conditions.

References

Aliyev, Z. S. (2010). Basis Properties of a Fourth Order Differential Operatör with Spectral Parameter in the Boundary Condition. Open Mathematics, 8(2), 378-388.

Amann, H. (1990). Ordinary differential equations. De Gruyter.

Mukhtarov, O. Sh., Olğar, H., Aydemir, K. (2015). Resolvent Operator and Spectrum of New Type Boundary Value Problems. Filomat, 29(7), 1671-1680.

Mukhtarov O. Sh. and S. Yakubov, S. (2002), Problems for ordinary differential equations with transmission conditions, Appl. Anal., Vol. 811, 033-1064

Levitan B. M. and Sargsjan I.S., Sturm-Liouville and Dirac operators, Mathematics and its Applications (Soviet Series), 59. Kluwer Academic Publishers Group, Dordrecht:1991.

LOWER BOUND ESTIMATION FOR EIGENVALUES OF THE BOUNDARY VALUE PROBLEM WITH INTERACTION CONDITIONS

Oktay Sh. MUKHTAROV
Prof.Dr. Gaziosmanpaşa University, Turkey
Hayati OLĞAR
Dr. Gaziosmanpaşa University, Turkey
Kadriye AYDEMIR
Assoc. Prof.Dr. Amasya University, Turkey

Abstract

The spectral properties of the boundary-value problems that arise from diverse mechanical models and contain the spectral parameter in the boundary conditions have been studied in various formulations by many authors (see, for instance Walter, 1973; Russakovskii, 1975; Fulton, 1977). Also, some boundary value problems for Sturm-Liouville equations which may have discontinuities in the solution or its derivative at an interior point are also studied (Yang, 2013, Mukhtarov et. al., 2015, Olğar and Mukhtarov, 2017). Some problems with transmission conditions arise in thermal conduction problems for a thin laminated plate (i.e., a plate composed by materials with different characteristics piled in the thickness). In (Titeux and Yakubov, 1997), the structure of the solution in the matching region of the layer with the basis solution in the plate leads to consideration of an eigenvalue problem for a Sturm-Liouville equation with piecewise continuous coefficients and transmission conditions.

We want to emphasize that the new type boundary value problem studied in this study differs from the standard boundary value problems in that it contains eigenvalue parameter in one of the boundary conditions and two additional interaction conditions. We suggest a special technique to reduce the considered problem into an integral equation by using of which we define a new concept, so-called generalized eigenfunction for the considered problem. Then we construct some Hilbert spaces and define some self-adjoint compact operators in these spaces such a way that the considered problem can be interpreted as a self-adjoint operator-pencil equation. Finally, it is established that the spectrum is discrete and the system of corresponding generalized eigenfunctions forms a Riesz basis of the appropriate Hilbert space and a lower bound estimation for eigenvalues is found.

Keywords: Self-adjoint operators, Lower bound estimation, interaction conditions.

References

K. Aydemir and O. Sh. Mukhtarov (2015). Second-order differential operators with interior singularity. Advances in Difference Equations 2015:26 DOI 10.1186/s13662-015-0360-7.

C. T. Fulton (1977). Two-point boundary value problems with eigenvalue parameter contained in the boundary conditions. Proc. Roy. Soc. Edin. 77A, P. 293-308.

O. Sh. Mukhtarov, H. Olğar and K. Aydemir (2015). Resolvent Operator and Spectrum of New Type Boundary Value Problems. Filomat, 29(7), 1671-1680.

H. Olğar, O. Sh. Mukhtarov (2017). Weak Eigenfunctions Of Two-Interval Sturm-Liouville Problems Together With Interaction Conditions, Journal of Mathematical Physics, 58, 042201.

E. M. Russakovskii (1993). Sturm-Liouville problem with parameter in the boundary conditions. Trudy Seminara imeni I. G. Petrovskogo, 18.

I. Titeux and Ya. Yakubov (1997). Completeness of root functions for thermal conduction in a strip with piecewise continuous coefficients. Math. Models Methods Appl. Sc., 7(7), 1035-1050.

J. Walter (1973). Regular eigenvalue problems with eigenvalue parameter in the boundary conditions.Math. Z., 133, 301-312.

C. Yang (2013). Inverse nodal problems of discontinuous Sturm-Liouville operatör. J. Diff. Eq., 254, 1992-2014.

DELTA SETS OF SOME PSEUDO-SYMMETRIC NUMERICAL SEMIGROUPS

Özkan ÇELİK
Batman University, Institute of Science, Master's Degree in Mathematics, Batman-TURKEY
Meral SÜER
Batman University, Faculty of Science and Letter, Department of Mathematics, Batman-TURKEY

Abstract

A numerical semigroup is a submonoid of , the set of nonnegative integers, under addition and with finite complement in . If the numerical semigroup is the form with an integer not divisible by tree, then is a pseudo symmetric numerical semigroup with embedding dimension and multiplicity three. We present procedures to calculate the delta of pseudo- symmetric numerical semigroups as given above. Also, we will give a relation between the betti numbers and the delta sets of these semigroups.

Keywords: Numerical semigroups, Delta set, Pseudo-symmetric numerical semigroup

REFERENCES

(1) S. T. Chapman, R. Hoyer and N. Kaplan, Delta Sets of Numerical Monoids are Eventually Periodic, Aequationes Math. 77 (2009), 273-279.

(2) S. T. Chapman, P.A. Garcia-Sanchez, D. Llena, A. Malyshev, D. Steinberg, On the Delta set and the Betti elements of a BF-monoid, Arab. J. Maath. 1 (2012), 53-61

(3) P.A. Garcia-Sanchez, D. Llena, and A. Moscariello, Delta sets for numerical semigroups with embedding dimension three, arxiv: 1504.02116v1 8 Apr 2015

(4) A. Geroldinger, On the arithmetic of certain not integrally closed noetherian integral domains, Comm. Algebra 19 (1991), 685-698.

(5) S. M Johnson, A linear Diophantine problem, Can. J. Math., 12 (1960), 390-398

(6) V. Micale, A. Olteanu, On the betti numbers of some semigroups rings, Le Matematiche, 67(2012), 145-159.

(7) J.C Rosales, P.A. Garcia-Sanchez, Pseudo-symmetric numerical Semigroups with three generators, J. Algebra 291 (2005), 46-54.

(8) J.C Rosales, P.A. Garcia-Sanchez, Numerical Semigroups, Developments in Mathematics 20, Springer, New York (2009).

(9) J.C Rosales, M.B. Branco, Irreducible numerical semigroups, Pacific J. Math. 209 (2003), 131-143.

BETTI NUMBERS OF SOME TELESCOPIC NUMERICAL SEMIGROUPS

Mehmet Şirin SEZGİN
Batman University, Institute of Science, Master's Degree in Mathematics, Batman-TURKEY
Meral SÜER
Batman University, Faculty of Science and Letter, Department of Mathematics, Batman-TURKEY

Abstract

Let be the set of nonnegative integers. A numerical semigroup is a nonempty subset M of that is closed under addition, contains the zero element, and whose complement in is finite. In this study, we will examine the Betti numbers of some telescopic numerical semigroup families with generated triply. And we will try to express in terms of generators of these numerical semigroup families. So we will find a formula for the Betti numbers of these numerical semigroup families.

Keywords: Numerical semigroups, Telescopic numerical semigroups, Betti numbers,

References

G.L Matthews, On Triply-Generated telescopic semigroup and chains of semigroups, Congressus Numerantium 154 (2001), 117-123.

J.C Rosales, P.A. Garcia-Sanchez, Numerical Semigroups, Developments in Mathematics 20, Springer, New York (2009).

J.C. Rosales, M.B. Branco, Irreducible numerical semigroups, Pacic J. Math. 209 (2003), 131-143.

M. Suer, S. Ilhan, On telescopic numerical semigroups, Acta Universitatis Apulensis, (in peer review).

R. Conaway, M.Williams, J. Horton, F. Gotti, Shifting numerical semigroups, Retrieved February from https://www.semanticscholar.org

R. Froberg, C. Gottlieb, R. Haggkvist, On numerical semigroups. Semigroup Forum, 35(1987) , 63-83.

S. Ilhan, On a Class of Telescopic Numerical Semigroups,Int. J. Contemp. Math. Sci. 1(2)(2006), 81-83.

V. Micale, A. Olteanu, On the Betti number of some semigroup rings, Retrieved March from https://arxiv.org/1111.1433.

AN ALTERNATIVE APPROACH TO DISCONTINUOUS BOUNDARY VALUE PROBLEMS

Kadriye AYDEMİR
Assoc. Prof. Dr. Amasya University, Turkey
Hayati OLĞAR
Dr. Gaziosmanpaşa University, Turkey
Oktay Sh. MUKHTAROV
Prof.Dr. Gaziosmanpaşa University, Turkey

Abstract

This study is concerned with the theory of boundary value problems with supplementary transmission conditions, the spectral theory of linear differential operators and the connections between the two fields. In this study discontinuous Sturm-Liouville Problems with supplementary transmissions conditions are investigated. By using a new approach we obtain that the eigenvalues of considered problem are real, the corresponding eigenfunctions are orthogonal. By modifying some classic methods we obtain asymptotic formulas for eigenvalues and corresponding eigenfunctions. We characterise the boundary conditions that ensure the appropriate nonhomogeneous boundary value transmission problem has a unique solution. For such nonhomogeneous problems, we find the solution and discuss its representation in terms of Green's function and infinite eigenfunctions series. Finally we use the solution to derive new results on the spectral theory of discontinuous linear differential operators acting on suitable Hilbert space. A boundary value problem on with transmission conditions is shown to be spectrally equivalent to a system with separated boundary conditions. It is important to note that, the boundary value-transmission problem under consideration arise as the mathematical modeling of some transmittal processes in such fields of naturel sciences as physics, electrodynamics of electrical circuits, fluid dynamics, diffusion, magnetism, chemistry but more often as a result of using the Fourier's spectral method to solve the classical equations of physics, such as the Laplace's equation, the heat equation and the wave equation. Also, many physical processes, such as the vibration of strings, the interaction of atomic particles, electrodynamics of complex medium, aerodynamics, polymer rheology or the Earth's free oscillations yields Sturm-Liouville eigenvalue problems with discontinuous coefficients and supplementary transmission conditions at the points of discontinuity.

Keywords: Boundary value problems, transmission conditions, eigenvalue.

References

G.D. Birkhof, Boundary value and expansion problems of ordinary linear differential equations, Transactions of the American Mathematical Society 9 (1908), 219-231.

E. A. Coddington and N. Levinson, Theory of ordinary differential equations, International Series in Pure and Applied Mathematics, McGraw-Hill, 2007.

O. Sh Mukhtarov, H. Olğar, K. Aydemir, Resolvent Operator and Spectrum of New Type Boundary Value Problems. Filomat, 29(7) (2015), 1671-1680.

J. Tamarkin, Some general problems of the theory of ordinary linear differential equations and expansion of an arbitrary function in series of fundamental functions, Math. Z. 27(1927), 1- 54.

Y.Yakubov, Irregular boundary value problems for ordinary differential equations, International Conference on Di_erential Equations and Their Applications, Prague, August 27-31, (2001).

INVERSE PROBLEM FOR A CLASS OF DIRAC OPERATORS

Nilüfer TOPSAKAL
Cumhuriyet University Faculty of Sciences Department of Mathematics Sivas-TURKEY
Rauf AMİROV
Cumhuriyet University Faculty of Sciences Department of Mathematics Sivas-TURKEY

Abstract

We consider the boundary value problem L for the equation:

$$\ell[y(x)] := A(\sigma y)'(x) + C(x)y(x) = \lambda y(x), \quad x \in I = (0,\pi) \tag{1}$$

with the boundary conditions

$$(\sigma y_1)(0)\sin\alpha + (\sigma y_2)(0)\cos\alpha = 0,$$
$$(\sigma y_1)(\pi) + H(\sigma y_2)(\pi) = 0$$

where $A = \begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix}, C(x) = \begin{pmatrix} p(x) & q(x) \\ q(x) & r(x) \end{pmatrix}, y(x) = \begin{pmatrix} y_1(x) \\ y_2(x) \end{pmatrix}, p(x), q(x), r(x), \sigma(x), \frac{1}{\sigma(x)}$, real valued bounded function in $\sigma(x) > 0, \gamma(x) = \int_0^x \frac{dt}{\sigma(t)}$, $\alpha \in [0,\pi)$.

If , $\sigma(x) \equiv 1$ the function $y(x) = \begin{pmatrix} y_1(x) \\ y_2(x) \end{pmatrix}$ is differentiable and also $\ell[y(x)] \in L_2(0,\pi)$. However when $\sigma(x) \neq 1$, the function $(\sigma y)(x)$must be differentiable and $\ell[y(x)] \in L_2(0,\pi)$. It is clear that in that case the function $y(x)$may or may not be differentiable function. However the function $(\sigma y)(x)$has to be differentiable. Therefore, in this study the solution set of given system consists of more general functions, which is different from the classic case. Hence, this problem has importance mathematical and also application sense.

In this study, we consider operator (1) in a finite interval. Properties of spectrum are investigated in the second part. The Prüfer's angle, the Weyl function for considering operator have been defined in the third part. In the fourth part, the inverse problem of the reconstruction of a boundary value problem L from the Prüfer's angle, the Weyl function and two different eigenvalues sequences are investigated. Then the uniqueness theorem of inverse problem according to these functions and two different eigenvalues sets has been proved.

Key words: Inverse problem; Dirac operator, Prüfer's angle

Acknowledgement : This work is supported by the Scientic Research Project Fund of Cumhuriyet University under the project number F-545.

References

1- N. Topsakal, Inverse Problem for Dirac Differential Operators with Eigenvalue Linearly Dependent to Condition, Journal of Advanced Research in Applied Math., 4 no.4, 12-25 (2012).

EQUIVALENT NORMED QUASILINEAR SPACES

Hacer BOZKURT
Department of Mathematics, Batman University, 72100, Batman, Turkey
Yılmaz YILMAZ
Department of Mathematics, İnönü University, 44280, Malatya, Turkey

Abstract

Aseev introduced the concepts of quasilinear spaces and normed quasilinear spaces, in his article [1]. He used the partial order relation to define quasilinear spaces. He stated properties and results which are quasilinear counterparts of some results in classical linear functional analysis. Also, in [1], he defined the some new concepts which are only meaningful in normed quasilinear spaces.

We give, in this presentation, some new results and examples on quasilinear spaces and normed quasilinear spaces. Further, we introduce the concept of equivalent norms on a quasilinear space. By novelty of the new definition, we state on the Hausdorff metric properties for equivalent norms which are extend to the quasilinear context some results of linear functional analysis.

Keywords: Quasilinear space; Normed quasilinear spaces; Equivalent normed quailinear spaces.

References:

(1) S. M. Aseev, Quasilinear operators and their application in the theory of multivalued mappings, Proc. Steklov Inst. Math. 2 (1986), 23-52.

(2) H. K. Banazılı, On Quasilinear Operators Between Quasilinear Spaces, M. Sc. Thesis, Malatya, Turkey, (2014).

(3) H.Bozkurt, Y. Yılmaz, New Inner Product Quasilinear Spaces on Interval Numbers, Journal of Function Spaces. Vol.2016, Article ID 2619271. (9 pages.).

(4) S. Çakan and Y. Yılmaz, Normed Proper Quasilinear Spaces, J. Nonlinear Sci. and Appl., 8 (2015), 816-836.

(5) V. Lakshmikantham, T. Gnana Bhaskar and J. Vasundhara Devi, Theory of set differential equations in metric spaces, Cambridge Scientific Publishers, Cambridge, 2006.

(6) S. Markow, On the algebraic properties of the convex bodies and some applications, J. Conv. Anal., Vol. 162, Issue 1, Pages 93-112, 2004.

(7) Y. Yılmaz, S. Çakan and Ş. Aytekin, Topological quasilinear spaces, Vol. 2012, Abstr. Appl. Anal. (2012) 951374.(10 pp.).

(8) Y. Yılmaz, H. Bozkurt, S. Çakan, An orthonormal sets in inner product quasilinear spaces, Creative Mathematics and Informatics, 25(2016), No.2, pages 237-247.

OPERATOR-PENCIL TREATMENT OF STURM-LIOUVILLE SYSTEMS WITH JUMP CONDITIONS

Hayati OLĞAR
Dr. Gaziosmanpaşa University, Turkey
Oktay Sh. MUKHTAROV
Prof. Dr. Gaziosmanpaşa University, Turkey
Kadriye AYDEMİR
Assoc. Prof. Dr. Amasya University, Turkey

Abstract

A new state in the development of the spectral theory of pencils involved the investigations of M. G. Krein and Heinz Langer. Krein and Langer (1964), for a quadratic matrix pencil and quadratic operator pencil, worked out an approach whose main points are as follows. With the pencil $A(\mu):= C+ \mu B+ \mu^2 I$ one associates the quadratic operator equation $Z^2 + BZ + C = 0$, and one considers the problem of finding a root of this equation with spectrum coinciding with a specified part of the spectrum of the pencil. In (Belinskiy et. al., 1996), for each model of an ice cover, an operator polynomial equation for eigenfunctions is derived and it is proved that the operator polynomial is a function of the frequency of oscillations. In (Zhidkov, 2000), for a non-linear eigenvalue problem similar to a linear Sturm-Liouville problem the properties of the spectrum and the **eigenfunctions** are analysed and the system of eigenfunctions of the suitable operatör-pencil is shown to be a Riesz basis in L_2. In (Gulmamedov et. al., 2006), the properties as completenes, minimality and basis property are investigated for the eigenfunctions of Sturm-Liouville problem with a spectral parameter in the boundary condition.

The goal of this work is the contribute to the theory of Sturm-Liouville problem with an eigenvalue parameter appearing in the boundary conditions and with two supplementary transmission conditions. We prove that the set of eigenfunctions for certain Sturm-Liouville problems arising from mechanics forms a basis for the corresponding space. The method used this paper is to reduce the boundary-value-transmission problem to an operator pencil equation $A(\mu)\, y=0$ with $A(\mu):=\sum_{k=0}^{n} \mu^k A_k$ with n = 1 in a appropriate Hilbert space Ξ to prove that the corresponding eigenfunctions from a Riesz basis of Ξ.

Keywords: Sturm-Kiouville systems, transmission conditions, eigenvalue, operator-pencil.

References

B. P. Belinskiy, J. P. Dauer and Y. Xu (1996). Inverse scattering of acustic waves in an ocean with ice cover. Applicable Analysis 61, 255-283.

G.D. Birkhof, Boundary value and expansion problems of ordinary linear differential equations, Transactions of the American Mathematical Society 9 (1908), 219-231

Vagıf Y. Gulmamedov and Khanlar R. Mamedov,(2006). On basis property for a boundary-value problem with a spectral parameter in the boundary condition. Çankaya Üniversitesi Fen- Edebiyat Fakültesi, Journal of Arts and Sciences, Sayı:5.

M. G. Krein, G. K. [Heinz] Langer (1964). On the theory of quadratic pencils of self-adjoint operators. Dokl. Akad. Nauk SSSR 154, 1258-1261.

O. Sh Mukhtarov, H. Olğar, K. Aydemir, Resolvent Operator and Spectrum of New Type Boundary Value Problems. Filomat, 29(7) (2015), 1671-1680.

J. Tamarkin, Some general problems of the theory of ordinary linear differential equations and expansion of an arbitrary function in series of fundamental functions, Math. Z. 27(1927), 1- 54.

P. E. Zhidkov (2000). Riesz basis property of the system of eigenfunctions for a nonlinear problem of Sturm-Liouville type. Sbornik: Mathematics 191:3, pp.359-368.

SPACELIKE RULED SURFACE IN HYPERBOLIC 3-SPACE

Tuğba MERT
Cumhuriyet University, Sivas, Turkey, tmert@cumhuriyet.edu.tr

Abstract

In this paper, we study a spacelike ruled surfaces in Hyperbolic space . A spacelike ruled surface in is acquired by a spacelike geodesic moving along a spacelike curve. In this paper, we are investigated developable ruled surface, striction point and striction curve of ruled surface, dispersion parameter of ruled surface on Hyperbolic space .

A ruled surface is a surface generated by a geodesic moving along a curve [1] and [2]. The various positions of the generating geodesic are called the rulings of the surface. In [1], Turgut and Hacısalihoglu studied timelike ruled surface in the Minkowski-3 space. They showed that these surface are obtained by timelike straight lines moving along spacelike curves.

In this paper, spacelike ruled surface is investigated in Hyperbolic space . A ruled surface is a surface obtained by a geodesic moving along a curve . Thus ruled surface has a parametrization in as follows

Where is a base curve and is called the director vector of . If the tangent plane is constant along a fixed ruling, then the ruled surface is called a developable surface.

Keywords — Ruled Surface, Spacelike Ruled Surface, Hyperbolic Space

References

[1] Turgut,A.,Hacısalihoğlu,H. Timelike ruled surface in the Minkowski 3-space, Far East J.Math.Sci.1997;5(1), 83-90.

[2] Turgut,A. Spacelike and Timelike Ruled Surface on the Minkowski 3-Space, Ph. D. Thesis, Ankara University,1995.

“This work is supported by the Scientific Research Project Fund of Cumhuriyet University under the project number F-570”

FİBONACCİ SAYILARI İLE İLGİLİ ANALİTİK FONKSİYONLAR İÇİN İKİNCİ HANKEL DETERMİNANT SINIRLARI

SECOND HANKEL DETERMINANT BOUNDS FOR ANALYTIC FUNCTIONS RELATED TO k-FIBONACCI NUMBERS

Sedat İLHAN
University of Dicle, Faculty of Science, Department of Mathematics, 21280 Diyarbakır TURKEY
sedati@dicle.edu.tr
H. Özlem GÜNEY
University of Dicle, Faculty of Science, Department of Mathematics, 21280 Diyarbakır TURKEY
ozlemg@dicle.edu.tr

Abstract

One of the important subjects of Geometric Function Theory in Complex Analysis is univalent functions. Especially, the coefficient estimates for univalent functions are used in solution of several important problems. One of the important subjects of Complex Analysis is also Hankel Determinant. Hankel determinant is used in many areas. Also, Hankel determinant holds an important place in Univalent Function Theory. Hankel Determinant Problem is focused on finding upper bound of second and third Hankel determinants.

For any positive real number k, the k-Fibonacci number sequence $F_{k,n}$ is defined recursively by $F_{k,0}=0$, $F_{k,1}=1$ and $F_{k,n+1}=kF_{k,n}+F_{k,n-1}$ for $n\geq 1$. When $k=1$, we obtain the well Fibonacci numbers F_n. We know that the Fibonacci numbers are the numbers in the integer sequence 1, 1, 2, 3, 5, 8, 13, 21, …, called the Fibonacci sequence, and characterized by the fact that every number after the first two is the sum of the two preceding ones.

The second Hankel determinant problem is $H_2(2)=\left|a_2a_4-a_3^2\right|$. The problem of finding the upper bounds for second Hankel determinant of some special classes of functions were studied by several researchers. However, they still study on this problem for different subclasses.

In this presentation, we will show an association with Fibonacci numbers of an analytic function of the class which we are working under a special condition. Also1 , 1 , 2 , 3 , 5 , 8 , 13 , 21 , 34 , 55 , 89 , 144 , … {\displaystyle 1,\;1,\;2,\;3,\;5,\;8,\;13,\;21,\;34,\;55,\;89,\;144,\;\ldots \;} AA , we consider second Hankel determinant problem on an interesting subclass of analytic functions which is known as Bazilevic functions. This interesting subclass consists of starlike functions related to a shell –like curve connected with k-Fibonacci numbers.

Key Words: Second Hankel Determinant, starlike function, shell-like curve, k-Fibonacci numbers.

Research reported in this paper was supported by Dicle Universıty-Scientific Research Project Coordinatorship (DUBAP) with No. FEN.17.026.

FİBONACCİ SAYILARI İLE İLGİLİ ANALİTİK FONKSİYONLARIN TOEPLİTZ DETERMİNANTLARI

TOEPLITZ DETERMINANTS FOR A SUBCLASS OF ANALYTIC FUNCTIONS RELATED TO FIBONACCI NUMBERS

Sedat İLHAN
University of Dicle, Faculty of Science, Department of Mathematics, 21280 Diyarbakır TURKEY
sedati@dicle.edu.tr
H. Özlem GÜNEY
University of Dicle, Faculty of Science, Department of Mathematics, 21280 Diyarbakır TURKEY
ozlemg@dicle.edu.tr

Abstract

Toeplitz matrices are one of the well-studied classes of structured matrices. Toeplitz matrices frequently arise in many application areas and have been attracted much attention in recent years. They arise in all branches of pure and applied mathematics, statistics and probablity, image processing, quantum mechanics, queueing networks, signal processing and time series analysis, etc. The Toeplitz determinants are closely related to Hankel determinants. Hankel matrices have constant entries along the reverse diagonal, whereas Toeplitz matrices have constant entries along the diagonal. Here we consider the symmetric Toeplitz matrices $T_q(n)$ which was introduced by Thomas and Halim in 2016.

The Fibonacci numbers are the numbers in the integer sequence 1, 1, 2, 3, 5, 8, 13, 21, …, called the Fibonacci sequence, and characterized by the fact that every number after the first two is the sum of the two preceding ones. In 1999, Sokol introduced the class SL of shell-like functions connected with Fibonacci numbers.

In this presentation, we determine bound estimates for the Toeplitz determinants whose elements are the coefficients of univalent functions related to shell-like curves connected with Fibonacci numbers, for low values of n and q . Especially, we obtain the upper bounds for $T_2(2)$, $T_2(3)$, $T_3(1)$ and $T_3(2)$.

Key Words: Toeplitz Determinant, Hankel determinat, starlike function, shell-like curve, Fibonacci numbers.

Research reported in this paper was supported by Dicle Universıty-Scientific Research Project Coordinatorship (DUBAP) with No. FEN.17.026.

YALINKAT FONKSİYONLARIN BİR ALT SINIFI İÇİN SUBORDİNASYON SONUCU

THE SUBORDINATION RESULT FOR A SUBCLASS OF UNIVALENT FUNCTIONS

H. Özlem GÜNEY
University of Dicle, Faculty of Science, Department of Mathematics, 21280 Diyarbakır TURKEY
ozlemg@dicle.edu.tr

Abstract

In the field of Geometric Function Theory, various subclasses of analytic functions have been studied from different viewpoints. The fractional q-calculus is the important tools that are used to investigate subclasses of analytic functions. For example, the extension of the theory of univalent functions can be described by using the theory of q-calculus. Moreover, the q-calculus operators, such as fractional q-integral and fractional q-derivative operators, are used to construct several subclasses of analytic functions. For the convenience, we provide some basic definitions and concept details of q-calculus which are used in this presentation.

A sequence $\{b_j\}_{j=1}^{\infty}$ of complex numbers is said to be a Subordinating Factor Sequence if, whenever $f(z)$ of the form $f(z)=z+\sum_{n=2}^{\infty}a_n z^n$ is analytic, univalent and convex in U, we have the subordination given by $\sum_{j=1}^{\infty}a_j b_j z^j \prec f(z)$ with $a_1=1$ where the symbol "$\prec$" means subordination. In 1961 Wilf showed that the sequence $\{b_j\}_{j=1}^{\infty}$ is a subordinating factor sequence if and only if $\operatorname{Re}\left(1+2\sum_{j=1}^{\infty}b_j z^j\right)>0$.

In this presentation, by making use of a subordination theorem for analytic functions, we derive a subordination result for a subclass of analytic functions which is defined by means of the q-derivative operator. Also, we show that the constant factor in the subordination result cannot be replaced by a larger one.

Key Words: Analytic functions; Univalent functions; Subordinating factor sequence; q-derivative operator; Hadamard product (or convolution)

FİBONACCİ SAYILARI İLE İLGİLİ ANALİTİK FONKSİYONLARIN ÜÇÜNCÜ HANKEL DETERMİNANTI ÜZERİNE SINIRLAR

BOUNDS ON THIRD HANKEL DETERMINANT OF ANALYTIC FUNCTIONS RELATED TO FIBONACCI NUMBERS

H. Özlem GÜNEY
University of Dicle, Faculty of Science, Department of Mathematics, 21280 Diyarbakır TURKEY
ozlemg@dicle.edu.tr
Sedat İLHAN
University of Dicle, Faculty of Science, Department of Mathematics, 21280 Diyarbakır TURKEY
sedati@dicle.edu.tr

Abstract

Geometric Function Theory is that an important branch of complex analysis, which deals and studies the geometric properties of the analytic functions. Geometric Function Theory is an area of mathematics which is characterized by an intriguing marriage between Geometry and Analysis. Its origins date from the 19th century but new applications arise continually. Also, one of the important subjects of Complex Analysis is Hankel determinant. Hankel determinant is frequently used in many areas. Especially, Hankel determinant problem holds an important place in Univalent Function Theory and is focused on finding upper bound of second and third Hankel determinants.

The third hankel determinant problem is

$$H_3(1) = a_3\left(a_2a_4 - a_3^2\right) - a_4\left(a_2a_3 - a_4\right) + a_5\left(a_3 - a_2^2\right).$$

The upper bounds for third hankel determinant of some special classes of functions were found by several researchers. However, they still study on this problem for different subclasses.

The Fibonacci numbers are the numbers in the integer sequence 1, 1, 2, 3, 5, 8, 13, 21, …, called the Fibonacci sequence, and characterized by the fact that every number after the first two is the sum of the two preceding ones.

This presentation is concerned with the problems related to the estimation for upper bound of third Hankel determinant for a special subclass of analytic functions. We obtained the sharp upper bound of $H_3(1)$ for the functions belonging to this special class. Also, in this presentation, we will show an association with Fibonacci numbers of an analytic function of the class which we are working on under a special condition.

Key Words: Third Hankel determinant, starlike function, shell-like curve, Fibonacci numbers.

Research reported in this paper was supported by Dicle Universıty-Scientific Research Project Coordinatorship (DUBAP) with No. FEN.17.026.

FİBONACCİ SAYILARI İLE BAĞLANTILI BI-YALINKAT ANALİTİK FONKSİYONLARIN BİR ALTSINIFI İÇİN KATSAYI HESAPLARI

COEFFICIENT ESTIMATES FOR A SUBCLASS OF ANALYTIC BI-UNIVALENT FUNCTIONS CONNECTED WITH FIBONACCI NUMBERS

H. Özlem GÜNEY
University of Dicle, Faculty of Science, Department of Mathematics, 21280 Diyarbakır TURKEY
ozlemg@dicle.edu.tr
Sedat İLHAN
University of Dicle, Faculty of Science, Department of Mathematics, 21280 Diyarbakır TURKEY
sedati@dicle.edu.tr

Abstract

A function is said to be bi-univalent in the open unit disk if both the function and its inverse are univalent in the unit disc. If $F = f^{-1}$ is the inverse of a normalized univalent function f then the function F has a Maclaurin series expansion in some disk about the origin. Let Σ denote the class of analytic and bi-univalent functions in the unit disc given by the Taylor-Maclaurin series expansion given by $f(z) = z + \sum_{n=2}^{\infty} a_n z^n$. Firstly, Lewin studied the class of bi-univalent functions, obtaining the bound $|a_2| \leq 1.51$. Subsequently, Brannan and Clunie conjectured Lewin's result to $|a_2| \leq \sqrt{2}$ for $f \in \Sigma$. Accordingly, Netanyahu showed that $|a_2| \leq 4/3$. Brannan and Taha introduced certain subclasses of bi-univalent function class Σ similar to the familiar subclasses. In fact, the aforecited work of Srivastava et al. essentially revived the investigation of various subclasses of bi-univalent function class Σ in recent years. Recently, many authors investigated bounds for various subclasses of bi-univalent functions. Not much is known about the bounds on general coefficient $|a_n|$ for $n \geq 4$.This is because the bi-univalency requirement makes the behavior of the coefficients of the function f and its inverse $F = f^{-1}$ unpredictable. In the literature, only few works determine general coefficient bounds $|a_n|$ for the analytic bi-univalent functions.

The Fibonacci numbers are the numbers in the integer sequence 1, 1, 2, 3, 5, 8, 13, 21, …, called the Fibonacci sequence, and characterized by the fact that every number after the first two is the sum of the two preceding ones. These numbers play a considerable act in some branch of Mathematics.

In this presentation, using the Fibonacci numbers, we obtain coefficient expansions for a special subclass of analytic bi-univalent functions and determine coefficients for such functions. We also demonstrate the unpredictable behavior of the initial coefficients of subclasses of bi-univalent functions. For some special cases, also we show that our class is generalization class of them. Also, we give Fekete-Szegö inequalities for these function classes.

Key Words: Bi-univalent functions, Analytic functions, Fibonacci numbers, Coefficient estimates.

Research reported in this paper was supported by Dicle Universıty-Scientific Research Project Coordinatorship (DUBAP) with No. FEN.17.026.

SATURATED SAYISAL YARIGRUPLARDA BAZI SONUÇLAR

SOME RESULTS IN SATURATED NUMERICAL SEMIGROUPS

Sedat İLHAN
Dicle University, Faculty of Science, Department of Mathematics, Diyarbakır, TURKEY
Ahmet ÇELİK
Dicle University, Faculty of Science, Department of Mathematics, Diyarbakır, TURKEY

Abstract

In this study, we assume that ¥ is nonnegative integers set also, the set S is subset of and ¢ is the integer set. S is a numerical semigroup if $x+y\hat{I}S$, for $x,y\hat{I}S$, $0\hat{I}S$ and ¥\S is finite. Numerical semigroups have emerged with the problem of how to find the largest positive integer called Frobenius Problem, which cannot be written as a linear composition of elements of S.

A numerical semigroup S is Arf if $a+b-c\hat{I}S$, for all $a,b,c\hat{I}S$ such that a^3b^3c. A numerical semigroup S is saturated if $s+d_1s_1+d_2s_2+...+d_ms_m\hat{I}S$, where $s,s_i\hat{I}S$ and $d_i\hat{I}¢$ such that $d_1s_1+d_2s_2+...+d_ms_m^3 0$ and $s_i£s$ for $i=1,2,...,m$. A saturated numerical semigroup is Arf, but an Arf numerical semigroup needn't be saturated.

Arf numerical semigroups are used in algebraic geometry and algebraic error coding.

Let S be a numerical semigroup, then the number $F(S)=\max(¢\backslash S)$ is called Frobenius number of S, and $n(S)=\#(\{0,1,2,...,F(S)\}ÇS)$ is called number determine of numerical semigroup S.

Let S be a numerical semigroup. If $x\hat{I}¥$ and $x\ddot{I}S$, then x is called gap of S. We denote the set of gaps of S, $H(S)=¥\backslash S$. The number $G(S)=\#(H(S))$ is called the genus of S. Also, It is known that $G(S)=F(S)+1-n(S)$.

In this study, we will give some results about Frobenius number, number determine, genus and gaps, fundamental gaps, special gaps of saturated numerical semigroups S with multiplicity 8 or less than 8.

Key Words: Arf numerical semigroups, saturated semigroup, Frobenius number, numerical semigroup, genus, gaps.

Research reported in this paper was supported by Dicle Universıty-Scientific Research Project Coordinatorship (DUBAP) with No. FEN.17.003.

SOME NEW PROPERTIES OF INNER PRODUCT QUASILINEAR SPACES

Hacer BOZKURT
Department of Mathematics, Batman University, 72100, Batman, Turkey
Yılmaz YILMAZ
Department of Mathematics, İnönü University, 44280, Malatya, Turkey

Abstract

The theory of quasilinear analysis is one of the fundamental theories in nonlinear analysis which has various applications such as integral and differential equations, approximation theory and bifurcation theory. Aseev generalized the concept of linear spaces, using the partial order relation hence they have defined the quasilinear spaces. He also described the convergence of sequences and norm in quasilinear space. Further, he introduced the concept of Ω-space which is only meaningful in normed quasilinear spaces.

In the present presentation, we introduce over symmetric set on a inner product quasilinear spaces. We establish some new results related to this new concept. Further, we obtain new conclusions for orthogonal and orthonormal subspaces of inner product quasilinear spaces. These results generalize recent well known results in the linear inner product spaces. Also, some examples have been given which provide an important contribution to understand the structure of inner product quasilinear spaces.

Keywords: Quasilinear space; Inner product quasilinear space; Hilbert quasilinear space; Orthogonality; Orthonormality.

References

(1) S. M. Aseev, Quasilinear operators and their application in the theory of multivalued mappings, Proc. Steklov Inst. Math. 2 (1986), 23-52.

(2) H. K. Banazılı, On Quasilinear Operators Between Quasilinear Spaces, M. Sc. Thesis, Malatya, Turkey, (2014).

(3) Y. Yılmaz, H. Bozkurt, S. Çakan, An orthonormal sets in inner product quasilinear spaces, Creative Mathematics and Informatics, 25(2016), No.2, pages 237-247.

(4) S. Çakan and Y. Yılmaz, Normed Proper Quasilinear Spaces, J. Nonlinear Sci. and Appl., 8 (2015), 816-836.

(5) V. Lakshmikantham, T. Gnana Bhaskar and J. Vasundhara Devi, Theory of set differential equations in metric spaces, Cambridge Scientific Publishers, Cambridge, 2006.

(6) S. Markow, On the algebraic properties of the convex bodies and some applications, J. Conv. Anal., Vol. 162, Issue 1, Pages 93-112, 2004.

(7) Y. Yılmaz, S. Çakan and Ş. Aytekin, Topological quasilinear spaces, Vol. 2012, Abstr. Appl. Anal. (2012) 951374.(10 pp.).

INVESTIGATING THE EFFECT OF THE PROJECT "LET'S MEET AND TURN SCIENCE AND MATHEMATICS INTO FUN!" TO THE 8TH GRADE STUDENTS' MATHEMATICSACHIEVEMENTS AND METACOGNITIVE AWARENESSES

Cihat ABDIOĞLU
Karamanoğlu Mehmetbey University, Department of Primary Education, Karaman, Turkey
Mustafa ÇEVIK
Karamanoğlu Mehmetbey University, Department of Primary Education, Karaman, Turkey

Abstract

This study was conducted in order to investigate the effects of mathematics-focused activities conducted in the project "Let's Meet and Turn Science and Mathematics into Fun!" to the 8th grade students' mathematics achievements and metacgnitive awarnesses of the students' that are the participants of the project. The project carries a science camp feature that includes a series of events, scientific studies, excursions and observations that last five days and 40 hours. The study group of this project consisted of 26 8th grade students from five public schools in Karaman city with high academic achievement and who are socio-economically disadvantaged and have limited educational opportunities. In the study, one group pre-test post test pattern was used which is one of the pre-test models. "Mathematics Achievement Test" and "Metacognitive Awareness Scale" were used in the study. The Mathematics Achievement Test was developed by the researchers and get the final form by selecting the questions from the question pool in the directions of experiements and the pilot scheme has been made. After the pilot scheme, some questions were removed from the test, and some questions were rearranged by calculating item difficulty and discrimination indices. In order to determine the metacognitive awareness of the participant group in the Project "Metacognitive Awareness Scale" which is developed by Schraw ve Dennison (1994) and is adapted in turkish by Abacı et. al. (2006) was used. In the study, data collected from "Mathematics Achievement Test" and "Metacognitive Awareness Scale" were analyzed by using the program SPSS 24. As a result of the analysis, levels of significance were tested by using mean, standart deviation and Wilcoxon matched-pairs signed ranks test, and for effect values and size Eta and Cohen values were examined. At the end of the study, it is determined that math-based activities carried out in the project are significantly increased the academic achievements of the students and these activities increase the metacognitive awareness positively but do not cause a significant increase. This study is supported by TUBITAK 4004- Nature Education and Science Schools projects with project number 117B145.

Anahtar Kelimeler: Secondary school students, mathematics academic achievement, metacognitive awareness, nature education and science schools

"GELİN TANIŞ OLALIM; FEN VE MATEMATİĞİ EĞLENCELİ KILALIM" PROJESİNİN 8. SINIF ÖĞRENCİLERİNİN MATEMATİK BAŞARILARINA VE ÜSTBİLİŞSEL FARKINDALIKLARINA ETKİSİNİN İNCELENMESİ

Assoc.Prof.Dr. Cihat ABDİOĞLU
Dr. Mustafa ÇEVİK

Özet

Bu çalışma, TÜBİTAK tarafından 4004 – Doğa Eğitimi ve Bilim Okulları projeleri kapsamında desteklenen "Gelin Tanış Olalım; Fen ve Matematiği Eğlenceli Kılalım" projesinde gerçekleştirilen matematik odaklı etkinliklerinin projenin katılımcıları olan 8. sınıf öğrencilerinin matematik akademik başarılarına ve üstbilişsel farkındalıklarına etkisini incelemek amacıyla gerçekleştirilmiştir. Proje, beş gün ve 40 saat süren bir dizi etkinliklerin, bilimsel çalışmaların, gezi ve gözlemlerin yer aldığı bir bilim kampı özelliği taşımaktadır. Projenin çalışma grubunu Karaman ili merkeze bağlı devlet okullarının 8. sınıflarında öğrenim görmekte olan, sosyo-ekonomik açıdan dezavantajlı, kısıtlı eğitsel imkânlara sahip, akademik başarısı yüksek 26 öğrenci oluşturmuştur. Çalışmada deneme öncesi modellerden tek grup ön test son test deseni kullanılmıştır. Çalışmada veri toplama aracı olarak "Matematik Başarı Testi" ile "Üsbilişsel Farkındalık Ölçeği" kullanılmıştır. Bu nicel veri araçlarından Mateamtik Başarı Testi araştırmacılar tarafından geliştirilmiş olup, soru havuzundan uzman görüşleri doğrultusunda seçilen sorularla son şekli verilmiş ve pilot uygulaması yapılmıştır. Pilot uygulama sonunda madde güçlük ve ayırt edicilik indeksleri hesaplanarak bazı sorular testten çıkartılmış, bazı sorular ise yeniden düzenlenmiştir. Projede yer alan katılımcı grubunun üstbilişsel farkındalıklarının belirlenmesi amacıyla da Schraw ve Dennison (1994) tarafından geliştirilen ve Abacı vd. (2006) tarafından Türkçe'ye uyarlaması yapılan "Üstbilişsel Farkındalık Ölçeği" kullanılmıştır. Çalışmada, Matematik Başarı Testi ve Üstbilişsel Farkındalık Ölçeği'nden elde edilen veriler, SPSS 24 programında analiz edilmiştir. Analizler sonucunda ortalama, standart sapma, Wilcoxon işaretli sıralar testi kullanılarak anlamlılık düzeyleri test edilmiş, etki değerleri ve büyüklüğü için ise Eta ve Cohen değerlerine bakılmıştır. Çalışma sonunda, proje kapsamında gerçekleştirilen matematik tabanlı etkinliklerin öğrencilerin akademik başarısını anlamlı düzeyde artırdığı, bu etkinliklerin üstbilişsel farkındalıklarını ise olumlu yönde artırmasına karşılık anlamlı düzeyde bir artışa neden olmadığı tespit edilmiştir. Bu çalışma 117B145 no'lu TÜBİTAK 4004–Doğa Eğitimi ve Bilim Okulları projeleri kapsamında desteklenmiştir.

Anahtar Kelimeler: Ortaokul öğrencileri, matematik akademik başarısı, üsbilişsel farkındalık, doğa eğitimi ve bilim okulları

EVALUATION OF THE CURRENT MATHEMATICS CURRICULUM IMPLEMENTED IN HIGH SCHOOLS BY VIEWS OF SCHOOL ADMINISTRATORS

Cihat ABDIOĞLU
Karamanoğlu Mehmetbey University, Department of Primary Education, Karaman, Turkey
Mustafa ÇEVIK
Karamanoğlu Mehmetbey University, Department of Primary Education, Karaman, Turkey

Abstract

In this study, it is aimed to evaluate the current high school mathematics curriculum by the school administrators (principals, senior assistant principals and assistant principals). For this purpose, convenience sampling method has been adopted that is one of the non-random sampling methods while creating the study population. In this context, the administrators of the 20 high schools in the center of Karaman city formed the study poppulation of the research. A total of 52 school administrators including 16 principals, 6 senior principal assistants and 16 principal assistants participated in the research. The study is a case study based on qualitative research design. As a data collection tool, a semi-structured interview form called "Curriculum Evaluation Form" developed by the researchers was used. While the form was being developed, expert opinions were taken and in this direction some items were removed from the form, some items were added, and new items were added to the form. Afterwards, the expert opinion was taken again. Thus the validity of the form is ensured. For the reliability of the form, the reliability formula proposed by Miles and Huberman (1994) is used. The two forms that were answered were evaluated by three experts and the reliability among the researchers was found as 0.83 (10/10 + 2) according to the method of Reliability = Communion / (Communion + Split in Opinion). Content analysis method was used in the analysis of data in the study. At the end of the study, it was seen that administrators generally do not have knowledge about mathematics curriculum, the administrators who have knowledge are in the opinion that the program is above the students' level, the outcome of the program have to be more related to current life and revision of the program according to high school levels is vital. At the end of the study, recommendations were made for the curriculum. This study was supported by the Coordinatorship of Scientific Research Projects of Karamanoğlu Mehmetbey University with the Project Number 19-M-15.

Keywords: High school mathematics curriculum, high school administrators, evaluation

ESKİ VAN ŞEHRİNDEKİ TARİHİ CAMİLERİNDEKİ SÜSLEMELERİN GRUP YAPILARI
GROUP STRUCTURES OF ORNAMENTS ON HISTORIC MOSQUES IN OLD VAN CITY

Süleyman EDİZ
Van Yüzüncü Yıl Üniversitesi, suleymanediz@yyu.edu.tr

Özet

Bu çalışmada eski Van şehrinde yer alan tarihi camilerdeki süsleme ve motiflerin grup yapıları belirlenmiştir. Bu amaçla bu camilerdeki mevcut bütün süsleme ve motifler incelenmiştir. Elde edilen elli iki tür süsleme ve motif, ait oldukları gruplara göre sınıflandırılmıştır. Süslemelerin çoğunluğunun üçüncü tür simetri grubuna ait olduğu görülmüştür.

Anahtar Sözcükler : Gruplar, Simetri Grupları, Duvar Kağıdı Grupları, Camii Süslemeleri

Abstract

In this study, the group structures of ornaments and motifs on the historic mosques in the old city of Van have been determined. For this purpose, all the ornaments and motifs on these mosques have been examined. The fifty two kinds of ornaments and motifs obtained are classified according to the groups they belong to. It is seen that the majority of the ornaments belong to the third kind of symmetry group.

Key Words: Groups, Symmetry Groups, Wallpaper Groups, Mosque Ornaments

SOME RESULTS ON A NEW GRAPH OF A RING

Cihat ABDIOĞLU
Karamanoğlu Mehmetbey University, Department of Primary Education, Karaman, Turkey
Ece Yetkin ÇELIKEL
Gaziantep University, Department of Mathematics, Gaziantep, Turkey
Angsuman DAS
t. Xavier's College, Department of Mathematics, Kolkata, India

Abstract

Studies on zero-divisor graph of a commutative ring were started by Beck in 1988. However, he let all elements of the ring be vertices of the graph and mainly interested in colorings of the graphs. Then, in 1999, Anderson and Livingston introduced dand studied the the zero-divisor graph of a commutative ring R, denoted by $\Gamma(R)$ whose vertices are the nonze ro zero-divisors of R, and two distinct vertices x and y are adjacent if and only if $xy = 0$. In this work we initiate the study of Armendariz graph of a ring R. The Armendariz graph of a ring R, denoted by $A(R)$, is an undirected graph with nonzero zero-divisors of $R[x]$ (i.e $Z(R[x])*$) as thevertex set, and two distinct vertices $f(x) = \sum_{i=0}^{n} a_i x^i g(x) = \sum_{j=0}^{m} b_j x^j$ are adjacent if and only if $a_i b_j = 0$, for all i, j. Here, $R$is an associative ring with identity, $Z(R)$ and $Z(R)* = Z(R)\backslash 0$ denote the set of all zero-divisors of R and the nonzero zero-divisors of R, respectively. Here, we will investigate the basic properties of this graph such as diameter, girth, domination number, etc. Especially, we will show that A(R) is connected and its diameter is less than or equal to 3 and less than or equal to 2 in case $Z(R) \subsetneq Nil(R)$. We also determine under what conditions diameters of $\Gamma(R[x])$ and $A(R)$ are coincide. On the other hand we also show that $A(R)$, instead ofbeing a proper subgraph of $\Gamma(R[x])$, the zero divisor graph of the polynomialring $R[x]$, have many graph properties in common with $\Gamma(R[x])$.

Keywords: Armendariz Property, Diameter, Girth, Zero-divisor Graph.

APPLICATION OF HYDRAULICS IN GIS DATABASE: THE CASE OF ELAZIG AKKUSAGI POND
SU YAPILARININ CBS VERİ TABANINA UYGULANMASI: ELAZIĞ AKKUŞAĞI GÖLETİ ÖRNEĞİ

Meral KORKMAZ
Dr.Öğr. Üyesi. Munzur Üniversitesi**,** Türkiye
Yusuf Ziya ÖLÇÜCÜ
Öğr. Gör. Fırat Üniversitesi, Türkiye

Abstract

The Geographical Information Systems (GIS) are used in several fields today. In Geographical Information Systems are used to collect, transfer and utilize data for a particular region. Geographical Information Systems are used by several professional groups, both in the private sector and in public institutions and organizations. GIS users experience administrative problems due to their different disciplines. In other words, GIS can be used to generate simple geographical graphics, but also for complex planning purposes. For example, GIS is a database software used in several fields where urban planners can process regional data on development plans, civil engineers can store characteristic data for a designed structure in a region, agricultural engineers can enter plant diversity data for a region, mechanical engineers can store data on regional natural gas lines, electrical engineers can store data on power transmission lines and transformers in a region, and geological engineers can store data on groundwater levels in a region. When an energy transmission line is needed to be constructed, GIS software can be searched to determine the residential, commercial and industrial zones in the region and the present line capacity and number and power of transformers. Or a zoning officer can design a zoning plan using the information available in the GIS software on existing natural gas and energy lines and water pipes. Also, when an agriculture engineer is planning cultivation, she or he can learn the available irrigation capacity in the region via GIS. Thus, the Geographical Information System is a database application where ready-to-use data are stored. The Geographical Information System is a method that transfers the data previously stored in files and cabinets in various institutions into digital data. Thanks to the Geographic Information System, the exchange of information between institutions and organizations is accelerated, the strategies are firmly constructed, realistic analyzes are conducted, saving significant amount of time. The present study aimed to introduce Elazığ Baskil Akkusağı Pond Geographic Information System and to present the data collected in this system. The study would provide an example for the use of Geographical Information Systems in the field of hydraulics.

Keywords: Geographical Information System, GIS, basin, water resources.

Özet

Coğrafi Bilgi Sistemi (CBS) günümüzde çok geniş bir alanda kullanılmaktadır. Coğrafi Bilgi Sistemi bir bölgede verilerin toplandığı, aktarıldığı ve bu verilerin kullanıldığı sisteme diyebiliriz. Coğrafi Bilgi Sistemini çok farklı meslek grupları hem özel sektörde hem de kamu kurum ve kuruluşlarında kullanmaktadır. CBS kullanıcıları meslek disiplinlerinin farklı olması sebebiyle yönetimsel bazda zorluklar çekmektedirler. Başka bir ifade ile CBS ile, coğrafya ile ilgili çok basit grafikler hazırlanırken aynı zamanda çok karmaşık planlamalar yapan bir sitemdir. Örneğin; şehir planlamacısı imar planları ile ilgili verileri, inşaat mühendisi tasarlanan bir yapının karakteristik verilerini, ziraat mühendisi bitki çeşitliliğini, makine mühendisi doğal gaz hatlarını, elektrik mühendisi enerji nakil hat ve trafolarını, jeoloji mühendisi yeraltı su seviyelerini bölgesel olarak CBS ortamına işleyerek geniş bir alanda kullanılan bir veri programıdır. CBS programı ile bir enerji nakil hattı çekileceği zaman CBS' nin veri tabanına girilip bölgede ki konut, ticari ve sanayi alanları tespit edilip hat kapasiteleri trafo sayı ve güçleri belirlenebilmektedir. Ya da bir imar uygulayıcısı doğal gaz/enerji/su hatlarının yerine dikkat ederek imar planı yapabilmektedir yine bir ziraat mühendisi tarım yapacağı zaman sulama hatlarından ne kadar su alabileceğini CBS' den öğrenebilmektedir. Buradan anlaşılacağı üzere Coğrafi Bilgi Sistemi bir veri tabanı uygulaması olup bu verilerin kullanıma hazır şekilde depolandığı bir sistemdir. Coğrafi Bilgi Sistemi kişi ve kuruluşlarda bulunan klasör yığınların veri bilgisi ile beraber sayısal ortama aktarım şeklidir. Coğrafi Bilgi Sistemi sayesinde kurum ve kuruluşların bilgi alış verişi hızlanır, stratejiler daha sağlam zemine oturur, daha gerçekçi analizler yapılır ve zamandan tasarruf edilir. Bu çalışma da ise Elazığ Baskil Akuşağı Göleti Coğrafi bilgi sistemi ile tanıtılacak ve bu sistemde oluşturulmuş veriler sunulacaktır. Coğrafi Bilgi Sistemlerinin su yapıları alanında nasıl kullanıldığı konusunda örnek teşkil edecektir.

Anahtar Kelimeler: Coğrafi Bilgi Sistemleri, CBS, havza, su kaynakları.

ECO - FRIENDLY ALTERNATIVE ENERGY SOURCES

Zeyneb KILIÇ
Fırat University,Engineering Faculty, Department of Civil Engineering, Elazığ, Turkey
Ömer KILIÇ
Bingol University, Technical Science Vocational College, Department of Park and Garden Plant, Bingol, Turkey.

Abstract

Even though the earth continues evolving, the resources used by humans will eventually become scarce. Conventional energy sources based on oil, coal, and natural gas have proven to be highly effective drivers of economic progress, but at the same time damaging to the environment and to human health. The potential of renewable energy sources is enormous as they can in principle meet many times the world's energy demand. Renewable energy sources such as biomass, wind, solar, hydropower, and geothermal can provide sustainable energy services, based on the use of routinely available, indigenous resources. It is becoming clear that future growth in the energy sector is primarily in the new regime of renewable, and to some extent natural gas-based systems, and not in conventional oil and coal sources. Financial markets are awakening to the future growth potential of renewable and other new energy technologies, and this is a likely harbinger of the economic reality of truly competitive renewable energy systems. In addition, the reserves of these resources are limited and will decrease over time and will eventually reach the level of depletion. For this reason, it is an essential necessity and purpose to increase the availability and use of energy sources which will be alternative to fossil fuels. Minimizing the environmental problems and pollution that may occur while supply our energy needs is very important for the healthy life of the creatures. In this study, renewable energy sources that can be used as an alternative to fossil fuels were mentioned and evaluation, discussions and suggestions were made about this subject.

Keywords: Environmental pollution, energy, fossil fuels, renewable energy sources.

TUNCELI-ÇEMIŞGEZEK FOUND IN THE HISTORIC CASTLE AND YELMANIYE MOSQUE NATURAL STONE DECOMPOSITION

TUNCELİ-ÇEMİŞGEZEK'TE BULUNAN TARİHİ KALE VE YELMANİYE CAMİİLERDEKİ DOĞAL TAŞ BOZUNMALARI

Haydar ERTAŞ

Abstract

Natural stones are used today in various fields. It is seen that it is frequently used in historic buildings, as a block in columns, as masonry walls, as façades as exterior walling material, as flooring material. The places of use of the stones are determined by their characteristics. Therefore; the resistance of the stones to environmental effects should be determined, the engineering properties should be investigated and the appropriate stones should be selected according to the structure and purpose. When the causes of stone deterioration are examined; it is seen that the most important factor in the degradation of the natural building stones is the climatic factor. However, in addition to the climatic effects of decay, natural building stones are known to be subject to physical, chemical and biological degradation, as well as accelerating the decay process.

The objective of the study is to determine the natural stone breakdowns encountered in historical Yelmaniye (Suleymaniye) and Kale mosques located in the district of Çemişgezek in Tunceli province. When stone breakdowns were detected, visually supported, damage types were determined using this method. Work on the two mosques has revealed that physical, chemical and biological degradation has begun in the dimensions of our cultural heritage and concern to transfer to future generations, suggestions have been made by expert teams on the restoration and protection of the cultural heritage concerned.

Key words: stone deterioration, historic mosque, alteration

References/Kaynaklar

[1] Dal, M., Yalcin, M., Ocal, A.D. (2016) Distortions in Historical Stone Buildings in Famagusta Kaleiçi, Cukurova University Journal of Engineering and Architecture, 31 (2): 355-363, Adana.

[2] Hasbay, U., Hattap, S., "Types and Reasons of Degradation in Natural Stones", ISSN: 2148-0273 Volume 5, Issue 1, 2017

[3] The Sword (2009). "Usability of Keşan Region Sandstones as Building Blocks" Trakya University Graduate School of Natural and Applied Sciences Department of Architecture Edirne PhD Thesis, Edirne.

[4] Vardar, M., 1990, "The Place of Marbles in the History of Civilization", Mermer Magazine, Issue: 12.

Özet

Doğal taşlar günümüzde çeşitli alanlarda kullanılmaktadır. Tarihi yapılarda, blok olarak kolonlarda, duvar örgü malzemesi olarak taşıyıcı duvarlarda, dış yüzey kaplama malzemesi olarak cephelerde, zemin kaplama malzemesi olarak döşemelerde sıkça kullanıldığı görülmektedir. Taşların kullanım yerlerini, özellikleri belirlemektedir. Bu nedenle; taşların, çevresel etkilere karşı dirençleri belirlenmeli, mühendislik özellikleri araştırılmalı ve elde edilen verilere dayalı olarak yapıya ve amaca uygun taş seçimi yapılmalıdır (Kılıç, 2009, Hasbay and Hattap, 2017, Vardar, 1990). Taşın bozulma nedenleri incelendiğinde; doğal yapı taşlarının bozunmaya uğramalarındaki en önemli etmenin iklimsel faktörün olduğu görülmektedir. Bununla birlikte bozunmanın iklimsel etkisine ilaveten doğal yapı taşlarının fiziksel, kimyasal ve biyolojik bozunmaya da maruz kaldıkları bilinmekle beraber, bozunma sürecini de hızlandıran faktörlerdir (Dal, Yalçın and Öcal, 2016).

Yapılan çalışmanın amacı Tunceli ili Çemişgezek ilçesinde bulunan tarihi Yelmaniye (Süleymaniye) ve Kale camilerinde karşılaşılan doğal taş bozunmalarını tespit etmekdir. Taş bozunmaları tespit edilirken görsellerle desteklenmiş, bu yöntem kullanılarak hasar türleri belirlenmiştir. İki cami üzerinde yapılan çalışma ile kültürel mirasımız olan ve gelecek nesillere aktarılması hususunda endişe verici boyutlarda fiziksel, kimyasal ve biyolojik bozunmaların başladığı tespit edilmiş, uzman ekipler tarafından ilgili kültürel mirasın restore edilmesi ve korunması noktalarında önerilerde bulunulmuştur.

Anahtar sözcükler: Taş bozunmaları, Tarihi camiiler, Alterasyon

INVESTIGATION OF THE SOLAR ENERGY POTENTIALS OF THE TUNCELI, ELAZIĞ AND MALATYA PROVINCES AND THEIR PRACTICALITY

TUNCELİ, ELAZIĞ VE MALATYA İLLERİNİN GÜNEŞ ENERJİ POTANSİYELLERİNİN ARAŞTIRILMASI VE YAPILARA UYGULANABİLİRLİĞİ

Aziz İLHAN
Munzur University /Çemişgezek Vocational School /Computer Programming Department
Haydar ERTAŞ
Munzur University /Çemişgezek Vocational School /Building Inspection Department

Abstract

With the increasing importance of renewable energy sources, solar energy is benefiting from two ways. These are the systems in which the electricity from solar energy is obtained and the solar energy can be converted directly into the energy of electricity and it is the most important choice that these systems should not pollute the environment and that the structures are simple and easy to apply. Another reason for preference is to convert solar energy to heat energy and to meet the need for hot water in the constructions (Gold, 2012). In this context, the purpose of the research is to examine the renewable energy sources (Solar Energy Systems) in Elazığ, Malatya and Tunceli in terms of some variables. The study was conducted over 12 months of data from 7 renewable energy companies located in three medium-sized provinces in the Eastern Anatolia region (Tunceli, Elazığ and Malatya). The study is a quantitative study because it contains numerical data. In the analysis of the data, descriptive statistics, MANOVA and TUKEY test were used. As a result of the research, it is found that there is no significant difference between Elazığ-Malatya and Tunceli in terms of global radiation value, sunshine period and established power value in terms of city change, Elazığ-Malatya and Tunceli in terms of value of power plant gross production value, it was found that there was a meaningful difference. As a result of the research findings, it is suggested that the researchers should conduct research with different companies or other variables and to investigate the widespread use of solar energy potentials in construction.

Key words: Renewable energy, duration of sunshine, statistics.

References/Kaynaklar

Altın, M. (2012). New Building Material Photovoltaic Panels, Properties and History. 2nd National Building Materials Congress and Exhibition.

Özet

Yenilenebilir enerji kaynaklarının önem kazanmasıyla yapılarda güneş enerjisinden iki şekilde faydalanmaktadır. Bunlardan ilki güneş enerjisinden elektrik enerjisi elde edilen ve güneş enerjisini doğrudan elektrik enerjisine dönüştürebilen sistemlerdir ve bu sistemlerin çevreyi kirletmemeleri, yapılarının basit ve uygulamalarının kolay olmaları en önemli tercih sebebi olmuştur. Bir diğer tercih sebebi ise güneş enerjisini ısı enerjisine çevirerek yapılarda sıcak su ihtiyacının karşılanması şeklindedir (Altın, 2012). Bu kapsamda araştırmanın amacı Elazığ, Malatya ve Tunceli illerinde bulunan yenilenebilir enerji kaynaklarını (Güneş Enerjisi Sistemlerini) bazı değişkenlere göre incelemektir. Araştırma Doğu Anadolu bölgesinde bulunan orta büyüklükteki üç ilde (Tunceli, Elazığ ve Malatya) bulunan 7 yenilenebilir enerji şirketinden alınan 12 aylık veriler üzerinden yürütülmüştür. Araştırma sayısal veriler içermesi sebebiyle nicel bir çalışmadır. Verilerin analizinde betimsel istatistikler, MANOVA ve TUKEY testi kullanılmıştır. Araştırma sonucunda şehir değişkeni açısından global radyasyon değeri, güneşlenme süresi ve kurulu gücü değeri açısından Elazığ-Malatya ve Tunceli illeri arasında anlamlı bir farklılığın bulunmadığı, santral çıkış brüt üretim değeri, sisteme veriş değeri ve iç ihtiyaçta tüketilen değer açısından Elazığ-Malatya ve Tunceli illeri arasında anlamlı bir farklılığın bulunduğu tespit edilmiştir. Araştırmada elde edilen bulgular neticesinde araştırmacılara farklı şirketler veya başka değişkenlerle araştırma yapmaları ve güneş enerjisi potansiyellerinin yapılarda daha yaygın kullanımı ile ilgili araştırmalarda bulunmaları önerilmiştir.

Anahtar sözcükler: Yenilenebilir enerji, güneşlenme süresi, istatistik.

USE OF n-DIMENSIONAL DEBYE APPROXIMATION ON THE ASSESMENT OF THE ISOBARIC HEAT CAPACITY OF URANIUM OXIDE

BAHTİYAR A. MEHMETOĞLU
Department of Physics, Faculty of Arts and Sciences, Gaziosmanpaşa University, Tokat, Turkey
Ebru ÇOPUROĞLU
Department of Physics, Faculty of Arts and Sciences, Gaziosmanpaşa University, Tokat, Turkey

Abstract

The ability of nuclear reactors is clearly connected by the type of nuclear fuel. Finding safer, cleaner and cheaper nuclear fuels to the new reactor designs is so important. For over 60 years, the scientists deeply interested in nuclear fuels to improve Uranium utilization and safety while reducing waste. So introducing new calculation methods is as important as the type of nuclear fuels. The heat capacity studies on nuclear fuels have prime importance in nuclear industry. It is well known that one of the most used nuclear fuel is uranium oxide (UO_2) because of its safety. To determine the thermophysical properties of UO_2 nuclear fuel there must be a useful analytical calculation method. In literature, different methods to determine the thermophysical properties of UO_2 have been proposed [1-4]. Beside these methods some computational challenges arising in thermophysical property evaluations such as heat capacity, thermal conductivity and thermal expansion are still hard to estimate for all temperatures analytically. For these purpose, by the use of integer and noninteger n-dimensional Debye functions through the binomial coefficients and incomplete gamma functions we have proposed an evaluation method for calculating isobaric heat capacity of UO_2 which is an alternative nuclear fuel [5-7]. The obtained results have been checked with literature data for arbitrary temperature ranges. The results of given formula are good agreement with literature data. Also for integer and noninteger values of n, we have plotted the heat capacity of UO_2 with respect to the temperature. The given approximation yields high accuracy and can be useful for other applications.

References

Debye P. (1912). Annalen der Physik, 39 (4), 789.

Peng, S, Grimvall, G., 1994, Heat capacity of actinide dioxides. J. Nucl. Mater. 210, 115-122.

Fink, J. K., 2000, Thermophysical properties of uranium dioxide. J. Nucl. Mater. 279, 1-18.

Lemehov, S. E., Sobolev, V., Van Uffelen, P. (2003). Modelling thermal conductivity and self-irradiation effects in mixed oxide fuels. Journal of nuclear materials, 320(1), 66-76.

Landau, L. D., Lifshits, E.M., 1980, Statistical Physics, Pergamon Press, London.

Askerov, B.M., Cankurtaran, M., 1994, Isobaric specific-heat and thermal expansion of solid in the Debye approximation. Phys. Stat. Sol. B, 185, 341-348.

Guseinov, I.I., Mamedov, B.A., 2007, Calculation of integer and noninteger n-dimensional debye functions using binomial coefficients and incomplete gamma functions. Int. J. Thermophys, 28, 1420-1426.

ORHAN GAZİ DÖNEMİNE AİT CUMA CAMİİNİN YAPIM TEKNİĞİ VE OLUŞUM SÜRECİNİN İNCELENMESİ

INVESTIGATION OF THE FRIDAY MOSQUE BELONGING TO THE ORHAN GAZI PERIOD OF THE CONSTRUCTION TECHNIQUE AND THE FORMATION PROCESS

Dr.Öğr.Üyesi . Hüseyin BAYRAKTAR
Mimarlık ve Şehir Planlama Bölümü, Kaynaşlı Meslek Yüksekokulu, Düzce Üniversitesi, Düzce

Özet

Bolu Müze Müdürlüğü'nün 1997 yılında yaptığı çalışmalar neticesinde Orhan Gazi dönemine ait olduğu tespit edilen Orhan Gazi (Cuma) Camii 1323 yılında Orhan Gazi döneminde Düzce ilinin Kaynaşlı ilçesi Sarıçökek Köyü sınırlarında yapılmıştır. Çivi kullanılmadan ahşap kütüklerin yatay düzende çandı veya çatkı sistemle birbirine geçmeli şekilde yapılmış, tek katlı ve kare kesite yakın plan tipinde bir ibadet yapısıdır. Caminin çatısı kırma çatı tipinde yapılmıştır. Kocaeli Kültür ve Tabiat Varlıklarını Koruma Bölge Kurulu'nun 27.05.2008 tarih ve 417 sayılı kararı ile Orhan Gazi (Cuma) Camii 1.Grup anıt eser olarak tescil edilmiştir. Caminin ahşap kütükleri yapının dört köşesinde ve iki cephenin ortalarında yer alan altı adet taş temel üzerine oturtulmuştur. İbadet amacıyla yapılan camiye özellikle halk arasında Cuma Camii denmesinin nedeni halkın köylerden toplanarak Cuma günleri camide Cuma namazını kıldıkları için Caminin ismine Cuma Camii denmektedir. Vakıflar Bölge Müdürlüğü tarafından Caminin restorasyon projesi yapılmış ve sonrasında yapım ihalesi gerçekleştirilmiştir. Camii 2013 yılında özel bir firma tarafından restore edilmiş ve tekrar ibadete açılmıştır. Camii 12 Kasım 1999 Düzce Depreminde az hasar almıştır. Kuzey güney doğrultuda yer alan cephelerde kütükler deprem esnasında dışa ve içe doğru esneme yapmıştır. Depremde kütüklerin esnemesi dışında Camide herhangi bir hasar meydana gelmemiştir. Restore esnasında hasar alan ve eskiyen kısımlar tekrar eski formuna göre düzenlenmiştir. Cami bahçe içerisinde konumlandırılmış ve D-100 karayoluna yaklaşık 1 km mesafede yer almaktadır. Bu çalışmada Cuma Camiinin restore öncesi ve sonrası durumu ve yapı tekniği değerlendirilerek 700 yıllık yapının oluşum süreci analiz edilmiştir. Çalışmada Caminin bahçe içindeki düzeni, dış ve iç ölçüleri alınmış ve çizimleri yapılmıştır. Ayrıca yapının bahçe ile ilişkisini gösteren fotoğraflar, iç ve dış cephe fotoğrafları çekilmiştir. Çalışma ile tarihi caminin oluşum süreci detayları ile geleceğe aktarılmaktadır.

Anahtar kelimeler: Kaynaşlı, Orhan Gazi (Cuma Camii), Oluşum süreci

Abstract

The Orhan Gazi (Friday) Mosque, which was determined to belong to the Orhan Gazi period as a result of the works carried out by the Bolu Museum Directorate in 1997, was made in 1323 during the Orhan Gazi period at the boundaries of the Sarıçökek Village in the Kaynaşlı district of Düzce. It is a worship structure in the form of a one-story and square cross-sectional close-up, made of wood logs without a nail, or made to be interlaced with a flat system. The roof of the glass is made of the roof type. Orhan Gazi (Cuma) Mosque 1st Group monument was registered as a monumental work with the resolution of Kocaeli Regional Board for the Protection of Cultural and Natural Assets dated 27.05.2008 and numbered 417. The wooden blocks of the glass are placed on the four bases of the structure and on the six stone foundations in the center of the two facades. For the purpose of worship, the Friday Mosque is called because Friday's mosque was gathered from the villagers and the Friday prayers were held on the mosque. The Mosque restoration project was carried out by the Regional Directorate of Foundations and a construction tender was realized afterwards. The mosque was restored by a private company in 2013 and the worship was opened again. The mosque suffered little damage during the November 12, 1999 Düzce earthquake. In the north and south-facing facades, the logs were stretched outward and inward during the earthquake. Except for the extinction of the logs in the earthquake, the mosque did not show any damage. Damaged and old parts were restored to their original form during restoration. The mosque is located in the garden and is located about 1 km from the D-100 highway. In this study, the formation process of 700 years old structure was analyzed by evaluating the state of the Friday Mosque before and after restoration and construction technique. In the study, interior and exterior measurements of the glass inside the garden were taken and drawings were made. In addition, photographs showing the relationship with the garden, interior and exterior photographs were taken. It is transferred to the future with the details of the process of the formation of the historical glass.

Key words: Kaynaşlı, Orhan Gazi (Friday Mosque), Formation process

STATUS OF ALFALFA SEED GROWING IN TURKEY AND ALFALFA SEED PRODUCTION

Semih AÇIKBAŞ
Siirt University, Faculty of Agriculture, Department of Field Crops, Siirt, Turkey
semihacikbas@siirt.edu.tr
Sebahattin ALBAYRAK
Ondokuz Mayıs University, Bafra Vocational School, Samsun, Turkey
Mehmet Arif ÖZYAZICI
Siirt University, Faculty of Agriculture, Department of Field Crops, Siirt, Turkey

Abstract

Forage crops cultivation areas in Turkey is around 8-9%. With the support of forage crops in recent years, this rate has increased by 2-3 units, but has not yet reached the level of developed countries (25-30%). Among the most important reasons for this situation it is not developed enough and forage crops of seed industry in Turkey comes not given the necessary importance to seed. Although alfalfa is in the first place with 6.594.319 decare cultivation areas and 17.561.190 tons of green grass production in forage crops, there are major problems in supplying seed alfalfa. Since 2005, government support has been given to "certified alfalfa seeds" growers to increase the production of forage crops. According to the Republic of Turkey Ministry of Food, Agriculture and Livestock; the production of alfalfa seed was 269 tons in 2002, showing some fluctuations over the past 15 years and reached to 794 tons in 2016. In Turkey with the appropriate fields for alfalfa seed production in terms of ecological conditions, alfalfa seed production is not at the desired level. Alfalfa seed production is not able to meet domestic demand, and therefore importing seeds in significant quantities causes large foreign exchange losses. In this study, it is aimed to give information about the ways of obtaining seeds in alfalfa, cultural applications in alfalfa seed production, basic problems of alfalfa seed production in our country and their solutions.

Keywords: Alfalfa seed, Production, Problems, Solutions.

OTEL İŞLETMELERİNİN WEB VE SOSYAL AĞ KULLANIMLARININ DEĞERLENDİRİLMESİ: MARDİN ÖRNEĞİ

EVALUATION OF HOTEL BUSİNESS, WEB AND SOCIAL NETWORK USAGES :MARDİN SAMPLE

Öğr. Gör. Faruk AKSOY
Dicle Üniversitesi
Prof. Dr. İbrahim TÜRKOĞLU
Fırat Üniversitesi

Özet

İletişim çağı olarak adlandırdığımız günümüzde işletmelerin varlığını sanal platformlarda göstermesi, bir seçenek olmaktan öte gereklilik haline gelmiştir. Köklü bir tarihsel ve kültürel geçmişe sahip olan Mardin, hem ikamet edenler hem de misafirler için içerisinde büyük değerleri barındırmaktadır. Bu büyük değerler gerek kamu gerekse özel kurumlar tarafından tanıtılmayı beklemektedir. Gelişen teknoloji ile beraber oteller bu değerlere dikkat çekmeye ve ziyaretçileri cezbetmeye çalışmaktadırlar. Bu işletmeler kendilerini web ve sosyal platformlarda tanıtmakta ve diğer turistik mekânlarla rekabet etmektedirler. Bu hem işletmeler hem hizmet sektörü hem de bulunduğu il için önem arz etmektedir. Bu çalışmada Mardin ilini tanıtma ve turizme hizmet etme görevlerini yerine getiren otel işletmelerinin web sayfalarının ve sosyal platform hesaplarının değerlendirilmesi ve eksiklerinin tespit edilmesi amaçlanmıştır.

Anahtar kelimeler: Mardin Otelleri, işletme sosyal platform, Otel işletmeleri, Mardin otel web siteleri, Otel web sitesi.

Abstract

The fact that today we call the communication age, the presence of businesses on virtual platforms has become a necessity beyond being an option. Having a well-established historical and cultural background, Mardin has great value for both residents and guests. These great values are expected to be introduced both by public and private institutions. Along with the developing technology, the hotels try to draw attention to these values and attract visitors. These businesses promote themselves on web and social platforms, and compete with other tourist sites. This is important for both the business and service sectors as well as the province where they are located. In this study, it is aimed to determine the web pages and social platform accounts of the hotel enterprises which are performing the tasks of introducing Mardin province and serving tourism, and to evaluate the deficiencies.

Key words: Mardin Hotels, Hotel businesses, Mardin hotel websites, Mardin, hotel website.

DETERMINATION OF CONTACT PARAMETERS OF THE Al/PSP/*p*-Si MIS DIODE

Cihat OZAYDIN
Department of Computer Eng, Faculty of Enginering, University of Batman, Batman, Turkey
cihat.ozaydin@batman.edu.tr
Enise ÖZERDEN
Department of Physics, Faculty of Sciences and Arts, University of Batman, Batman, Turkey
Ömer GÜLLÜ
Department of Physics, Faculty of Sciences and Arts, University of Batman, Batman, Turkey

Abstract

In recent years there has been growing interest in the field of thin organic semiconducting films due to their successful application in optical and electronic devices. In addition, organic materials have now reached the early stages of commercialization with the technological success of thin film organic optoelectronic devices, particularly organic light-emitting devices and with their improving efficiency, manufacturing yield and long-term stability [1]. New electrical properties of the metal-semiconductor (MS) contacts can be promoted by means of the choice of suitable organic semiconductor [2]. Phenolsulfonphthalein (PSP) organic dye is a pH indicator, bright red and crystalline powder that is frequently used in cell biology laboratories. Due to its conjugated structure, we have chosen PSP as an organic material. In this work, it was prepared **M**etal/Organic **I**nterlayer/Inorganic **S**emiconductor (MIS) diodes formed by coating of an organic film to *p*-Si semiconductor substrate. Metal (Al)/Organic Interlayer (phenolsulfonphthalein=PSP)/Semiconductor (*p*-Si) MIS device had a good rectifying behavior. This good performance is attributed to the effect of formation of interfacial organic thin layer between Al and *p*-Si. The characteristic parameters of the device were determined by using current-voltage (*I-V*) measurement as seen in figure 1. Interface state density (N_{ss}) distribution was calculated from the *I-V* characteristics. Also, optical absorbance spectrum of the PSP organic film on a glass substrate was analyzed in the UV-Visible region.

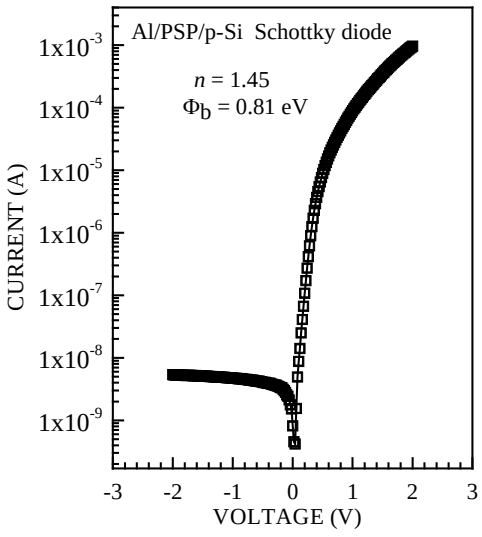


Figure 1. The *I-V* characteristic of the Al/PSP/*p*-Si structure at the room temperature.

References

[1] Ö. Güllü, Ş. Aydoğan, A. Türüt, Solid State Communications 152 (2012) 381-385.
[2] M. E. Aydın, F. Yakuphanoğlu, T. Kılıçoğlu, Synth. Met. 157 (24) (2007) 1080.

ELECTRICAL CHARACTERIZATION OF THE Al/*p*-Si SCHOTTKY DIODE WITH ORGANIC INTERLAYER

Enise ÖZERDEN
Department of Physics, Faculty of Sciences and Arts, University of Batman, Batman, Turkey
Cihat ÖZAYDIN
Department of Computer Eng., Faculty of Eng. & Arch., University of Batman, Batman, Turkey
eniseozerden@gmail.com
Ömer GÜLLÜ
Department of Physics, Faculty of Sciences and Arts, University of Batman, Batman, Turkey

Abstract

Organic semiconductors have a wide application in electronic technology [1]. Attractive features of these materials are possibility of device processing, compatibility with flexible substrates, and low material consumption for ultra thin molecular films, all of which offer the prospect of cheaper photovoltaic energy generation. The greatest feature of the organic materials is that they can be chemically tuned in order to adjust separately the band gap, valence and conduction band energies, charge transport, as well as the solubility or other structural properties [2]. The electrical properties of metal/semiconductor (MS) contacts can be modified by organic semiconductors when an organic layer is inserted between the inorganic semiconductor and metal. In this study, we prepared a Metal (Al)/Organic Interlayer (New Fuchsin=NF)/Inorganic Semiconductor (*p*-Si)/Metal (Al) Schottky device formed by coating of an organic film on *p*-Si semiconductor wafer. We calculated the barrier height (Φ_b) and ideality factor (n) of the Al/New Fuchsin/*p*-Si Schottky diode by using thermionic emission (TE) mechanism. The characteristic parameters of the device have been obtained from their dark current-voltage (*I-V*) and capacitance-voltage (*C-V*) characteristics. In addition, we have compared the parameters of the New Fuchsin/semiconductor Schottky diodes with those of conventional MS diodes.

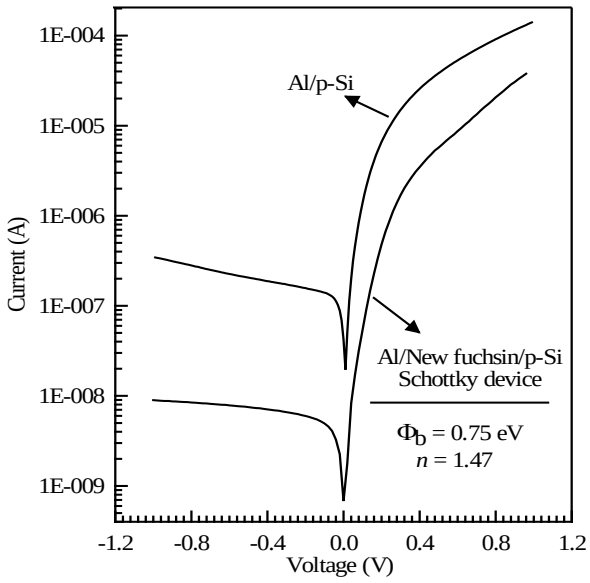


Figure 1. The *I-V* characteristics of the Al/NF/*p*-Si and Al/*p*-Si diode.

Keywords: Diode, Ideality factor, Barrier height.

References

[1] M. E. Aydın, F. Yakuphanoğlu, Microelectron. Eng. 85 (2008) 1836.
[2] K. R. Rajesh, C. S. Menon, J. Non-Cryst. Solids 353 (2007) 398.

ELECTRICAL PROPERTIES OF THE AL/METHYL RED/P-TYPE INP SEMICONDUCTOR DEVICE

Enise ÖZERDEN
Department of Physics, Faculty of Sciences and Arts, University of Batman, Batman, Turkey
Cihat ÖZAYDIN
Department of Computer Eng., Faculty of Eng. & Arch., University of Batman, Batman, Turkey
eniseozerden@gmail.com
Ömer GÜLLÜ
Department of Physics, Faculty of Sciences and Arts, University of Batman, Batman, Turkey

Abstract

Methyl-red (MR) with molecular formula NC_6H_4COOH (2-[4-(dimethylamino)phenylazo] benzoic acid) used in this study is a typical aromatic azo compound. Its colour originates from absorbance in the visible region of the spectrum due to the delocalization of electrons in the benzene and azo groups forming a conjugated system. Due to its conjugated structure and richness in 16 π electrons, the methyl red has been chosen to form an organic semiconductor layer between Al and p-InP inorganic semiconductor substrate [1]. The structure of azo dyes has attracted considerable attentions recently due to their wide applicability in the light-induced photo isomerization process, and their potential usage for the reversible optical data storage [2]. In this work, we report the fabrication and electrical properties (current-voltage and capacitance-voltage) of rectifying contact barriers using methyl red as an interlayer formed on p-InP substrate for the modification of Al/p-InP Schottky contacts. The rectifying characteristics of the devices reported here suggest many unique device applications such as photovoltaic cell and chemical sensors, etc. [3,4]. We calculated the barrier height and ideality factor from the current-voltage characteristics of the Al/p-InP device by using thermionic emission mechanism as seen in the figure 1.

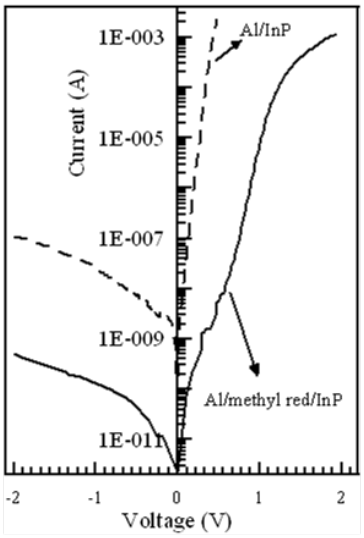


Figure 1. Current-voltage characteristics of the Al/MR/p-InP and Al/p-InP diodes.

Keywords: Current-voltage, Methyl red, Diodes.

References:

[1] Kilicoglu T, Aydin M E, Ocak Y S 2007 *Physica B* **388** (1,2) 244
[2] Park S K, Lee C, Min K C, Lee N S 2004 *Bull. Korean Chem. Soc.* **25** (12) 1817
[3] Cakar M, Turut A 2003 *Synthetic Met.* **138** 549
[4] Yakuphanoglu F 2007 *Physica B* **389** 306

BİLGİSAYAR TEKNOLOJİLERİ MEZUNLARINA YÖNELİK İŞ DÜNYASININ BEKLENTİLERİ ÜZERİNE BİR ARAŞTIRMA

A RESEARCH ON THE EXPECTATIONS OF THE BUSINESS WORLD FOR COMPUTER TECHNOLOGIES GRADUATES

Öğr. Gör. Faruk AKSOY
Dicle Üniversitesi
Prof. Dr. İbrahim TÜRKOĞLU
Fırat Üniversitesi

Özet

Değişen dünya koşullarına uygun eğitimlerin ve müfredatların oluşturulması gerekmektedir. Türkiye yükseköğretime erişim oranında dünyada 2. Sırada olsa da, ülkenin ihtiyaç duyduğu alanlardaki iş gücü yetersizliği incelenmesi gereken önemli bir çalışma alanı oluşturmaktadır. Bunun içerisinde de mutlaka eğitim veren kurumların ve işveren kurumların birbirleri arasında senkronizasyonu sağlama zorunluluğu bulunmaktadır. Bu açığı doldurmak üzere öğrencilerden istenen bilgi ve becerilerin tespitinin yapılması ve eğitim müfredatlarının da bu çalışmalara göre düzenlenmesi büyük önem arz etmektedir. Bu çalışmada öğrenciler ile işverenler arasında bilgi alışverişi sağlanması amaçlanmış, piyasanın öğrencilerden ve eğitim müfredatından beklentileri tespit edilmeye çalışılmıştır.

Anahtar Kelimeler: Bilgisayar eğitimi, meslek yüksekokulu, bilgisayar programcılığı, üniversite-sanayi işbirliği

Abstract

For changing world conditions, appropriate training and curriculum needs to be established. Turkey access to higher education rate, though the 2 Values in the world, in areas where the country needs, labor shortages are an important research area to be examined. Within this, it is absolutely necessary to provide synchronization between training institutions and employers' institutions. In order to fill this gap, it is very important to determine the knowledge and skills required from the students and to organize the education curricula according to these studies. In this study, it was aimed to exchange information between the students and the employers and tried to find out expectations from the students and the education curriculum.

Keywords: Computer training, vocational college, Computer programming, university-industry cooperation

A COMBİNED METHOD FOR HEAT CAPACITY STUDY ON URANIUM NITRIDE

EBRU ÇOPUROĞLU
Department of Physics, Faculty of Arts and Sciences, Gaziosmanpaşa University, Tokat, Turkey
ebrucopuroglu@gmail.com
BAHTIYAR A. MEHMETOĞLU
Department of Physics, Faculty of Arts and Sciences, Gaziosmanpaşa University, Tokat, Turkey
bamamedov@yahoo.com

Abstract

By the increase of nuclear electricity generations, improvements in nuclear fuel performance have been considered as key factors in nuclear industry. The variety of nuclear fuels has enriched the outputs of nuclear productivity. It is well known that Uranium and its components are the heart of nuclear reactor facilities. Also the choice of nuclear fuel depends on safety and economic behavior. One of the most used nuclear fuel is the uranium nitride with its safety and cost-competitiveness [1-7]. From this point of view determining the thermodynamic properties of uranium nitride (UN) is so important in nuclear industry studies. UN is a ceramic fuel which has the advantages of high melting points and heat conductivities compared with oxides. Giving reliable formulas for the calculation of heat capacity of UN nuclear fuel is very important to understand the thermophysical behavior in nuclear reactors. In this study, by the use of integer and noninteger n-dimensional Debye function for 3rd order Debye integral, we have developed an alternative evaluation procedure for the calculation of UN heat capacity by the convolution of different methods given in literature [1, 8-10]. The new combined method is introduced to accurately calculate the heat capacity of nuclear fuels and is completely general and free of any restrictions on its application to analysis of thermodynamics properties. This method can be useful for determining other thermophysical properties of UN nuclear fuel and also applied to the different nuclear fuels. The analytical method is valid for all temperature values. The accuracy and efficiency have been tested by literature data.

References

Baranov, V. G., Devyatko, Y. N., Tenishev, A. V., Khlunov, A. V., & Khomyakov, O. V. (2013). A physical model for evaluating uranium nitride specific heat. *Journal of Nuclear Materials*, *434*(1), 248-251.

1. F.L. Oetting, J.M. Leitnaker, J. Chem. Thermodyn. 4 (1972) 199–211.
2. E.F. Westrum, C.M. Barber, J. Chem. Phys. 45 (1996) 635.
3. 4.C. Affortit, JNM 34 (1970) 105–107.
4. Y. Takahashi, M. Murabayashi, Y. Akimoto, T. Mukaibo, JNM 38 (1971) 303– 308.
5. E.H.P. Cordfunke, R.P. Muis, JNM 42 (1972) 233–234.
6. J.F. Counsell, R.M. Dell, J.F. Martin, Trans. Faraday. Soc. 62 (1966) 1736–1747.
7. L.D. Landau, E.M. Lifshits, third ed., Statistical Physics Part 1: vol. 5 of Course of Theoretical Physics, Butterworth-Heinemann, 1980.
8. Askerov, B.M., Cankurtaran, M., 1994. Isobaric specific-heat and thermal expansion of solid in the Debye approximation. Phys. Status Solidi B 185, 341–348.
9. Guseinov, I.I., Mamedov, B.A., 2007. Calculation of integer and noninteger n dimensional Debye functions using binomial coefficients and incomplete gamma functions. Int. J. Thermophys. 28, 1420–1426.

SOLUTIONS OF GINZBURG-LANDAU-TYPE EQUATIONS INVOLVING VARIABLE EXPONENT

Berat SÜER
[1]Batman University, Graduate School of Natural and Applied Sciences, Batman-TURKEY, e-mail: beratsuer72@gmail.com
Zehra YÜCEDAĞ
Dicle University, College of Social Sciences, Diyarbakir -TURKEY e-mail: zyucedag@dicle.edu.tr
Mustafa AVCİ
[3]Batman University, Faculty of Economics and Administrative Sciences, Batman-TURKEY e-mail: avcixmustafa@gmail.com

Abstract

In this article, we are concerned with some class of Ginzburg-Landau-type equations involving variable exponent under the homogenous Dirichlet boundary conditions and settled in the variable exponent Sobolev spaces. We look for nontrivial stable solutions, that is, local minimizers of the corresponding Ginzburg-Landau energy functional. The main tool is variational approach and critical point theory.

Keywords: Ginzburg-Landau-type equations; variable exponent; variational approach; Mountain-Pass theorem; variable Lebesgue-Sobolev spaces

References

(1) R.A. Adams, Sobolev spaces, Academic Press, New York, 1975.
(2) F. Bethuel, H. Brezis and F. Hélein, Ginzburg-Landau Vortices, Birkhäuser, 1994.
(3) M. Comte, P. Mironescu, Minimizing properties of arbitrary solutions to the Ginzburg–Landau equation, Proceedings of the Royal Society of Edinburgh Section A Mathematics 129 (06) (1999), 1157-1169.
(4) D.V.Cruz-Uribe, A. Fiorenza, Variable Lebesgue Spaces: Foundations and Harmonic Analysis, Springer, Basel, 2013.
(5) L. Diening, P. Harjulehto, P. Hastö, M. Ruzicka, Lebesgue and Sobolev spaces with variable exponents, Lecture Notes in Mathematics, vol. 2017, Springer-Verlag, Heidelberg, 2011. Rosales, J.C., Garcia-Sanchez, P.A., Numerical semigroups. Springer, New York 181, (2009).
(6) X.L. Fan, D. Zhao, On the spaces $L^{p(x)}(\Omega)$ and $W^{m,p(x)}(\Omega)$, J. Math. Anal. Appl. 263 (2001), 424-446.
(7) V. Ginzburg, L. Landau, On the theory of superconductivity, Zh.exper.teor.Fiz. 20 (1950), 1064-1082.
(8) K. Lu, X.-B. Pan, Ginzburg-Landau equation with DeGennes boundary condition, J. Differential Equations, 129 (1996), 136-165.

COMPACTIFICATION OF FRACTIONAL MAXIMAL OPERATOR IN WEIGHTED AND VARIABLE EXPONENT LEBESGUE SPACES

Lutfi AKIN
Mardin Artuklu University, Faculty of Economics and Administrative Sciences,
Department of Business Administration, Mardin, Turkey
Email: lutfiakin@artuklu.edu.tr

Abstract

Operator theory were worked by very mathematicien [1,2]. Recently a considerable number of research has been carried out on the study of generalized Orlicz-Lebesgue spaces Lp(x),Orlicz-Sobolev spaces W 1,p(x), and the boundedness of different integral operators [3]. In this study, we will prove compactification of weighted the fractional maximal operator in Lebesgue spaces with variable exponent.

Keywords. Maximal operator, variable exponent, weight functions.

Theorem. Let $p,q \in \Lambda_0 \cap \pi$, $B = \sup_{0<x<l} B(x)$ and $f(x) \geq 0$ be a measurable functions such that $p^- > 1$ ($p^- = ess\ \inf_{x\in(0,l)} p(x)$), $q(0) \geq p(0) > 1$ p' is conjugate of p. Then $M_{\alpha,l)W}f(x)$ is compact from $L^{p(.)}(0,l)$ to $L^{q(.)}(0,l)$ if and only if

$\lim_{t\to 0} \sup V(t)^{1/q(0)} W(t)^{1/p'(0)} = 0$ and $\sup_{t\in(0,\infty)} V(t)^{1/q(0)} W(t)^{1/p'(0)} < \infty$.

References

[1] Akin L. And Zeren Y., “Approximation to generalized Taylor derivatives by integral operator families”, MSU J. Sci. Volume 5, Issue 2, p 421-423, 2017

[2] F. I. Mamedov, Y. Zeren, L. Akin, “Compactification of weighted Hardy operator in variable exponent Lebesgue spaces”, Asian Journal of Mathematics and Computer Research, 17(1): 38-47, 2017

[3] S. Samko. On compactness of operators in variable exponent Lebesgue spaces, Operator Theory: Adv. and Appl., 202 (2010), 497-508.

MULTIPLICITY RESULTS FOR A CLASS OF P(X)-KIRCHHOFF TYPE EQUATIONS INVOLVING VARIABLE EXPONENT

Zehra YÜCEDAĞ
Dicle University, Vocational School of Social Sciences, Diyarbakir, Turkey
E-mail: zyucedag@dicle.edu.tr
Mustafa AVCI
Batman University, Faculty of Economics and Administrative Sciences, Turkey,
avcixmustafa@gmail.com

Abstract

In this study, we deal with a general class of Kirchhoff problems. By means of the Ekeland variational principle, we obtain the existence nontrivial weak solutions on variable exponent Sobolev spaces.

We are interested in the multiplicity of solutions for the $p(x)-$ Kirchhoff type equation

$$\begin{cases} -M\left(\int_\Omega \frac{1}{p(x)}|\nabla u|^{p(x)}dx\right) div\left(|\nabla u|^{p(x)-2}\nabla u\right) = \lambda|u|^{m(x)-2}u + f(x,u), x\in\Omega \\ u = 0, x\in\partial\Omega \end{cases}$$

where $\Omega \subset \mathrm{R}^N$ $(N \geq 3)$ is a smoothy bounded boundary, λ is a positive parameter and p, m are continuous functions on $\overline{\Omega}$ such that $1 < m^- \leq m^+ < \delta p^- \leq \delta p^+ < \left\{N, \frac{Np^-}{N-p^-}\right\}$. Moreover, $M : \mathrm{R}^+ \to \mathrm{R}^+$ is a continuous function and $f : \overline{\Omega}\times \mathrm{R} \to \mathrm{R}$ is a Caratheodory function satisfying some suitable conditions.

Problem (P) is related to the stationary version of a model, the so-called Kirchhoff equation, introduced by Kirchhoff [1]. To be more precise, Kirchhoff established a model given by the equation

$$\rho\frac{\partial^2 u}{\partial t^2} - \left(\frac{P_0}{h} + \frac{E}{2L}\int_0^L \left|\frac{\partial u}{\partial x}\right|^2 dx\right)\frac{\partial^2 u}{\partial x^2} = 0$$

where $\rho, \mathrm{P}_0, h, E, L$ are constants, which extends the classical D'Alambert's wave equation, by considering the effects of the changes in the length of the strings during the vibrations.

In recent years, elliptic problems involving $p(x)-$ Kirchhoff type operators have been studied in many papers, we refer to [**2,3,4**].

Key Words: $p(x)-$ Kirchhoff type, Multiple solutions, Critical point theory, Mountain pass theorem, Ekeland variational principle.

References

[1] G. Kirchhoff; *Mechanik*. Teubner, Leipzig, Germany, 1883.
[2] G. Dai, R. Hao; Existence of solutions for a p(x)-Kirchhoff-type equation, J. Math. Anal. Appl., 359 (2009), 275-284.
[3] F. Wang, M. Avci, Y. An; Existence of solutions for fourth order elliptic equations of Kirchhoff type, J. Math. Anal. Appl. 409 (2014), 140–146.
Z.Yucedag, R. Ayazoglu; Existence of solutions for a class of Kirchhoff-type equation with nonstandard growth, Univ. J. App. Math. 2(5)(2014), 215-221.

ON TWO WEIGHT CRITERIONS FOR THE HARDY LITTLEWOOD MAXIMAL OPERATOR IN BFS

Lutfi AKIN

Mardin Artuklu University, Faculty of Economics and Administrative Sciences, Department of Business Administration, Mardin, Turkey, utfiakin@artuklu.edu.tr

Abstract

Operator theory were worked by very mathematicien [1]. Compactification of weighted Hardy operator in variable exponent Lebesgue spaces has been proven, in [2]. The goal of this investigations were closely connected with the found of criterion for validity of boundedness of Hardy-Littlewood maximal operator in BFS. In this investigation, we establish an integral-type necessary and sufficient condition on weights which provides the boundedness of the Hardy-Littlewood maximal operator from weighted Lebesgue spaces into p-convex weighted BFS.

Keywords: Banach function spaces, Weights, Maximal operator.

Theorem. Let $v(x)$ and $w(x)$ are weights on R^n. Suppose that X_w be a p-convex weighted BFSs for $1 \le p < \infty$ on R^n. Then the inequality,

$\|\mathcal{M}f\|_{X_w} \le C\|f\|_{L_{p,v}}$

holds for every $f \ge 0$ and for all $a \in (0,1)$ if and only if

$$A(a) = $$

$$= \sup_{t>0}\left(\int_{|y|<t}[v(y)]^{-p'}dy\right)^{\frac{a}{p'}}\left\|\chi_{\{|x|>t\}}(.)\left(\int_{|y|<|.|}[v(y)]^{-p'}dy\right)^{\frac{1-a}{p'}}\right\|_{X_w}$$

$$< \infty$$

Moreover, if $C > 0$ is the best possible constant in (1), then

$$\sup_{0<a<1}\frac{p'A(a)}{(1-a)\left[\left(\frac{p'}{(1-a)}\right)^{p}+\frac{1}{a(p-1)}\right]^{1/p}} \le C \le M\inf_{0<a<1}\frac{A(a)}{\left(\frac{1}{1-a}\right)^{\frac{1}{p'}}}$$

References

[1] Akin L. and Zeren Y., “Approximation to generalized Taylor derivatives by integral operator families”, MSU J. Sci. Volume 5, Issue 2, p 421-423, 2017

[2] Mamedov,I.F., Zeren,Y., Akın,L., Compactification of weighted Hardy operator in variable exponent Lebesgue spaces, Asian Journal of Mathematics and Computer Research 17(1): 38-47, 2017

EXISTENCE RESULTS FOR A CLASS OF NONLOCAL PROBLEMS INVOLVING $p(x)-$ LAPLACIAN

Zehra YÜCEDAĞ
Dicle University, Vocational School of Social Sciences, Diyarbakir, Turkey
zyucedag@dicle.edu.tr
Mustafa AVCI
Batman University, Faculty of Economics and Administrative Sciences, Turkey,avcixmustafa@gmail.com

Abstract
In this study, we deal with existence of solutions for Dirichlet boundary value problem involving $p(x)-$ Laplacian operator on variable exponent Sobolev spaces. We prove the existence nontrivial weak of solutions by using the Mountain Pass theorem together with Palais-Smale condition (PS).
We are to analyze the existence of solutions for a class of involving $p(x)-$Laplace problems of the form

$$\begin{cases} -div\left(|\nabla u|^{p(x)-2}\nabla u\right)=\lambda|u|^{m(x)-2}u+f(x,u), x\in\Omega \\ u=0, x\in\partial\Omega \end{cases}$$

where $\Omega\subset \mathrm{R}^N\ (N\geq 3)$ is a smoothy bounded boundary, λ is a positive parameter and p,m are continuous functions on $\overline{\Omega}$ such that $1<m^-\leq m^+<p^-\leq p^+<\left\{N,\frac{Np^-}{N-p^-}\right\}$. Moreover, $f:\overline{\Omega}\times \mathrm{R}\to \mathrm{R}$ is a continuous function satisfying some suitable conditions.

$p(x)-$Laplace operator, $\Delta_{p(x)}u:=div\left(|\nabla u|^{p(x)-2}|\nabla u|\right)$ is a natural generalization of the $p-$ Laplace operator $\Delta_p u:=div\left(|\nabla u|^{p-2}|\nabla u|\right)$, where $p>1$ is a real constant. The main difference between them is that $p-$ Laplace operator $(p-1)-$homogenous. This causes many problems, some classical theories, such as the theory of Sobolev spaces, is not applicable. For the papers involving the $p-$ Laplace operator we refer to references [1,2,3].

Key Words: Variational methods, Critical point theory, Mountain Pass theorem, Ambrosetti-Rabinowitz type condition, existence of solution weak solutions.

References

[1] M. Mihailescu and V. Radulescu, A multiplicity result for a nonlinear degenerate problem arising in the theory of electrorheological fluids, *Proc. Roy. Soc. London Ser. A* **462** (2006), 2625-2641.
[2] N. T. Chung, Multiplicity results for a class of -Kirchhoff type equations with combined nonlinearities, Applicable Analysis 26 (2013),1–7.
[3] Z. Yucedag, Solutions of nonlinear problems involving p (x)-Laplacian operator, Advances in Nonlinear Analysis, 4 (2015), 285-293.

A CLASS OF NONLOCAL ELLIPTIC EQUATIONS IN ORLICZ-SOBOLEV SPACES

Berat SÜER
Batman University, Graduate School of Natural and Applied Sciences, Batman-TURKEY, e-mail: beratsuer72@gmail.com
Zehra YÜCEDAĞ
Dicle University, College of Social Sciences, Diyarbakir -TURKEY e-mail: zyucedag@dicle.edu.tr
Mustafa AVCİ
Batman University, Faculty of Economics and Administrative Sciences, Batman-TURKEY e-mail: avcixmustafa@gmail.com

Abstract

In this article, we are concerned with some class of nonlocal elliptic equations involving variable exponent under the homogenous Dirichlet boundary conditions and settled in Orlicz-Sobolev spaces. We apply variational approach along with critical point theory and look for nontrivial solutions, that is, local minimizers of the corresponding Ginzburg-Landau energy functional.

Keywords: nonlocal elliptic equations; Ginzburg-Landau energy; variational approach; Mountain-Pass theorem; Orlicz-Sobolev spaces.

References

R.A. Adams, Sobolev spaces, Academic Press, New York, 1975.

F. Bethuel, H. Brezis and F. Hélein, Ginzburg-Landau Vortices, Birkhäuser, 1994.

M. Comte, P. Mironescu, Minimizing properties of arbitrary solutions to the Ginzburg–Landau equation, Proceedings of the Royal Society of Edinburgh Section A Mathematics 129 (06) (1999), 1157-1169.

D.V.Cruz-Uribe, A. Fiorenza, Variable Lebesgue Spaces: Foundations and Harmonic Analysis, Springer, Basel, 2013.

L. Diening, P. Harjulehto, P. Hastö, M. Ruzicka, Lebesgue and Sobolev spaces with variable exponents, Lecture Notes in Mathematics, vol. 2017, Springer-Verlag, Heidelberg, 2011. Rosales, J.C., Garcia-Sanchez, P.A., Numerical semigroups. Springer, New York 181, (2009).

X.L. Fan, D. Zhao, On the spaces L^{p(x)}(Omega) and W^{m,p(x)}(Omega), J. Math. Anal. Appl. 263 (2001), 424-446.

V. Ginzburg, L. Landau, On the theory of superconductivity, Zh.exper.teor.Fiz. 20 (1950), 1064-1082.

J. Musielak, Modular spaces and Orlicz spaces, Lecture Notes in Math, vol.1034, Springer-Verlag, Berlin, 1983.

K. Lu, X.-B. Pan, Ginzburg-Landau equation with DeGennes boundary condition, J. Differential Equations, 129 (1996), 136-165.

THE EFFECTS OF WOOD VINEGAR AND PESTICIDES ON ARTHROPODS (USING PITFALL TRAP SAMPLING) IN WHEAT AGROECOSYSTEMS

İbrahim KOÇ
Bitlis Eren University, Faculty of Engineering and Architecture, Department of Environmental Engineering, 13000, Bitlis
Şenol YILDIZ
Abant İzzet Baysal University, Faculty of Agriculture and Natural Sciences, Wildlife Ecology and Management, 14000, Bolu
Erdal Necip YARDIM
Bitlis Eren University Rectorship, 13000, Bitlis

*Corresponding author: ibrahimkoc47@gmail.com

Abstract

This study was conducted in order to determined the effect of pesticides and wood vinegar on the arthropods (using pitfall trap sampling) in wheat agro-ecosystem. This research; in 2014-2015 and 2015-2016 production seasons, it was carried out in the field established in four repetitions according to the randomized blocks experimental design, in the winter wheat field in the ecological conditions of Muş province. Experimental treatments; it is made with the help of a back-pulverizer, followed by pesticides and application timetables used by BERCE Alparslan Agricultural Administration. Treatments; it were administered pesticides application / in different doses of wood vinegar (0.5% - 1% - 2% - 3% - 4% with 5% mL) application and control application (tap water). Simple Correspondence Analysis Method was used to examine the effects of used pesticides and wood vinegar on arthropods. As a result; it was observed that the applications performed had an effect on average arthropod numbers. The number of arthropods was found to be higher in 2016 than in 2015. On average; for the year 2015, at least in the other arthropods (37,33) and the largest group of in the Grillidae family (834,8) were found; for the year 2016, at least in the Araneae family (77,98) and the largest group of in the Grillidae family (1264,12) were found. As a result of the analyzes made, it was found out that there are generally meaningful relations between the said applications and the features considered. From the light of these results, it is possible to conclude that the wood vinegar and pesticides may have an important effect in terms repelling or lethal on arthropods. As a result; especially it was thought that trials of the wood vinegar in different climates and conditions (laboratory, greenhouse and field), in different doses with frequency and in conditions would be useful.

Key words: Agroecosystem, Arthropods, Pesticides, Wheat, Wood vinegar

DETERMINATION OF EFFECTS OF WOOD VINEGAR AND PESTICIDES ON SOME YİELD PARAMETERS İN WHEAT AGROECOSYSTEMS

İbrahim KOÇ
Bitlis Eren University, Faculty of Engineering and Architecture, Department of Environmental Engineering, 13000, Bitlis
Şenol YILDIZ
Abant İzzet Baysal University, Faculty of Agriculture and Natural Sciences, Wildlife Ecology and Management, 14000, Bolu
Erdal Necip YARDIM
Bitlis Eren University Rectorship, 13000, Bitlis

*Corresponding author: ibrahimkoc47@gmail.com

Abstract

This study was conducted to determine some of the effects of pesticides and wood vinegar on some on growth and yield of crop plant in wheat agroecosystem. The research was constituted of field experiments in 2014-2015 and 2015-2016 production seasons in Muş province's ecological conditions. The field experiment was done in wheat field according to Randomized Block Design in 4 repetition. The treatments; It was conducted as a pesticide application / dosage of wood vinegar (0.5% - 1% - 2% - 3% - 4% with 5% mL) application and control application (tap water). When assessed with all statistical analyses, it was seen important that with regard to spike length (P=0.000) with number of spikes per square meter (P=0.000) and grain yield (P=0.000) in the applications. When we look at the effects of the year and the different applications separately; it was seen important that numbers of seed per spike (P=0.000), grain yield per spike (P=0.000), Thousand kernel weight (P=0.005) and harvest index (P=0.002). After all, it was seen that wood vinegar was effective in % 1 mL wood vinegar had a significant effect on increasing the harvest value index ($P \leq 0.05$). As a result; it was thought that trials of particularly the wood vinegar that was used in different climates and conditions, in different doses and rates, in conditions with or without pesticides would be useful. Furthermore, wood vinegar might be suggested to use as a soil improver with its biofertilizer property and detailed studies on these issues should be carried out.

Keywords: Agroecosystem, Wheat, Wood vinegar, Pesticides, Yield

CALCULATIONS OF SECOND AND THIRD VIRIAL COEFFICIENTS FOR SOME ALTERNATIVE FUELS

E. SOMUNCU
Department of Physics, Faculty of Arts and Sciences, Giresun University, Giresun, Turkey
e-mail: elf_smnc@hotmail.com
I. M. ASKEROV
Department of Physics, Faculty of Arts and Sciences, Giresun University, Giresun, Turkey
iskender.askeroglu@giresun.edu.tr

Abstract

In this study, we presented analytical expressions to determine the second and third virial coefficients for alternative fuels. Note that the established analytical formulae in terms of basic integral and parabolic cylinder function. These analytical expressions can be used to define thermodynamic properties of alternative fuels. The obtained analytical expression for the second virial coefficient is used to calculate of Boyle temperature of some alternative fuels. In order to compare accuracy, the expressions presented in the literature and proposed analytical expressions were implemented in Mathematica 7.0 international mathematical software. The accuracy of proposed algorithm is tested and their usefulness showed with practical application, including of second and third virial coefficient for alternative fuels. The obtained results for the second and third virial coefficients and Boyle temperature of some alternative fuels are in good agreement in the literature.

The obtained analytical expressions offer the advantage of direct and precise calculation of the second and third virial coefficients and Boyle temperature. Therefore, the analytical expressions presented in this study will be useful in chemical industry, petroleum industry, and alternative fuel industry.

Keywords: Second and third virial coefficient, Boyle temperature, Alternative fuels

EVALUATION OF RELATIVE PERMITTIVITY USING SECOND VIRIAL COEFFICIENTS

I. M. ASKEROV
Department of Physics, Faculty of Arts and Sciences, Giresun University, Giresun, Turkey
iskender.askeroglu@giresun.edu.tr
E. SOMUNCU
Department of Physics, Faculty of Arts and Sciences, Giresun University, Giresun, Turkey
e-mail: elf_smnc@hotmail.com

Abstract

The virial expansion play central role in many aspects, including deviation of the gas from the ideal state to the actual state, the determination of the interaction between molecules of various temperature range and the definition of thermodynamic properties of molecules (internal energy, specific heat capacity, enthalpy, entropy, Gibbs energy, speed of sound, compressibility factor, fugacity coefficient etc.). At the same time, works of the dielectric properties imperfect gases can be expressed in the form of virial equation of state.

The authors have presented combined statistical mechanical method for the polarization in terms of virial expansion [1, 2]. In this work, we proposed the method to determine the relative permittivity of gas as a function density and temperature. One the basis of formula obtained in this work we constructed a program for computation of the dielectric second virial coefficient using Mathematica 7.0 international mathematical software. Evaluation result of dielectric constant provides useful knowledge about molecular polarizebility and molecular interactions. The paper concludes some new results for application of real systems. Obtained results are in good agreement with early published studies.

Keywords: Dielectric virial expansion; Dielectric second virial coefficient; Relative permittivity

References

1. T. L. Hill, Statistical Mechanics, McGraw-Hill Book Company, New York, (1956).
2. T. L. Hill , J. Chem. Phys., 28 (1958) 61-66.

ANALITICAL EVALUATION OF SECOND VIRIAL COEFFICIENT WITH MORSE POTENTIAL FOR METAL PLASMA STATES.

Hatun CACAN
Department of Physics, Gaziosmanpasa University, Tokat, Turkey
Department of Physics, Giresun University, Giresun, Turkey
Email: hatuncacan@gmail.com

Abstract

The second virial coefficient of gases represents deviation from the ideal gas behavior and used for gases and plasma researches. Plasma state of gases can be achieved when enough high energy is given to the system with a density of atoms, making gas atoms partially or fully ionized. In the partially ionized plasma at ideal ($gC \leq 1$) and low density limit with neglected dimers and more complex molecules situation, thermodynamic properties of the ideal gas have to be revaluated considering the contributions arising from interactions between charged-charged, neutral-neutral and charged-neutral components according to chemical model. In the case of interaction of neutral particles with each other, three parameter Morse potential is used for second virial coefficient analytical calculation, leading to the calculation of thermodynamic properties of plasma such as free energy and pressure. In this study, an analytical formula is established for second virial coefficient with Morse potential. Analytical results for any plasmas well agree with the numerical calculation values of second virial coefficient under conditions $\alpha.r_m < 4.5$ and $D = \frac{\varepsilon}{k} < 14\ ^{o}K$ for constant temperature ($T = 10\ kK$). In the case of atoms having $D > 14\ ^{o}K$ values such as Titanium, Zinc and Iron plasmas, very high temperature values being specific for each different metal plasma have to be taken while second virial coefficient calculations. As a result, analytical and numerical calculations agree very well after that values, which may be indicating a critical temperature for metal plasmas. Similar temperature behavior of the second virial coefficient is also observed during calculations of non-metal plasmas; however, calculated critical temperature values are much lower than metal plasmas. When we compare the second virial coefficients of metal and non-metal plasmas, we see that results for evaluated non-metal plasmas between 10 to 50 times higher than metal plasmas as expected.

Key Words: Metal Plasmas, Second Virial Coefficient, Morse Potential

A NEW ASSESSMENT METHOD OF SECOND VIRIAL COEFFICIENT WITH MORSE POTENTIAL FOR NON-METAL PLASMAS AT HIGH TEMPERATURE

Bahtiyar MEHMETOĞLU
[1]Department of Physics, Gaziosmanpasa University, Tokat, Turkey
Email: bahtiyar.mehmetoglu@gop.edu.tr
Hatun CACAN
Department of Physics, Gaziosmanpasa University, Tokat, Turkey
Department of Physics, Giresun University, Giresun, Turkey
hatuncacan@gmail.com

Abstract

The chemical model describes partially ionized non-metal plasmas well with ideal ($gC \leq 1$) and low density plasma limit, including contributions to thermodynamic properties coming from interactions of charged-charged (Ch-Ch), neutral-neutral (N-N) and charged-neutral (Ch-N) components. While Ch-Ch interactions are governed by Coulomb forces, Buckingham type potential can be used for Ch-N interaction calculations having the most important contribution to partially ionized plasma thermodynamic calculations. In order to calculate N-N interaction contribution to free energy, an analytical formula is acquired for the calculation of second virial coefficient using Morse potential. After comparing analytic and numeric results for CO, He, Kr, Xe, Ar and N_2 plasmas, it can be concluded that D and product of α and r_m play a significant role, but especially $\alpha.r_m$ value has a crucial effect on second virial coefficient calculations. Analytic and numeric results well agree at the limit $\alpha.r_m < 4.5$ and $D = \frac{\varepsilon}{k} < 14\ ^{\circ}K$ for constant temperature ($T = 10\ kK$). However, analytical and numerical results of second virial coefficient agree well after a higher specific temperature value ($T > 10\ kK$) limit being much less than metal plasma temperature limit for $CO,\ Kr, Xe, Ar$ and N_2 non-metal plasmas with $D > 14\ ^{\circ}K$. Values for non-metal second virial coefficient are much higher than the metal plasmas, indicating that N-N interaction contribution to thermodynamic properties for metal plasmas can be neglected due to their small contribution. On the other hand, higher values of the second virial coefficient for non-metal plasmas mean that their contributions to N-N interactions have to be considered and needs more evaluation for their contributions to free energy, pressure and other thermodynamic properties.

Key Words: non-Metal Plasmas, Second Virial Coefficient, Morse Potential

PROBIOTICS AND PREBIOTICS - A REVIEW

Prof. Dr. Osman ERKMEN
Department of Food Engineering Faculty of Engineering University of Gaziantep, Turkey
erkmen@gantep.edu.tr

Abstract

Many microbial species live commensally on mucosal tissues of the nose, mouth, and GI tract. Probiotics and prebiotics may help normalize a gut microbiota disturbed by antibiotics or other stressors and improve health of people. Probiotic and prebiotic foods enhance the growth of healthy microorganisms in body. Probiotics are the healthy microflora that live in digestive tract and prebiotics are the nutrients that they use to thrive. Synbiotic products combine probiotics and prebiotics to enhance their beneficial effects. The human gastrointestinal tract is colonized by a complex ecosystem of microorganisms. Beneficial intestinal bacteria have numerous and important functions, e.g., they produce various nutrients for their host, prevent infections caused by intestinal pathogens, and modulate a normal immunological response. The introduction of probiotics and prebiotics into human diet is favorable for the intestinal microbiota. They may be consumed in the form of raw vegetables and fruit, fermented pickles, or dairy products. Most commonly used probiotic strains are present in *Bifidobacterium, Lactobacillus and Saccharomyces boulardii.* Some of the prebiotics are inulin, oligosaccharides, disaccharides, monosaccharides, and short-chain fatty acids. Prebiotics are the most commonly used fibers which when used together with probiotics are termed synbiotics and are able to improve the viability of the probiotics. Synbiotics aid digestion and absorption of nutrients, synthesize certain vitamins and amino acids, and improve immune function. They also keep the pathogens in check by crowding them out or secreting substances that reduce their numbers. Dietary fiber is not digested in the small intestines, when it makes its way to the large intestines, the healthy bacteria break it down releasing short chain fatty acids. Nonviable probiotics exert beneficial effects on the health of people. Abiotic components are dead cell components (such as enzymes), metabolic by-products (bioactive peptides), and others. Probiotics, probiotics and synbiotics have systemic effects on the host's health metabolism and immune system. Utilization of prebiotics by probiotics should be a pre-requisite in order to maintain a good synergy and maximize the beneficial effects.

Keywords: Probiotics, Prebiotics, Synbiotic, Microbiota

BITLIS YÖRESINE AIT BAL VE BITLIS-AĞRI YÖRESINE AIT ARI SÜTLERININ BAZI PATOJEN BAKTERILER ÜZERINDEKI ANTIMIKROBIYAL AKTIVITELERI

ANTIMICROBIAL ACTIVITIES OF HONEYS FROM BITLIS AND ROYAL JELLYS FROM BITLIS-AGRI ON SOME PATHOGENIC BACTERIA

Yusuf Dayan
Bitlis Eren Üniversitesi, Sağlık Yüksekokulu, Beslenme ve Diyetetik Bölümü
Seda Oğur
Bitlis Eren Üniversitesi, Mühendislik Mimarlık Fakültesi, Gıda Mühendisliği Bölümü

Özet

Bu araştırmada Bitlis yöresine ait bal ve Bitlis-Ağrı yöresine ait arı sütlerinin bazı patojen bakteriler (Escherichia coli ATCC 25922, Pseudomonas aeruginosa ATCC 27853, Staphylococcus aureus ATCC 29213, Enterococcus faecalis ATCC 29212, Listeria monocytogenes ATCC 7644, Streptococcus pyogenes ATCC 19615, Salmonella Enteritidis ATCC 13076 ve Bacillus cereus ATCC 11778) üzerindeki antimikrobiyal aktiviteleri belirlenmiştir. Ağrı (AS1), Bitlis Merkez (BL1, BL6, BL8, AS2), Hizan (BL2) ve Mutki (BL3, BL4, BL5, BL7)'deki arı ürünlerinin üretildiği mevkilerden elde edilen 8 adet bal (BL) ve 2 adet arı sütü (AS) numunesi ile çalışılmıştır. Örneklerin antimikrobiyal aktiviteleri oyuk agar metoduyla belirlendiği için %10'luk, %25'lik ve %50'lik konsantrasyonları hazırlanmıştır. 6 mm'lik oyukların açılmasının ardından mikroorganizma suşlarından steril swabla Kirby Bauer Disk Difüzyon Yöntemindeki gibi besiyeri (Mueller Hinton Agar) üzerine sürülmüştür. Açılan oyuklara %100'lük, %50'lik, %25'lik ve %10'luk bal ve arı sütü örneklerinden 50 µl konulmuştur. Petrilerin 37 °C'de 24 saat inkübasyonu sonunda ortaya çıkan inhibisyon zon çapları cetvelle mm cinsinden ölçülmüştür. En büyük inhibisyon zon çapları %100'lük konsantratlarda tespit edilirken %10'luk konsantratlarında ise hiçbir zonun oluşmadığı gözlenmiştir. Bal numunelerinin %25'lik konsantratlarının bazılarında (BL2-E. faecalis-7 mm inhibisyon zonu, BL3-E. faecalis-8 mm inhibisyon zonu, BL2-L. monocytogenes-8 mm inhibisyon zonu, BL3-P. aureginosa-8 mm inhibisyon zonu) 0.1-0.2 mm'lik ekstra bir zonun oluştuğu görülmüştür. Arı sütü numunelerinin %25'lik konsantratlarında birinin (AS2) çok az bir miktarda sadece L. monocytogenes'e (9 mm inhibisyon zonu) etki ettiği, diğerinin (AS1) yine çok az bir miktarda L. monocytogenes (8 mm inhibisyon zonu) ve E. faecalis'e (10 mm inhibisyon zonu) etki ettiği gözlenmiştir. Antimikrobiyal etkinin en fazla görüldüğü numune Bitlis Dere mevkiinden alınan bal örneği (BL1) olmuştur. Bu numunenin P. aureginosa'nın gelişmesini 40 mm'lik inhibisyon zonuyla inhibe ettiği görülmüştür. Çalışmadan elde edilen sonuçlar arı ürünleri uygulamalarının genişletilmesi için faydalı bilgiler sağlamıştır.

Anahtar Kelimeler: Bal, Arı sütü, Antimikrobiyal aktivite, Patojen bakteri.

Teşekkür: Bu araştırmayı 1919B01160321 proje numarası ile destekleyen Tubitak BIDEB'e teşekkür ederiz.

Abstract

In this research was determined antimicrobial activities of honeys from Bitlis region and of royal jellys from Bitlis-Agrı regions on some pathogenic bacteria (Escherichia coli ATCC 25922, Pseudomonas aeruginosa ATCC 27853, Staphylococcus aureus ATCC 29213, Enterococcus faecalis ATCC 29212, Listeria monocytogenes ATCC 7644, Streptococcus pyogenes ATCC 19615, Salmonella Enteritidis ATCC 13076 ve Bacillus cereus ATCC 11778). It was studied with 8 honey (HN) and 2 royal jelly (RJ) samples were obtained from the places where bee products were produced in Agrı (RJ1), Bitlis Merkez (HN1, HN6, HN8, RJ2), Hizan (HN2) and Mutki (HN3, HN4, HN5, HN7). HN and RJ samples with concentrations of 10%, 25% and 50% were prepared because antimicrobial activities of these samples were determined with the method of hollow agar. The microorganism strains were transferred to media (Mueller Hinton Agar) by sterile swabs with Kirby Bauer Disk Diffusion Method, after 6 mm wells were opened on media. Then 50 µl of each HN and RJ samples (10%, 25% and 50%) was added to the wells. The diameters of inhibition zone occurred in petri dishes were measured in millimeters (mm) at the end of the incubation (37 °C) for 24 hours. It was observed that the largest inhibition zone diameters were detected in 100% concentrates whereas no zones occurred in 10% concentrates. In some of the 25% concentrates of honey samples (HN2-E. faecalis-7 mm inhibition zone, HN3-E. faecalis-8 mm inhibition zone, HN2-L. monocytogenes-8 mm inhibition zone, HN3-P. aureginosa-8 mm inhibition zone) was found to have an extra zone of 0.1-0.2 mm. One of the 25% concentrates of royal jelly samples (RJ2) acted only to L. monocytogenes at a small amount (9 mm inhibition zone) while the other (RJ1) acted to L. monocytogenes still at a small amount (8 mm inhibition zone) and to

E. faecalis (10 mm inhibition zone). The sample with the most antimicrobial effect was the honey sample (HN1) obtained from the Bitlis Dere place. This sample inhibited the development of P. aureginosa with a 40 mm inhibition zone. The results obtained in this study provided useful knowledges for widening bee products applications.

Keywords: Honey, Royal jelly, Antimcrobial activity, Pathogenic bacteria.

Acknowledgments: We would like to thank Tubitak BIDEB for supporting this research with the project number 1919B01160321.

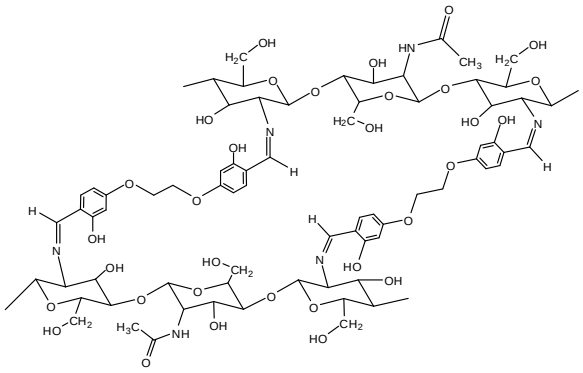
ANTIOXIDANT AND ANTIMICROBIAL ACTIVITY OF NEW CHITOSAN HYDROGELS

Mahir TİMUR
Mustafa Kemal Univ, Altınözü Vocational School, Dep. of Food Process, Hatay,Turkey
E-mail: mahirtimur@gmail.com

Abstract

Chitosan is one of the most abundant biopolymer on earth, thus having great potential in hydrogel preparation.1 The plentiful hydrophilic functional groups (hydroxyl- and/or amino-) in the backbones of either cellulose or chitin qualify them as promising materials for highly absorbent hydrogel systems. Various novel chitosan derivatives have been obtained by chemical modifications of reactive hydroxyl and amino/acetamido groups attached to the macromolecule backbone 2,3. For instance, Schiff bases that can be synthesized by condensation of amino groups of chitosan with aldehydes or ketones have been received extensive interests for their expanded biofunctional properties such as antibacterial, antitumor and antioxidant activities 4.

In this study, two Schiff base functionalized, cross-linked chitosan derivative were synthesized and characterized by FT-IR, UV-Vis, 13C CP/MAS solid-state NMR, TGA, XRD-powder and SEM measurements and elemental analysis data. Degrees of substitution (DS) were determined from the elemental analysis by using the C/N ratios. The in vitro antioxidant activity of high molecular chitosan and its derivatives were evaluated as radical scavengers against 1,1-diphenyl-2-picrylhydrazyl radicals (DPPH•).



The results showed that chitosan derivatives have good antioxidant potential which might be due to the phenolic group introduced after chemical modification of chitosan. Antimicrobial effects were tested with minimum inhibitor concentration (MIC) values. MIC values were determined spectrophotometrically according to the microdilution broth Broth method. Staphylococcus aureus, Escherichia coli and Candida albicans were used to determine antimicrobial properties.

Key words: Chitosan, crosslinking, antioxidant, antimicrobial.

References:

1. Boonsongrit, Y.; Mitrevej, A.; Mueller, B. W. Chitosan Drug Binding by Ionic Interaction. Europ. J. Pharm. And Biopharm. 2006, 62, 267-274.
2. Kumar, S., Koh, J., Kim, H., Gupta, M.K. & Dutta, P.K. (2012). A new chitosan-thymine conjugate: Synthesis, characterization and biological activity. International Journal of Biological Macromolecules, 50, 493–502.
3. Jiao, T.F., Zhou, J., Zhou, J.X., Gao, L.H., Xing, Y.Y. & Li, X.H. (2011). Synthesis and characterization of chitosan-based Schiff base compounds with aromatic substituent groups. Iranian Polymer Journal, 20(2), 123-136.
4. Elshaarawy, R.F.M., Refaee, A.A. & El-Sawi, E.A. (2016). Pharmacological performance of novel poly-(ionic liquid)-grafted chitosan-N-salicylidene Schiff bases and their complexes. Carbohydrate Polymers, 146, 376-387.

BITLIS MERKEZ İLÇESINDE EĞITIM GÖREN OKUL ÖNCESI DÖNEMDEKI BAZI ÇOCUKLARIN OBEZITE PREVALANSI

Seda OĞUR
[1*]Bitlis Eren Üniversitesi, Mühendislik Mimarlık Fakültesi, Gıda Mühendisliği Bölümü
Edanur KURTCEBE
[2]Bitlis Eren Üniversitesi, Sağlık Yüksekokulu, Beslenme ve Diyetetik Bölümü
Yusuf DAYAN
[2]Bitlis Eren Üniversitesi, Sağlık Yüksekokulu, Beslenme ve Diyetetik Bölümü

Özet

Bu araştırmada Bitlis Merkez İlçesinde eğitim gören okul öncesi dönemdeki bazı çocukların obezite prevalansı belirlenmeye çalışılmıştır. Tanımlayıcı tipte kesitsel bir araştırma olan çalışma Etik Kurul İzni ve İl Milli Eğitim Müdürlüğünden Kurum İzni alındıktan sonra 2017 yılının Şubat ve Mart aylarında yürütülmüştür. Araştırma kapsamında Bitlis Merkez İlçesinde faaliyet gösteren Vilayetler Birliği Anaokulunda eğitim gören, kendisinin ve ailesinin rızası alınan 4-6 yaş aralığındaki, 52 kız ve 48 erkek olmak üzere, 100 çocuğun antropometrik ölçümleri yapılmıştır. Araştırmaya katılan öğrencilerin vücut ağırlığı, boy uzunluğu, baş çevresi, bel çevresi, kalça çevresi ve üst orta kol çevresi ölçülmüştür. Ölçümler için baskül, boy ölçer ve mezura kullanılmıştır. Çalışma grubunun yaşı sözel olarak öğrenilmiştir. Antropometrik ölçümlere ait veriler yaşa ve cinsiyete göre ortalama±standart sapma olarak verilmiştir. Ayrıca, yaşa ve cinsiyete göre vücut ağırlığı, boy uzunluğu, BKİ değeri ve baş çevresi persentil değerleri Neyzi vd. (2008) tarafından belirtilen persentil değerlerine göre geliştirilen hesaplama motoru kullanılarak belirlenmiştir. Çocukların cinsiyeti ve yaşına göre veriler arasında anlamlı fark olup olmadığına karar vermek için Bağımsız T-testi ve Ki-kare analizi kullanılmış, $p<0,05$ değeri istatistiksel olarak anlamlı kabul edilmiştir. Çocukların yaşlarına göre vücut ağırlıkları değerlendirildiğinde 5,5 yaşındakilerin %42,1'inin ve 4,5 yaşındakilerin %4,8'inin şişman olduğu bulunmuştur ($p<0,05$). Çocukların yaşlarına göre boy uzunlukları değerlendirildiğinde 4 yaşındakilerin %6,2'sinin ve 6 yaşındakilerin %36,4'ünün bodur olduğu tespit edilmiştir ($p>0,05$). Çocukların cinsiyetlerine göre BKİ değerleri değerlendirildiğinde kızların %9,6'sının ve erkeklerin %6,2'sinin çok zayıf olduğu, kızların %28,8'inin ve erkeklerin %29,2'sinin şişman olduğu belirlenmiştir ($p>0,05$). Çocukların cinsiyetlerine göre baş çevresi değerlendirildiğinde kızların %59,6'sının ve erkeklerin %68,8'inin <2SD olduğu saptanmıştır ($p>0,05$). Sonuç olarak; örneklemdeki çocukların obezite prevalansı düşük bulunmuştur. Ancak, Bitlis ilindeki çocukluk çağı obezitesinin mümkün olduğunca önlenebilmesi için okul öncesi eğitim veren diğer okullardaki aynı yaş grubundaki çocukların da periyodik olarak antropometrik ölçümlerinin yapılması ve gerekli önlemlerin alınması gerekmektedir.

Anahtar Kelimeler: Okul öncesi dönem, Çocukluk çağı, Obezite prevalansı, Beden kitle indeksi, Persentil değeri.

PREVALENCE OF OBESITY IN SOME PRESCHOOL CHILDREN EDUCATED IN THE CENTRAL DISTRICT OF BITLIS

Seda OĞUR
Bitlis Eren University, Engineering Architecture Faculty, Department of Food Engineering
Yusuf DAYAN
Bitlis Eren University, Health Highschool, Department of Nutrition and Dietetics

Abstract

In this study, it was tried to determine the prevalence of obesity in some preschool children studying in Bitlis Central District. The study, which is a descriptive cross-sectional study, was carried out in February and March of 2017 after receiving the Ethics Committee Approval and the Institutional Permission from the Provincial Directorate of National Education. Within the scope of the research, anthropometric measurements of 100 children, aged between 4-6 years, 52 girls and 48 boys, who were educated in the Vilayetler Birliği Anaokulu in Bitlis Central District and who were received permission of themselves and their families. Body weight, height length, head circumference, waist circumference, hip circumference and upper mid-arm circumference of the students participating in the study were measured. Weighing machine, height meter and tape measure were used for measurements. The age of the study group was verbally learned. Data on anthropometric measurements were given as mean±standard deviation according to age and sex. Also percentile values of body weight, height length, BMI value and head circumference according to age and sex were determined using the calculation engine developed according to the stated percentile values by Neyzi et al. (2008). Independent T-test and Chi-square analysis was used to decide whether there was a significant difference between the genders and the age of the children, and a p value of <0,05 was considered statistically significant. When the body weights were evaluated according to the age of the children, it was found that 42,1% of the 5,5 year olds and 4,8% of the 4,5 year olds were obese ($p<0,05$). It was determined that 6,2% of the 4 year olds and 36,4% of the 6 year olds were stunted when the height lengths were evaluated according to the age of the children ($p>0,05$). It was recorded that 9,6% of the girls and 6,2% of the boys were very weak, 28,8% of the girls and 29,2% of the boys were obese when the BMI values of the children were compared according to their gender ($p>0,05$). When the head circumference of the children were evaluated according to their genders, it was determined that 59,6% of the girls and 68,8% of the boys had <2SD ($p>0,05$). As a conclusion; the prevalence of obesity in children in the sample was found to be low. However, in order to prevent childhood obesity in Bitlis province as much as possible, periodic anthropometric measurements should be made for children in the same age group in other schools providing pre-school education and necessary precautions must be taken.

Keywords: Preschool period, Childhood, Obesity prevalence, Body mass index, Percentile value.

ON THE SOLUTİONS OF THE SİNGULAR DİFFERENTİAL EQUATİONS

Rauf AMİROV
Prof., Cumhuriyet University, emirov@cumhuriyet.edu.tr
Sevim DURAK
Asts. Prof., Cumhuriyet University, sdurak@cumhuriyet.edu.tr

Abstract

The Sturm-Liouville equation for the second order

$$-\frac{d}{dx}\left(p(x)\frac{dy}{dx}\right)+q(x)y \quad \rho(x) \quad =\lambda \quad y$$

differential equation, the Sturm-Liouville operators for the operators produced by this equation and different boundary conditions and the spectral problems for these operators are called Sturm-Liouville problems.

Differential operators are defined in two ways as regular and singular. Region of domain is called a singular differential operator with differential operators that can be summed with finite and coefficient differential operators, differential operators whose region of domain is infinite, or some all of which can not be summed together or are provided in both cases.

Let

$$-y''+\left(q(x)+\frac{A}{x^{\alpha}}\right)y=\lambda^2 y, x\in[0,\pi] \quad (1)$$

be the differential equation and boundary conditions

$$y(0)=0, y'(\pi)+Hy(\pi)=0 \quad (2)$$

where $q(x)$ is the bounded measurable function from $L_2[0,\pi]$. Assume that $A\in R$, $\alpha\epsilon[1,2)$ are real numbers and λ is a spectral parameter.

In this study, the existence of the solution of the (1)-(2) problem in the class of functions providing the condition $\frac{f(x)}{x}\in C[0,\pi]$ and the behavior of the solutions of $|\lambda|$ are sufficiently large.

The spectral theory of differential operators has an important place in applied sciences. Especially in quantum theory there are many applications of singular Shrödinger operator. For example, the problem of finding the hydrogen atom and corresponding wave functions and these levels is reduced to the problem of learning the behavior of the eigenvalues of the Shrödinger operator with Columb potential and the like and of the corresponding eigenfunctions. Therefore, some of the characteristics of the Shrödinger operator with a special type of potential have been examined in our study.

Differential operators with singularity and discontinuity conditions at the interval have been studied by Amirov and Yurko (2001). In this study, for Sturm-Liouville operator with non-self adjoint Bessel potential with singularities at $(x=0)$, we have investigated the case where the solution of the end point of the finite interval has discontinuity. The spectral properties of the given operator and location of inverse problem with respect to these spectral properties and the uniqueness theorem for the solution have been proven.

Similarly, in the Amirov(2002) study, the situation has been investigated for the non-self-adjoint Bessel potential Sturm-Liouville operator to have a number of discontinuities at the end of the last interval. The behaviors of the solutions of the differential equation producing the differential operator, the spectral properties of the operator, the eigenfunction corresponding to the eigenvalues, the decomposition of the operator according to the function, the position of the inverse problem with respect to the spectral parameters and the uniquness theorems for solving these inverse problems have been proved in the case where the spectrum is simple.

Keywords: Sturm-Liouville, differential equation, singular potentia

SYNTHESIS AND APPLICATIONS OF POLY(PYRROLE-CLAY) COMPOSITES

Hatice KARAER YAĞMUR
Dicle University, Faculty of Science, Department of Chemistry

Abstract

Many of the materials used in a variety of areas of our life are either purely polymeric or polymer additive materials. Polymeric materials are physically durable, resistant to micro organisms and bacteria, light weight, easy to process and above all cheap, making them attractive (1). Clay based polymer nano composites have been the subject of a large number of investigations during the last few decades due to their various engineering applications. These nano composites exhibit enhanced mechanical and thermal properties, reduced permeability for gases and flame retardant and fire extinguishing characteristics (2). Poly(pyrrole) (PPy) is one of the most studied conducting polymers due to its good electrical conductivity, environmental stability and ease of synthesis. PPy can be prepared by electrochemical or chemical oxidation of pyrrole in various organic solvents and in aqueous media and used material for a variety of electronic applications such as sensors, light emitting diodes, corrosion protection (3,4).

Poly(pyrrole-clay) conductive composites containing different ratios of clay (Elazığ bentonite) as 1, 10 and 50% (w/w) were tried to synthesis via in-situ polymerization in the presence of $FeCl_3 \cdot 6H_2O$ in an aqueous medium and using SDS as the surfactant. The process was continued as characterization of the composites and determination of some properties such as characterization, thermal stability and conductivity.

The surface morphology, characterization, thermal stability, and electrical conductivity will be tested by scanning electron microscopy (SEM), Fourier transform infrared spectroscopy (FTIR), X-ray diffraction (XRD), thermogravimetric analysis (TGA), and four-probe methods, respectively.

Keyword: Polypyrrole, clay, composite Electrical conductivity

References

1. Gao, F., (2004). Polymer-clay composites: the story, Materials Today, 11, 50-55.

2.Madakbas, S., Çakmakçı, E., Kahraman, M., Esmer, K.; Chemical Papers 67 (8) 1048–1053 (2013)

3.Omastovaa, M., Trchovab, M., Kovarova, J., Stejskal, J.; Synthetic Metals 138 (2003) 447–455

4.Rizvi, Z. T. and Shakoor, A.; J. Phys. D: Appl. Phys. 42 (2009) 095415

PROSTAT KANSERI ÜZERINE TEORIK BIR DOKLAMA ÇALIŞMASI

A THEORETICAL DOCKING STUDY ON PROSTATE CANCER

Dr. Öğretim Üyesi Engin YILMAZ

Abstract

Cancer is a pathophysiological condition characterized by impaired cell-to-cell contact inhibition. Today there are many types of cancer. One of the cancer types commonly encountered today is prostate cancer. Clinical pathophysiology of benign prostatic hyperplasia, enlargement of the prostate gland is obstruction of the bladder outlet [1]. Determiner of prostat cancer is serum testesterone level [2]. New drugs are being developed for the treatment of the pathophysiological condition, which is now quite common. In the past, activity of chemical substances synthesized in laboratory environment was determined by trial and error method. Nowadays, activity of the chemical substances planned to be synthesized are first tried in the computer environment and then the appropriate ones are synthesized. Different methods are used in analyzing substance activities in the computer environment. One of the methods is to determine the theoretical molecular identifiers or the physico-chemical parameters of the molecules. Then suitable compounds are those which are suitable with various statistical models. Another method is molecular docking studies. In the molecular docking method, protein related to the pathophysiological condition to be studied is downloaded from various database sites. The most appropriate geometrical structure of the compounds to be studied is determined by various programs and the activity of the molecule is examined with the docking programs.

In the present study, each single bond in the schiff base, which was synthesized in our laboratory, was rotated 360 degrees in 10 ar steps with the gaussian 09 program. After having the lowest energy state of the molecule, it was optimized with the 6-311 (d, p), model DFT method. The molecular activity was then examined online by the PASS program. After the results were determined to be effective on prostate cancer, files of proteins 1GS4, 2Q7K, 2ZCH, 2ZCL related to prostate cancer were downloaded from Protein data bank site. The optimized molecule was subjected to docking process with the Autodock vina program. The results were displayed with pymol and discovery studio programs.

As a result, it was determined that the molecule interacted with the above-mentioned constructs.

Keywords: Prostat cancer, docking studies, schiff base

References

1.Shapiro E, Lepor H.,(1995) Pathophysiology of clinical beningn prostatic hyperplasia., Urol Clin North Am 22:285-290

2. Huggins C, Hodges CV. (2002), Studies on prostatic cancer: I. The effect of castration, of estrogen and of androgen injection on serum phosphatases in metastatic carcinoma of the prostate. J Urol 1941; (168):9e12.

Özet

Kanser, hücreler arası kontak inhibisyonunun bozulması ile karakterize edilen patofizyolojik bir durumdur. Günümüzde çok çeşitli kanser türleri mevcuttur. Bunlardan günümüzde yaygın olarak karşılaşılan kanser türlerinden birisi de prostat kanseridir. İyi huylu prostat hiperplazisinin klinik patofizyolojisi, prostat bezinin genişlemesi sonucu mesane çıkış tıkanıklığıdır [1]. Prostat kanserinin belirteci serum testesteron düzeyidir [2]. Günümüzde oldukça yaygın olan patofizyolojik durumun tedavisi için yeni ilaçlar geliştirilmektedir. Eskiden laboratuvar ortamında sentezlenen kimyasal maddelerin etkinliği deneme yanılma yöntemi ile belirlenirdi. Günümüzde ise sentezlenmesi planlanan kimyasal maddeler öncelikle bilgisayar ortamında çizilip etkinlikleri bilgisayar ortamında incelendikten sonra uygun olanlar sentezlenmektedir. Bilgisayar ortamında madde etkinlikleri incelenirken farklı yöntemler kullanılmaktadır. Yöntemlerden birisi, teorik moleküler tanımlayıcıları veya moleküllerin fiziko kimyasal parametrelerinin hesaplanarak çeşitli istatistiksel modeller ile uygun olan maddelerin belirlenmesidir. Diğer bir yöntem ise moleküler doklama yöntemidir. Moleküler doklama yönteminde çalışılması düşünülen patofizyolojik durumla ilgili olan protein çeşitli

database sitelerinden indirilir. Çalışılacak maddenin en uygun geometrik yapısı çeşitli programlarla belirlenir ve doklama programları ile molekülün etkinliği incelenir.

Mevcut çalışmada laboratuvarımızda sentezi yapılan schiff bazında bulunan her bir tekli bağ gaussian 09 programı ile 10 ar derecelik adımlarla 360 derece çevrildi. Molekülün en düşük enerjili hali bulunduktan sonra, DFT 6-311(d,p) modeli ile optimize edildi. Daha sonra molekülün etkinliği PASS programı ile online olarak incelendi. Elde edilen sonuçlarda prostat kanseri üzerinde etkin olduğu belirlendikten sonra Protein data bank sitesinden prostat kanseri ile ilgili 1GS4, 2Q7K, 2ZCH, 2ZCL kodlu proteinlere ait dosyalar indirildi. Optimize edilen molekül Autodock vina programı ile doklama işlemine tabi tutuldu. Elde edilen sonuçlar pymol ve discovery studio programları ile görüntülendi.

Sonuç olarak molekülün yukarıda adı geçen yapılarla etkileştiği belirlendi.

Anahtar kelimeler: Prostat kanseri, docking çalışması, schiff baz

Kaynaklar

1.Shapiro E, Lepor H.,(1995) Pathophysiology of clinical beningn prostatic hyperplasia., Urol Clin North Am 22:285-290

2. Huggins C, Hodges CV. (2002), Studies on prostatic cancer: I. The effect of castration, of estrogen and of androgen injection on serum phosphatases in metastatic carcinoma of the prostate. J Urol 1941; (168):9e12.

SYNTHESIS OF C_2-SYMMETRICAL CHIRAL TETRAAMIDES AND THEIR ENANTIOMERIC RECOGNITION ABILITY TOWARDS AMINO ACIDE ESTHERS

Murat SÜNKÜR
Batman Üniversitesi Fen Edebiyat Bölümü Kimya Bölümü
Hayriye ARAL
Batman Üniversitesi Fen Edebiyat Bölümü Kimya Bölümü
Deniz B. CEBE
Batman Üniversitesi Fen Edebiyat Bölümü Kimya Bölümü
Tarık ARAL
Batman Üniversitesi Fen Edebiyat Bölümü Kimya Bölümü

Abstract

Enantiomeric recognition study of new model systems is essential in our understanding the selectivity of complex biological processes. Therefore, the design and synthesis of new chiral systems for small chiral molecules could contribute to offer new perspectives for the development of pharmaceuticals, enantioselective sensors, catalysts and other molecular devices.

The design of receptors with a chiral recognition ability for chiral amino acids and amines is still receiving considerable attention, although much work on enantiomeric recognition of amino compounds by chiral macrocyclic ligands has been reported. Especially C2-symmetric ligands have been widely used in chiral recognition. Amide units are often used as binding cites of these receptor molecules because of their high affinity towards both anions and cations due to the bearing both hydrogen bonding donor and acceptor atoms.

Great number of chiral macrocyclic and complex structured ligands have been synthesized and studied for enantiomeric recognition of racemic compounds. However, in recent years non-cyclic ligands have begun to be used in enantiomeric recognition studies. Still there are limited papers have been reported on the using non-cyclic ligands as chiral receptor for enantiomeric recognition of the racemic compounds.

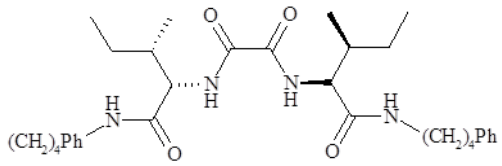


Fig.1: A chiral tetraamide to be used in the research.

Keywords: Tetraamide, Enantiomeric Recognition, Amino Acide Esthers.

References

Horvath, G.; Hutszthy, P.; Szarvas, S.; Szokan, G.; Redd, J. T.; Bradshaw, J. S.; Izatt, R. M. Ind. Eng. Chem. Res. 2000, 39, 3576–3581

Qing, G.; Sun, T.; Chen, Z.; Yang, X.; Wu, X.; He, Y. Chirality 2009, 21, 363-373.

Demirtas, H. N.; Bozkurt, S.;Durmaz, M.; Yilmaz, M.; Sirit, A. Tetrahedron 2009, 65, 3014-3018.

Tang, Z.; Cun, L. F.; Cui, X.; Mi, A. Q.; Jiang, J. Z.; Gong, L. Z. Org. Lett. 2006, 8,1263-1266.

Su, X.; Luo, K.; Xiang, Q.; Lan, J.; Xie, R. Chirality 2009, 21, 539-546.

EFFECT OF LAMBDA-CYHALOTHRIN, A PYRETHROID PESTICIDE, ON PHOSPHOLIPID FRACTION IN THE GILL OF OREOCHROMIS NILOTICUS

Murat YOLCU
Dicle University, Faculty of Pharmacy, Department of Pharmaceutical Toxicology
Mehmet BAŞHAN
Dicle University, Faculty of Science, Department of Zoology
Veysi KIZMAZ
Mardin Artuklu University, Health Services Vocational School
İsmail YENER
Dicle University, Faculty of Pharmacy, Department of Analitical Chemistry
Elif İpek SATAR
Dicle University, Faculty of Pharmacy, Department of Pharmaceutical Toxicology

Abstract

Introduction: Lambda-cyhalothrin is a pyrethroid insecticide. Pyrethroids are synthetic derivatives of pyrethrins, which are toxic components found in the flowers of the Chrysanthemum cinerariaefolium plant. Pyrethroid pesticides are more preferred than organochlorinated and organophosphate pesticides because of their strong insecticide properties and because they are often non-toxic to untargeted animals, especially mammals. Pyrethroids reach the aquatic life by direct application or by washing the medicines from the plant and soil surfaces with rain water (agricultural currents). The 96 hour LC50 values range from 0.98 µg / L to 360 µg / L for different fish species. The 96 hour LC50 value for Oreochromis niloticus of lambda cyhalothrin was reported to be 2,901 µg / L. Fish gills are vital organs, because they are the main places where gas exchange is made. Since (Because) gills are the widest part of the outer surface area of the fish, they are primary markers for water pollution and are susceptible to chemical substances in the water. In addition, lipid components are very susceptible to stress factors and environmental changes. Therefore, in the present study, it was aimed to determine the changes that can occur in the fatty acids in the phospholipid fraction of O. Niloticus exposed to the subletal concentrations of Lambda-cyhalothrin.

Materials and Methods: The fish were provided from the pools of the Faculty of Fisheries of Çukurova University. Test groups were designated as lambda cyhalothrin exposure, acetone control and control groups. The lambda cyhalothrin concentration was prepared by dissolving in acetone and taking into account one-tenth of the LC50 values (0.29 µg / L Lambda cyhalothrin). In order to determine the changes that would occur in fatty acids, three fish were removed at the end of the 7th, 14th and 21st days of each of the experimental groups. Gill tissues from the sacrificed fish were homogenized in chloroform / methanol (2:1, v/v) solution. After the phospholipid fractions were obtained by thin layer chromatography (TLC), the fatty acids in the phospholipid were converted to fatty acid methyl esters. A gas chromatograph with an FID detector was used for the analysis of fatty acid methyl esters.

Results and discussion: The most important fatty acids in the phospholipid (PL) in the gill tissue of the control fish were C16:0, C18:0, C18:1, C18:2n-6, C20: 4n-6 and C22:6n-3. On days 7, 14 and 21, irregular increases and decreases were recorded. The results were meaningful at $P < 0.05$ level. In this study, the toxicity of lambda cyhalothrine on the gill phospolipid fatty acids of the Oreochormis niloticus was shown. In fresh water, even in small concentrations, the presence of lambda cyhalothrin may cause harmful effects on fish physiology and potentially impair survival in the natural environment. Therefore, control measures should be taken to prevent possible contamination of the water environment by such toxic pest insecticide.

Keywords: Lambda-cyhalothrin, pyrethroid pesticide, phospholipid, gill, Oreochromis niloticus.

Thank: This study is supported by the Dicle University Scientific Research Projects (16-EZF-001).

AÇISAL HAREKETLERİN ATOM-İKİATOM KİMYASAL REAKSİYONLAR ÜZERİNDEKİ ETKİSİ

THE EFFECTS OF ANGULAR MOTIONS ON ATOM -DIATOM CHEMICAL REACTIONS

Dr. Ezman KARABULUT

Özet

A+BC şeklindeki bir kimyasal reaksiyonda, BC molekülünün, kendi kütle merkezi etrafındaki dönme hareketi(X) ve A-BC sisteminin kütle merkezi etrafındaki dönme hareketleri(Y), mevcut tüm spin hareketlerini dikkate almadığımız zaman, ilgili reaksiyonda mevcut dönme hareketleridir. Bu X ve Y hareketlerini farklı kombinasyonlarını bu çalışmada ele alacağız.

X hareketi değişmez ve Y hareketinde enerji artışı olması durumda;

X ve Y hareketlerinin ikisi de, toplam açısal momentumu koruyacak şekilde değişmesi durumunda;

Belli bir X ve Y hareketinde, X hareketin üç boyutlu uzaydaki mümkün tüm durumlarında(manyetik kuantum durumlarının etkisi);

X in Y e göre dönüş yönelimlerindeki değişimleri(zıt veya aynı yönde dönmeleri);

Sadece X hareketindeki değişimlerin reaksiyona etkisi incelenmiştir.

Yukarıda belirtilen durumlar, bir kimyasal reaksiyonda potansiyel enerjiyi değiştiren, reaksiyonda etkin potansiyel ve merkezcil etkilerin oluşmasında etkin durumlardır. Bu nedenle, reaksiyon farklı enerji spektrumlarında kendini gösterecektir. Bu enerji dağılımları herhangi bazı reaksiyonlar için kıyaslanmıştır. Bu etkileşmelerde kullanılan sisteme ait tüm atom ve molekül parçalarının açıya bağlı hareketleri, bu durumu temsil eden Legendre Polinomları kullanılarak gerçekleştirilmiştir. Ayrıca tüm açıya bağlı grid (hesaplama noktası) değerleri için ihtiyaç duyulan açısal momentum kuantum sayıları belirlendi. Reaksiyona bağlı olarak değişim göstermeyen bu fonksiyonlar farklı açısal hareketler ve enerjiler için değişimler göstermektedir. Araştırılan reaksiyonda kütle dağılımları (yani potansiyeli etkileyen atomlar arası mesafeler) açısal kuantum durumları üzerindeki etkilerini araştırmada etkili olduğu düşünülebilir. Aynı zamanda toplam açısal momentum durum dağılımlarının, ürün kanalından ziyade reaktant kanalda daha etkili olmuştur. Bu çalışmada, reaksiyon sistemini oluşturan hareket denkleminin (Schrödinger Dalga Denklemi) ve bu hareketleri oluşturan terimlerin sonuçlara etkileri de detaylı olarak anlatılmıştır.

Anahtar Kelimeler: Açısal momentum, Atom-iki atom etkileşmeleri, Tesir Kesitleri

Abstract

in a chemical reaction in the form of A+BC, both the rotation of the BC molecule about its own mass center (called as X) and the rotational movement around the mass center of the A-BC system (called as Y), by assuming that all available spin motions are not taken into account, are the available rotational movements in the title reaction. Different combinations of these X and Y motions are examined in this study.

1. If the X movement does not change and there is an energy increase in the Y motion;
2. If both the X and Y movements change by conserving the total angular momentum;
3. For a given X and Y motion, in all possible states of the three-dimensional motion of X motion (the effect of magnetic quantum states)
4. Different rotation orientations of X relative to Y (Rotations in the opposite or same direction, according to each other);
5. Only the effects of changes in X motion on the reaction were investigated

The cases mentioned above cause effective potentials that change the potential energy, and cases that are effective in the formation of centrifugal. Therefore, the reaction shows itself in different energy spectra. These energy distributions are calculated for any reaction. Legendre polynomials, which are normalized as a base function, representing all possible angular energy states are used in atom-molecule interactions. For all angle grid values, the required angular momentum quantum numbers are determined. This function, which does not vary by reaction, shows the relation between the quantum numbers representing the various angular energies and motions. In the investigated reaction mass distributions (inter-atomic distances affecting

potential) were found to be very effective on the angular quantum states. Moreover, the contribution of the total angular momentum in the product channel was shown to be more important rather than the reactant channel. In this study, the effects of the motion equation (Schrödinger Wave Equation) forming the reaction system and the results of the terms that make up these motions are explained in detail.

Key Words: Angular Momentum, Atom- Diatom interaction, Cross Sections.

THE INHIBITORY EFFECT OF SOME FLAVINOIDS ON HBV AND HCV

BAZI FLAVİNOİDLERİN HBV VE HCV ÜZERİNDEKİ İNHİBE EDİCİ ETKİSİ

Dr.Muhittin KAYA

Abstract

Background: Hepatitis is a disease characterized by inflammation and necrosis in liver cells. Millions of deaths occur each year due to viral hepatitis. In 2015, viral hepatitis-related deaths reached 1.34 billion, a higher than deaths caused by tuberculosis and HIV (1). Antivirals such as lamivudine, adefovir, telbivudine, entecavir and interferon alpha 2b are used for the treatment of hepatitis B infections but they are limited to slowing the liver damage (2). In hepatitis C infection, commonly used boceprevir and telaprevir which are protease inhibitors; A comprehensive study in the USA reported a severe adverse effect profile with a 2% risk of death in cirrhosis and 11% risk of liver decompensation (3). Some plants that contain these flavinoids in most parts of the world, especially in Asian countries, are used in public for hepatitis virus infections (4-6).

Aim of the study: It will help to develop new approaches in the treatment of hepatitis.

Materials and Methods: PreS1 (5YAX), HBcAg (1QGT) and NS5B (1C2P) target proteins of the hepatitis B and C viruses were downloaded from the RSCB Protein Databank database with a PDB extension. As ligand, apigenin, luteolin and chrysoerol were obtained from Pubchem. In the Discovery studio program, ligands previously bound to proteins were checked, bound ligands and water removed. Hydrogen additions with MGL tools were performed. With MGL tools, the regions where the target proteins are to be studied were determined and all the proteins in this context were selected as targets. Docking of the ligand with protein was performed with Autodock Vina. Obtained results were visualized with Pymol software.

Results: As a result of the sagging; at least 2 and at most 6 hydrogen bonds were established between all three target proteins and ligands (active agents), whilst the lowest -8.0 kcal/mol and the highest -8.8 kcal/mol binding affinity were seen.

Discussion: Significant data have been obtained in our study and support of the study with experimental studies will be helpful in subsequent research.

Keywords: Flavinoids, Protein Docking, NS5B, PreS-1, HBcAg

References

World Health Organization. Global hepatitis report 2017. Printed in France, 2017

Hanson B.M, Dorais JA. Reproductive considerations in the setting of chronic viral illness. American Journal Of Obstetrics & Gynecology. 2017;217(1):4.

deLemos A, Chung R. Review: Hepatitis C treatment: an incipient therapeutic revolution. Trends In Molecular Medicine. 2014;20:315-321.

El-Shamy A, Abdel-Razek A, Nassar M. Review: Phytochemical review of Juncus L. genus (Fam. Juncaceae). Arabian Journal Of Chemistry. 2015;8:614-623.

Abdel Razik A.F, El-Shamy A, Nassar M, et al. Chemical Constituents And Hepatoprotective Activity Of Juncus subulatus. Rev. Latinoamer. Quím. 2009;37(1).

Manvar D, Mishra M, Kumar S, Pandey V. Identification and evaluation of anti Hepatitis C virus phytochemicals from Eclipta alba. Journal Of Ethnopharmacology. 2012;144:545-554.

Özet

Genel Bilgi: Hepatit, karaciğer hücrelerinde inflamasyon ve nekrozla karakterize bir hastalıktır. Viral hepatitler nedeniyle her yıl milyonlarca ölüm vakası yaşanmaktadır. 2015 yılında viral hepatit kaynaklı meydana gelen ölümler, tüberküloz nedeniyle ölen ve HIV'in neden olduğu ölümlerden daha yüksek bir sayı olan 1.34 milyona ulaşmıştır (1). Hepatit B enfeksiyonlarında tedavi amacıyla, lamivudin, adefovir, telbivudin, entekavir ve interferon alfa 2b gibi antiviraller kullanılmakta fakat karaciğer hasarını yavaşlatmakla sınırlı kalmaktadır (2). Hepatit C enfeksiyonunda ise, yaygın olarak proteaz inhibitörleri olan

boceprevir ve telaprevir kullanılmakla beraber; ABD'de yapılan kapsamlı bir çalışmada, ölüm riski %2, karaciğer dekompanzasyonu riski %11 olan sirotiklerde ciddi yan etki profili bildirilmiştir (3).

Asya ülkeleri başta olmak üzere Dünya'nın çoğu bölgelerinde bu flavinoidleri içeren bazı bitkiler halk arasında Hepatit Virüsü enfeksiyonlarında kullanılmaktadır (4-6).

Çalışmanın Amacı: Hepatit hastalığının tedavisinde yeni yaklaşımların geliştirilmesine yardımcı olmaktır.

Materyal ve Metod: Hepatit B ve C virüslerine ait PreS1 (5YAX), HBcAg (1QGT) ve NS5B (1C2P) hedef proteinler RSCB Protein Databank veri tabanından PDB uzantılı olarak alınmıştır. Ligand olarak apigenin, luteolin ve chrysoeriol moleküler yapıları Pubchem' den alınmıştır. Discovery studio programında proteinlere daha önceden bağlanmış ligandlar kontrol edilmiş, bağlı ligandlar ve su molekülü uzaklaştırılmıştır. MGL tools ile hidrojen eklemeleri gerçekleştirilmiştir. MGL tools ile hedef proteinlerin çalışılacak bölgeleri belirlenmiş ve bu bağlamda proteinlerin tamamı hedef olarak seçilmiştir. Autodock Vina ile protein ile ligandın doklama işlemi gerçekleştirilmiştir. Elde edilen sonuçlar Pymol programı ile görselleştirilmiştir.

Sonuç: Yapılan doklama sonucunda; her üç hedef protein ile ligandlar (etken maddeler) arasında en az 2 ve en çok 6 hidrojen bağı kurulmuş, tamamında ise en düşük -8,0 kcal/mol ve en yüksek -8,8 kcal/mol bağlanma afinitesi görülmüştür.

Tartışma: Çalışmamızda anlamlı veriler elde edilmiş olup çalışmanın deneysel çalışmalar ile desteklenmesi sonraki araştırmalara yardımcı olacaktır.

Anahtar Kelimeler: Flavinoidler, Protein Doklama, NS5B, PreS-1, HBcAg

Kaynaklar

World Health Organization. Global hepatitis report 2017. Printed in France, 2017

Hanson B.M, Dorais JA. Reproductive considerations in the setting of chronic viral illness. American Journal Of Obstetrics & Gynecology. 2017;217(1):4.

deLemos A, Chung R. Review: Hepatitis C treatment: an incipient therapeutic revolution. Trends In Molecular Medicine. 2014;20:315-321.

El-Shamy A, Abdel-Razek A, Nassar M. Review: Phytochemical review of Juncus L. genus (Fam. Juncaceae). Arabian Journal Of Chemistry. 2015;8:614-623.

Abdel Razik A.F, El-Shamy A, Nassar M, et al. Chemical Constituents And Hepatoprotective Activity Of Juncus subulatus. Rev. Latinoamer. Quím. 2009;37(1).

Manvar D, Mishra M, Kumar S, Pandey V. Identification and evaluation of anti Hepatitis C virus phytochemicals from Eclipta alba. Journal Of Ethnopharmacology. 2012;144:545-554.

EXAMINATION OF BUILDING CONTROL APPLICATIONS IN CONSTRUCTION SECTOR IN TERMS OF SOME VARIABLES: TUNCELI AND ELAZIG PROVINCE SAMPLE

İNŞAAT SEKTÖRÜNDE YAPI DENETIMI UYGULAMALARIN BAZI DEĞIŞKENLER AÇISINDAN İNCELENMESI: TUNCELI VE ELAZIĞ İLI ÖRNEĞI

Aziz İLHAN
Munzur University /Çemişgezek Vocational School /Computer Programming Department
Haydar ERTAŞ
Munzur University /Çemişgezek Vocational School /Building Inspection Department

Abstract

The basic purpose of the Building Inspection system is; to ensure that the public bodies and organizations responsible for this system are in constant contact with construction supervision agencies the structures are manufactured in a certain standard and quality. (Erdiş ve Gerek, 2012). Building supervision law 4708 number has been rearranged since 2008, dealing with every stage of the building supervision process (Merdin, 2010; Tosun, 2010). In this context, the purpose of the study is to determine the level of opinions of the individuals working in the building ınspection firms regarding the structure audit practices and to compare the opinions of the structure audit practices according to the city, gender, age, educational status, title, service duration and service time variables in the structure audit practice. The study was carried out on 64 people selected by appropriate sampling method among the individuals working in 6 construction supervision companies located in two middle sized villages (Tunceli and Elazığ) in the Eastern Anatolia region. The study is a quantitative study because it contains numerical data. Descriptive statistics, independent sample t-test and one-way analysis of variance were used in the analysis of the data. As a result of the research, it was determined that the levels of building audit practices of building audit firms did not differ significantly in terms of gender and service duration variables in the study and that other variables (age, education status, title and duty duration) differ significantly. As a result of the findings, researchers who want to work in the field were advised to conduct research with different tests or other variables.

Key words: Building Inspection, Construction, building inspection law number 4708, statistics.

References

Erdiş, E. Gerek, İ. H. (2012). Problems in the construction supervision process and suggestions for solutions, E-Journal Of New World Sciences Academy, 7(1), 291-298.

Merdin, S. (2010). Building Inspection, Ministry of Public Works and Settlement General Directorate of Construction Works, Ankara.

Tosun, S. (2010). National Building Inspection System, Ministry of Public Works and Settlement General Directorate of Construction Works, Ankara.

Özet

Yapı Denetim sisteminin temel amacı; bu sistemden sorumlu kamu kurum ve kuruluşlarının, yapı denetim kuruluşları ile devamlı irtibatının sağlayarak yapıların belirli kural standart ve kalitede imal edilmesini sağlamaktır (Erdiş ve Gerek, 2012). 4708 sayılı yapı denetimi kanunu 2008 yılından itibaren, yapı denetim sürecinin her aşamasını ele alınarak yeniden düzenlenmiştir. (Merdin, 2010; Tosun, 2010). Bu kapsamda araştırmanın amacı yapı denetim firmalarında çalışan bireylerin yapı denetim uygulamalarına yönelik düşüncelerinin düzeyini belirlemek ve bulunduğu şehir, cinsiyet, yaş, eğitim durumu, unvan, görev hizmet süresi ve kurumdaki hizmet süresi değişkenlerine göre yapı denetim uygulamalarına yönelik düşüncelerini karşılaştırmaktır. Araştırma Doğu Anadolu bölgesinde bulunan orta büyüklükteki iki ilde (Tunceli ve Elazığ) bulunan 6 yapı denetimi şirketinde çalışan bireyler arasından uygun örnekleme yöntemiyle seçilen 64 kişi üzerinde yürütülmüştür. Araştırma sayısal veriler içermesi sebebiyle nicel bir çalışmadır. Verilerin analizinde betimsel istatistikler, bağımsız örneklem t-testi ve tek yönlü varyans analizi kullanılmıştır. Araştırma sonucunda yapı denetimi firmaları çalışanlarının yapı denetim uygulamaları düzeylerinin cinsiyet ve kurumdaki hizmet süresi değişkenleri açısından anlamlı bir farklılık oluşturmadığı, diğer değişkenlerin(yaş, eğitim durumu, unvan ve görev hizmet süresi) anlamlı farklılık oluşturduğu belirlenmiştir. Elde edilen

bulgular neticesinde ilgili alanda çalışmak isteyen araştırmacılara farklı testler veya başka değişkenlerle araştırma yapmaları önerilmiştir.

Anahtar sözcükler: Yapı Denetimi, İnşaat, 4708 sayılı yapı denetimi kanunu, istatistik.

Kaynaklar

Erdiş, E. Gerek, İ. H. (2012). Yapı denetim sürecinde karşılaşılan sorunlar ve çözüm önerileri, E-Journal Of New World Sciences Academy, 7(1), 291-298.

Merdin, S. (2010). Yapı Denetimi, Bayındırlık ve İskan Bakanlığı Yapı İşleri Genel Müdürlüğü, Ankara.

Tosun, S. (2010). Ulusal Yapı Denetim Sistemi, Bayındırlık ve İskan Bakanlığı Yapı İşleri Genel Müdürlüğü, Ankara.

ERGONOMIC MATERIAL HANDLING EQUIPMENT SELECTION USING FUZZY LOGIC APPROACH

Burak EFE
Department of Industrial Engineering, Necmettin Erbakan University, Konya, 42060, Turkey,
E-mail: burakefe0642@gmail.com

Abstract

Material handling equipment selection problem (MHESP) is an important decision making area for the companies, since it has a direct effect on manufacturing and service productivity. MHESP is a complex and time consuming problem due to the presence of many feasible

alternatives and conflicting objectives.

An ergonomic material handling equipment selection process includes defining of expert decision makers to make selection, determining suitable material handling equipment alternatives, determining criteria that examined in evaluation phases, weighting the criteria and evaluation of alternatives phases. The managers of the firm are planning to buy a material handling equipment. However, when investigating for the material handling equipments, they are not sure about the most appropriate one.

The managers assign the four experts committee comprising of experts in material handling equipment domain. After initial elimination, 5 alternatives have been remained for further assessment. An expert team of four decision makers E1, E2, E3, and E4 were asked to fill a questionnaire in order to define the priority of alternatives. Eight criteria that affecting material handling equipment selection determined through literature review and concluded it by interviewing with the four experts so that these criteria are purchasing cost (C1), operating cost (C2), end of use value (C3), safety (C4), reliability (C5), ease of maintenance (C6), ergonomic ease of utilization (C7) and suitability of the purchasing goal (C8). The importance degree of decision makers are assigned in order to show their differences in the group decision making problem so that the importance degrees of E1, E2, E3 and E4 decision makers can be defined as (0.20, 0.20, 0.25, 0.35), respectively. We present the possibility degree based TOPSIS method with IT2F numbers as an extension of TOPSIS method. This study also uses the IT2F number operations to aggregate the subjective judgments of the decision makers about the relative importance of criteria and criteria based alternative evaluations. The subjective judgments of the decision makers are aggregated by using the IT2F number operations to determine the weights of the criteria. These weights with IT2TrF numbers are used into IT2TrF numbers based TOPSIS phase to rank the alternatives. The proposed method is applied to select the material handling equipment of a firm.

A NOVEL INTERVAL TYPE-2 FUZZY NUMBER BASED QFD APPROACH FOR MOBILE PHONE SELECTION

Mehmet Akif YERLIKAYA
Burak EFE
Ömer Faruk EFE

Abstract

Fuzzy quality function deployment (QFD) approach has been widely applied to transform customer requirements into products or services because fuzzy numbers enable decision makers to make consistent decisions in uncertain environment. This paper proposes to use interval type-2 fuzzy (IT2F) sets in the development of a novel fuzzy QFD approach. The developed interval type-2 fuzzy QFD approach utilizes interval type-2 fuzzy sets to define the pairwise comparisons among customer requirements (CRs); the relations between CRs and design requirements (DRs); the correlations among DRs, and the evaluation of alternatives. There is no paper about integrating QFD approach and IT2F set in the literature. The merit of the fuzzy TOPSIS method is that handles the fuzzy numbers to evaluate the alternatives in contrast to precise numbers in TOPSIS method. Type-1 fuzzy numbers consider crisp membership degrees to express fuzzy numbers, but IT2F numbers handle more uncertainties than type-1 fuzzy numbers. IT2F numbers ensure us more information to describe the fuzziness and the uncertainty of the real life world. In addition, TOPSIS (Technique for Order Performance by Similarity to Ideal Solution) method based on interval type-2 trapezoidal fuzzy (IT2TrF) is utilized to select the best mobile phone. The subjective judgments of the decision makers are aggregated by using IT2TrF numbers operations to determine the weights of these criteria. These weights with IT2TrF number are used into IT2TrF number based TOPSIS phase to rank the mobile phone alternatives. Finally, the proposed approach has been implemented to a mobile phone selection in order to test its validity.

Keywords: Quality function deployment, fuzzy logic, TOPSIS, interval type-2 fuzzy number, mobile phone selection

TALEBİN BELİRSİZ OLDUĞU SİPARİŞ TOPLAMA SİSTEMLERİNDE BULANIK YAKLAŞIMLA ÜRÜN ATAMA PROBLEMİ

PRODUCT ASSİGNMENT PROBLEM WITH FUZZY APPROACH IN ORDER PICKING SYSTEMS UNDER UNCERTAIN DEMAND

Arş.Gör. Mehmet Akif YERLIKAYA
Gazi Üniversitesi Mühendislik Fakültesi Endüstri Mühendisliği Bölümü
akifyerlikaya@gazi.edu.tr
Arş.Gör.Dr. Burak EFE
Necmettin Erbakan Üniversitesi Mühendislik ve Mimarlık Fakültesi Endüstri Mühendisliği Bölümü
burakefe0642@gmail.com
Arş.Gör.Dr. Ömer Faruk EFE
Gümüşhane Üniversitesi Sağlık Bilimleri Fakültesi İş Sağlığı ve Güvenliği Bölümü
omerfarukefe86@gmail.com

Özet

Sipariş toplama ve servis seviyesi arasındaki en önemli bağ daha hızlı bir şekilde siparişin geri alınmasıdır. Sipariş toplama sistemlerinde, müşteri taleplerini karşılamak için ürünlerin toplanmadan önce depo konumlarına doğru zamanda doğru yere yerleştirilmeleri gerekmektedir. Çünkü, depolama aktiviteleri için harcanan zaman, talep döngüsü içinde harcanan toplam zamanda önemli bir faktördür. Bu nedenle, bu süreyi en aza indirmek için uygulanabilir ve sürdürülebilir araçları incelemek gerekmektedir. Ancak, bir depolama sisteminde talebin belirsiz olduğu durumlarda bu araçlar olasılık gibi farklı metotlarla ele alınabilmektedir. Bu çalışmada, Kovacs(2011)'ın belirsiz talep altında sipariş toplama zamanını en aza indirgeyen matematiksel modeli referans alınarak her bir ürün için talebin bulanık küme yaklaşımı ile değerlendirilmesi önerilmiştir. Kovacs(2011), her bir ürüne ve her çevrime bir ihtiyaç olasılık değerinin atanabileceğini varsaymıştır. Bu da, ilgili ürün atama probleminin özel bir örneğine yol açar. Kovacs(2011), sipariş döngüsü süresini, ortalama toplama çabasını veya bu iki kriterin doğrusal bir kombinasyonunu en aza indiren sınıf tabanlı bir depolama politikasını tanımlamak için bir karışık tam sayılı programlama modeli önermiştir. Bu çalışmada ise her ürün ve çevrime ait değerler, uzman ekip tarafından belirlenen dilsel değişkenlerle ifade edilmiştir. Bu dilsel değişkenler, üçgensel bulanık küme değerlerine dönüştürülerek Kovacs(2011)'in önerdiği karışık tam sayılı programlama modelinde kullanılmıştır. Önerilen yaklaşımı test etmek amacıyla örnek bir depoya uygulaması yapılmış ve modeli çözmek için GAMS CPLEX yazılımı kullanılmıştır.

Anahtar Kelimeler: Sipariş toplama, ürün atama, karışık tam sayılı programlama, bulanık küme.

Abstract

The most important link between order picking and service level is to retrieval the order faster. In order picking systems, in order to fulfill customer demands, the products must be placed in the right locations at the right time in the warehouse locations before collection. Because the time spent on storage activities is an important factor in the total time spent in the demand cycle. For this reason, it is necessary to examine applicable and sustainable tools to minimize this time. However, when the demand for a storage system is uncertain, these tools can be handled with different methods such as probability. In this study, it is proposed that the request for each product be evaluated by the fuzzy set approach by referencing Kovacs (2011) 's mathematical model minimizing order picking time under uncertain demand. Kovacs(2011) assume that a request probability can be assigned to each item and each cycle, which leads to a special case of the correlated storage assignment problem. Kovacs(2011) proposed a mixed-integer programming model(MIP) model for finding a class-based storage policy that minimizes the order cycle time, the average picking effort, or a linear combination of these two criteria. In this study, the values of each product and cycle are expressed in linguistic variables determined by the expert team. These linguistic variables are transformed into triangular fuzzy set values and used in MIP proposed by Kovacs (2011). In order to test the proposed approach, a sample warehouse application was done and GAMS CPLEX software was used to solve the model.

Key Words: Order picking, product assigment, mixed-integer programming, fuzzy sets.

DEPO ÜRÜN ATAMA PROBLEMİ İÇİN EN İYİ ALTERNATİF KONUMUN KRİTİK VİKOR İLE BELİRLENMESİ

DETERMINING THE BEST ALTERNATIVE POSITION WITH CRITIC VIKOR FOR STORAGE LOCATION ASSIGMENT

Arş. Gör. Mehmet Akif YERLİKAYA
Gazi Üniversitesi Mühendislik Fakültesi Endüstri Mühendisliği Bölümü
akifyerlikaya@gazi.edu.tr
Doç. Dr. Feyzan ARIKAN
Gazi Üniversitesi Mühendislik Fakültesi Endüstri Mühendisliği Bölümü
farikan@gazi.edu.tr

Özet

Bir tedarik zinciri, tedarikçiler, üreticiler, depolar, dağıtım merkezleri, perakende satış noktaları, satıcılar ve müşterileri içeren gelişmiş bir şebeke ağıdır. Bu şebeke ağının operasyon noktaları olan depoların etkinliği ve verimliliği tedarik zincirinin etkinliği ve verimliliği ile doğrudan bağlantılıdır. Depo yönetimi içerisinde depolama faaliyeti, geçici olarak bekletme ve sonraki dağıtım için bir noktada ürünlerin tutulmasıyla ilgili tüm aktiviteleri içerir. Etkin bir depolama sistemi, fiziksel malzemelerin teşhisini kolaylaştırır. Dolayısıyla, ürün akışının başarısını ve verimliliğini belirleyen en önemli unsurlardan biri olarak kabul edilir. Depo yönetimi özellikle; ulaşım mesafesi, kullanım alanı ve bunlardan doğacak maliyetin minimize edilmesi kriterleri açısından dikkate alınmalıdır. Her bir ürünün bir depolama tesisi içinde yerini belirlemede ele alınması gereken bu kriterler genellikle birbirleriyle çelişmektedir. Bu yüzden bu çalışmanın amacı, bir depolama alanı içerisinde ürün ataması için birden çok kriteri dikkate alarak en iyi alternatif konumu belirlemektir. Bu amaca ulaşmak için, toplam alan ve sipariş alma maliyetini minimize eden sınıf oluşturma ve atama modeli, kriter ağırlıklarını belirlemede KRİTİK yaklaşımı ve ürün atamasında alternatif konumların tercih sıralanmasında VİKOR yöntemi kullanılmıştır. Problemin çözümünde, VİKOR yöntemi ile ürünlerin atamasında alternatif konumlar için tercih sıralamasının elde edilmesinin yanı sıra alternatif konumlarla ilgili kriter bazında değerlendirmeler elde edilmiştir. KRİTİK yaklaşımı ile kriter ağırlıklarının belirlenmesinde bilgi kaybı en aza indirilmekle birlikte, depo konumlandırılmasında veriler atama modeline birden çok senaryo uygulanarak elde edildiğinden VİKOR yöntemi ile gerçekçi ve uygulanabilir sonuçlar elde edilmiştir.

Anahtar Kelimeler: Sipariş başına küp endeksi, Depo Konumu atama, KRİTİK VİKOR Yöntemi.

Abstract

A supply chain is an advanced network that includes suppliers, producers, warehouses, distribution centers, retail outlets, vendors and customers. The efficiency and efficiency which is operation point of these network are directly linked to the effectiveness and efficiency of the supply chain. The storage activity includes all activities related to the holding of products at a point for temporary holding and subsequent distribution. An efficient storage system facilitates the identification of physical materials. Therefore, it is considered to be one of the most important factors determining the success and efficiency of the product flow. Warehouse management should be taken into account in terms of transportation distance, area of use, and the minimization of costs incurred therefrom. These criteria, which must be addressed in determining the location of each product in a storage facility, often conflict with each other. Therefore, the aim of this study is to determine the best alternative location by considering multiple criteria for product assignment within a storage area. In order to achieve this goal, the class creation and assignment model, which minimizes the total area and ordering cost, the CRITIC approach to determine the criterion weights, and the VIKOR method to rank alternative positions in product assignment are used. In the solution of the problem, as well as criterion evulations based on alternative positions, the selection of preference order for alternative positions in the assignment of products by VIKOR method have been obtained. In addition to minimizing the loss of information in determining the criterial weights with the CRITIC approach, realistic and feasible results were obtained with the VIKOR method since multiple scenarios were applied to the assignment model in storage positioning.

Key Words: Cube-per-order index, warehouse storage location assignment, CRITIC VIKOR method.

EXAMİNATİON OF SİMULATİON SOFTWARES AND PACKAGES USED İN THE MODELİNG OF DİSCRETE-EVENT PROCESSES

KESIKLI OLAY SÜREÇLERININ MODELLENMESINDE KULLANILAN SIMÜLASYON YAZILIMLARININ VE PAKETLERININ INCELENMESI

Murat BİNİCİ
Bitlis Eren University, The Faculty of Engineering and Architecture, Industrial Engineering Department, Bitlis

Abstract

Simulation software can be handled in 3 different categories. In the first category there are general purpose programming languages such as C, C ++. In the second category, there are simulation programming languages such as GPSS / HTM, SIMAN VR. The final category is simulation environments where simulation packages such as Arena, Extend, Simul8, FlexSim are included.

Systems can be classified as discrete and continuous. In discrete systems, state variables vary only at certain points of time. Banks and hospital emergency services from queuing systems can be given as examples of discrete systems.

The first simulation applications started with general purpose programming languages. These early applications are mostly about how to transfer simulation-specific concepts and routines to programming languages. The next period is the emergence period of simulation programming languages. Developed simulation programming languages include only simulation-specific concepts and routines, and modeling of a system through simulation is faster and easier. The latest process, including the present day, is the process of simulation environments, ie simulation packages, that have emerged and developed. In this last period, in which personal computers has emerged, graphical user interfaces, animation and other visualization tools have begun to be used in simulation environments. Simulation environments generated during this period provide great convenience to the users by performing input and output analyzes, creating models through process flow and block diagrams, and creating visual results in 2-D and 3-D dimensions.

Arena, one of the simulation packages, caches the environment where users can create models with Basic, Standard and Professional versions. Another package, FlexSim, provides users with a simulation environment for both discrete-event and object-based modeling. During the simulation phase, images can be obtained in 2-D, 3-D and virtual reality dimensions.

As a result, modeling of discrete event processes by simulation started with general purpose programming languages and continues with the advanced simulation packages today. In this way, users can simulate models faster, more clearly and visually developed.

Key Words: Descrete-Event Processes, Simulation, Simulation Programming Languages, Simulation Environments.

Özet

Simülasyon yazılımları 3 farklı kategoride ele alınabilir. Birinci kategoride C, C++ gibi genel amaçlı programlama dilleri yer alır. İkinci kategoride GPSS/HTM, SIMAN VR gibi simülasyon programlama dilleri yer alır. Son kategori ise Arena, Extend, Simul8, FlexSim gibi simülasyon paketlerinin yer aldığı simülasyon ortamlarıdır.

Süreçler kesikli ve sürekli olarak sınıflandırılabilir. Kesikli süreçlerde durum değişkenleri zamanın sadece belirli noktalarında değişkenlik gösterir. Kuyruk süreçlerine sahip sistemlerden bankalar ve hastane acil servisleri kesikli süreçlere örnek olarak verilebilir.

İlk simülasyon uygulamaları genel amaçlı programlama dilleri ile başlamıştır. Bu ilk uygulamalar daha çok simülasyona özgü konsept ve rutinlerin programlama dillerine nasıl aktarılacağına yönelik olmuştur. Sonraki dönem simülasyon programlama dillerinin ortaya çıkış dönemidir. Geliştirilen simülasyon programlama dilleri sadece simülasyona özgü konsept ve rutinleri içermektedir ve bir sistemin simülasyon yoluyla modellenme işlemi daha hızlı ve kolay olmaktadır. Günümüzü de içeren en son süreç ise simülasyon ortamlarının yani simülasyon paketlerinin ortaya çıktığı ve geliştirildiği süreçtir. Kişisel bilgisayarların da ortaya çıktığı bu son süreçte grafiksel kullanıcı ara yüzleri, animasyon ve diğer görselleştirme araçları

simülasyon ortamlarında kullanılmaya başlanmıştır. Bu dönemde ortaya çıkan simülasyon ortamları girdi ve çıktı analizleri yaparak, proses akış ve blok diyagramları yoluyla modellemeleri oluşturarak ve 2-D ve 3-D boyutlarında görsel sonuçlar oluşturarak kullanıcılara büyük kolaylıklar sağlamıştır.

Simülasyon paketlerinden biri olan Arena, kullanıcılarına Basic, Standard ve Professional versiyonlarıyla modellerini oluşturabilecekleri ortam ağlamaktadır. 2005 yılında Londra'da meydana gelen terör saldırısı sonrası kan nakline ihtiyaç duyan yaralıların hastanede geçirdikleri sürecin simülasyon modeli Arena ortamında gerçekleştirilmiştir. Mevcut sürecin modellenmesinden sonra bu sürecin geliştirilmiş modelin simülasyonu da yine Arena ortamında yapılmıştır.

Diğer bir paket olan FlexSim ise kullanıcılarına hem kesikli hem de nesne tabanlı modellemeler için simülasyon ortamı sağlamaktadır. Simülasyon aşamasında 2, 3 ve sanal gerçeklik boyutlarında görüntüler elde edilebilir. FlexSim programını kullanılarak bir havalimanında check-in işlemi ve sonrasındaki güvenlik kontrolü sürecinin simülasyonunu yapılmıştır. FlexSim'in bu çalışmada tercih edilmesinin sebepleri nesnelerin 3 boyutlu görüntülenmesi, özel nesneler oluşturulabilmesi ve kesikli olay simülasyonuna izin vermesidir.

Sonuç olarak kesikli olay süreçlerinin simülasyon yoluyla modellenmesi genel amaçlı programlama dilleri ile başlayıp günümüzde gelişmiş simülasyon paketleri ile devam etmektedir. Bu sayede kullanıcılar daha hızlı, anlaşılır ve görsel olarak geliştirilmiş modellerin simülasyonunu yapabilmektedir.

Anahtar Kelimeler: Kesikli Olay Süreçleri, Simülasyon, Simülasyon Programlama Dilleri, Simülasyon Ortamları

MICROWAVE ACTIVATED DESULFURIZATION OF TURKISH COALS AND LIGNITE, ŞIRNAK ASPHALTITE – MODIFIED PNEUMATIC FLOTATION

Yıldırım TOSUN
Şırnak University Engineering Faculty, Mining Engineering Dept, yıldırımismailtosun@gmail.com

Abstract

Clean coal products of Tunçbilek, Bolu Mengen, Kütahya Gediz lignite, Sirnak asphaltite were received as mid-products and shale settlements in modified centrifuge settler in the column form. The cleaner products was also second cleaning stage was also carried out. Heavy duty washing was applied in two and three stages ranging 1.5 to 1.7 gr/cm3 densities of ZnCl2 baths in order to determine and compare with centrifuge settler performance and cleaning efficiencies of coagulation and settling. The modified settler design for the optimum washing unit and the most advanced clean product was investigated.

With the advanced design, the best quality lignite is obtained by producing the cleanest product that the country needs as desulfurization. The coal types can change the method of coagulation cleaning of the coal and asphaltite in the local area of Şırnak. The country side may use much simple methods using water settling and during settling coagulation of asphaltite fines as clean desulfurized products. This method could be successful in high product yield for mid products and pyrite rejection following Humphrey spirals. The combustion yields for Şırnak asphaltite fine under 100 micron was over 73% and 60% with 23% ash and 22% ash contents in the first and last cleaning stage end, respectively. The coal samples desulfurization at third cleaning stages was reached 59,5% for Şırnak asphaltite fine while the desulfurization rate values was 43,6% in control tests of selective coagulation tests.

The production of high quality solid coal fuels will lead to the development of the South East Anatolian region and will further improve the industrial development with the diversification and supply of industrial energy fuels. Şırnak asphaltite and lignite with various washing devices could be cleaned from ash clay. The washing of lignite and forward washing stages and optimum parameters were determined and the efficiency was high. Performance for current process should be subsequently practiced for mid heavy media products and low qualities of our lignite. Tests and their performance in advanced processing could provide the modification for settler and it also needs to be developed depending on type of lignite.

Keywords: slime washing, sellective coagulation, modified settler, cleaning coal, desulfurization, washing asphaltite

RECOVERY OF HEMATITE FROM THE ASPHALTITE BOILER'S BOTTOM ASH BY COLUMN FLOTATION – PLANT MODELLING

Yıldırım TOSUN
Şırnak University Engineering Faculty, Mining Engineering Dept, yıldırımismailtosun@gmail.com

Abstract

Clean hematite product and mids from the Bottom ash of Sirnak asphaltite were received as mid-products and shale sequentially at third settlements in the column flotation. The cleaner products was also second cleaning stage was also managed. Ash cleaning efficiencies were investigated at varied stages by column flotation and shale settling. The modified column flotation design for the optimum washing unit and the most advanced clean product was investigated.

With the advanced design, the best quality iron raw materials could be obtained by producing the cleanest product that the country needs as reductive roasted iron products. The combustion in the Silopi Power Station can change the ash type as hematite and ferrite effecting the column flotstion of the bottom ash of combusted asphaltite in the local area of Şırnak. This direct column flotation method could be successful in high product yield for mid products and ash silicate rejection following Humphrey spirals. The flotation yields for hematite fine under 100 micron was over 62% and 56% with grades of 54,3% Fe and 62,7% total Fe contents in the second and last cleaning stage end, respectively. The slime lost at scavanger stages was decreased 19,5%, relatively in control tests of column flotation tests.

Keywords: hematite slime, ash flotation, column flotation, slime washing, bottom ash, cleaning ash, asphaltite

AN EVALUATION ON THE PAEDERUS DERMATITIS RISK IN SOUTH-EASTERN ANATOLIA, TURKEY

Sinan ANLAŞ
Manisa Celal Bayar University, Alaşehir Vocational School, TR-45400, Alaşehir, Manisa, Turkey;
e-mail: sinan.anlas@gmail.com
İnanç ÖZGEN
Fırat University, Fırat University, Engineering Faculty, Bioengineering Department, Elazığ, Turkey
inancozgen@gmail.com

Abstract

Paederus fuscipes Curtis, 1826 one of the most common and best known species in the family Staphylinidae (Insecta: Coleoptera). This species is commonly spread in the Palearctic, Afrotropical, Australia and Oriental regions. They occur in almost all habitats depending on humidity and water. However, they are more common in the banks of rivers, creeks, lakes and dams, wetlands and wet agricultural areas. At the same time, P. fuscipes feeds on many harmful arhropods in agricultural landscapes. According to many contributions, Paederus fuscipes contains the unique hemolymph toxin pederin, which causes Paederus dermatitis. This dermatitis is a self-healing skin disease with vesiculobullous lesions on erythematous bases.

Paederus fuscipes is most common in settlement and agricultural areas in Southeastern Anatolia. Their light orientation behavior allows them to be observed when flying around bright and powerful light sources at nighttime. For that reason, many outbreaks of Paederus dermatitis have been known. According to our findings, the months that have high risk of epidemics caused by Paederus dermatitis in the southeastern Anatolia includes April, May, June and October. The most risky places are the settlement near banks of rivers, creeks, lakes and dams, wetlands and wet agricultural areas in southeastern Anatolia.

Key Words: Staphylinidae, Paederus fuscipes, Paederus dermatitis, Southeastern Anatolia, Turkey.

REVIEW OF THE STAPHYLINIDAE (INSECTA: COLEOPTERA) FAUNA OF MARDİN PROVINCE IN TURKEY

İnanç ÖZGEN
Fırat University, Fırat University, Engineering Faculty, Bioengineering Department, Elazığ, Turkey
inancozgen@gmail.com
Sinan ANLAŞ
Manisa Celal Bayar University, Alaşehir Vocational School, TR-45400, Alaşehir, Manisa, Turkey;
sinan.anlas@gmail.com

Abstract

Rove beetles or the family Staphylinidae Latreille contains more than 60.000 species belonging to 33 subfamilies from all zoogeographical regions in the world. This family is represented by approximately 1900 species in 22 subfamilies in Turkey. Amongst those approximately half of them have been distributed only in this country. They occur in many places, especially in wet places. The majority of the staphylinid species are free-living, as well as most often in decaying animal or plant matter, under stones or bark and in leaf litter. Most of them are predators of other arthropods and saprophagous on decaying plant matter.

Compared to most other provinces of Turkey, the current knowledge of the fauna of the Staphylinidae of Mardin province must be considered rather incomplete, although this fauna has received substantial attention in recent years. Based on a review of the literature of the Staphylinidae fauna of Mardin province, as well as study of new material, it was found that 55 species and in 29 genera belonging to the subfamilies Omaliinae, Pselaphinae, Tachyporinae, Oxytelinae, Aleocharinae, Paederinae and Staphylininae of this family can be reported from Mardin province. Amongst them, only three species are know as endemics in Turkey: The zoogeographical affinities of the staphylinid species in Mardin province are discussed. New records of five species from Mardin province are also reported. These species are Omalium littorale Kraatz, 1857; Cilea silphoides (Linnaeus, 1767); Lamprinodes fairmairei (Leprieur, 1853); Philonthus quisquiliarius (Gyllenhal, 1810) and Xantholinus graecus Kraatz, 1858

Key Words: Coleoptera, Staphylinidae, fauna, Mardin, new record.

BIR DIZEL MOTORDA YANMA ODASINDAN EGZOZ ÇIKIŞINA KADAR TERMAL BARIYER KAPLAMANIN ETKISI

EFFECT OF THERMAL BARRIER COATING UP TO EXHAUST EXIT FROM A DIESEL ENGINE COMBUSTION CHAMBER

Serhat ŞAP
Bingöl Üniversitesi, T.B.M.Y.O. Bingöl/TÜRKİYE ssap@bingol.edu.tr
Hanbey HAZAR
Fırat Üniversitesi, Teknoloji Fak. Elazığ/TÜRKİYE hanbeyhazar@hotmail.com
Emine ŞAP
Bingöl Üniversitesi, T.B.M.Y.O. Bingöl/TÜRKİYE esap@bingol.edu.tr

Özet

Dünyada enerjiye olan ihtiyaç sürekli bir artış eğilimi içerisindedir. Enerji taleplerindeki artış fosil yakıtlara, özellikle de petrol kökenli yakıtlara olan bağımlılığı arttırmaktadır. Enerji kaynaklarının verimli bir şekilde kullanılmaması sebebiyle bu kaynaklar çok hızlı bir şekilde tükenmektedir. Fosil yakıtlardan elde edilen enerji türlerinde, atıklar direkt olarak havaya nüfuz etmekte ve bu zararlı atıkların büyük bir kısmı, karbondioksit başta olmak üzere sera gazlarına dönüşmektedir. İçeriğinde karbon bulunan diğer yakıtları yakan sabit motorlar, endüstriyel motorlar ve ev kazanları gibi kaynaklardan çıkan atık gazların hava kirliliğinin oluşmasında çok büyük etkileri vardır. Yapılan istatistikler sonucunda büyük şehirlerde motorlu araçlardan kaynaklanan hava kirliliğinin, toplam hava kirliliği içindeki payının % 50'lere ulaştığı görülmektedir.

Mevcut Avrupa emisyon standartlarına göre, aracın yol vergisi oranları egzoz emisyonlarıyla ilişkilidir. Araç emisyonlarından kaynaklanan gazlar atmosfere yayılarak insan sağlığını tehdit etmektedir. Hava kirliliğine neden olan petrol kökenli yakıtların yanması sonucu ortaya çıkan CO, HC, NOx ve partikül emisyonları atmosferi kirleterek ciddi sağlık sorunlarına neden olmaktadır. Bu yüzden egzoz emisyonlarını azaltmak için yapılan çalışmaların önemi büyüktür. Ayrıca dünyadaki araç sayısındaki hızlı artışla beraber yenilenemeyen enerji kaynakları da hızla tükenmektedir. Bu nedenle doğalgaz, kömür, petrol ve bor gibi yenilenmesi çok uzun zaman alan enerji kaynaklarını en verimli şekilde kullanabilmek ve ortaya çıkan zararlı atıkları da en az seviyeye indirebilmek için çeşitli çalışmalar yapılmaktadır.

Bu çalışmada temel kaplama yöntemi olarak borlama yöntemi ve plazma sprey yöntemi uygulanmıştır. İçten yanmalı dizel bir motorun silindir gömleği, piston üst yüzeyi ve supapları bor içerikli malzeme ile borlama yöntemi ile kaplanarak yüzeylerinde inter metalik, ısı iletimi düşük bir yalıtım tabakası elde edilmiştir. Egzoz borusunun iç ve dış kısımları ise plazma sprey yöntemi kullanılarak krom karbür ile kaplanmıştır. Bu çalışma ile yanma odasından egzoz çıkışına kadar bir termal bariyer sağlanarak egzoz emisyonlarının azaltılması hedeflenmiştir.

Anahtar Kelimeler: Bor, Krom Karbür, Dizel motor

Abstract

The need for energy in the world is in a continuous upward trend. The increase in energy demand increases the dependence on fossil fuels, especially petroleum based fuels. Because the energy resources are not being used efficiently, these resources are consumed very quickly. In the types of energy obtained from fossil fuels, wastes penetrate directly into the air, and most of these harmful wastes are converted into greenhouse gases, especially carbon dioxide. Exhaust gases from sources such as stationary motors, industrial motors, and household boilers that burn other fuels with carbon in them have great effects on air pollution. As a result of statistics, it is seen that air pollution caused by motor vehicles in big cities reaches to 50% of total air pollution.

According to current European emission standards, the vehicle road tax rates are associated with exhaust emissions. Gases resulting from vehicle emissions are spreading to the atmosphere and threaten human health. Emissions of CO, HC, NOx and particulates resulting from the combustion of petroleum-derived fuels causing air pollution pollute the atmosphere and cause serious health problems. This is why the work done to reduce exhaust emissions is great. In addition, with the rapid increase in the number of vehicles in

the world, non renewable energy sources are rapidly consuming. For this reason, various studies are being carried out in order to use the energy resources which are very long time renewing such as natural gas, coal, petroleum and boron in the most efficient way and to reduce the harmful waste to the minimum level.

In this study, boron method and plasma spray method were applied as the basic coating method. An inner layer of an internal combustion diesel engine cylinder shell, piston top surface and valves are coated with boron-containing material by boron method to obtain an intermetallic insulation layer with low thermal conductivity on the surfaces. The inner and outer parts of the exhaust pipe are covered with chromium carbide using the plasma spray method. This study aims to reduce exhaust emissions by providing a thermal barrier from the combustion chamber to the exit of the exhaust.

Keywords: Boron, Chrome Carbide, Diesel engine

İÇTEN YANMALI BIR MOTORUN PISTON YÜZEYINE SERAMIK KAPLAMANIN ETKISI

THE EFFECT OF CERAMIC COATING ON PISTON SURFACE OF AN İNTERNAL COMBUSTION ENGINE

Serhat ŞAP
Bingöl Üniversitesi, T.B.M.Y.O. Bingöl/TÜRKİYE ssap@bingol.edu.tr
Hanbey HAZAR
Fırat Üniversitesi, Teknoloji Fak. Elazığ/TÜRKİYE hanbeyhazar@hotmail.com
Emine ŞAP
Bingöl Üniversitesi, T.B.M.Y.O. Bingöl/TÜRKİYE esap@bingol.edu.tr

Özet

Metaller üretim sanayisinin vazgeçilemez temel maddelerdir. Üretim yapılırken metaller ve alaşımlarına hemen hemen her sektörde ihtiyaç duyulmaktadır. Üretim sektörünün en önemli kollarından biri de otomotiv sanayisidir. Ülkemizde otomotiv endüstrisindeki yıllık ihracat oranları bu sektörün ticaretteki payını göstermektedir. Dolayısıyla otomotiv endüstrisinin Türkiye ve dünya üzerindeki varlığı düşünüldüğünde, metaller ve alaşımlarının bu sektörde büyük pay sahibi olduğu söylenebilir.

Motorun çalışması sırasında çalışma ortamı (basınç, aşınma, sürtünme, yüksek sıcaklık, korozif etkenler vb.) motor içerisindeki elemanları olumsuz yönde etkilemektedir. Bu etkenler neticesinde motor elemanları tribolojik deformasyonlara maruz kalmakta, yüzey özellikleri kötüleşmektedir. Bu deformasyonlar malzemelerin yüzey bölgesinden başlayarak içyapısına kadar ilerlemekte, yorulma hatta kırılmalara neden olabilmektedir. Bu olumsuz faktörler neticesinde malzeme ömürleri azalmakta; değişim, onarım ve işçilik gibi faktörler düşünüldüğünde ülke ekonomisini büyük oranda olumsuz bir şekilde etkilemektedir. Bu olumsuz etkenlerin bertaraf edilebilmesi için son zamanlarda çeşitli seramik kaplama yöntemlerine başvurulmaktadır. Malzeme yüzeylerine başka bir malzemenin biriktirilmesi işlemine kaplama denir. Kaplama işlemi ile motor parçalarının zor çalışma ortamlarında mukavemetlerinin arttırılması, yapısal olarak bozulmalarının önlenmesi ya da en aza indirgenebilmesi, korozif koşullarda dayanımlarının sağlanması, mekanik sürtünme sonucu çizilme ve aşınmalarının bertaraf edilebilmesi sağlanmaktadır. Otomotiv sektöründe kullanılan metallere en uygun kaplama işleminin yapılması alınacak verimi arttıracaktır. Çok sayıda kaplama yöntemi mevcuttur. Bu kaplama yöntemlerinden bir de plazma sprey kaplama yöntemiyle seramik kaplamadır.

Bu çalışmada metallerin çeşitli tozlarla kaplanarak aşınmaya, oksitlenmeye, korozyona ve yüksek sıcaklıklara dayanıklı malzeme üretiminde yaygın olarak kullanılan bir ısıl püskürtme yöntemi olan Plazma Sprey kaplama yöntemi kullanılmıştır. Kaplama malzemesi olarak Krom karbür kullanılmıştır. Krom karbür, metal malzemelerin yüzeylerinin sert olmasının, korozyona ve aşınmaya karşı dayanıklı olmasının istendiği yerlerde ısıl püskürtme malzemesi olarak kullanılmaktadır. Yüksek sıcaklıklarda oksidasyonunun olmayışı, krom karbürün korozyon direncini arttırmaktadır. İçten yanmalı bir motorun pistonu Plazma Sprey yöntemiyle Krom karbür kaplanarak, kaplanmamış bir pistonla karşılaştırmalı olarak kıyaslanmıştır.

Anahtar Kelimeler: Piston, Krom Karbür, Seramik Kaplama

Abstract

Metals are indispensable base materials for the manufacturing industry. In production, metals and alloys are needed in almost every sector. One of the most important branches of the manufacturing sector is the automotive industry. The annual export ratios of the automotive industry in our country indicate the share of this sector in trade. Therefore, when considering the presence of the automotive industry in Turkey and around the world, metals and alloys said to be the largest shareholders in this sector.

The working environment (pressure, wear, friction, high temperature, corrosive factors, etc.) during engine operation affects the elements in the engine negatively. As a result of these factors, the motor elements are subject to tribological deformations, and their surface properties are deteriorating. These deformations start from the surface area of the materials to the inner structure, can cause fatigue or even breakage. As a result of these adverse factors, material life is decreasing; change, repair and workmanship in the country economy is negatively affecting the economy in a large way. Recently various ceramic coating methods have been

applied to eliminate these negative factors. The process of depositing another material on the material surfaces is called coating. Coating process enables to increase the strength of engine parts in difficult working environments, to prevent structural damage or to reduce the most, to provide strength in corrosive conditions, to eliminate mechanical friction end scratches and abrasions. Making the most suitable coating process for the metals used in the automotive sector will increase the yield. There are many coating methods available. One of these coating methods is ceramic coating by plasma spray coating method.

In this study, Plasma Spray coating method, which is a thermal spraying method widely used for the production of materials resistant to abrasion, oxidation, corrosion and high temperatures, by covering the metals with various powders. Chromium carbide is used as coating material. Chromium carbide is used as a thermal spray material in areas where the surfaces of metal materials are desired to be resistant to corrosion and abrasion. The absence of oxidation at high temperatures increases the corrosion resistance of chromium carbide. The piston of an internal combustion engine is plated with chromium carbide by Plasma Spray method and is compared with an uncoated piston comparatively.

Keywords: Piston, Chrome Carbide, Ceramic Coating

İÇ MEKÂN AYDINLATMA KONTROL SISTEMLERINDE ENERJI VERIMLILIĞININ KARŞILAŞTIRMALI İNCELENMESI

COMPARATIVE STUDY OF ENERGY EFFICIENCY IN LIGHTING CONTROL SYSTEMS FOR INDOORS

Uğur YÜCEL
Kocaeli University, Department of Mechatronics, Kocaeli, Turkey
Murat AYAZ
Kocaeli University, Department of Electric and Energy, Kocaeli, Turkey
Koray ERHAN
Kocaeli University, Department of Energy Engineering, Kocaeli, Turkey

Özet

Günümüzde, gelişen teknoloji ile birlikte enerji tüketimi gün geçtikçe artmaktadır. Bu kapsamda, enerji talebini karşılamak için enerji üretiminin ve enerji verimliliğinin arttırılması büyük önem taşımaktadır. Enerji tüketiminin önemli paydaşlarından biri olan aydınlatma sistemlerinde enerji verimliliğinin arttırılması üzerine gerek düşük enerji tüketimine sahip aygıt geliştirilmesi gerekse de kontrol sistemleri üzerine çalışmalar yapılmaktadır. Bu çalışmada, iç mekân aydınlatmasında gün ışığından daha fazla yararlanılmasını sağlayan tek sensörlü aydınlatma kontrol sistemi önerilmiştir. Önerilen iç mekân aydınlatma kontrol sistemi ile mevcut aydınlatma kontrol sistemleri enerji tüketimi, maliyet ve uygulanabilirlik açısından karşılaştırmalı olarak incelenmiştir. Sonuç olarak, önerilen aydınlatma kontrol sistemi ile sensör-kontrolör sayısı azaltılarak daha basit bir yapı ve dolayısıyla maliyet kazancı sağlanabilmektedir. Dahası, enerji tüketiminin gün ışığından daha fazla yararlanılarak ortalama % 70 oranında azaltılabileceği ortaya çıkmıştır.

Anahtar Kelimeler: Enerji verimliliği, Aydınlatma kontrol sistemleri, Aydınlatma, Gün ışığı

Abstract

Today, energy consumption is increasing day by day with the developing technology. In this context, it is of great importance to increase energy production and energy efficiency to meet energy demand. In Lighting systems, one of the key stakeholders of energy consumption, several researches have been conducted to increase energy efficiency. These researches focused on developing control systems and devices with low energy consumption. In this study, a single-sensor lighting control system that allows more use of daylight in indoor lighting has been proposed. The proposed lighting control system and existing lighting control systems have been compared in terms of energy consumption, cost and applicability. As a result, the number of sensor-controllers is reduced with the proposed lighting control system, this leads to a simpler structure and thus a cost saving. Moreover, energy consumption can be reduced with the proposed system, by an average of 70% by making more use of daylight.

Key-words: Energy efficiency, Lighting control systems, Lighting, Daylight harvesting

KATI YAKIT KULLANAN İKI FARKLI MISIR KURUTMA TESISININ ENERJI VE MALIYET ANALIZLERININ KARŞILAŞTIRILMASI

Fatih ÜNAL
Mardin Artuklu Üniversitesi, Makine Programı, Mardin, 47100
Hüsamettin BULUT
Harran üniversitesi, Makine Mühendisliği, Şanlıurfa, 63100
Ahmet KAHRAMAN
Harran Üniversitesi, Fen Bilimleri Enstitüsü, Şanlıurfa, 63100

Özet

Bu çalışmada kurutma havasının ısıtılmasında katı yakıt kullanılan iki farklı mısır kurutma tesisinin enerji ve maliyet analizleri yapılmıştır. Değerlendirilmesi yapılan kurutma süreçlerinde yüksek nemdeki mısır kurutularak saklama nemi olan %15 bağıl nem değerinin altında bir değere indirilmiştir. Kurutma sürecinde, sistemlerde belirlenen düğüm noktalarının sıcaklık, bağıl nem ve hava hızı gibi termodinamik özellikleri ölçülmüştür. Analizler için belirlenen tesislerin devamlı çalışma sıcaklıkları göz önüne alınmıştır. Analizlerde 1. tesiste 70 ° C ve 2.tesiste 112 ° C kurutma odasına kurutma havası giriş sıcaklıkları için ölçümler yapılmıştır. Belirlenen düğüm noktalarında elde edilen verilere bağlı olarak tesislerde kurutma havasının giriş sıcaklığı, yakıtın ısıl değeri, yakıt sarfiyatı, enerji verimliliği ve birim kurutma maliyeti üzerindeki etkileri değerlendirilmiştir. Sonuç olarak, giriş havasının sıcaklığının artması kazan verimini ve enerji verimliliğini düşürdüğü, birim kurutma maliyetini ve yakıt sarfiyatını artırdığı tespit edilmiştir. Isıl değeri yüksek yakıt kullanımı yüksek sıcaklıklarda çalışma imkânını sağladığından kurutma süresinin azalmasında etkin rol oynadığı tespit edilmiştir

Anahtar Kelimeler: Kurutma, Mısır Kurutma, Enerji ve Maliyet Analizi Karşılaştırması

Comparison of Energy and Cost Analysis of Two Different Corn Drying Plant Using Solid Fuel

Abstract

In this study, the energy and cost analyzes of two different corn drying plants using solid fuel in the heating of drying air are performed. In the evaluated drying processes, corn which has high humidity, dried to a value below 15% relative humidity which is the storage humidity. In the drying process, thermodynamic properties such as temperature, relative humidity and air velocity of the node points determined in the systems were measured. The continuous operating temperatures of the facilities specified for analyzes were taken into account. In the analyzes, measurements were made for the drying air inlet temperatures of drying plants which was drying temperature of 70 ° C and 112 ° C. Based on the results obtained at the determined nodes, the influences on the inlet temperature of the drying air, the thermal value of the fuel, the fuel consumption, the energy efficiency and the unit drying cost have been evaluated. As a result, it has been found that the increase in inlet air temperature reduces boiler efficiency and energy efficiency, increases unit drying cost and fuel consumption. It has been found that high thermal value fuel usage has an important role in decreasing drying time as it allows working at high temperatures

Key Words: Drying, Corn Drying, Grain Drying, Energy and Cost Analysis Comparison

HASTANELERDE ISIL KONFOR KOŞULLARININ BELİRLENMESİ

DETERMINATION OF THERMAL COMFORT CONDITIONS IN HOSPITALS

Arş. Gör. İsmail CANER
Doç. Dr. Nadir İLTEN

Özet

Farklı bina tiplerinde ısıl konfor konusunda günümüze kadar birçok çalışma yapılmış ve bu yapılan çalışmalar ışığında değişik standartlar oluşturulmuştur. Literatür incelendiğinde, okul, ofis ve konutlarda ısıl konfor koşullarının benzer ve farklı açılardan birçok kez irdelendiği diğer bina tipleri için ise daha az çalışma yapıldığı görülmektedir. Örneğin hastanelerde ısıl konfor koşulları ile ilgili çalışmalar diğer bina tiplerine göre daha azdır. Aynı zamanda hastalar üzerinde ısıl konfor koşullarının etkisi konusunda herhangi bir standart bulunamamıştır.

Bu çalışmanın amacı, Balıkesir Üniversitesi Sağlık Uygulama ve Araştırma hastanesinin temel bölümlerinden olan hasta ve personel odalarını ısıl konfor açısından incelemek ve hastanede yatan hastalar, refakatçiler ve personel açısından ısıl konfor koşullarını anket ve ölçümler ile tespit etmektir. Aynı zamanda mevcut durumun ISO 7730:2005 standardına uygunluğuna bakılmıştır. Ölçümler için Testo 480 ısıl konfor analiz cihazı kullanılmıştır. Kullanıcılara uygulanan anketler ise literatürdeki çalışmalardan elde edilmiş olup, sadece ısıl konfor sorunlarını içermektedir. Yapılan ölçümlerde, hesaplanan PMV değerleri yaz dönemi için kış dönemine göre standartlarda belirtilen değerlere genel olarak daha uygundur. Ancak katılımcıların verdiği cevaplar doğrultusunda bu değerlerin de yeterli olmadığı görülmüştür. Bu nedenle yaz dönemi içinde mevcut standartların ülkemiz için düşük kaldığı söylenebilir. Kış dönemi için ölçülen ve anketler ile elde edilen PMV değerleri standartlarda belirtilen değerlerin genel olarak üzerindedir. Ancak katılımcıların verdiği cevaplar doğrultusunda bu değerlerin yeterli olmadığı görülmüştür. Bu nedenle mevcut standartların ülkemiz için düşük kaldığı, ısıl konfora etki eden parametrelerin sadece sıcaklık ve nem değerleri ile değil bunun yanı sıra kültür gibi etkenlerinde olduğu söylenebilir. Ülkemiz için mevcut koşullar dikkate alındığında PMV değerlerinin +0.5 değerinin üzerinde olması gerektiği anlaşılmaktadır. Standartlarda belirtilen -0.5 ve +0.5 konfor aralığı ülkemiz için -0.2 ile +0.8 aralığında değerlendirilirse mevcut koşulların daha uygun olacağı söylenebilir.

Anahtar Kelimeler: Hastaneler, Isıl konfor, PMV-PPD.

Abstract

There have been many studies on thermal comfort in different types of buildings and various standards have been established in the light of these studies. When the literature is examined, it is seen that there are so many studies for the thermal comfort conditions in schools, offices and residences which are examined many times. However, hospitals have less thermal comfort studies compared to other building types. At the same time, there was no standard for the effect of thermal comfort conditions on patients.

The aim of this study is to examine the patient and staff rooms which are the basic parts of Balikesir University Health Practice and Research Hospital, in terms of thermal comfort and to determine the thermal comfort conditions in terms of hospital occupants by surveys and measurements. At the same time, the current thermal comfort condition is compared with ISO 7730: 2005 standard. Testo 480 (thermal comfort device) is used for the measurements. The survey applied to the users is obtained from the studies in the literature and contains only thermal comfort questions. According to standard, PMV values calculated in the measurements are generally more suitable for summer season compared to the winter season. However, result of surveys are not find these values to be sufficient. It can be said that the current standards have remained low for our country during the summer period. PMV values (measured and obtained by surveys) for the winter period are generally above the values specified in the standards. However, it was seen that these values were not enough in the direction of the answers given by the occupants. It can be said that the current standards are low for our country, and the parameters affecting thermal comfort are not only due to temperature and humidity but also because of factors such as culture. It is understood that PMV values should be above +0.5 of the current conditions for our country,. If the -0.5 and +0.5 comfort intervals stated in the standards are evaluated in the range of -0.2 to +0.8 for our country, it can be said that these conditions will be more appropriate.

Keywords: Hospitals, Thermal comfort, PMV-PPD.

LPG YAKITI KULLANAN YATAY TIP MISIR KURUTMA TESISININ ENERJI VE MALIYET ANALIZI

ENERGY AND COST ANALYSIS OF HORIZONTAL TYPE CORN DRYING PLANT USING LPG FUEL

Fatih ÜNAL
Mardin Artuklu Üniversitesi, Makine Programı, Mardin, 47100
Hüsamettin BULUT
Harran üniversitesi, Makine Mühendisliği, Şanlıurfa, 63100
Ahmet KAHRAMAN
Harran Üniversitesi, Fen Bilimleri Enstitüsü, Şanlıurfa, 63100

Özet

Bu çalışmada kurutma havasının ısıtılmasında sıvılaştırılmış LPG kullanılan yatay tip mısır kurutma tesisinin kurutma odasına farklı kurutma havası giriş sıcaklıkları ile elde edilen sonuçlara bağlı olarak enerji ve maliyet analizleri yapılmıştır. Kurutma sürecinde, sistemlerde belirlenen düğüm noktalarının sıcaklık, bağıl nem ve hava hızı gibi termodinamik özellikleri ölçülmüştür. Kurutma tesisine; sabit hava debisinde farklı sıcaklıklarda(85°C, 90°C ve 95°C) kurutma havası gönderilerek ürün kurutma işlemi yapılmıştır. Sistemde belirlenen 6 adet düğüm noktasından elde edilen verilere bağlı olarak yapılan enerji ve maliyet analizinde kurutma havası giriş sıcaklığı, ısıtıcı giriş havasının sıcaklığı ve bağıl nem değişimlerinin yakıt sarfiyatı, enerji verimliliği ve birim kurutma maliyet üzerindeki etkileri değerlendirilmiştir. Sonuç olarak, kurutma giriş havası sıcaklığının artmasının enerji verimliliğini düşürdüğü, birim kurutma maliyetini ve yakıt sarfiyatını artırdığı tespit edilmiştir. Isıtıcı giriş havasının bağıl neminin artması ile yakıt sarfiyatının ve birim kurutma maliyetinin arttığı ve enerji verimliliğinin düştüğü tespit edilmiştir.

Anahtar Kelimeler: Kurutma, Mısır Kurutma, Tahıl Kurutma, LPG Yakıtlı Kurutma Tesisi, Enerji ve Maliyet Analizi

Abstract

In this study, energy and cost analyzes were performed depending on the results obtained with different drying air inlet temperatures in the drying chamber of the horizontal type corn drying plant using liquefied LPG in the drying of the drying air. In the drying process, thermodynamic properties such as temperature, relative humidity and air velocity of the node points determined in the system are measured. Measurements in the study were made by sending drying air at different temperatures (85 ° C, 90 ° C and 95 ° C) in the constant airflow of corn drying process. As a result of the energy and cost analyzes made on the basis of the data obtained from the six node points determined in the system,the effects of the drying air inlet temperature, the temperature of the heater inlet air and relative humidity changes were been evaluated over the energy efficiency, consumption of fuel and the unit drying cost. As a result, it has been found that increased drying inlet air temperature reduces energy efficiency, increases unit drying cost, and fuel consumption. In the case of the increased relative humidity of the heater inlet air, it has been found that the fuel consumption and the unit drying cost are increased and the energy efficiency is decreased.

Key Words: Drying, Corn Drying, Grain Drying, LPG Fired Drying Plant, Energy and Cost Analysis

CONTRİBUTİON TO THE CİTY'S ECONOMY OF AGRİCULTURAL PRODUCTS DRİED BY SOLAR ENERGY İN MALATYA PROVİNCE

Rasim BEHÇET
İnönü Üniversitesi, Mühendislik Fakültesi, Makine Mühendisliği Bölümü
Emre GÖNEL
Bitlis Eren Üniversitesi, Mühendislik Mimarlık Fakültesi, Makine Mühendisliği Bölümü
Ahmet YAKIN
Van Yüzüncü Yıl Üniversitesi, Van Meslek Yüksekokulu, Motorlu Araçlar ve Ulaştırma Teknolojileri Bölümü
Faruk ORAL
Bitlis Eren Üniversitesi, Mühendislik Mimarlık Fakültesi, Makine Mühendisliği Bölümü

Abstract

The development and economics of developing countries have a significant impact on dried agricultural products. % 90% of the water in agricultural products such as fresh fruits and vegetables is reduced to 15% and is able to stand for a long time by drying process. Drying and storage of foodstuffs has been a method used since the early ages. Many products such as fruit, vegetables and cereals, timber, etc. can be stored for a longer period of time as well as being exported to contribute to the economy. Three methods are generally used for drying process, outdoors, in the oven and in drying cabinets. Since the early ages, outdoor drying with solar energy has been carried out in two ways, with sera type and collector dryers. Malatya is a rich region in terms of both fruit and vegetable varieties and solar energy potential. As for solar energy potential, Malatya province is the third among the illusions in the Eastern Anatolia Region. Vegetables and fruits which are important contributors to the economy of the province, especially apricot, can be marketed both as aged and dry. In this study, the fruits and vegetables contributing to the economy of the province by drying in the province of Malatya will be identified and the advantages and disadvantages of the techniques used for drying these fruits and vegetables will be investigated.

Keywords: Agricultural products, Drying, Solar energy, Economy, Malatya

AN ALTERNATIVE ENERGY RESOURCE FOR AGRICULTURAL MACHINERY: HYDROGEN

Ahmet YAKIN
Van Yüzüncü Yıl Üniversitesi, Van Meslek Yüksekokulu, Motorlu Araçlar ve Ulaştırma Teknolojileri Bölümü
Rasim BEHÇET
İnönü Üniversitesi, Mühendislik Fakültesi, Makine Mühendisliği Bölümü
Emre GÖNEL
Bitlis Eren Üniversitesi, Mühendislik Mimarlık Fakültesi, Makine Mühendisliği Bölümü
Apdulmutalip ŞAHİNASLAN
İnönü Üniversitesi, Mühendislik Fakültesi, Makine Mühendisliği Bölümü

Abstract

Systems used to convert any energy stream to another energy stream are defined as machines. Depending on the energy they use, the energy conversion system and the functions they perform, they can be classified as hydraulic machines, electric machines, thermal machines, work machines and agricultural machines. Machines are used for many processes such as tillage, planting, plant protection, harvesting, blending, irrigation, cleaning and so on. There is a need for energy to operate the machines used in such processes. One of the most important parameters to increase productivity and productivity in agricultural machinery is energy. Energy types can be divided into two parts: non-renewable (coal, oil, natural gas) and renewable (solar, wind, biomass, hydrogen, etc.) Today, energy conversion systems used in agricultural machinery and powered by fossil-based fuel are internal combustion engines. Both pollutant emissions and fossil fuel dependence can be reduced by using alternative energies in tractors and agricultural machines operating on petroleum and its derivatives, known as fossil-based fuels. In this study, we will investigate the utility of hydrogen as a clean and renewable fuel among the technologies of the future, in agricultural machinery and the advantages and disadvantages of fuels over fossil based fuels.

Key words: Agricultural machines, Energy, Hydrogen, Renewable

HASTANELERDE ISIL KONFOR KOŞULLARININ BELİRLENMESİ
DETERMINATION OF THERMAL COMFORT CONDITIONS IN HOSPITALS

Arş. Gör. İsmail CANER
Doç. Dr. Nadir İLTEN
BAÜ Müh. Fak. Mak. Mühendisliği Bölümü, BALIKESİR

Özet

Farklı bina tiplerinde ısıl konfor konusunda günümüze kadar birçok çalışma yapılmış ve bu yapılan çalışmalar ışığında değişik standartlar oluşturulmuştur. Literatür incelendiğinde, okul, ofis ve konutlarda ısıl konfor koşullarının benzer ve farklı açılardan birçok kez irdelendiği diğer bina tipleri için ise daha az çalışma yapıldığı görülmektedir. Örneğin hastanelerde ısıl konfor koşulları ile ilgili çalışmalar diğer bina tiplerine göre daha azdır. Aynı zamanda hastalar üzerinde ısıl konfor koşullarının etkisi konusunda herhangi bir standart bulunamamıştır.

Bu çalışmanın amacı, Balıkesir Üniversitesi Sağlık Uygulama ve Araştırma hastanesinin temel bölümlerinden olan hasta ve personel odalarını ısıl konfor açısından incelemek ve hastanede yatan hastalar, refakatçiler ve personel açısından ısıl konfor koşullarını anket ve ölçümler ile tespit etmektir. Aynı zamanda mevcut durumun ISO 7730:2005 standardına uygunluğuna bakılmıştır. Ölçümler için Testo 480 ısıl konfor analiz cihazı kullanılmıştır. Kullanıcılara uygulanan anketler ise literatürdeki çalışmalardan elde edilmiş olup, sadece ısıl konfor sorunlarını içermektedir. Yapılan ölçümlerde, hesaplanan PMV değerleri yaz dönemi için kış dönemine göre standartlarda belirtilen değerlere genel olarak daha uygundur. Ancak katılımcıların verdiği cevaplar doğrultusunda bu değerlerin de yeterli olmadığı görülmüştür. Bu nedenle yaz dönemi içinde mevcut standartların ülkemiz için düşük kaldığı söylenebilir. Kış dönemi için ölçülen ve anketler ile elde edilen PMV değerleri standartlarda belirtilen değerlerin genel olarak üzerindedir. Ancak katılımcıların verdiği cevaplar doğrultusunda bu değerlerin yeterli olmadığı görülmüştür. Bu nedenle mevcut standartların ülkemiz için düşük kaldığı, ısıl konfora etki eden parametrelerin sadece sıcaklık ve nem değerleri ile değil bunun yanı sıra kültür gibi etkenlerinde olduğu söylenebilir. Ülkemiz için mevcut koşullar dikkate alındığında PMV değerlerinin +0.5 değerinin üzerinde olması gerektiği anlaşılmaktadır. Standartlarda belirtilen -0.5 ve +0.5 konfor aralığı ülkemiz için -0.2 ile +0.8 aralığında değerlendirilirse mevcut koşulların daha uygun olacağı söylenebilir.

Anahtar Kelimeler: Hastaneler, Isıl konfor, PMV-PPD.

Abstract

There have been many studies on thermal comfort in different types of buildings and various standards have been established in the light of these studies. When the literature is examined, it is seen that there are so many studies for the thermal comfort conditions in schools, offices and residences which are examined many times. However, hospitals have less thermal comfort studies compared to other building types. At the same time, there was no standard for the effect of thermal comfort conditions on patients.

The aim of this study is to examine the patient and staff rooms which are the basic parts of Balikesir University Health Practice and Research Hospital, in terms of thermal comfort and to determine the thermal comfort conditions in terms of hospital occupants by surveys and measurements. At the same time, the current thermal comfort condition is compared with ISO 7730: 2005 standard. Testo 480 (thermal comfort device) is used for the measurements. The survey applied to the users is obtained from the studies in the literature and contains only thermal comfort questions. According to standard, PMV values calculated in the measurements are generally more suitable for summer season compared to the winter season. However, result of surveys are not find these values to be sufficient. It can be said that the current standards have remained low for our country during the summer period. PMV values (measured and obtained by surveys) for the winter period are generally above the values specified in the standards. However, it was seen that these values were not enough in the direction of the answers given by the occupants. It can be said that the current standards are low for our country, and the parameters affecting thermal comfort are not only due to temperature and humidity but also because of factors such as culture. It is understood that PMV values should be above +0.5 of the current conditions for our country,. If the -0.5 and +0.5 comfort intervals stated in the standards are evaluated in the range of -0.2 to +0.8 for our country, it can be said that these conditions will be more appropriate.

Keywords: Hospitals, Thermal comfort, PMV-PPD.

THE EFFECT OF EMİSSİONS FROM VEHİCLES ON ENVİRONMENT AND HUMAN HEALTH İN THE PROVİNCE OF MALATYA

Rasim BEHÇET
İnönü Üniversitesi, Mühendislik Fakültesi, Makine Mühendisliği Bölümü
Ahmet YAKIN
Van Yüzüncü Yıl Üniversitesi, Van Meslek Yüksekokulu, Motorlu Araçlar ve Ulaştırma Teknolojileri Bölümü
Emre GÖNEL
Bitlis Eren Üniversitesi, Mühendislik Mimarlık Fakültesi, Makine Mühendisliği Bölümü
Apdulmutalip ŞAHİNASLAN
İnönü Üniversitesi, Mühendislik Fakültesi, Makine Mühendisliği Bölümü

Abstract

With the growing population, the development of technology and the discovery of motor vehicles and the rapid technological development, the use of vehicles is rapidly increasing. On the one hand,while the vehicles provide comfortable and fast access on the other hand the use of petroleum products as energy source and the exhaust gases which are turned into combustion are the negative effects on nature and human health. The rapid increase in the use of motor vehicles, industrialization and urbanization have caused significant problems in recent years in terms of environmental pollution. Seeking solutions to environmental and health problems caused by vehicles that make up a large part of the world's released greenhouse gases, is tried to be controled with national and international legal regulations to reduce the emission of exhaust gases. In this study, the effects of noise and exhaust gases originating from motor vehicles in the province of Malatya on environment and human health were examined and suggestions were made.

Key words: Vehicles, environmental pollution, human health, exhaust emission

SOLAR ENERGY IRRIGATION SYSTEMS IN MALATYA

Rasim BEHÇET
İnönü Üniversitesi, Mühendislik Fakültesi, Makine Mühendisliği Bölümü
Emre GÖNEL
Bitlis Eren Üniversitesi, Mühendislik Mimarlık Fakültesi, Makine Mühendisliği Bölümü
Ahmet YAKIN
Van Yüzüncü Yıl Üniversitesi, Van Meslek Yüksekokulu, Motorlu Araçlar ve Ulaştırma Teknolojileri Bölümü
Faruk ORAL
Bitlis Eren Üniversitesi, Mühendislik Mimarlık Fakültesi, Makine Mühendisliği Bölümü

Abstract

Societies based on basic livelihood agriculture products require irrigating for more efficient agriculture and energy is needed to transport the water where watering by natural means is not possible. Today irrigation pumps used for irrigation of agricultural land work with electricity or diesel generators in areas where there is no electricity line. The continual increase in electricity and fuel prices increases the cost of agricultural products. Also, the use of fossil fuel powered internal combustion engines in agricultural irrigation causes noise and pollution. There is a need for clean and renewable alternative energy sources to reduce product cost from irrigation, to prevent noise from fossil-based power generation systems and to remove pollution from fossil fuels. Photovoltaic irrigation systems that utilize solar energy have become alternative irrigation systems with developing technology. In this study, photovoltaic irrigation systems were researched with emphasis on the use of renewable energy sources in agricultural areas and Malatya where is third in terms of solar energy potential in the Eastern Anatolia Region, in this potential for agrıcultural irrigation was investigated and the sample applications provincial example applications were analyzed.

Key words: Agricultural irrigation, solar energy, photovoltaic systems, Malatya

BATMAN İLİ YAPI TEMEL TAŞI VE ZEMİN KALKERLEİNİN JEODİNAMİK ETÜDÜ

Yakup ANIT
Şirnak Üniversitesi, yakupanit@hotmail.com

Özet

Bu çalışmada inceleme alanındaki yerel kalkerli zemin koşullarının tanımlaması gerçekleştirilmiştir. Batman ili inşaat yerleşim birimleri içersindeki kentsel yapılaşma etütüne bağlı olarak temel zemin kalker taşlarının jeodinamik etüdü yapılarak uıygun yerleşim zemin iyileştirilmesi ve temel yapılar önerilmiştir. Belirlenen kalker ve heterojen zemin etüt parametreleri temel derinliği seçimi en az temel derinliği temel tipinin muhtemel oturmalara göre incelenerek radyal ve sürekli temellerde rijitlik irdelenmiştir.

Anahtar Kelimeler: kalker taş zemin, jeodinamik etüt, sismik geçirgenlik temel direnç, Batman kalkeri

Abstract

In this study, the identification of the local calcareous ground conditions in the survey area was carried out. Geodynamic study of basic ground limestone stones has been carried out according to the urban settlement in Batman province construction settlement units and basic structure improvement and basic structures have been proposed. Determination of the fundamental depth of limestone and heterogeneous soil investigation parameters is investigated at least on the basis of the basic type of foundation depth and the rigidity on radial and continuous bases.

Key words: limestone stone ground, geodynamic survey, seismic permeability basic resistance, Batman excavation

CIZRE YERLEŞIM ALANINDAKI HEYELANLAR, JEOTEKNIK ANALIZI, OLASI HEYELAN TEHLIKE DEĞERLENDIRMESI VE HARITALAMASI

Yakup ANIT
Şirnak Üniversitesi, yakupanit@hotmail.com

Özet

Kentsel yerleşim alanlarında oluşan yeryüzü hareketleri yaşayan nüfus için, can kaybı ve maddi hasara yol açabilen önemli bir jeorisk oluşturur. Bu sebeple, aktif ve pasif heyelan alanları belirlenmeli, bu alanların jeoteknik incelemeleri ve duraylılık analizleri gerçekleştirilerek alınacak önlemler tespit edilmelidir. Araziden alınan zemin örnekleri üzerinde yapılan laboratuar deneyleri ile yamaç molozunun fiziksel ve mekanik özellikleri; Efektif içsel sürtünme açısı 11-12.5°, Efektif kohezyonu (c') 5-8 kg⁄cm2 , maksimum kuru birim hacim ağırlık 1.87-2.25 g⁄cm3, doygun birim hacim ağırlık 1.78-2.43 g⁄cm3, Doğal birim hacim ağırlık 1.9-2.35 g⁄cm3, Kuru birim hacim ağırlık 1.97-2.40 g⁄cm3, Tane birim hacim ağırlığı (?s) 2.47-2.60 g⁄cm3, Permeabilite katsayısı 4x10-4 - 5.5x10-4 cm⁄s, olarak belirlenmiş ve ayrıca tane dağılım testleri yapılmıştır. Yamaçların hazırlanan jeolojik kesitlerinde, geçirilen deneme kayma yüzeylerine göre malzemenin belirlenen jeoteknik özellikleri de kullanılarak güvenlik katsayıları belirlenmiş ve hesaplanan değerlere göre batı yamaçların duraysız oldukları C3 no'lu yamacın ise duraysızlığa yakın durumda olduğu tespit edilmiştir.

Anahtar Kelimeler: stabilite, heyelanlar, risk haritalama

Abstract

Earth movements in urban settlements create a significant georisk for the living population, which can lead to loss of life and property damage. For this reason, active and passive landslide areas should be determined, geotechnical investigations of these areas and stability measures should be done to determine the precautions to be taken. Physical and mechanical properties of slope debris with laboratory tests carried out on ground samples taken from the field; Effective internal friction angle 11-12.5 °, Effective cohesion (c ') 5-8 kg ⁄ cm2, Maximum dry unit volume weight 1.87-2.25 g ⁄ cm3, Saturated unit volume weight 1.78-2.43 g ⁄ cm3, Natural unit volume weight 1.9 The dry unit weight was 1.97-2.40 g ⁄ cm3, the grain unit weight (? S) was 2.47-2.60 g ⁄ cm3, the permeability coefficient was 4x10-4 - 5.5x10-4 cm ⁄ s, particle distribution tests were performed. In the prepared geological sections of the slopes, the safety factors were determined by using the determined geotechnical characteristics of the material according to the test slip surfaces and it was determined that the slope C3 of the western slopes was in the state of near unstability according to the calculated values.

Key words: stability, landslides, mapping risk

CHROMOSOMAL ANALYSIS OF MICARIA DIVES (LUCAS, 1846) (ARANEAE:GNAPHOSIDAE) FROM TURKEY

Zübeyde KUMBIÇAK
Department of Molecular Biology and Genetics, Faculty of Science and Art, Nevşehir Hacı Bektaş Veli University, Nevşehir, Turkey
Ümit KUMBIÇAK
Department of Molecular Biology and Genetics, Faculty of Science and Art, Nevşehir Hacı Bektaş Veli University, Nevşehir, Turkey
Hatice POYRAZ
[2]Institute of Science, Nevşehir Hacı Bektaş Veli University, Nevşehir, Turkey
Şeyma CIVAN
[2]Institute of Science, Nevşehir Hacı Bektaş Veli University, Nevşehir, Turkey
F. Anıl SIRLIBAŞ
[2]Institute of Science, Nevşehir Hacı Bektaş Veli University, Nevşehir, Turkey

Abstract

The genus Micaria represents more than a hundred species in all over the world but the knowledge of Turkish fauna of this genus is unsufficient. Upto now, only eight species were determined systematically and two species cytogenetically. In this study chromosomal features including diploid number, sex chromosome system and karyotype structure of Micaria dives were studied for the first time. Specimens were collected in three populations namely Kayseri (Pınarbaşı), Kahramanmaraş (Göksun) and Adana (Pozantı). In a total, fourteen male specimens were used for analysis due to had lots of dividing cells that source of mitotic and meiotic chromosomes. Slides were made according to the protochol of standard giemsa staining. Gonads were dissected out in a physiological solution for invertebrates and then three solution sets (hypotonic, fixation and acetic acid) were applied. As a result, the diploid number and sex chromosome systems were determined as 2n♂=22 (20+X1X2). All chromosomes were telocentric and gradually decreased in size. The relative length of the longest autosomal pair was 9.92±0.46 % and the shortest autosomal pair was 7.05±0.68 %. During leptotene and zygotene, the sex vesicle were stained darkly than autosomes and located periphery of the nucleus. 10 autosomal bivalents and two univalent sex chromosomes were obtained between diplotene to metaphase I. Sex chromosomes were isopycnotic during second meiotic stages and n=10 or n=12 chromosomes were determined in the stages of metaphase II and anaphase II. Consequently, the obtained data showed that the homogeneous structure of diploid number and sex system for the genus Micaria.

Keywords: Araneae, chromosome, Gnaphosidae, karyotype, Turkey

EXAMINATION OF HEAVY METAL (CO, FE, MN, NI) ACCUMULATION PARAMETERS AND INVESTIGATION OF BIOMONITOR PROPERTIES IN EUPHORBIA RIGIDA M.BIEB SPECIES

Eray BOLAT
Amasya Üniversitesi Fen Edebiyat Fakültesi Biyoloji Bölümü
Aslıhan İPEK
Amasya Üniversitesi Fen Edebiyat Fakültesi Biyoloji Bölümü
D.Duygu KILIÇ
Amasya Üniversitesi Fen Edebiyat Fakültesi Biyoloji Bölümü

Abstract

Heavy metal pollution from traffic and urbanization is becoming an increasingly important environmental problem. Energy, industry, vehicle fuels and fuels such as coal used for heating are among the main causes of pollution. The fact that the concentration of heavy metals in the atmosphere, water and soil is above the critical values is a great danger to all living organisms. Higher levels of heavy metal concentrations lead to deterioration in soil quality, reduced yield and quality of crops, thus leading to significant hazards for humans and all other living organisms. For this reason, it is very important to follow the heavy metal level in environmental and biological samples. They use biomonitor living organisms as well as various methods for this.

This research was conducted in Amasya. It has been carried out in six locations, including city, highway, car road (300 m, 500 m and 1000 m) distance and rural area. Naturally distributed Euphorbia rigida M.Bieb species were used. The biomonitor characteristic of the plant was investigated. The accumulation of heavy metals (Co, Fe, Mn, Ni) in root (R), stem (S), leaf (L) and flower (f) samples of plant, washed and unwashed was investigated. Heavy metal quantities were determined by Inductively Coupled Plasma-Optical Emission Spectrometry (ICP-OES) and the obtained data were evaluated

While the amount of heavy metal in the unwashed plant samples was high, decrease in the amount of heavy metal was detected as the distance from city and traffic effect decreased. In unwashed Plant samples, Fe>Mn>Co was found to be Fe>Mn>Co>Ni washed plant samples. While Co, Fe and Ni have accumulated mostly in the root region of the plant, Mn has been determined to have accumulated in the leaf. While Co, Fe and Ni have accumulated mostly in the root region of the plant, Mn has been determined to have accumulated in the leaf.

As a result, according to the total amount of heavy metal in the plant, Fe and co were found to be within toxic limits according to the literature. Again, when examined as organs, leaves for Fe element, the value in roots for co element is above the toxic limits. The leaves and roots of the plant can be used as biomonitor.

Key words: Euphorbia rigida M.Bieb, heavy metal, biomonitor, Amasya

SENSITIZATION OF TUMOR CELLS TO APOPTOSIS WITH THE PROTEASOME INHIBITION

Ercan CACAN
Department of Molecular Biology and Genetics, Faculty of Art and Science, Gaziosmanpasa University, Tokat, Turkey
ercan.cacan@gop.edu.tr

Merve USTA

Abstract

The Ubiquitin-proteosome pathway is a proteolytic pathway that plays an important role in the destruction of damaged, misfolded and short-lived proteins in the cell. The 26S proteosome is a large protein complex formed by the 19S regulatory and 20S major subcomponents found in the nucleus and cytoplasm of eukaryotic cells. Inhibition of 26S proteasome changes the protein cycle and affects the cellular homeostasis. The inhibition of 26S also alters the expression of a large number of target genes at the transcriptional level by increasing the stability of the transcription. Bortezomib is the first FDA-approved 26S protease inhibitor and is currently being used in the treatment of multiple myeloma and mantle cell lymphoma. Bortezomib specifically inhibits 26S's chymotrypsin-like activity. As inhibition of the ubiquitin-proteasome system is a promising strategy of cancer therapy, it may also induce activation of tumor-specific immune responses. The objective of this study is to investigate the effects of the 26S proteasome inhibitor, bortezomib, on the expression of immunogenic genes in tumor cells. We examined several cell lines for changes in expression of multiple death receptors. Our results indicate inhibition of 26S proteasome inhibition significantly increases the sensitivity of carcinoma cells to apoptosis. Bortezomib treatment upregulates cell surface expression of death receptors by increasing transcriptional activation of each gene. Thus, the treatment enhanced sensitivity to killing through FAS and TRAIL receptors. Our studies suggest that proteasome inhibition may simultaneously enhance tumor immunogenicity and the induction of antitumor immunity.

Keywords: Proteosome inhibition, Bortezomib, Apoptosis, Tumor cells

INVESTIGATION OF THE IN VITRO CYTOTOXIC AND GENOTOXIC EFFECTS OF MONTIVIPERAXANTHINA (GRAY 1840) VENOMS ON HEALTHY AND CANCER EPITHELIAL LUNG CELL LINES

Huzeyfe HURİYET
Uludağ university, Faculty of Arts and Sciences, Department of Biology, 16059 Bursa, TURKEY
Tolga ÇAVAŞ
Uludağ university, Faculty of Arts and Sciences, Department of Biology, 16059 Bursa, TURKEY
Özgür VATAN
Uludağ university, Faculty of Arts and Sciences, Department of Biology, 16059 Bursa, TURKEY
Neylan ORAL
Uludağ university, Faculty of Arts and Sciences, Department of Biology, 16059 Bursa, TURKEY
Melika BEKTAŞ
Uludağ university, Faculty of Arts and Sciences, Department of Biology, 16059 Bursa, TURKEY
Nilüfer ÇİNKILIÇ
Uludağ university, Faculty of Arts and Sciences, Department of Biology, 16059 Bursa, TURKEY

Abstract

Cancer is one of the leading causes of death worldwide.In recent times, numerous studies have provided evidence that biotoxins such as snake venom, bee venom as well as bacterial and plant toxinspresent great potential as antitumor agents and thus could be used as chemotherapeutic agents against tumors.

In the present study, it was aimed to investigate the in vitro cytotoxic and genotoxic effects of Montiviperaxanthinavenomon healthy and cancer human lung cell lines. For this purpose, the cytotoxic effects of venom collected from M. xanthinaspecimens was investigated using XTT whereas the genotoxic effects were evaluated using the comet assay on A549 human lung cancer and Beas-2B human healthy bronchial epithelial cell lines. In addition, the possible induction of intracellular reactive oxygen species production was also measured by DCF-DA ROS assay. In cytotoxicity tests it was determined that venom of M. xanthinaconcentration dependently decreased the viability of both A549 and Beas-2B cells.

In XTT test, the IC50 values of the M. xanthinavenom on A549 and Beas-2B were calculated as 1,553 µg/ml and 2,156 µg/ml, respectively. In the comet test, tail length, tail% DNA and olive tail moment values were evaluated in A549 and Beas-2B cells exposed to M. xanthinavenom at concentrations of 0.1, 0.2, 0.4, 0.8, 1.6 and 3.2 µg/ml.The obtained results revealed significant increases DNA strand breaks in comparison to the control group. Results of intracellular ROS analyses also showed increased ROS levels in venom exposed cells, which might be one of the mechanisms underlying the observed cytotoxic and genotoxic effects

INVESTIGATION OF ANTICANCER ACTIVITY IN VARIOUS CELL LINES OF NEWLY SYNTHESIZED COPPER COMPLEXES

Neylan ORAL
Uludağ university, Faculty of Arts and Sciences, Department of Biology, Bursa, Turkey
Huzeyfe HURİYET
Uludağ university, Faculty of Arts and Sciences, Department of Biology, Bursa, Turkey
Duygu İNCI
Uludağ university, Faculty of Arts and Sciences, Department of Chemistry, Bursa, Turkey
Özgür VATAN
Uludağ university, Faculty of Arts and Sciences, Department of Biology, Bursa, Turkey
Melika BEKTAŞ
Uludağ university, Faculty of Arts and Sciences, Department of Biology, Bursa, Turkey
Nilüfer ÇİNKILIÇ
Uludağ university, Faculty of Arts and Sciences, Department of Biology, Bursa, Turkey
Tolga ÇAVAŞ
Uludağ university, Faculty of Arts and Sciences, Department of Biology, Bursa, Turkey
Rahmiye AYDIN
Uludağ university, Faculty of Arts and Sciences, Department of Chemistry, Bursa, Turkey

Abstract

Cancer remains a major health problem and new anticancer therapies are primary goals of medicinal chemistry. Although medical compounds are almost organic and derived from natural products, the discovery of cisplatin has raised the interest on the anticancer potential of other metal compounds.Cisplatin is properly used and well-known metal-based drug for cancer therapy. However, this anticancer metallodrug include some problems with serious toxicity, resistance and other side effects. Thus, we aimed to examine the effect of two different complexes of copper, which play a central role in the biochemistry and physiology of each living organism, on various cancer cell lines.In present study,in vitro cytotoxic and genotoxic effect of copper complexes (complex 1([Cu (5-nitro-1-10-fenantrolin) (L-asparagine)] CIO4)n) and complex 2: ([Cu(5-Nitro-1-10-phenanthrolıne)(L-glutamine) (H2O)] ClO4.H2O) on Beas-2B normal human lung epithelial, A549 human lung cancer, MCF-7 human breast cancer and Caco-2 human colon cancer cell lines were investigated. XTT test was used to determine cytotoxic effects. To elucidate the mechanisms that ends the vitality of the cells, Comet was used. Intracellular reactive oxygen species formations were also analyzed using DCF-DA ROS assay. Results of the assays were presented that complex 1 ([Cu (5-nitro-1-10-fenantrolin) (L-asparajin)] CIO4)n) was more effective in Caco-2 human colon cancer cell line and complex 2 ([Cu(5-Nitro-1-10-phenanthrolıne)(L-glutamine) (H2O)] ClO4.H2O) was more effective in MCF-7 human breast cancer cell line than the other cell lines.

COLEOPTERA (INSECTA) DIVERSITY OF ILISU DAM BASIN

Derya ÇIFTÇI
Gazi University, Faculty of Science, Department of Biology, Ankara, Turkey
Mustafa Cemal ÇIFTÇI
Siirt University, Faculty of Agriculture, Department of Plant Protection, Siirt, Turkey

Abstract

Coleoptera is the largest order of insects. In adults, the body is mostly covered with a hard and dense exoskeleton. The front wings, known as the elytra, are as hard as the exoskeleton. Elytra, dorsally covers the abdomen and protect the large, membranous hind wings. They live in all terrestrial and freshwater ecosystems and they feed on a wide variety of foods. In this study, it was tried to determine species diversity of Coleoptera that has ecologically and biologically great importance in Ilısu dam basin.

The study area is located in the Batman, Diyarbakır, Mardin, Siirt and Şırnak provinces in the Southeastern Anatolia Region. The Ilısu dam is built on the Dicle River (Tigris) and the water collection basin consists of the Dicle River and its side branches. The Ilısu dam basin consists mostly of agricultural land and also wet meadows and riparian habitats are available.

In this study, it is aimed to determine the Coleoptera fauna which is important for biodiversity in Ilısu dam basin and to contribute to Turkish fauna and also to reveal the coleopteran species diversity of this basin which is located on an important stream system in the Southeastern Anatolia Region.

Field study was carried out between 2015-2017 for the determination of coleopteran species found in the Ilısu dam basin. For the field studies, specimens were collected from 24 stations with different habitats in the study area. Specimens were collected by hand and sweeping net then converted into standard museum material by appropriate methods and diagnosed using relevant literature.

66 species belonging to 20 families of Coleoptera were detected as a result of the specimens collected in the field studies. The distribution of the detected species by family is as follows: Aphodiidae (1 species), Bostricidae (1 species), Buprestidae (3 species), Cantharidae (1 species), Carabidae (4 species), Cerambycidae (9 species), Chrysomelidae (5 species), Cleridae (4 species), Coccinellidae (1 species), Curculionidae (1 species), Elateridae (1 species), Glaphyridae (3 species), Malachiidae (3 species), Meloidae (3 species), Oedemeridae (3 species), Rutelidae (3 species), Scarabaeidae (6 species), Silphidae (1 species), Staphylinidae (11 species), Tenebrionidae (2 species).

Detailed studies on determination of Coleoptera species diversity in the Southeastern Anatolian Region, such as this study, in other parts of the region are very important. Future studies will play a major role in determining the insect fauna in the area. It is thought that the species diversity of the region will increase with these studies.

The specimens evaluated in this study were collected from the project "Ilısu Dam Biological Diversity Protection Measures Implementation and Monitoring Project" supported by General Directorate of State Hydraulic Works (DSİ) and Çınar Engineering Consultancy Inc.

Keywords: Ilısu Dam, Coleoptera, Fauna, diversity

MODULATION OF ANTI-TUMOR IMMUNE RESPONSES BY A PROTEASOME INHIBITOR

Ercan CACAN
Department of Molecular Biology and Genetics, Faculty of Art and Science, Gaziosmanpasa University, Tokat, Turkey
ercan.cacan@gop.edu.tr

Abstract

The proteasome presents a novel target for activation of anti-tumor immune responses. 26S proteasome is a large protein complex that degrades ubiquitinated proteins. The ubiquitin-proteasome pathway plays an essential role in regulating the intracellular concentration of specific proteins, thereby maintaining homeostasis within cells. Despite advances in understanding the involvement of 26S proteasome on transcription regulation of target genes, it is not well understood how proteasome inhibition alters immunogenic gene expression. OX40L/TNFSF4 and 4-1BBL/TNFRSF9 are co-stimulatory molecules and activation of their complementary proteins in various immune competent cells leads to activation, cytokine induction, upregulation of cytotoxic T-cell activity and increased survival. The objective of this study is to investigate the effects of the 26S proteasome inhibitor, Bortezomib, on the expression of immunogenic genes in colorectal and breast cancer cells. Here, the tumor cells were examined for changes in expression of immune stimulatory molecules. Our data indicates proteasome inhibition significantly increases cell surface expression of co-stimulatory molecules by increasing their transcriptional activation. These data suggest that bortezomib treatment of tumor cells may enhance anti-tumor immune activation through upregulation of positive immune stimulatory molecules.

Keywords: Anti-tumor immune responses, Bortezomib, Co-stimulatory molecules

A FIRST KARYOTYPE DETERMINATION OF ZELOTES LONGIPES (L. KOCH, 1866) (ARANEAE: GNAPHOSIDAAE) FROM TURKEY

Zübeyde KUMBIÇAK
Department of Molecular Biology and Genetics, Faculty of Science and Arts, University of Nevşehir, Turkey
Ümit KUMBIÇAK
Department of Molecular Biology and Genetics, Faculty of Science and Arts, University of Nevşehir, Turkey

Abstract

Zelotes is a genus of gnaphosid spiders with nearly 400 described species that distributed worldwide. Spiders of this genus have the carapace markedly narrowed in front and most species are dark in colour or totally black. The branchial opercula are, in contrast, bright yellow or orange in most species. Opisthosoma is red-brown to black-brown. Tibial apophysis is approximately twice as long as palpal tibia. Epigyne has bent or rounded lateral cuticular folds. In this study, male specimens were collected from Adana (Pozantı) and Osmaniye (Zorkun) during March-May in 2016. Chromosome slides were made using an air drying method. Dissection of gonads, hypotonic application, fixation and air drying steps were made. Slides were stained in Giemsa solution (5%) with phosphate buffer for an hour and inspected by microscope and well spread figures were photographed. The diploid number and sex chromosome systems were determined as 2n♂=22 (X1X20) in all populations. Relative chromosome lengths of autosomal pairs were from 9.82±0.44% to 5.09±0.76%. Sex chromosomes were the shortest element in the karyotype and the relative lengths of X1 and X2 were 4.90±0.52% and 4.75±0.18%, respectively. Sex chromosomes were positively heteropycnotic in meiosis I and isopycnotic in meiosis II stages. Autosomal bivalents had one chiasma per bivalent and the types of chiasmata were interstitial, proximal and terminal. The number of interstitial chiasmata were increased in diakinesis. In conclusion, the cytogenetical properties of Zelotes longipes were investigated for the first time and data of its were useful for comparing the chromosomes of related species from different populations.

Key words: Araneae, chromosome, Zelotes

KNOWN AND NEWLY RECORDED GYMNODAMAEID MITES (ACARI, ORIBATIDA, GYMNODAMAEIDAE) FROM KIZILCAHAM, TURKEY

Şule BARAN
The University of Sakarya, Faculty Arts and Sciences, Department of Biology, Sakarya /Turkey
sbaran@sakarya.edu.tr.com

Abstract

Oribatid mites are a group of acari which live in the soil. They live in the upper layer of the soil, leaf litter, mosses, lichens, and other low plants. They have ecological importance. They break down organic a residues and put the nutrients back into the soil. In this way living plants to pull the nutrients back into their roots and grow. Soil mites are also serve as food source for soil predators such as small salamanders, beetles, ants, centipedes, larger mites, spiders, and others. More than 10,000 oribatid mite species with in 163 family, 1269 genera and subgenera known all over the world.

In this study the soil samples taken from Kızılcahamam were placed on the Berlese funnel and the light source were opened for seven days. The samples were stored in 70% ethanol bottle at the bottom of Berlese funnel. Mites were sorted from the samples under a stereomicroscope and mounted on slides in modified Hoyer's medium or 35% lactic acid. The light and scanning electron microscopes were used to examine mites.

Gymnodamaeoid mites tends to live in forest and supposed to be phytophagous. As a result of our studies on Gymnodamaeid mites of Kızılcahamam town totally two species were recorded from the region, namely: Gymnodamaeus bicostatus (Koch, 1835) and Joshuella meyeri (Bayartogtokh y Schatz, 2009) from an old pine forest. The first species was formerly recorded from Erzurum and Bolu provinces of Turkey, the last species is firstly recorded from Turkey and previously only known from Austria.

Keywords: Acari, oribatida, Gymnodamaeidae, Kızılcahamam, Turkey, new record

CYTOGENETICAL DATA OF ALOPECOSA FABRILIS (CLERCK, 1757) (ARANEAE:LYCOSIDAE) FROM CENTRAL ANATOLIA

Zübeyde KUMBIÇAK
Department of Molecular Biology and Genetics, Faculty of Science and Art, Nevşehir Hacı Bektaş Veli University, Nevşehir, Turkey
Ümit KUMBIÇAK
Department of Molecular Biology and Genetics, Faculty of Science and Art, Nevşehir Hacı Bektaş Veli University, Nevşehir, Turkey
Hatice POYRAZ
Institute of Science, Nevşehir Hacı Bektaş Veli University, Nevşehir, Turkey
Şeyma CIVAN
Institute of Science, Nevşehir Hacı Bektaş Veli University, Nevşehir, Turkey
F. Anıl SIRLIBAŞ
Institute of Science, Nevşehir Hacı Bektaş Veli University, Nevşehir, Turkey

Abstract

Chromosomal investigations for the genus Alopecosa are available, to date, for a few species based on diploid numbers and sex chromosome systems all over the world. The family Lycosidae contains 161 described species and among them, three species namely Alopecosa aculeata, Alopecosa albofasciata and Alopecosa pulverulenta were investigated cytogenetically. Alopecosa fabrilis is a Palearctic spider species that a fairly large wolf spider with strong thick legs. They are easily recognized in the field by their size. The female and male individuals are similar. The female carapace is brown and has a light band. There are white dots on the abdomen. Legs are dark brown. In this study karyological features of Alopecosa fabrilis were investigated by an air-drying method according to Král et al. (2006). Alive male specimens were collected from East Mediterranean part of Turkey. Gonads were dissected out in a physiological solution and transfered into hypotonic solution (0.075 M KCl) and freshly prepared fixative solution (methanol:acetic acid, 3:1) for two times, respectively. Chromosome slides were stained in Giemsa solution (5%). As a result, the diploid chromosome numbers (2n) and sex chromosome systems were determined as 2n♂=28 (X1X20). Relative lengths of autosomal pairs were ranged from 9.48±0.52 to 5.33±0.24. Relative lengths of X1 and X2 were determined 7.10±0.62 and 5.08±0.71, respectively. All chromosomes were telocentric. During first meiotic stages, sex chromosomes were positively heteropycnotic because of their heavy staining, and isopycnotic during second meiotic stages. 13 autosomal bivalents and two univalent sex chromosomes were determined in diplotene, diakinesis and metaphase I. These first results were to improve our knowledges on the cytogenetics of genus Alopecosa.

Key words: Alopecosa, Araneae, karyotype, cytogenetics

İNVESTIGATION OF THE USABILITY OF *LEPIDIUM DRABA* L. (=*CARDARIA DRABA*) WHICH IS SPREAD NATURALLY IN PHYTOREMEDIATION METHOD

Dudu Duygu KILIÇ
Amasya University Faculty of Arts and Sciences Department of Biology
Emine Ebru TUNA
Amasya University Faculty of Arts and Sciences Department of Biology
Hamdi Güray KUTBAY
Ondokuz Mayıs University Faculty of Arts and Sciences Department of Biology
Burak SÜRMEN
Ondokuz Mayıs University Faculty of Arts and Sciences Department of Biology

Abstract

With the increase of industry and urbanization, heavy metal pollution is among the important problems of today. Increasing environmental pollution due to many factors such as heavy metals has made it necessary to develop techniques for removing pollution sources. Phytoremediation is one of these techniques. The phytoremediation; It is a method in which plants are used to remove soil, groundwater, surface waters and even pollutants from the air. This method provides on-site treatment and does not harm natural resources. This method, petroleum hydrocarbons can be used to clean most pollutants such as pesticides, metals, radionuclides and explosives. Plants that accumulate 50 to 500 times more metal in the organs of the earth than the concentration of metal in the ground are called as hyperaccumulators. Hyper accumulators plants are used for the removal of heavy metals from the soil by means of phytoremediation. According to the literature, about 450 plant species have been defined as hyper-accumulators.

The study was carried out in Amasya at 5 different localities, including city, road edge, edge zone and control zone. Healthy plant samples were collected from these localities and soil samples were taken from the area where the plant was collected. The amounts of heavy metal (Ni, Mn, Fe, Co) accumulated in soil and plant organs were determined by 3 replicates (ICP-OES) and the obtained data were evaluated. The average amount of heavy metals in leaves, roots and hulls was determined as Mn> Fe> Co> Ni on average. The average amount of heavy metal accumulation in the plant was determined as Fe> Mn> Co> Ni. It has been found that the content of Fe and Mn is higher in L. draba tissues than in other heavy metals. It is observed that heavy metal accumulation (ppm) in the leaves and root of the crop is higher than the heavy metal accumulation in the plant body.

The accumulation factor (BCF) for the Ni element of L. draba; 2.95-2.29 for Fe element and 2.8-0.5 for Co element, 2.72-2.18 for Co element 1.20-0.66 and 2.72-2.18 for Mn element. According to the TF ratio, the L. draba species have high valuesin terms of Ni, Co and Mn elements. As a result, it has been determined that the plant may be a good accumulator for these elements and that these metals can be used to clean the soil.

Key words: Lepidium draba L. (= Cardaria draba), heavy metal, phytoremediation, hyper-accumulators

This study was supported by Amasya University BAP unit with FMB-BAP 16-0167 project.

JUGLON'UN SALATALIKTA (CUCUMIS SATIVUS L.) KATALAZ ENZİMİ ÜZERİNE ETKİLERİ

THE EFFECTS OF JUGLONE ON CATALASE ENZYME IN CUCUMBER (CUCUMIS SATIVUS L.)

İsmail KOCAÇALIŞKAN
Yıldız Teknik Üniversitesi, Fen Edebiyat Fakültesi, Moleküler Biyoloji ve Genetik Bölümü, İstanbul/Türkiye ikocacaliskan@gmail.com
Şenay VURAL KORKUT
Yıldız Teknik Üniversitesi, Fen Edebiyat Fakültesi, Moleküler Biyoloji ve Genetik Bölümü, İstanbul/Türkiye
Ezgi CIBALI
Yıldız Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Moleküler Biyoloji ve Genetik ABD, İstanbul/Türkiye
Merve YALÇIN
Yıldız Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Moleküler Biyoloji ve Genetik ABD, İstanbul/Türkiye

Özet

Juglon (5-hidroksi-1,4-naftokinon) bitkiler aleminde sadece cevizde bulunan ve çoğunlukla toksik karakterli bir allelokimyasal maddedir. Cevizin köklerinde sentezlendikten sonra ksilem borularıyla yapraklara taşınan juglon buradan dışarı salgılanır ve yağmurla yaprak yüzeyinden yıkanarak toprağa düşer. Toprakta taşınarak komşu bitkilerin köklerinden emilerek onlar üzerinde allelopatik (bazı bitki türleri üzerinde olumsuz, bazılarında ise olumlu veya nötr) etkiler gösterir. Bu çalışmada juglon allelokimyasalı 5 farklı konsantrasyonda (0, 0.01, 0.1, 0.25 ve 0.5 mM) olmak üzere Petri kaplarında salatalık tohumlarına uygulanmıştır. 11 gün sonra çimlenme, kök ve gövde uzunlukları belirlendikten sonra, yapraklarda ve kökte katalaz enzim aktiviteleri spektrofotometrik yöntemle ölçülmüştür. Juglonun etkisi bakımından fide büyüme değerleri ile katalaz enzim aktivitesi değerleri karşılaştırılmıştır. Elde edilen sonuçlara göre; Juglon salatalık tohumlarının çimlenme yüzdesini kontrole göre biraz azaltmıştır. Fidelerin kök ve gövde büyümesini ise juglon tarafından 0.01 ve 0.1 mM gibi düşük konsantrasyonlarda artırılırken 0.25 ve 0.5 mM gibi yüksek konsantrasyonlarda önemli derecede azaltılmıştır. Buna benzer şekilde, juglon katalaz enzim aktivitesini kökte düşük konsantrasyonlarda artırırken 0.5 mM konsantrasyonda önemli derecede azaltmıştır. Bu durum alleokimyasal maddelerin tipik bir özelliği olan düşük konsantrasyonlarda büyümeyi artırıcı fakat yüksek konsantrasyonlarda büyümeyi engelleyici etki gösterme özelliği ile uyumlu bir sonuçtur. Yapraklarda ölçülen katalaz aktivitesinde ise 0.25 mM hariç tutulursa hem düşük hem de yüksek juglon konsantrasyonlarının aktiviteyi azalttığı görülmüştür. Bu durum ise yukarıda bahsedilen allelokimyasal özelliği ile pek bağdaşmamaktadır. Yapraklardaki katalaz aktivitesi üzerinde muhtemelen juglon dışında başka etkenler rol oynamış olabilir. Katalaz, hidrojen peroksiti parçalayarak zehirsizleştirme görevi yapan bir enzimdir. Juglonun toksik etkisi yüksek konsantrasyonlarda katalaz enzimini inhibe ederek onun görevini yapamaz hale getirmesiyle büyümeyi engellemesi ile ilişkili olabilir.

Anahtar kelimeler: Fide büyümesi, Juglon, Katalaz aktivitesi, Salatalık

Abstract

Juglone (5-hydroxy-1,4-naphthoquinone) is an allelochemical substance that exists only in walnut trees among plants kingdom, and it shows generally toxic character. Juglone is synhesized in roots of walnut and is carried to the leaves through the xylem vessels. Then it is exuded upto the leaf surface and is washed by the rain into the soil. There it be deposited and later moves to the roots of neihbours plants. The plants absorb it and they may allelopathically be effected (that is some plants negatively, some positively and some others neutral). In this study, juglone allelochemical prepared at five concentrations (0, 0.01, 0.1, 0.25 and 0.5 mM) and applied on the cucumber seeds in Petri dishes. After 11 days; percent germination, root and shoot growth were determined and catalase activities of the leaves and roots were measured by spectrophotometric method. From point of juglone effect, values of the seedling growth parameters such as root and shoot growth and catalase activities were compared. According to the obtained results, juglone slightly decreased

germination percentages of the cucumber seeds with respect to control. While root and shoot growth of the seedlings were increased by juglone at low concenrations such as 0.01 and 0.1 mM, they have been significantly decreased by juglone at high concenrations such as 0.25 and 0.5 mM. Similarly, juglone increased at low concenrations catalase activity but it decreased at high concenration (0.5 mM) in root. This situation is fitting with the typical property of allelochemicals that they generally increase growth at low concentrations but decrease it at high concentrations. The measured catalase activity in the leaves, except 0.25 mM, both low and high juglone concentrations have decreased seedling growth. This case is not so fitting with the property of the allelochemical as mentioned above. Some other factors other than juglone may probably play role on the catalase activity of the leaves. Catalase has a nontoxification role by degrading a toxic compound hydrogen perxide. Toxic effect of juglone may be related with its growth inhibiting effect by inhibiting catalase activity at high concentrations.

Key words: Catalase activity, Cucumber, Juglone, seedling growth.

JUGLON'UN SALATALIKTA (CUCUMIS SATIVUS L.) DOPA OKSİDAZ AKTİVİTESİ ÜZERİNE ETKİLERİ

THE EFFECTS OF JUGLONE ON DOPA OXIDASE ACTIVITIES IN CUCUMBER (CUCUMIS SATIVUS L.)

İsmail KOCAÇALIŞKAN
Yıldız Teknik Üniversitesi, Fen Edebiyat Fakültesi, Moleküler Biyoloji ve Genetik Bölümü, İstanbul/Türkiye ikocacaliskan@gmail.com
Şenay VURAL KORKUT
Yıldız Teknik Üniversitesi, Fen Edebiyat Fakültesi, Moleküler Biyoloji ve Genetik Bölümü, İstanbul/Türkiye
Merve YALÇIN
Yıldız Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Moleküler Biyoloji ve Genetik ABD, İstanbul/Türkiye
Ezgi CIBALI
Yıldız Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Moleküler Biyoloji ve Genetik ABD, İstanbul/Türkiye

Özet

Juglon (5-hidroksi-1,4-naftakinon) bitkiler aleminde sadece cevizde bulunan ve çoğunlukla toksik karakterli bir allelokimyasal maddedir. Cevizin köklerinde sentezlendikten sonra ksilem borularıyla yapraklara taşınan juglon buradan dışarı salgılanır ve yağmurla yaprak yüzeyinden yıkanarak toprağa düşer. Toprakta taşınarak komşu bitkilerin köklerinden emilerek onlar üzerinde allelopatik (bazı bitki türleri üzerinde olumsuz, bazılarında ise olumlu veya nötr) etkiler gösterir. Bu çalışmada juglon allelokimyasalı 5 farklı konsantrasyonda (0, 0.01, 0.1, 0.25 ve 0.5 mM) olmak üzere Petri kaplarında salatalık tohumlarına uygulanmıştır. 11 gün sonra çimlenme, kök ve gövde uzunlukları belirlendikten sonra, yapraklarda ve kökte dopa oksidaz enzim aktiviteleri spektrofotometrik yöntemle ölçülmüştür. Juglonun etkisi bakımından fide büyüme değerleri ile dopa oksidaz enzim aktivitesi değerleri karşılaştırılmıştır. Elde edilen sonuçlara göre; Juglon salatalık tohumlarının çimlenme yüzdesini kontrole göre biraz azaltmıştır. Fidelerin kök ve gövde büyümesi ise juglon tarafından 0.01 ve 0.1 mM gibi düşük konsantrasyonlarda artırılırken 0.25 ve 0.5 mM gibi yüksek konsantrasyonlarda önemli derecede azaltılmıştır. Buna mukabil, juglon dopa oksidaz enzim aktivitesini kontrole göre 0.01 mM hariç tutulursa bütün konsantrasyonlarda artırmıştır. Yapraklarda 0.1 mM ve kökte ise 0.5 mM juglon dopa oksidaz aktivitesini en çok artıran konsantrasyonlardır. Diğer taraftan, kökteki dopa oksidaz aktivitesi yapraklardakine göre daha düşük ölçülmüştür. Yapraklardaki aktivite köktekinin yaklaşık dört katı daha yüksektir. Bununla beraber, juglonun dopa oksidaz aktivitesi üzerine etkisi bakımından köklerle yapraklar arasında fazla bir fark olmayıp hatta juglonun kökte biraz daha etkili olduğu söylenebilir. Dopa oksidaz enzimi fenolik maddelerden olan dopayı (hidroksifenil alanin) kinonlara okside eden oksidaz grubu enzimlerden birisi olup fenol oksidaz veya polifenol oksidaz olarak da adlandırılır. Bu şekilde fenolik maddelerin oksitlenmesi durumunda böceklere ve mikroorganizmalara karşı birer savunma silahı olan fenolik maddelerin miktarı azalmakta ve bitki savunması zayıflatılmış olmaktadır. Bu da dolaylı olarak bitki büyümesini engelleyici bir etki gösterebilir.

Anahtar kelimeler: Fide büyümesi, Juglon, Dopa oksidaz aktivitesi, Salatalık

Abstract

Juglone (5-hydroxy-1,4-naphthoquinone) is an allelochemical substance that exists only in walnut trees among plants kingdom, and it shows generally toxic character. Juglone is synhesized in roots of walnut and is carried to the leaves through the xylem vessels. Then it is exuded upto the leaf surface and is washed by the rain into the soil. There it be deposited and later moves to the roots of neihbours plants. The plants absorb it and they may allelopathically be effected (that is some plants negatively, some positively and some others neutral). In this study, juglone allelochemical prepared at five concentrations (0, 0.01, 0.1, 0.25 and 0.5 mM) and applied on the cucumber seeds in Petri dishes. After 11 days; percent germination, root and shoot growth were determined and dopa oxidase activities of the leaves and roots were measured by spectrophotometric method. From point of juglone effect, values of the seedling growth parameters such as root and shoot growth and dopa oxidase activities were compared. According to the obtained results, juglone slightly

decreased germination percentages of the cucumber seeds with respect to control. While root and shoot growth of the seedlings were increased by juglone at low concenrations such as 0.01 and 0.1 mM, they have been significantly decreased by juglone at high concenrations such as 0.25 and 0.5 mM. In contrast, juglone has increased dopa oxidase activities at all the concentrations, except 0.01 mM, according to the control. The most effective juglone concentrations in increasing dopa oxidase activity in the leaves was 0.1 mM and in the roots was 0.5 mM. On the other hand, dopa oxidase activity of the roots has been found lower than that of the leaves. The activity of the leaves is about four fold higher than that of the roots. However, from point of the effect of juglone on dopa oxidase activitiy, there is no important difference between root and leaves and even its effect on the activity is some effective on roots than the leaves. Dopa oxidase enzyme is one of the oxidase group enzymes that oxidizes a phenolic substrate dopa (hydroxyphenyl alanine) to the quinones and therefore it also called phenol oxidase or polyphenol oxidase. In this wise, as a result of oxidation of the phenolic substances such as dopa, contents of the phenolic substances which are defence weapons of plants decreases and this situation may cause a weakening in plant defense system. This may show an indirect growth inhibiting effect on the plants.

Key words: Dopa oxidase activity, Cucumber, Juglone, seedling growth.

REMOVAL OF METALLIC POLLUTION FROM TREATMENT SLUDGE BY CHELATE SUPPORTED PHYTOREMEDIATION METHOD USING SOME AGRICULTURAL CROPS

Aslıhan İPEK
Amasya Üniversitesi Fen Edebiyat Fakültesi Biyoloji Bölümü
Eray BOLAT
Amasya Üniversitesi Fen Edebiyat Fakültesi Biyoloji Bölümü
D.Duygu KILIÇ
Amasya Üniversitesi Fen Edebiyat Fakültesi Biyoloji Bölümü

Abstract

With the increase in industrial and urbanization, heavy metal pollution is among the main problems of today. This pollution does not only cause negative effects on soil productivity but also on animal and human health through the food chain. As a result of the increase in environmental pollution due to many factors such as heavy metals, the development of techniques for removal of pollution resources has become compulsory. Phytoremediation is among these techniques.. Fitoremediation; soil, underground, underground water and even the removal of pollutants in the air is a method used in plants.

İn this study, we investigated the cleaning of Pb element from sewage sludge using Allium cepa, Chenopodium quinoa and Brassica napus species. In addition, complex constructive chelates were added to increase phytoremediation capacity and changes in plant element removal performance were observed. 1-10 Phenantraline, Nitro, pridine was used as chelating support for heavy metal removal.

According to the results obtained from the study, it was found that the root of the species is more than the accumulation. In particular, it has been determined that there is more accumulation in the test pots where Nitro chelate is used. It has been determined that the species increase by depositing Pb element at the roots and carrying it to the upper organs by adding chelate. Considering the growth characteristics of plants, i.e. dry biomass, it turns out that nitro and 1-10 Feontraline can be used to increase heavy metal intake.

When TF values are examined, C. quinoa> A. cepa> B. napus in Nitro chelate; pyridine chelator A. cepa> C. quinoa> B. napus, 1-10 Feontralin chelate A. cepa> B. napus> C. quinoa was found.All chelates of B. napus C. quinoa and A. cepa were found to be less than BCF value 1. Plants to Baker's theory can be classified as root holders.

Key words: Allium cepa, Chenopodium quinoa, Brassica napus, sludge, fitoremediation.

Bu çalışma FMB-BAP 16-0167 nolu proje ile Amasya Üniversitesi BAP birimi tarafından desteklenmiştir.

BT GÖRÜNTÜLERİNDE SAFRA KESESİ TAŞININ MORFOMETRİK ÖZELLİKLERİNİN BELİRLENMESİ

DETERMINATION OF MORPHOMETRIC PROPERTIES OF GALLSTONE IN CT IMAGES

Turab SELÇUK
Kahramanmaraş Sütçü İmam Üniversitesi, Elektrik-Elektronik Mühendisliği, K.Maraş
Kamil DOĞAN
Kahramanmaraş Sütçü İmam Üniversitesi, Tıp Fakültesi Radyoloji ABD, K.Maraş
M.Nedim EKERSULAR
Kahramanmaraş Sütçü İmam Üniversitesi, Elektrik-Elektronik Mühendisliği, K.Maraş
Mustafa PINARLI
Kahramanmaraş Sütçü İmam Üniversitesi, Elektrik-Elektronik Mühendisliği, K.Maraş
Ahmet ALKAN
Kahramanmaraş Sütçü İmam Üniversitesi, Elektrik-Elektronik Mühendisliği, K.Maraş

Özet

Safra taşları, safra kesesinde safradan oluşan katı parçacıklardır. Safra kesesi taşları en sık kilolu, orta yaşlı bayanlarda görülmekle birlikte özellikle yaşlı kişiler ve erkeklerde ciddi komplikasyonlara yol açabilmektedirler.

Bilgisayarlı tomografi (BT); X ışınları kullanılarak vücudun kesitsel olarak görüntülendiği bir görüntüleme modalitesidir. Safra kesesi değerlendirmesi (safra kesesinin varlığı, boyutları, duvar bütünlüğü, duvar kalınlığı, lümen içeriği, taş varlığı gibi) bu yöntemle yapılabilir. Ancak öncelikli modalite Ultrason (US)'dur. Her ne kadar BT safra kesesi değerlendirmesinde US ile karşılaştırıldığında ilk sırada görünmese de, US'nin kısıtlı olduğu durumlarda safra kesesi değerlendirmesinde, travma gibi başka pek çok gerekçelerle batın BT'si çekilen hastalarda ya da toraksa yönelik BT incelemelerinde çok defa incelemeye yakınlık nedeniyle dahil olmasından, safra kesesinin BT ile karakterize edilmesi önemli avantaj sağlamaktadır.

Görüntü bölütleme, medikal görüntü analizinde önemli bir rol oynamakta olup, özellik çıkarımı ve tanıma için temel gereksinimlerden birisidir. Ancak BT görüntülerinde safra taşı genellikle gürültü, yerel etki ve dalga alanı etkisi nedeniyle bulanıktırlar. Yapısı komşu organlara veya dokulara çok benzediğinden sınırlarının gözlem yoluyla tespiti oldukça zordur, uzmanlık gerektirir. Dolayısıyla, safra taşlarının bilgisayarlı tomografi (BT) görüntülerinden bölütlenmesi ve taşın boyutunun belirlenmesi, doktora teşhiste oldukça yardımcı olabilecektir.

Bu çalışmada Kahramanmaraş Sütçü İmam Üniversitesi Tıp Fakültesi Radyoloji Anabilim dalından temin edilen BT görüntüleri kullanılmıştır. BT görüntülerine, görüntü iyileştirmek ve analizi kolaylaştırmak için gürültü giderme, kontrast iyileştirme ve eşikleme işlemlerinden oluşan bir görüntü ön işleme adımı uygulanmıştır. Taşın bölütlenmesi, bölge büyütme (region growing) algoritması kullanılarak yapılmıştır. Bu yöntemde seçilen tohum (seed) noktasına göre komşu pikseller, piksel yoğunluğu, gri seviye doku özellikleri, renk vb. gibi kriterlerle karşılaştırılır. Komşu pikseller benzerlik şartlarını sağlıyorsa bölgeye dahil edilir. Bu sebeple doğru tohum noktasının seçimi oldukça önemlidir.

Uzmanın elle (manuel) belirlediği taş alanıyla, önerilen yöntemle elde edilen alanlar kesiştirilmiştir. Bölütleme başarımları için Dice benzerlik indeksleri kullanılmış olup, ortalama 0.88 Dice benzerlik indeksi elde edilmiştir. Literatürde bu tür işlemlerde 0.70 ve üzeri Dice benzerlik indeks değerinin başarı olarak kabul edildiği belirtilmektedir. Elde edilen başarım, tıpta ilgili alanda uzmanlara yardımcı olabilecek bir tanı/teşhis destek aracı olabileceğini göstermiştir.

Anahtar Kelimeler: Bilgisayarlı Tomografi, Safra Kesesi Taşı, Bölütleme.

Abstract

Gallstones are solid particles that form in the bile at gallbladder. Although gallstones are most common in overweight and middle-aged women, they can lead to serious complications especially in elderly people and men.

Computed tomography (CT); It is an imaging modality in which the body is displayed in cross-section using X-rays. Gallbladder evaluation (like presence of gall bladder, size, wall integrity, wall thickness, lumen content, stone presence) can be done with this method. However, the primary modality is Ultrasound (US). Although CT does not appear to be the first in comparison to the US in evaluating gallbladder, it has been reported that in cases where the US is limited, gallstones are assessed in many cases, such as trauma, in patients who have undergone CT or in thoracic CT examinations, characterizing the gallbladder with CT provides an important advantage.

Image segmentation plays an important role in medical image analysis and is one of the basic requirements for feature extraction and recognition. Gallstones are often blurred due to noise, wave field effect and local effect in CT images. Since its structure is very similar to neighboring organs and tissues, it is very difficult to determine the boundaries through observation, which requires expertise. Therefore, segmentation of gallstones from computed tomography (CT) images and determination of the size of the stone may be of considerable help to the physician.

In this study, used CT images obtained from Kahramanmaras Sutcu Imam University Medical Faculty Department of Radiology. An image preprocessing step consisting of de-noising, contrast enhancement and thresholding is applied to the CT images to improve the image and facilitate analysis. Gallstone segmentation was done using region growing algorithm. In this method, the selected seed point is compared with neighboring pixels for some criteria such as pixel intensity, grayscale texture color. Neighboring pixels are included in the region if they provide similarity conditions. For this reason, the choice of the correct seed point is very important.

The area obtained by the proposed method is compared with the stone area manually determined by the expert. The segmentation success rate is measured as 0.88 using the Dice similarity index. In the literature, it is stated that the similarity index value of 0.70 and above is accepted as z satisfactory success rate in such processes. Obtained results seem to be clinically relevant in the related area.

Keywords: Computed Tomography, Gallstone, Segmentation.

MATHEMATICAL MODEL FOR COMPUTING OUTPUT VOLTAGE OF PV SOLAR MODULE DEPENDENT ON TEMPERATURE AND IRRADIANCE

Suleyman ADAK
Mardin Artuklu University, Vocational Schools, Department of Electrical and Energy, Mardin, suleymanadak@yahoo.com
Hasan CANGI
Kahramanmaras Sutcu Imam University, Faculty of Engineering and Architecture,Department of Electrical and Electronics Engineering, Kahramanmaras, hasancangi@yahoo.com
Ahmet Serdar YILMAZ
Kahramanmaras Sutcu Imam University, Faculty of Engineering and Architecture,Department of Electrical and Electronics Engineering, Kahramanmaras, asyilmaz@ksu.edu.tr

Abstract

Solar Photovoltaic (PV) technology system is a renewable energy and it is also an attractive technique to reduce consumption of fossil fuels such as coal, natural gas and oil causes of global warming. Solar PV system converts the photon energy to the direct-current (DC) energy. Output inducing voltage of the PV system which is depending on the solar irradiance, shading, dust, temperature, humidity,tilt of solar panel, type of panel and other meteorological conditions. There is a common misconception that solar panels need hot style weather so as to work high yield. This idea is not true! Solar PV panels work by absorbing the irradiance from the sun, and turning it into direct current energy. The purpose of this paper is to investigate voltage changes of the PV panel terminals according to temperature and irradiance. Change of panel output voltage which depends on the temperature and irradiance have been observed by using Matlab /Simulink. In addition, simulation allows us to design and analysis of complex systems. The importance of simulation in engineering systems is increasing day by day. Generally, voltage drop occurs at high temperature of the PV panels so that PV system can works more effective at lower temperature. The voltge induced by a PV panel is maximum at low temperature and on high irradiation. Moreover, it is a variable quantity depending on the solar irradiance and cell temperature. The energy produced by solar panels has a nonlinear character. In cloudy weather there is a decrease in energy produced by the panel.In this aspect, this paper is proposed modelling, design and simulation of the PV system equivalent circuit was executed by MATLAB/Simulink and also the analysis process has been achived by the SPSS statistical program. This program includes regression methods such as Logistic regression, nonlinear regression and Probit regression.

Index Terms—PV system, modelling, solar Irradiance; Temperature, Solar PV system equivalent circuit, Mathematical model of PV output voltage.

RETİNAL KADRANLARDAN GÖRÜNTÜ İŞLEME TEKNİKLERİYLE GENİŞ AÇILI FUNDUS GÖRÜNTÜLERİNİN OLUŞTURULMASI

WIDE ANGEL FUNDUS IMAGE CREATION FROM RETINAL QUADRANTS BY USING IMAGE PROCESSING TECHNIQUES

Turab SELÇUK
KSÜ Mühendislik Mimarlık Fakültesi Elektrik Elektronik Mühendisliği, K.Maraş,
tselcuk@ksu.edu.tr
Abdullah BEYOĞLU
KSÜ Tıp Fakültesi Göz Hastalıkları Anabilim Dalı, K.Maraş.
Seda Arslan TUNCER
Fırat Üniversitesi, Yazılım Mühendisliği, Elazığ.
Merve SEVER
KSÜ Mühendislik Mimarlık Fakültesi Elektrik Elektronik Mühendisliği, K.Maraş,
mervesever.46@gmail.com
Ahmet ALKAN
KSÜ Mühendislik Mimarlık Fakültesi Elektrik Elektronik Mühendisliği, K.Maraş,
aalkan@ksu.edu.tr

Özet

Renkli fundus görüntüleme yöntemi, retinada yer alan optik disk, maküla ve periferden oluşan gözün en iç yüzeyinin fotoğraflanması işlemidir. Fundus görüntülerinin incelenmesi retinal hastalıklarının izlenmesi ve tedavisi açısından son derece önemlidir. Retinal hastalıklara ait ilk inceleme uzman tarafından fundus muayenesi ile yapılmaktadır. Bu nedenle renkli fundus fotoğrafı hastalığın teşhisi ve takibinde büyük önem arz etmektedir. Kullanılan fundus kamerasındaki merceğin optik açısına bağlı olarak retina yüzeyi farklı açılarla görüntülenebilmektedir. Geleneksel fundus kameraları ile 30° ile 50° arasında bir görüntü açısıyla retinayı görüntülenmektedir. Bu ise bir seferde sadece retinanın santralinin görüntülenebilmesi anlamına gelmektedir. Diyabetik retinopatinin otomatik derecelendirilmesine yönelik çalışmalarda veri kümesi olarak retina merkezine ait fundus görüntüleri kullanılmıştır. Bu görüntülerindeki hemoraji ve mikroanevrizmaların bölütlenmesi gerçekleştirilmiştir. Ancak diyabetik retinopatinin derecelendirilmesinde retinanın tamamı değerlendirilmeye alınır. Bu nedenle retinanın tüm kadranlarındaki hemoraji ve mikroanevrizmaların varlığı araştırılmaktadır.

Yapılan çalışmada retinal kadranların birleştirilerek geniş açılı bir fundus görüntüsü oluşturulmasına yönelik bir yazılım geliştirilmiştir. Bu amaçla, Kahramanmaraş Sütçü İmam Üniversitesi Göz Polikliniğinden alınmış, aynı hastaya ait farklı retinal kadranları içeren fundus görüntülerinden oluşan bir veri kümesi kullanılmıştır. Öncelikle, Hough dönüşümü ile retina santrali görüntüsünden optik diskin bölütlenmesi gerçekleştirilmiştir. Daha sonra Frangi filtresiyle damarlar bölütlenmiştir. Böylelikle, retina santrali görüntüsünde optik diskin konumu belirlenmiş ve damarların yatay eksendeki açıları hesaplanabilmiştir. Bu sayede, santral görüntüsü üzerindeki damarların yönelimi belirlenmiş ve kadranlardaki damarların yönelimleri ile karşılaştırılarak santral ve kadran görüntüleri birleştirilmiştir. Çalışmanın başarımı uzmanın elle birleştirmiş olduğu görüntüler referans alınarak yapısal benzerlik indeksine (SSIM) ile test edilmiştir. Elde edilen indeks değerleri 0,91 ile 0,93 arasında değişmekte olup, bu değerler literatürde başarılı olarak kabul edilmektedir.

Anahtar kelimeler: Retinal Kadran, Diyabetik Retinopati, Görüntü Dikme.

Abstract

Color fundus imaging is the process of photographing the inner surface of the eye, which consists of the optic disc, macula, and the periphery of the retina. Examination of fundus images is very important in terms of monitoring and treatment of retinal diseases. The first review of retinal diseases is performed by a specialist fundus examination. For this reason, color fundus photography is of great importance in the diagnosis and follow-up of the disease. Depending on the optical angle of the fundus camera lens used, the retinal surface can be displayed at different angles. Depending on the optic angle of the used fundus camera lens, the retina surface can be displayed at different angles. Retinas are visualized with a view of 30 ° to 50 °

with traditional fundus cameras. This means that only the center of the retina can be displayed at a time. In studies for automatic grading of diabetic retinopathy, fundus images of the retina center were used as data set. Hemorrhage and segmentation of microaneurysms were performed in these central images. However, when the diabetic retinopathy is graded, all of the retina as to be examined and evaluated. For this reason, the presence of hemorrhage and microaneurysms in all quadrants of the retina must be investigated.

In the study, a software was developed to create a wide-angle fundus image by combining retinal quadrants. For this purpose, a data set consisting of different retinal quadrants images of the same patient taken from Kahramanmaras Sutcu Imam University Eye Polyclinic. First, optic disc was segmented in the retina center image by Hough transformation. Then the vessels were segmented by Frangi filter. Thus, the position of optic disc on the retinal central image was determined and the angles from horizontal axis of the vessels could be calculated. In this way, the orientation of the vessels was determined on the retina center image and the central and quadrant image are combined by comparing the orientations of the vessels in the quadrants. The performance of the study was tested with the Structural Similarity Index (SSIM) with reference to images that the expert had manually combined. The obtained index values are between 0.91 and 0.93 and these values are accepted as successful in the literature.

Keywords: Retinal Quadrants, Diabetic Retinopathy, Image Stitching.

STUDY OF THE EFFECTS OF LOCATION ANGLES FOR SEMI SPHERES ON THE HEAT TRANSFER AND FLOW STRUCTURE IN CONVERGING-DIVERGING CHANNELS

Koray KARABULUT
Cumhuriyet University, Sivas Vocational High School, Electric and Energy Dept, Sivas-Turkey,
koray.karabulut@hotmail.com
Doğan Engin ALNAK
[2]Cumhuriyet University, Technology Faculty, Automotive Eng. Dept, Sivas-Turkey,
dealnak@cumhuriyet.edu.tr
Ferhat KOCA
[2]Cumhuriyet University, Technology Faculty, Automotive Eng. Dept, Sivas-Turkey,
ferhatkoca@cumhuriyet.edu.tr

Abstract

Electronic equipments with high performance generate more heat than that of conventional ones. Therefore, thermal control has a crucial factor in the design of electronic equipments due to undesirable increased thermal stresses and mechanical faults in the system. In this work, flow and heat transfer of semi spheres by placing at different angles of 40o, 60o, 90o and without angle in converging-diverging channels were numerically examined. The boundary conditions were indicated as three dimensional, incompressible, fully developed and laminar flow for converging-diverging channel having eight semi-spheres with different angles. The continuity, Navier-Stokes and energy equations were solved numerically by using Ansys-Fluent-17.0 software program. Air was taken as working fluid. Inlet temperature of the air to the channel and surface temperatures of the spheres are 300 K and 350 K, respectively. The effects of different locations of semi-spheres with as angle on the heat transfer and pressure loss coefficient increment and flow structure in the case of different Re numbers of 100, 200, 400 and 800 were investigated. The results were presented as variations of average Nusselt number, outlet temperature and heat flux and also pressure loss coefficient of the fluid according to different Re numbers. Besides, temperature and velocity contours and also velocity vectors among the spheres and along the channel were analyzed. The obtained results show that the location angles of the semi spheres in the converging-diverging channel have a great importance on account of flux and mixing of the fluid among the spheres in order to make cooling effective. The highest heat transfer was also attained for 40o angle comparing with without angle.

Keywords: Converging-diverging channel, Placement angle, Semi sphere, Heat transfer

PLC CONTROLLED SILAR MACHINE MANUFACTURING

Umut Şükrü YAŞAR
Department of Electrical and Electronic Engineering Erzincan University, 24100, Erzincan. Turkey
Yunus AKALTUN
Department of Electrical and Electronic Engineering Erzincan University, 24100, Erzincan. Turkey

Abstract

Nowadays we can find thin film coating technology in many tools and equipments in our daily life. The most important equipment that produced by this technology is solar panels which convert solar energy into electricity. This thin film coating, technology, which takes up big space in our lives, has many different methods. Successive Ionic Layer Adsorption and Reaction (SILAR) method is one of the thin film coating methods. This method has gained popularity in recent years due to its easy applicability and low cost. Because it is popular and has a critical place in science, the improvement of the SILAR method is very important.

If the SILAR method is simply defined, it is the process of dipping the plate to be coated in the four liquid-filled beakers, respectively. After this dipping process is completed, the same process is repeated with tens or hundreds of cycles to form a thin film layer on the plate. The waiting time in each cabin and the number of cycles are important parameters of this method. Literature researches shows us this method is widely performed by hand today. But performing this method by hand is quite arduous and can cause some mistakes because of very short and certain time intervals and up to hundreds of cycle number. Also, considering that the human error factor is much higher than that of automation mechanisms and experiments require hundreds of cycles may take extended period of time, automating this system is one of the important tasks to be done. Due to all these reasons, in this study, the SILAR method was researched generally and an automation system that automatically performed this SILAR method was designed and manufactured. The programmable logic controller (PLC), which is the cornerstone of automation and easier to program than other controllers, was used as brain of this SILAR machine.

Thanks to this machine, by using SILAR method, high quality thin film coatings without defects will be achieved and also practitioner scientists will make great gains of their valuable time. This method, which is now much more feasible due to the automation system, will allow for the further and exciting improvement in the future.

Keywords: SILAR, Thin film coating, PLC

TURKEY AND WORLD TRENDS 2017 IN PHOTOVOLTAIC APPLICATIONS

Burak YILDIRIM
Voc. and Tech. High School, Bingol University Bingol, 12100, Turkey, byildirim@bingol.edu.tr
Mahmut Temel ÖZDEMİR
Electrical and Electronics Eng., Faculty of Engineering, Firat University Elazig, 23100, Turkey

Abstract

The worldwide use of traditional energy sources is causing global warming, which affects our world in a negative way. Global warming is realized on the burning of fossil fuels that cause harmful gases. Due to energy shortages and concerns about global warming, renewable energy demand is increasing day by day. Photovoltaic (PV) production, which is one of the renewable energy sources, is attracting a lot of attention. In this study, PV Applications has tried to provide information about the situation in Turkey and the world. For this purpose, the total status of PV applications and the information of the countries leading this field in the world are given in addition new investment and current status of PV applications in the Turkey is shown. In addition, the percentage of PV applications for new investments in electric power generation in Turkey is given for the year 2017. The results of this study show the current status of renewable energy sources and PV applications in electric power generation. The results obtained showed that the production based on solar energy has attracted a great deal of attention throughout the world and that the percentage of production based on solar energy in electric power generation is increasing day by day. The cheapness of the technology required for solar energy every day and the infinite energy of the sun will make this interest grow. One of the best examples, %30 of new investments made in electric power generation in Turkey for 2017 is the creation of the solar.

Key Words: Renewable Energy Sources, Electric Power Generation, PV applications

GLOKOM TANISI İÇİN OPTİK ÇANAK-OPTİK DİSK ORANININ ÖLÇÜLMESİ

MEASUREMENT OF OPTIC CUP TO DISC RATIO FOR GLAUCOMA DIAGNOSIS

Turab SELÇUK
KSÜ Mühendislik Mimarlık Fakültesi Elektrik Elektronik Mühendisliği, K.Maraş,
tselcuk@ksu.edu.tr
Seda Arslan TUNCER
Fırat Üniversitesi, Yazılım Mühendisliği, Elazığ.
Abdullah BEYOĞLU
KSÜ Tıp Fakültesi Göz Hastalıkları Anabilim Dalı, K.Maraş.
Merve SEVER
KSÜ Mühendislik Mimarlık Fakültesi Elektrik Elektronik Mühendisliği, K.Maraş,
mervesever.46@gmail.com
Ahmet ALKAN
KSÜ Mühendislik Mimarlık Fakültesi Elektrik Elektronik Mühendisliği, K.Maraş,
aalkan@ksu.edu.tr

Özet

Glokom, diğer adıyla göz tansiyonu, görme sinirinde oluşan hasarlar sonucu ortaya çıkan, tedavi edilmediğinde kalıcı görme kaybıyla sonuçlanan bir göz hastalığıdır. Görme sinirlerinde hasar oluşmasının asıl nedeni, üretilen sıvının göz dışına çıkışının çeşitli şekillerde engellenmesi sonucu göz içi basıncının artmasıdır. Genellikle, 40 yaşın üstünde olan kişilerde görülme olasılığı yüksektir. Hastalar genellikle durumun farkına varamazlar. Ancak rutin bir göz muayenesinde doktorların özellikle dikkat ettiği bir hastalıktır. İleri evrede tedavisi mümkün olmayan bu hastalık için, erken tanı ve tedavi oldukça önemlidir. Bu sayede hastalığın ilerlemesi ve görme sinirine vereceği zarar azaltılabilir.

Retina görüntülerinde optik cup ile optik disk arasında belli bir oran vardır. Görme sinirlerinin hasar görmesi sonucu optik cup genişler ve bu genişleme sonucunda bireyin görme alanı zamanla daralır. Ayrıca, optik disk ile optik çanak arasındaki oran (cup-to-disc ratio:CDR) da bozulmuş olur. Bu oranın 3/10'un üstüne çıkması glokom riskinin göstergesidir.

Bu çalışmada, hekime glokom tanısında yardımcı olabilecek optik çanağın optik diske oranını ölçen, görüntü işleme temelli bir yaklaşım ortaya konulması amaçlanmıştır. Çalışmada 15 sağlıklı ve 15 glokomatöz hastayı içeren, aynı zamanda birçok araştırmada kullanılan High-Resolution Fundus setine ait retina görüntüleri kullanılmıştır. Renkli retina görüntülerinin renk katmanları çıkarılarak, optik cup ve optik disk alanı için uygun olan seçilerek, optik cup için yeşil katman kullanılırken optik diski belirlemek için kırmızı katman kullanılmıştır. Optik disk için kırmızı katman üzerinden kontrast sınırı belirlenip kontrast ayarı yapılarak, eşiği belirlenen bu görüntüler, ikili görüntülere dönüştürülerek uygun morfolojik işlemler uygulanmıştır.

Görüntüdeki bağlı bileşen sayısı bulunarak, optik disk bölütlenerek, optik disk sınırları belirlenmiştir. Optik çanağı bölütlemek için de yeşil katman üzerinden aynı işlemler, uygun değerler seçilmek suretiyle gerçekleştirilmiştir. Bölütlenerek belirlenen optik cup ve optik diskin alanları hesaplanarak glokom teşhisinde kullanılan en önemli parametre olan cup/disk oranları bulunmuştur. Bu oran için 0.3 ve üzeri glokom riski kabul edilerek başarımlar hesaplanmıştır. Önerilen metodoloji % 83.33 doğruluk, % 81.25 duyarlılık ve% 85.71 özgüllük değerleri olarak kabul edilebilir analiz sonuçları vermiştir.

Anahtar Kelimeler: Glokom, Optik Disk, Optik Çanak/Disk Oranı, Görüntü İşleme.

Abstract

Glaucoma, also known as eye pressure, is an eye disease that results in damage to the optic nerve resulting in permanent vision loss when not treated. The main cause of damage to the visual nerves is the increase of the resulting intraocular pressure, which prevents the outflow of the produced liquid in various ways. It is most likely to be seen in people over the age of 40. Patients often do not realize the situation. However, it is a disease that doctors pay particular attention to during routine eye examinations. For this disease, which

cannot be treated in advanced stage, early diagnosis and treatment are very important. In this way, the progression of the disease and damage to the optic nerve can be reduced.

In retinal images, there is a certain ratio between the optic cup and the optic disc. As a result of damage to the visual nerves, the optic cup widens, and as a result of this enlargement, the visual field of the individual narrows with time. In addition, the ratio between the optic disc and the optic cup (cup-to-disc ratio: CDR) is also impaired. This ratio is above 3/10, indicating the glaucoma risk.

In this study, it is aimed to provide an image processing based approach that measures the CDR that can help in the diagnosis of glaucoma. We have used retina images of High-Resolution Fundus dataset, which included 15 healthy and 15 glaucomatous patients. After removing the color layers of the color retinal images and selecting the appropriate layer for the optic cup and optic disc area, the red layer is used to determine the optic disc while the green layer is used for the optic cup. For the optic disc, the contrast limit is determined over the red layer and the contrast is adjusted and these images are transformed into binary images and the appropriate morphological operations are applied.

By finding the number of connected components in the image, the optic disc was segmented and optical disk and optic cup boundaries were determined. By calculating the optic cup and optic disc radii specified by segmentation, cup/disc ratios, which are the most important parameters used in glaucoma diagnosis were found. Achievements for CDR ratios were calculated by accepting a glaucoma risk of 0.3 and above. The proposed methodology has given acceptable analysis results as 83.33% accuracy, 81.25% sensitivity and 85.71% specificity values.

Keywords: Glaucoma, Optic Disc, Optic Cup, Cup/Disc Ratio, Image Processing.

SIMULATION AND ANALYSIS HARMONICS IN POWER SYSTEM INCLUDING NONLINEAR LOAD

Suleyman ADAK
Mardin Artuklu University, Vocational Schools, Department of Electrical and Energy, Mardin, suleymanadak@yahoo.com
Hasan CANGI
Kahramanmaras Sutcu Imam University, Faculty of Engineering and Architecture,Department of Electrical and Electronics Engineering, Kahramanmaras, hasancangi@yahoo.com
Ahmet Serdar YILMAZ
Kahramanmaras Sutcu Imam University, Faculty of Engineering and Architecture,Department of Electrical and Electronics Engineering, Kahramanmaras, asyilmaz@ksu.edu.tr

Abstract

Harmonics generally occur due to the presence of non-linear circuit elements and / or non-sinusoidal sources is found in the power system. Harmonics are pollution in power systems. With the use of static converters, this pollution rate increases day by day. The increase of power electronic elements and various nonlinear elements every day causes the increase of the non-sinusoidal size circulating in the energy system. The presence of harmonic components in power systems will lead to distortion of the sinusoidal wave. As a result of non-linear elements or non-sinusoidal sources, the sinusoidal wave form in the energy system is distorted. These distorted waves are called "non-sinusoidal waves". The wave outside the fundamental wave is called the "harmonic component". Demand for electricity energy is increasing day by day. Harmonics must be destroyed for a more reliable and higher quality energy. Considering increase of non-linear elements in recent years, it appears that harmonics will greatly affect our energy system in the near future. Harmonic currents tend to flow from the harmonic source to the lowest impedance in power system. Harmonics producing by non-linear characteristic loads or sources are added to power system. This paper analyzing various non-sinusoidal voltage or current distortion waveforms generated by typical non-linear loads such as uninterruptible power supply (UPS), DC/DC power converter, frequency converter, DC/AC rectifier, switched power supplies, saturated magnetic components and power electronic switches. Even if the power of the nonlinear loads are low, they distort the sinusoidal wave form of current or voltage. Effects of harmonics on power system can cause such problems as change of power factor, neutral current increase, heating of transformers, increase of losses, capacitor fuse blowing, Increase in voltage drop in power system, memory of CAD / CAM terminals deleted vibrations in electric motors, resonances and device malfunctions. Nonlinear loads, even at low power, distort sinusoidal current and voltage waveforms in energy systems. Considering the large number of nonlinear loads connected to the power systems, it is very important for the quality of the energy to eliminate the resulting harmonic distortion. Non-linear elements cause serious harmonic pollution in production, transmission and distribution systems and decrease the quality of energy given to consumers, and harmonics in power system must be destroyed before larger problems occur. This paper presents a detailed analysis of total harmonic distortion (THD) in terms of presence of a nonlinear load in the power circuit. The six pulse rectifier in the power system act as a harmonic source. The harmonic components such as the 5th, 7th, 11th, 13th, 23rd, 25th, etc. produced by a six-pulse rectifier. Simulink is a bundle program of Matlab that is used to build, simulate and analyze dynamic system models. The hamonic analysis of the power system was performed with the help of the Matlab / Simulink program.

Keywords: Harmonic analysis, Power system harmonics, Power quality, Non-linear load,Total harmonic distortion.

AN OVERVIEW OF THE POWER OF WIND ENERGY IN THE WORLD

Burak YILDIRIM
Voc. and Tech. High School, Bingol University Bingol, 12100, Turkey, byildirim@bingol.edu.tr
Mahmut Temel ÖZDEMİR
Electrical and Electronics Eng., Faculty of Engineering, Firat University Elazig, 23100, Turkey

Abstract

Because of increasing environmental concerns, such as the lack of traditional fossil fuels and carbon emissions reduction, energy production from renewable energy sources is increasing considerably. In the United States and Europe, legislative regulations for the increased use of renewable energy have come into force. Wind generation is a kind of renewable energy source that focuses on the renewable energy profile in states with strong wind resources. In this study, electricity generation based on wind energy was tried to give general information about available values in the world. For this purpose, we can list some data given in this study as follows. The global cumulative installed wind capacity for the period 2010-2017 was first given. The top 10 countries with the highest cumulative and annual installed wind capacity in the market at the end of 2017 have been shown. In addition, the growth rates for the five countries with the highest cumulative total for the years 2014-2017 are given in detail. Offshore wind power plants, which increase the rate of worldwide wind production day by day, showed installed capacity for the year 2017. Finally, the offshore wind power plants were given cumulative installed wind capacity for the years 2011-2017. The overall capacity of all wind turbines installed worldwide by the end of 2017 reached 539.291 Megawatt, according to preliminary statistics. 52'552 Megawatt were added in the year 2017, slightly more than in 2016 when 51'402 Megawatt went online. The wind offers the most competitive pricing technologies for most markets and more sophisticated grid management, increasingly affordable storage and emergence of wind/solar hybrids begin to paint a picture of what a fully commercial fossil-free power sector will look like.

Key Words: Renewable Energy Sources, wind capacity, offshore wind capacity.

TRAJECTORY TRACKING CONTROL OF LINEAR ROBOTIC PLATFORM BASED ON SLIDING MODE CONTROL

Kağan Koray AYTEN
Erzurum Teknik Üniversitesi Müh. Mim. Fak. Elektrik & Elektronik Müh. Böl, Erzurum,
kagan.koray@erzurum.edu.tr

Abstract

Cartesian robot is a type of robot that moves linearly on 3 axes. Although the actuators are rotational, the axis movements are linear. The advantages of these robots are that they are less error-prone and have higher precision because they work on 3 axes. For this reason, precision is often used in applications where precision is important, such as CNC and 3D printers. Apart from these applications, they can also be preferred for carrying heavy loads thanks to rigid construction. Because of their rigid structure, this type of robots usually can offer good levels of precision and repeatability. The Cartesian robot has an easily computable inverse kinematic relationship with its simple design.

In this study, the design, control and real-time application of a Cartesian robotic platform were performed. This robotic platform is able to move in x-y-z Cartesian coordinate system. The system has been assigned the working area first, and then the limits have been taken into consideration to ensure that the system can work properly in this working area. The task of the robotic platform is to move the end effector of the system from the initial position to the final one with high precision. Two different control methods have been applied to control for the trajectory of the robotic platform. In the first control method, sliding mode control technique is taken into consideration. The sliding mode control technique provides a systematic approach that improves system capability to eliminate the problem of stability preservation. In addition, it improves the system's performance for modelling instabilities. Moreover, so as to demonstrate the benefits of a SMC technique over other classical control method, the robot has been run by the classical PID control as a second control method. The error of position and velocity analysis of the actuators have been performed so as to compare the effectiveness of two given control techniques. The design, evaluation and implementation of PID and SMC techniques can be given as the primary contribution of this paper. Experimental studies have been executed in order to perform the real-time presentation of the both controllers. As a result of this study, the trajectory tracking error of the robotic platform was significantly reduced by using the SMC technique compared to a PID method. It has been verified that the SMC technique is a robust and an efficient control technique for un-modelled dynamics and un-known loads of the robotic system.

Keywords: Cartesian Robot, Trajectory Tracking Control, Sliding Mode Control

Acknowledgment: This study was supported by Scientific Research Project (BAP/2017-18) of Erzurum Technical University.

DESIGN OF AN ELECTROMAGNETIC FIELD CONTROLLED SYSTEM FOR PARAMAGNETIC MICROPARTICLES

Ahmet DUMLU
Faculty of Engineering and Architecture, Department of Electrical and Electronic Engineering, Erzurum Technical University, Erzurum, Turkey, ahmetdumlu@erzurum.edu.tr

Abstract

Technological developments in the fields of electronics, biomedical and mechatronics have enabled the development of micro-electromechanical systems. Thanks to the improvements made in micro-electromechanical systems, a wide variety of research fields have emerged. One of the most popular of these research areas is the magnetic manipulation of ferrofluid that is susceptible to the magnetic field within the microchannel. Magnetic manipulations on ferrofluid in microchannel offer many advantages, especially in the field of medicine and biomedicine. For example, magnetic nanoparticle drug carriers have used in cancer treatments selectively targeting diseased tissue. Because of these particles are sensitive to the magnetic field, external magnetic field sources are needed. Using the external magnetic field sources, the particles can reach a targeted position in vein. In this study; in order to provide manipulation of the microparticles in a fluid channel, an electromagnetic field controlled system has been designed based on closed-loop control approaches. For the electromagnetic field source, four identical inductance coils have been used. These coils have been placed symmetrically on two-dimensional direct-drive linear stage system. Then the fluid channel has been placed in the centre of the field sources. The position of the particles in the channel has been obtained by a camera using image processing methods. The obtained image provides position information of particles to the feedback controller. These controller signals have been used for controlling the movement of direct-drive linear stage system. By this way, the particles which are under the influence of drift within the fluid channel have been diverted towards a desired target and moved within the channel.

Keywords: Microchannel, nanoparticle, electromagnetic, control.

INSPECTION OF ENERGY TRANSMISSION LINES BY UNMANNED AIR VEHICLE

Nur Hüseyin KAPLAN
Department of Electrical and Electronics Engineering, Erzurum Technical University, Erzurum,
huseyin.kaplan@erzurum.edu.tr

Abstract

In recent years, advancements in industry and technology and urban development has escalated the need for energy, and uninterrupted distribution of energy has become essential. To ensure uninterrupted distribution of energy, maintenance and repair of power transmission lines should be done regularly and carefully and occurrences of failures should be detected and eliminated as soon as possible. A recent method for detecting failures, doing maintenance and repair in power transmission lines is utilization of aerial vehicles. To illustrate the present situation, maintenance and detection of likely failures are done in scheduled times by Turkish Electricity Transmission Company (TEİAŞ) using UH1 type helicopters and by operators. By the help of cameras and sensors equipped in the helicopter, the assessment of the state of the transmission line is reported by experts. However, due to the high cost of the executed method using helicopter, inspection is carried out infrequently – usually once a year. Moreover, inspection by helicopters incurs high risk in terms of worker's health and safety. Recently, to reduce the cost, ensure worker's safety, and inspect efficiently, the use of unmanned aerial vehicles (UAVs) are of interest. This method globally, especially in countries like China, Brazil, and Canada, has attracted the attention of researchers.

Recently, the utilization of UAVs has proven grounds in defense industry in our country. Thus, the use of UAVs is thought to be preferable in transmission line inspection. Low-cost UAV usage allows transmission lines to be inspected more frequently. Faults on the lines may automatically be detected and reported by analyzing the images obtained via cameras and sensors on the UAV, with image processing techniques and artificial intelligence algorithms. It is expected to detect failures on the lines more rapidly and efficiently with this system. This system also reduces the risks in workers' health and safety.

In this work, the transmission line videos taken by an UAV has been classified by k-means algorithm to detect the lines. The same algorithm have been used to detect the faults on the transmission lines.

Keywords: Computer vision, Power transmission lines, UAV, K- Means.

Acknowledgement: This study is supported by Scientific Research Project (BAP-2017/12) of Erzurum Technical University.

NUMERICAL ANALYSIS OF CONVECTIVE HEAT TRANSFER FROM COILED WIRE INSERTIONS WITH STRAIGHT TAPES

Eyuphan MANAY
Department of Mechanical Engineering, Faculty of Engineering and Architecture,
Erzurum Technical University, Erzurum-TURKEY
emanay@erzurum.edu.tr

Abstract

In this study, numerical calculations were performed in order to analyze the convective heat transfer from coiled wire insertions with straight tapes inside a horizontal circular channel. The insertions were placed into the channel separately from the tube wall. The effect of the pitch ratio, diameter of the wire and Reynolds number on both heat transfer and pressure drop characteristics were investigated. Under constant heat flux and turbulent flow regime conditions, air flow and heat transfer characteristics were solved by using commercial computational fluid Dynamics (CFD) code. Three dimensional governing equations of momentum, energy and continuity were solved for fluid flow and heat transfer. SST k-w turbulence model was used for numerical calculations. For discretizing the governing equations, SIMPLE algorithm and second order upwind numerical scheme were utilized. Structured and unstructured meshes were used in order to have a better description near walls. Heat transfer and friction factor results were compared with the well-known correlations, and it was seen that there was a good agreement between the results of this study and those of literature. The insertion of the coiled wires having straight tapes inside caused a remarkable increase in heat transfer. Increasing pitch ratio enhanced heat transfer. The results also showed that increasing pitch ratio of the insertions increased the pressure drop, and thus the pumping power. But, the diameter of the wire had a low effect on heat transfer and pressure drop. Overall heat transfer enhancement of all studied cases were calculated. The highest overall heat transfer enhancement was achieved in the lowest Reynolds number, the highest pitch ratio and wire diameter.

Key words: Heat transfer enhancement, coiled wire, SST k-w, numerical analysis.

SOĞUKTA SERTLEŞEN PELET ÜRETİMİNDE ÇAM REÇİNESİNİN BAĞLAYICI OLARAK KULLANILMASININ PELET ÖZELLİKLERİ ÜZERİNE ETKİSİ

THE EFFECT ON THE PELLET PROPERTIES OF USING PINE RESIN AS BINDER IN COLD HARDENED PELET PRODUCTION

Elif ARANCI ÖZTÜRK
Fırat Üniversitesi, Mühendislik Fakültesi, Metalurji ve Malzeme Mühendisliği Bölümü, Elazığ, Türkiye.
Fırat ELİBOL
Fırat Üniversitesi, Mühendislik Fakültesi, Metalurji ve Malzeme Mühendisliği Bölümü, Elazığ, Türkiye.
Edip ERCEK
Fırat Üniversitesi, Mühendislik Fakültesi, Metalurji ve Malzeme Mühendisliği Bölümü, Elazığ, Türkiye.
Mustafa SÜNER
Fırat Üniversitesi, Mühendislik Fakültesi, Metalurji ve Malzeme Mühendisliği Bölümü, Elazığ, Türkiye.
Hatice YEGİN
Fırat Üniversitesi, Mühendislik Fakültesi, Metalurji ve Malzeme Mühendisliği Bölümü, Elazığ, Türkiye.
Mustafa BOYRAZLI
Fırat Üniversitesi, Mühendislik Fakültesi, Metalurji ve Malzeme Mühendisliği Bölümü, Elazığ, Türkiye.

Özet

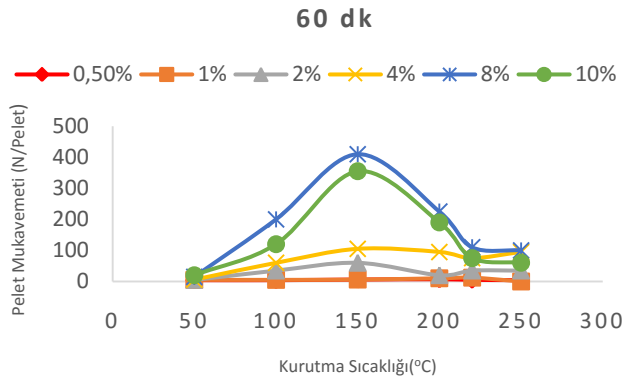
Geleneksel demir çelik üretimi, yüksek fırın ve yan tesislerinden oluşan entegre tesislerde yapılır. Yüksek fırınlara, cevher, pelet, sinter gibi demir oksitli malzemelerle redükleyici ve ısı kaynağı olarak kullanılan kok ve cüruf yapıcı (flaks) ilave edilerek; pik, cüruf ve çeşitli tozlar içeren baca gazlarından müteşekkil ürünler alınır. Yüksek fırınlarda kullanılan pelet, daha kaliteli ve daha ucuz pik üretimi sağlar. Geleneksel pelet üretiminde kullanılan inorganik bağlayıcıların içerdiği empüriteler, peletin demir içeriğini düşürmekte ve fırın rejimini bozmaktadır. Bu dezavantajlarından dolayı alternatif bağlayıcılar üzerinde çalışmalar yapılmaktadır. Aynı şekilde, alternatif demir çelik üretimi olarak adlandırılan sünger demir (sponge iron) ya da demir tanesi (iron nugget) üretimi gibi nispeten yeni teknolojilerde gerçekleştirilen aglomerasyon işlemlerinde genellikle empürite içermeyen organik bağlayıcılar tercih edilmektedir. Bu yöntemlerde üretilen peletlerden, yüksek fırın teknolojisinde kullanılan peletlerin sahip olması gereken özellikler beklenmemektedir. Mukavemet bakımından karşılaştırıldığında, yüksek fırınlarda kullanılacak peletlerden minimum 2500 N/Pelet mukavemet değeri beklenirken, sünger demir veya demir tanesi üretiminde kullanılan soğukta sertleştirilmiş pelet olarak bilinen peletlerde 250-300 N/Pelet yeterli olmaktadır.

Bu çalışmada, çam reçinesinin bağlayıcı olarak kullanılmasının soğukta sertleşen pelet özellikleri üzerine etkisi incelenmiştir.

Deneylerde %68,03 Fe içeren Divriği A Kafa manyetit konsantresi (pelet keki) kullanılmıştır. %80'i -45 µm tane boyutunda olan pelet keki, önce bir karıştırıcı içine konularak 5 dakika karıştırılıp, topaklaşmaların oluşması önlenmiş; ardından, ilave edilen çeşitli miktarlardaki çam reçinesi ile harmanlanarak mikser yardımıyla 10 dakika karıştırılmıştır. Karıştırılan malzeme, peletleme işlemi için laboratuvar ölçekli küresel pelet tamburuna beslenmiştir (Şekil 1). Pelet yapımı sırasında yaklaşık %7-12 civarında su püskürtülmüştür. Peletler 11-14 mm boyutlarına ulaşıncaya kadar işlem devam ettirilmiştir. Üretilen peletler 50, 100, 150, 200, 220 ve 250 oC sıcaklıklarda, 30, 60, 90, 120 ve 150 dakika süreyle kurutma işlemine tabi tutulmuş ve mukavemet değerleriyle porozitelerine bakılmıştır.

Pelet üretiminde, pelet kekine %0.5, 1, 2, 4, 8, 10 oranlarında çam reçinesi ilave edilmiş, %10 çam reçinesi ilave edilen deneylerde pelet üretimi esnasında su tüketimi %15'in üzerine çıkmıştır. Mukavemet bakımından en ideal sonuçlar %8 çam reçinesi ilave edilerek üretilen peletlerin 150 oC sıcaklıkta 60 dakika kurutulması sonucu elde edilmiştir (Şekil 2). Bu peletlerde, yaş pelet düşme sayısı 10 düşme/45 cm olarak ölçülmüş, porozitenin 21 civarında olduğu görülmüştür, ölçülen en iyi mukavemet değeri ise 410 N/Pelet'dir. Yapılan çalışmalarda genellikle 150 oC'nin üzerindeki sıcaklıklarda pelet mukavemetinin düştüğü görülmüştür. Çam reçinesinin organik bir malzeme oluşundan dolayı 200 oC civarında bozunduğu ve bu nedenle bağlayıcılık vasfını yitirdiği düşünülmektedir. Bu sonuçlara göre çam reçinesinin soğuk bağlı pelet üretiminde kullanılabileceği anlaşılmıştır.

Şekil 1. Peletleme Cihazı



Şekil 2. Farklı sıcaklıklarda 60 dakika yapılan kurutma işlemlerinde elde edilen pelet mukavemeti değerleri

Anahtar Kelimeler: Çam Reçinesi, Bağlayıcı, Peletleme, Soğukta Sertleşen Pelet, Manyetit Konsantresi.

Abstract

Traditional iron and steel production is done in integrated plants consisting of blast furnace and its subsidiary plants. The blast furnaces are fed with iron oxide materials such as ore, pellets, sinter, as well as coke, which is used as a reductant and heat source, and slag forming (flux), and pigs, slag and flue gases containing various powders are taken. The impurities contained in the inorganic binders used in the production of conventional pellets reduce the iron content of the pellet and disrupt the furnace regime. Due to these disadvantages, alternative binders are being studied. In the same way, organic binders which are generally free of impurities are preferred in agglomeration processes carried out in relatively new technologies such as the production of sponge iron or iron nugget, which is called alternative iron steel production. From these pellets, the properties of pellets used in blast furnace technology are not expected. Compared to strength, a minimum of 2500 N/Pellet strength value is expected from the pellets to be used in blast furnaces, while 250-300 N/Pellet is sufficient in pellets known as cold hardened pellets used in the production of sponge iron or iron nugget.

In this study, the effect of using pine resin as a binder on cold hardening pellet properties was investigated.

In the experiments, Divriği A head magnetite concentrate (pellet cage) containing 68.03% Fe was used. The pellet cage, 80% of which had a particle size of -45 μm, was first placed in a mixer and stirred for 5 minutes to prevent formation of agglomerates; then blended with various amounts of pine resin added, and mixed with a mixer for 10 minutes. The mixed material was fed to laboratory scale a spherical pellet drum for pelletization (Figure 1). About 7-12% of the water was sprayed during pellet production. The process was continued until the pellets reached 11-14 mm in dimensions. The produced pellets were dried at 50, 100, 150, 200, 220 and 250 oC for 30, 60, 90, 120 and 150 minutes and their porosity and strength values were evaluated.

Pine resin was added at 0.5, 1, 2, 4, 8, 10 ratios in pellet production and water consumption increased to 15% in experiments where 10% pine resin was added for pellet production. The best results in terms of strength were obtained by adding 8% pine resin and drying the pellets produced at 150 °C for 60 minutes (Figure 2). In these pellets, the number of wet pellet falls was measured as 10 drops/45 cm, and the porosity was found to be around 21, the best measured strength value was 410 N/Pellet. Studies have shown that pellet strength decreases at temperatures above 150 °C. It is thought that the pine resin degrades around 200 oC due to the formation of an organic material and thus lost its binding qualities. According to these results, it was understood that pine resin could be used in cold bonded pellet production.

Figure 1. Pelletizing device

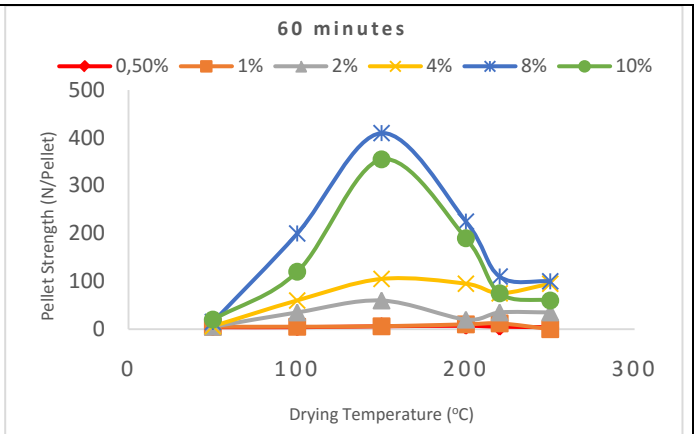


Figure 2. Pellet strength values obtained during 60 minutes drying at different temperatures

Keywords: Pine Resin, Binder, Pelletizing, Cold Hardening Pellet, Magnetite Concentrate.

DEVELOPMENT OF PERSONAL DRIVING MODE ALGORITHM FOR HYBRID ELECTRIC VEHICLES TO INCREASE EFFICIENCY

Prof. Dr. Engin ÖZDEMIR
Enerji Sistemleri Mühendisliği/ Enerji Sistemleri Anabilim dalı/ Teknoloji Fakültesi Fen Bilimleri/ Kocaeli Üniversitesi, eozdemir@hotmail.com
Koray ERHAN
Enerji Sistemleri Mühendisliği / Enerji Sistemleri Anabilim dalı/ Teknoloji Fakültesi Fen Bilimleri/ Kocaeli Üniversitesi, korayerhan@gmail.com
Merve ALTUNKAYA
Enerji Sistemleri Mühendisliği / Enerji Sistemleri Anabilim dalı/ Teknoloji Fakültesi Fen Bilimleri/ Kocaeli Üniversitesi, merve.altunkaya92@gmail.com

Abstract

Along with the increasing population and developing technology of our age, the needs of people are increasing. There is a rapid technological development in all areas of transport from communication to health to advocacy. The most important resource for sustainable development is energy supply. Today, almost every individual uses public transport or special vehicles to provide easy access. The most important factor that individuals pay attention to when driving is fuel consumption values. The fuel economy of the vehicles provides a more efficient use of rapidly decreasing fossil-based fuels. The most commonly used energy source in vehicles is oil. Along with the decline of fossil fuels, different alternative routes are being sought to ensure that the engine is running in vehicles. Hybrid vehicles are at the forefront of these alternative ways. In hybrid electric vehicle technology, there are many benefits, from emissions reduction to performance and efficiency improvements, as the vehicle is not only dependent on fuel propulsion. The efficiency of hybrid electric vehicles depends on the capacity of the energy storage system. Today, there are battery, ultra-capacitors and flywheel as energy storage systems alternatives. Although these are often highly efficient, there are areas where it is necessary and efficient to use each technology. Especially in electric and hybrid electric vehicles, due to their high energy density, batteries are used as basic energy storage unit. Ultra-capacitor and flywheel energy storage systems are also serving as auxiliary energy storage units due to their high power density. In addition to storage, one of the issues to be noticed in relation to hybrid electric vehicles is efficiency and performance that they put forward according to the conditions of use of the vehicles. Each manufacturer optimizes the vehicle according to the conditions of the particular use conditions. For example, while some models are optimized for heavy-duty cities, another model can be designed to achieve the highest productivity in flowing traffic. However, many consumers do not dominate the technical details when buying a car. In this study, an algorithm is developed to optimize the electric machine and battery in the hybrid electric vehicles according to the usage conditions and to replace the hybrid operation algorithm with user intervention. It is aimed to change the dynamics of the hybrid construction and increase the productivity by entering the range of the route that the driver frequently uses and the average speed which is observed throughout this range.

Keywords: Hybrid vehicles, driving modes, efficiency

REGENERATIVE BRAKING POWER IMPROVEMENT FOR ELECTRIC VEHICLE BY USING GENERATOR AND BATTERY CAPACITY

ELEKTRİKLİ ARAÇLARDA GERİ KAZANIMLI FRENLEME GÜCÜNÜN GENERATÖR VE BATARYA KAPASİTESİNE GÖRE ARTIRILMASI

Koray ERHAN
Enerji Sistemleri Mühendisliği / Enerji Sistemleri Anabilim dalı/ Teknoloji Fakültesi Fen Bilimleri/ Kocaeli Üniversitesi, korayerhan@gmail.com
Gökçe VAROL
Enerji Sistemleri Mühendisliği / Enerji Sistemleri Anabilim dalı/ Teknoloji Fakültesi Fen Bilimleri/ Kocaeli Üniversitesi
Prof. Dr. Engin ÖZDEMIR
Enerji Sistemleri Mühendisliği/ Enerji Sistemleri Anabilim dalı/ Teknoloji Fakültesi Fen Bilimleri/ Kocaeli Üniversitesi, eozdemir@hotmail.com

Abstract

In internal combustion engine vehicles, the kinetic energy of the vehicle is transformed to heat energy by brake discs and linings to stop the vehicle. The braking energy is wasted by brakes and decreased the vehicle efficiency. In electric vehicles (EV), the kinetic energy of the vehicle is transferred to high voltage battery pack and stored as electric energy by operating vehicle's M/G unit as generator. It is called regenerative braking.

In this study, regenerative braking system is proposed to decelerate the vehicle speed by using generator unit. Regenerative braking power varies in proportion to the vehicles M/G unit power. When the M/G unit power increases the regenerative braking power is also increased.

Firstly, energy of the vehicle is calculated for top speed of 100 km/h. Then calculated power value and generator power value is compared. With this comparison, the maximum regenerative braking capacity (power) with the vehicle generator unit is determined. Thus, the ratio of regenerative braking to mechanical braking is determined as a percentage. The battery charging capacities are also determinant factor for maximum regenerative braking capacity apart from the M/G unit power.

Calculations are made for 5 different EV. All vehicles have different power density values (kW/kg). Therefore they have different regenerative braking capacities depending on generator and battery charge powers. The technical specifications are obtained for 5 vehicles. And energy values are calculated for a speed of 100km/h.

According to highway transport service data, the average deceleration/braking time to stop the vehicle for 100 km/h is given as 4.7 seconds. This value is accepted as a reference. And braking power calculations are made considering this value. In addition to this, braking power values are calculated for different deceleration times as 10 and 20 seconds. And also the braking power is calculated in case of M/G unit usage only. In this way, it is aimed to utilize the highest level of regenerative braking energy and to increase the vehicle efficiency.

Keywords: Electrical vehicle, regenerative braking, conventional braking.

Özet

Günümüzde kullanılan içten yanmalı motorlu araçlarda, frenleme sırasında aracın sahip olduğu kinetik enerji balata ve disklerde ısıya dönüştürülmektedir. Bu ısı enerjisi kaybolmaktadır. Ancak elektrikli araçlarda (EA), aracın sahip olduğu kinetik enerji elektrik motorunun generatör olarak çalıştırılmasıyla araç bataryasına depolanabilmektedir. Bu durum geri kazanımlı frenleme olarak adlandırılmaktadır.

Bu çalışmada; bir EA'nın M/G (motor/generatör) ünitesinin generatör olarak kullanılmasıyla frenleme sağlanmaktadır. Aracın motor gücüyle orantılı bir şekilde geri kazanımlı frenleme kapasitesi de artmaktadır. 100 km/h hızla giden bir aracın durması için gereken enerji miktarı hesaplanmaktadır. Hesaplanan bu değer ile aracın generatör gücünün sağlayabileceği maksimum frenleme enerjisi karşılaştırılmaktadır. Bu karşılaştırmayla bir aracın sağlayabileceği maksimum geri kazanımlı frenlemenin mekanik frenlemeye oranı

tespit edilmektedir. Böylece geri kazanımlı frenlemenin mekanik frenlemeye oranı yüzdesel olarak tespit edilmektedir.

Çalışmada 5 farklı marka araç için hesaplamalar yapılmaktadır. Her aracın sahip olduğu kg/kW değerleri farklı olduğundan, yapabilecekleri maksimum geri kazanımlı frenleme güçleri de farklı olmaktadır. Araçların M/G gücü ve batarya şarj kapasiteleri de göz önüne alınarak, geri kazanımlı frenleme oranları tespit edilmektedir.

Öncelikli olarak referans alınan 5 araca ait teknik bilgiler edinilerek değer tablosu oluşturulmaktadır. Bu araçların 100 km/h sabit hız ile ilerlerken kazandıkları kinetik enerji hesaplanarak tablo halinde verilmektedir.

Kara yolları resmi web sitesinden alınan değere göre; ortalama bir aracın 100 km/h hızdan ani frenleme ile durması 4.7 saniye olarak verilmektedir. Çalışmada bu değer referans olarak kabul edilmektedir. Bu değere ilave olarak, aracın 10 ve 20 saniyede durması durumları için gerekli olan frenleme güç değerlerine de yer verilmektedir. Ayrıca araçların sadece M/G ünitesi gücü ile durabilecekleri zaman değerleri de hesaplanmaktadır. Bu sayede geri kazanımlı frenleme enerjisinden en yüksek oranda faydalanmak ve araç verimliliklerinin artırılması hedeflenmektedir.

Anahtar Kelimeler: Elektrikli araçlar, geri kazanımlı frenleme, mekanink frenleme, faydalı frenleme.

A NEW SYNTHETIC BIOLOGY TOOL: ESAI/ESAR QUORUM SENSING NEGATIVE REGULATOR SYSTEM

Venhar CELIK OZGEN
Department of Bioengineering, Faculty of Engineering, Firat University, Elazıg, Turkey

Abstract

Cell−cell communication, or quorum sensing (QS), is an effective mechanism for regulating cellular behavior in bacteria. Several important bacterial processes are regulated through quorum sensing, including antibiotic production, bioluminescence, biofilm formation, sporulation, competence, and bacterial virulence. The well-studied Vibrio fischeri quorum-sensing system has served as a model for quorum sensing in Gram-negative bacteria. In this system, quorum sensing regulator LuxR function as acyl-homoserine lactone (AHL)-dependent transcriptional activators. However, a few LuxR-type transcription factors function as negative regulators of gene expression. The quorum sensing regulator EsaR belongs to this category. In LuxIR QS system, LuxI is an AHL synthase, and LuxR is an AHL-dependent transcriptional activator. The AHL, 3-oxo-hexanoyl-homoserine lactone (3OC6HSL), is produced inside the cell but it can freely diffuse across the cell membrane into the environment. Therefore, the AHL concentration is low at a low cell density and increases with the cell density. As the AHL concentration increases, when AHL reaches a critical threshold concentration, it can interact with the LuxR. This LuxR/AHL complex binds to a DNA region called the lux box causing the luminescence genes to switch on. In EsaIR QS system, EsaR is a LuxR homologue from Pantoea stewartii that can repress gene expression by binding a promoter, such as PesaR, in the absence of the same AHL. In this case, EsaR represses gene expression by binding to its target DNA sequence, the esa box, in the absence of 3OC6HSL. In the presence of 3OC6HSL, EsaR releases the esa box, leading to an increase in gene expression. EsaIR system represent a new tool for negative regulator of cell-cell communication-dependent gene expression in synthetic biology. In here, by using some synthetic biology approaches, it has been aimed to show that how can be used EsaI/EsaR quorum sensing negative regulator system as a new synthetic biology tool.

Keywords: Quorum sensing, EsaI/EsaR, synthetic biology, negative regulator.

UNDERSTANDING CONTACT-DEPENDENT INHIBITION (CDI) BY SYNTHETIC BIOLOGY APPROACH

Venhar CELIK OZGEN
Department of Bioengineering, Faculty of Engineering, Firat University, Elazıg, Turkey

Abstract

Cooperative interaction between cells generally occurs for the production of many public goods such as extracellular enzymes, antibiotics, quorum-sensing molecules, and exopolisaccharides. However, cooperation is intertwined with communication in microbial communities and thereby many cooperative phenotypes are regulated by cell-cell communication known as quorum sensing. Due to under quorum sensing-control, bacterial collective behavior is allowed at long-range depending on signal molecules which is diffused away from the cells. Recent studies on relative frequency of bacterial competition and cooperation has suggested that competition, rather than cooperation, is prevalent among bacterial species. To maximize their survival and reproduction, bacteria have developed numerous sophisticated strategies for both types of competition, exploitative and interference. Exploitative competition indirectly exists due to consumpt of limited resource, whereas interference competition of a species directly harms another. Quorum sensing is usually expounded cooperative communication though, have the potential for intraspecific and interspecific competition. Some public goods secreted move away from bacterial cells, such as antibiotics and bacteriocins (for example, nisin produced by Lactococcus lactis), are potent to decrease survival and reproduction of neighboring bacteria through long-range. As well as long-range competition signal molecules, some contact-dependent toxins are delivered into nearest neighboring cells through short-range. Therefore, bacterial competition is mediated by either diffusible soluble factors such as antimicrobial peptide colicin secreted by cells or inhibition systems that require direct physical contact between neighboring cells. In the latter system, growth inhibition toxins of competitor cells are delivered into target cells by four types of specialized protein secretion systems, types III, IV, V, and VI, in Gram-negative bacteria. Although these four secretion systems have similarity functionally that are activated upon contact with target neighboring cells, these systems use different protein export mechanisms. In contrast to Type VI and the other systems described above, the contact-dependent growth inhibition system (CDI) discovered first in E. coli EC93 is deployed by the CdiB/CdiA family of two-partner secretion system belongs to Type V. CdiB is a β-barrel protein that is localized to the outer membrane to export CdiA effector protein. CdiA contains β-helical filament composed of numerous hemagglutinin-repeat peptids along N-terminal, suggesting that long filaments extending from the CDI+ cell surface facilitate contact with target cells. CDI toxin activity is localized to highly variable the C-terminal region of CdiA. Upon contact, toxic domain of CdiA is translocated into target cell to inhibit growth. CDI+ cell protects itself from autoinhibition by small immunity protein CdiI. In here, by using some synthetic biology approaches, it has been aimed to understand that how will the dynamics of cell-cell competition change when it happens by contact-dependent inhibition instead of diffusible soluble factors-dependent inhibition?

Keywords: Contact-dependent inhibition, diffusible soluble factors, synthetic biology.

PRELIMINARY STUDY LENGTH- WEIGHT, LENGT-LENGTH RELATIONSHIPS AND CONDITION FACTOR OF TIGRIS SCRAPER (*CAPOETA UMBLA* (HECKEL, 1843)) FROM PÜLÜMÜR RIVER, TURKEY

Ebru İfakat ÖZCAN
Munzur University, Faculty of Fisheries, Tunceli, Turkey, ebruozer@munzur.edu.tr
Osman SERDAR
Munzur University, Faculty of Fisheries, Tunceli, Turkey

Abstract

This study was carried out to determine the length-weight, length-length relationships and condition factor of tigris scraper (Capoeta umbla (Heckel, 1843)) collected from Pülümür River. For this purpose, a total of 84 fish specimen (48 females and 36 males) of C. umbla were captured in May 2014 by electroshocker from Pülümür River. Female/male ratio was 1.33/1. Minimum-maximum length and weight of captured fishes were determined as 8.3-22.5 cm and 6.0-128.8 g for females and 7.9-26.5 cm and 5.6-197.1 g for males, respectively. Length-weight relationships of C. umbla were found as W=0.0164*L2.871, R2=0.98, SE of b=0.046 and 95 % confidence intervals of b=2.720-3.430, t-test P<0.05 for females; W=0.0123*L2.954, R2=0.99, SE of b=0.060 and 95 % confidence intervals of b=2.876-3.636, t-test P<0.05 for males; W=0.0137*L2.925, R2=0.99 SE of b=0.035 and 95 % confidence intervals of b=2.805-3.603, t-test P<0.05 for combined sexes. According to these values, the growth type of this species was isometric for females, males and sexes combined. These high values of R2 show that the length relationships are linear observed range of values. Regression analyses are shown that fish length have high significant correlation with weight (P<0.001). Furthermore, when the t-test results were analyzed for the significance of regression coefficients (P<0.01), it was found that fish-length data could be used in high accuracy to predict fish weight. The length-length relations between total, fork, and standard lengths were highly significant (P<0.001) for C. umbla. Length-length relationships were determined as TL=0.0885+1.090FL (R2=0.99), FL=0.5615+1.048SL (R2=0.99) and SL=-0.5508+0.8703TL (R2=0.99). Condition factor ranged from 0.967 to 1.111 for females and from 0.967 to 1.212 for males. This study submits for the first time LWR, LLR and condition factor of C. umbla in the Pülümür River.

Keywords: Length-weight, length relationship, condition factor, Tigris scaper, Capoeta umbla, Pülümür River

DETERMINATION OF EFFICIENCY AND SOME YIELD PRODUCTS OF VARIOUS VACCINES (*Vicia narbonensis* L.) VARIETIES AND LINES ADDED IN THE SIIRT ECOLOGICAL CONDITIONS

Nizamettin TURAN
Siirt University, Faculty of Agriculture, Department of Field Crops, Siirt, Turkey,
nturan49@siirt.edu.tr.
Hamdiye SAKMAN

Abstract

This research was carried out in 2016 in order to determine the yield and yield components of some large vetch varieties grown as the main crop in accordance with the Siirt ecological conditions, in three replications according to the design of random blocks in the application field of Siirt University, Faculty of Agriculture, Field Crops Department. In the study, 5 seeds (Balkan, Tarman-2002, Halilbey, Karakaya, Özgen) and five vetch lines (IFVN564-SEL 2379, IFVN565-SEL 2380, IFVN575-SEL 2389, IFVN567-SEL 2382, IFVN116-SEL 2461) were used.

Plant height of 52.3 to 82.3 cm kind used in the study, forage yield 820.3 to 1347.3 kg/da, dry matter yield 260.3 to 377.2 kg/da, crude protein yield of 50.2 to 76.0 kg/da, crude protein ratio of 17.6 % to 20.9 %, ADF (Acid detergent fiber) ratio of 27.7 % to 32.9 %, NDF (neutral detergent fiber) ratio of 37.4 % to 44.2 %. It has been determined that Balkan is the most suitable variety in terms of protein yield and herbaceous qualities, and IFVN575-SEL 2389 line is the most appropriate in terms of protein ratio.

Key words: Narbon vetch (Vicia narbonensis L.), varieties, lines, yield components

USAGE OF THE COMPOST OBTAINED FROM ORGANIC TEA PROCESSING WASTE PRODUCTS IN ORGANIC TEA PRODUCTION

Gülen ÖZYAZICI
[1]Siirt University, Faculty of Agriculture, Depatment of Field Crops, Siirt, Turkey
gulenozyazici@siirt.edu.tr
Betül BAYRAKLI
[2]Blacksea Agricultural Research Institute, Samsun, Turkey
Elif ÖZTÜRK
[2]Blacksea Agricultural Research Institute, Samsun, Turkey
Aylin ERKOÇAK
Blacksea Agricultural Research Institute, Samsun, Turkey
Safiye Pınar ÖZER
Atatürk Tea and Horticultural Crops Research Institute, Rize, Turkey
Zuhal KALCIOĞLU
Atatürk Tea and Horticultural Crops Research Institute, Rize, Turkey

Abstract

This research was conducted to evaluate organic tea processing waste which is rich in organic matter, nitrogen and potassium contents and cultivate economic organic tea with local organic materials by reducing dependence on commercial organic fertilizers. The research was carried out in three stages. These; 1- Determination of appropriate microorganism, 2- Composting of tea waste, 3- Field experiment. The experiment was set up in randomized blocks experimental design with three replications. Experiment subjects; 1- Tea waste, 2-Tea waste+sugar industry waste first carbonification sludge (10%), 3- Tea waste+sugar industry waste first carbonification sludge (20%), 4- Tea waste+sugar industry waste first carbonification sludge (30%), 5- Tea waste+agriculture lime (5%), 6- Tea waste+agriculture lime (10%), 7- Tea waste+agriculture lime (15%), 8- Tea waste+rock phosphate (10%), 9- Tea waste+rock phosphate (20%), 10- Tea waste+rock phosphate (30%), 11- Organic commercial fertilizer (Biofarm), 12- Control (no fertilizer). Content of tea waste was determined before the microorganism application. The field experiments began on March 2014 with compost application according to the subjects. Harvests were done between May and October in three shoot periods in both two years. Effect of subjects on tea yield was found to be important in Hemşin Location. In this location, when the lowest tea yield was determined in control and tea waste+rock phosphate (10%) treatments, the highest yield was determined in tea waste+sugar industry waste first carbonification sludge (20%) and tea waste+sugar industry waste first carbonification sludge (30%) subjects. Effect of subjects on tea yield was found insignificant statistically in Senoz Location. Effect of subjects on cellulose content of tea leaf was found to be significant in both locations. The highest cellulose content was determined in control for Hemşin location and in tea waste+sugar industry waste first carbonification sludge (10%) for Senoz location. According to results of this research, it has been determined that the compost obtained from tea waste can be evaluated in organic tea production.

Keywords: Organic tea, compost, rock phosphate, first carbonification sludge, yield, quality characters

RELATIONSHIPS BETWEEN FISH LENGTH AND OTOLITH LENGTH IN THE POPULATION OF CAPOETA UMBLA (HECKEL, 1843) FROM KARASU RIVER

Osman SERDAR
Munzur University, Faculty of Fisheries, Tunceli, Turkey
Ebru İfakat ÖZCAN
Munzur University, Faculty of Fisheries, Tunceli, Turkey, ebruozer@munzur.edu.tr

Abstract

The length of otoliths, which are important bony structures used for age determination in fishes. In this study, the relationships between otolith length and fish length (total, fork and standard) of 197 specimens of the Capoeta umbla (Heckel, 1843) were examined from Karasu River. Fish samples were collected from 14 different stations in Karasu River between October 2014-September 2015 by using electroshocker. The otoliths of the sampled fish were removed after their total, fork and standard lengths were measured. The otolith lengths were measured for the whole otolith by using OLYMPUS BX53 microscope. The fish length-otolith length relationships were examined by using the following equation: y = a + bx, where: y= fish length, x=otolith length, a=intercept value, b=coefficient value. In this study, fish samples ranged 59-329 mm in total length, 52-304 mm in fork length, 48-288 mm in standard length and 0.985-43.110 mm otolith length. Fish length-otolith length relationships of C. umbla were found as TL=0.4171+0.0080OL (R2=0.94), FL=0.4243+0.0086OL (R2=0.94), SL=0.4537+0.0092OL (R2=0.93). There was a strong relationship between the otolith lengths and fish lengths obtained. In conclusion, it is obvious that there was a very strong correlation between total length-otolith length, fork length-otolith length and standard length-otolith length in Capoeta umbla.

Key words: Fish length, otolith length, Capoeta umbla, Karasu River

DETERMINATION OF FERTILITY CONDITION AND POTENTIAL NUTRITION PROBLEMS OF THE POTATO (SOLANUM TUBEROSUM L.) GROWN SOILS

Gülen ÖZYAZICI
Siirt University, Faculty of Agriculture, Depatment of Field Crops, Siirt, Turkey
gulenozyazici@siirt.edu.tr
Mehmet Arif ÖZYAZICI
Siirt University, Faculty of Agriculture, Depatment of Field Crops, Siirt, Turkey
Orhan DENGİZ
Ondokuz Mayıs University, Faculty of Agriculture, Department of Soil Science and Plant Nutrition, Samsun, Turkey

Abstract

This research was carried out to determine nutritional problems and soil fertility status of potato grown soils in Trabzon Province, Eeastern Black Sea Region of Turkey. For this objective, 60 soil samples were collected from intensive potato cultivation area and used as material. Texture, pH, EC, CaCO3, organic matter, available P, total N, extractable K, Ca, Mg, Na, B, Fe, Cu, Zn and Mn analysis were done in soil samples and results of them were compared with threshold values. According to obtained results, texture, soil reaction, lime content and salt status were detected as sandy loam, sandy clay loam, clay loam, loam, clay and loam sandy, neutral reaction in 45.00% of samples, low lime content in 80.00% of samples and non salt problem, respectively. In addition, it was determined that most of the soil samples have deficient level in terms of organic matter. In the most of the soil samples total N, available P in 38.33% of samples and extractable K in 41.67% of samples was determined enough level. Moreover, extractable Ca, Mg and Na of soils varied between 528-10740, 106-2681 and 50-1540 mg kg-1 respectively while, it was found sufficient level in terms of extractable Fe, Cu, Mn in soils. As for B and Zn concentration of soils, 41.67% of soils investigated for this research has insufficient extractable Zn content and 50.00% of soils has also insufficient extractable B concentration.

Keywords: Potato, soil fertility, plant nutrient

DETERMINATION OF YIELD AND QUALITY CHARACTERISTICS OF SOME ALFALFA (Medicago sativa L.) CULTIVARS IN THE EAST ANATOLIA REGION OF TURKEY AND CORRELATION ANALYSIS BETWEEN THESE PROPERTIES

Erdal CACAN
Department of Crop and Animal Production, Vocational School of Genc, University of Bingol, Bingol, Turkey. erdalcacan@gmail.com
Kagan KOKTEN
Department of Field Crops, Faculty of Agriculture, University of Bingol, Bingol, Turkey
Mahmut KAPLAN
Department of Field Crops, Faculty of Agriculture, University of Bingol, Bingol, Turkey

Abstract

This study was conducted to determine yield and some quality features of some alfalfa cultivars for three years between 2014 and 2016 in the East Anatolian Region of Turkey and correlation analysis between these properties. In this study, sixteen different alfalfa cultivars (Verdor, Magna-601, Magnum-V, Basbag, Elci, Kayseri, Nimet, Savas, Omerbey, Ozpinar, Alsancak, Gea, Verko, Sunter, Bilensoy-80 and Gozlu-1) were used. Experiments were conducted in the randomized block design with three replications. According to the results of this study significant differences were determined in terms of plant height, green herbage yield, dry herbage yield, crude protein ratio, crude protein yield, acid detergent fiber (ADF), neutral detergent fiber (NDF), digestible dry matter (DDM), dry matter intake (DMI) and relative feed value (RFV) of alfalfa cultivars. In alfalfa cultivars, the highest green plant height, green herbage yield, dry herbage yield, crude protein yield and relative feed value were determined in Gea (54.7 cm, 3591 kg da-1, 1227 kg da-1, 301 kg da-1 and 262.1, respectively). The highest crude protein ratio was determined in Magnum-V (25.9%). The least ADF contents were obtained from Gea (18.7%) and the least NDF contents were obtained from Gea, Sunter, Nimet and Ozpinar (27.1%, 27.4%, 27.5% and 27.7%, respectively). The highest digestible dry matter was determined in Gea (74.4%). The highest dry matter intake was obtained from Gea, Sunter, Nimet and Ozpinar (4.53%, 4.52%, 4.48% and 4.45%, respectively). Also, significant correlations were found between the traits studied. As a result, Gea variety with high dry herbage and crude protein yield, low ADF-NDF ratios and high relative feed value was recommended for alfalfa culture in similar ecologies. Outside Gea; it seems that Bilensoy-80, Magna-601, Magnum-V, Omerbey, Sunter, Verdor and Verko cultivars gave results above averages and were remarkable in terms of yield and quality.

Keywords: Crude protein, hay yield, lucerne, relative feed value, Eastern Anatolia Region

EVALUATION OF SOME PEA (*Pisum arvense* L.) LINES AND CULTIVARS IN TERMS OF HERBAGE YIELD AND FORAGE QUALITY

Erdal CACAN
Department of Crop and Animal Production, Vocational School of Genc, University of Bingol, Bingol, Turkey. erdalcacan@gmail.com
Kagan KOKTEN
Department of Field Crops, Faculty of Agriculture, University of Bingol, Bingol, Turkey
Hava Seyma YILMAZ
Sutcu Imam University, Faculty of Agriculture, Department of Horticulture, K.maras, Turkey
Mahmut KAPLAN
Erciyes University, Faculty of Agriculture, Department of Field Crops, Kayseri, Turkey

Abstract

This study was conducted to determine some yield and quality attributes and correlation of pea lines and cultivars for two years between 2014 and 2015. In present experiments, fourteen different pea lines and cultivars (88-PO38-4-3-683, Spring Pea 3-638, P57B, P51, P101, P104, Atos, Ozkaynak, Retna, Gatem, Spring, Bolero, Urunlu and Golyazı) were used as the plant material. Experiments were conducted in randomized complete blocks design with three replications. Plant height, green herbage yield, dry herbage yield, crude protein ratio, crude protein yield, crude ash ratio, acid detergent fiber (ADF), neutral detergent fiber (NDF), digestible dry matter (DDM), dry matter intake (DMI) and relative feed value (RFV) were investigated. Significant correlations were found between the traits studied. Plant heights of forage pea genotypes varied between 38.4-92.0 cm, green herbage yields between 874.0-1551.5 kg da-1, dry herbage yields between 129.3-232.1 kg da-1, crude protein ratios between 10.2-16.9%, crude protein yields between 15.4-35.9 kg da-1, crude ash ratios between 9.1-11.6%, acid detergent fiber ratios (ADF) between 27.6-46.0%, neutral detergent fiber (NDF) ratios between 38.1-44.1%, digestible dry matter (DDM) values between 61.7-67.4%, dry matter intake (DMI) values between 2.73-3.18% and relative feed (RFV) values between 130.9-166.4. Considering present findings, Urunlu cultivar with higher green herbage yield, crude protein ratio and crude protein yield and Retna cultivar with low ADF and NDF ratios and higher DDM, DMI and RFV showed superior properties. As such, Urunlu and Retna cultivars can be recommended for forage pea culture in Bingol and similar ecological conditions of East Anatolian Region.

Keywords: ADF, NDF, Correlation, Crude Protein, Pea, Turkey

VARIATIONS IN SCOUR DEPTH AROUND THE BRIDGE ABUTMENT

KÖPRÜ KENAR AYAĞI ETRAFINDA DERİNLİĞİNİN DEĞİŞİMİ

Dr.Öğr.Üyesi. Meral KORKMAZ
Munzur Üniversitesi,Türkiye, meralkorkmaz@munzur.edu.tr

Abstract

Bridges are important engineering structures that connect the riverbanks with abutments and the piers, if available. Today, a high number of bridges are built since they facilitate transportation requirements. Thus, it is necessary to design the bridges with an emphasis on safety and security. Secure bridge design is also very important to prevent loss of life and property. The hydraulic effects of the current on the abutments and the base of the bridges built on the rivers are quite high. The bridge abutments should be selected based on the hydraulic effects of the current on the bridge abutment. Accordingly, bridge safety should be ensured by taking necessary measures on the bridge base or abutments. Studies conducted on heavily damaged or destroyed bridges in recent years demonstrated that the causes of the damage were mostly due to scouring that occurs during floods, in addition to the hydraulic effects. The scours that occur on the river bed during the floods affect the safety of the bridge negatively. As a result, the transportation of the bed material around the bridge abutments or piers leads to scouring in these areas. The scours reduce the stability of bridge abutments and the abutments are destroyed since they could no longer support the bridge. This would result in serious loss of life and property. To solve this problem, it is necessary to take measures against bed scouring and determine the most adequate abutment type for the river regime or alter the river regime to fit the existing abutment type. The present study aimed to investigate the variations in scour depth that occur around the bridge abutments, which are the load-bearing systems for the bridge. The maximum scour depths were interpreted using graphics. Furthermore, the bed topography for the scours around the abutments was plotted with NetCAD software. The scouring around the bridge abutments was investigated and its effects on scour depth were indicated by graphs and a 3D software.

Keywords: Bridge, abutments, scour depth, river.

Özet

Köprüler; akarsuyu kenar ayaklar ve varsa ortada orta ayaklar ile birbirine bağlayan önemli mühendislik yapılarıdır. Günümüzde ulaşım ihtiyacımızı kolaylaştırdığı için oldukça fazla köprü yapılmaktadır. Bundan dolayı köprüler tasarımında güvenli ve emniyetli yapılması gerekmektedir. Güvenli bir köprünün tasarımı can ve mal kaybının önlenmesi açısından da oldukça önemlidir. Akarsular üzerine yapılan köprüler de köprü ayaklarına ve tabanına akımın hidrolik etkileri oldukça fazladır. Akımın köprü ayaklarına yaptığı hidrolik etkiler dikkate alınarak köprü ayakları seçilmelidir. Ve buna göre köprü tabanında veya ayağında gerekli önlemler alınarak köprü güvenliği sağlanmalıdır. Hidrolik etkilerin dışında son yıllarda ağır hasar gören veya yıkılan köprüler üzerinde yapılan çalışmalar incelendiğinde ise, hasar nedenlerinin çoğunun taşkınlar sırasında meydana gelen oyulma olayından kaynaklandığını ortaya koymuştur. Taşkınlar esnasında akarsu tabanın da meydana gelen oyulmalar köprü güvenliğini olumsuz etkilemektedir. Bunun sonucunda köprü kenar veya orta ayakları etrafındaki taban malzemelerinin taşınması sonucu oyulmalar oluşmaktadır. Bu oyulmalar köprü ayaklarının stabilitesini azaltır ve ayaklar köprüyü taşıyamaz hale gelerek yıkılırlar. Bu durumda çok ciddi can ve mal kaybına sebep olacaktır. Bu sorunun çözümü için; taban oyulmalarına karşı önlemler alınması ve akarsu rejimine en uygun ayak tipinin belirlenmesi veya akarsu rejimini mevcut ayak tipine uygun hale getirilip getirilemeyeceği çalışmalarının yapılması zorunlu olmaktadır. Bu çalışmada ise köprünün taşıyıcı sistemi olan kenar ayaklarda meydana gelen oyulmanın derinliğinin değişimi incelenmiştir. Maksimum oyulma derinlikleri grafikler çizilerek yorumlanmıştır. Ayrıca ayak etrafında oluşan oyulmanın taban topoğrafyası netcad programı ile çizilmiştir. Köprü kenar ayağındaki oyulma olayı incelenerek oyulma derinliği üzerine nasıl bir etkisi olduğu grafikler ve 3 boyutlu program ile gösterilerek belirtilmiştir.

Keywords: Köprü, kenar ayak, oyulma derinliği, akarsu.

IMPROVEMENT OF ALUVIAL GROUND WITH INJECTION METHOD

ENJEKSİYON YÖNTEMİ İLE ALÜVYON ZEMİNLERİN İYİLEŞTİRİLMESİ

Dr.Öğr.Üyesi. Meral KORKMAZ
Munzur Üniversitesi,Türkiye, meralkorkmaz@munzur.edu.tr

Abstract

The dam bodies, bottom weirs and spillways should be built on areas with high uniform bearing and low permeability. Dams and reservoirs are risky structures due to their constant contact with water. For this reason, the dam body should be built on the bedrock. The ground groups with poor bearing capacity and high permeability could lead to major problems for dam and reservoir constructions. Alluvial ground is particularly unsuitable for the construction of dams and reservoirs due to its high permeability. Thus, such grounds need to be removed or improved. The present study aimed to analyze Elazığ Baskil Odabaşı Reservoir bed. An unwanted situation was encountered when it was determined that the ground where a bottom weir was planned to be built was alluvial. Since alluvial grounds are permeable, an attempt was made to improve the ground and to reduce its permeability with injection method. For this purpose, experimental injections were applied and data on injection intake volume were obtained.

In the present study, the bearing power and settlement of the alluvial unit discovered on the left bank of Elazıg Baskil Odabaşı Reservoir where a bottom weir conduit would be constructed were determined and the possibility of the removal of the permeability of the alluvial section with the injection method was investigated. Experimental injections were conducted with the equilateral triangle method and pressiometer test. After these experiments, based on the impermeability and bearing strength, settlement and injection intake findings for the alluvial section on the left bank, the impermeability and bearing strength of the section will be reassessed and presented in the conclusion section of the present study Based on the data obtained with the pressiometer tests conducted on Elazıg Baskil Odabaşı Reservoir bed, the foundation type, foundation dimensions and the bearing strength of the foundation ground and the settling potential of the foundation ground based on the depth will be calculated and the results will be interpreted.

Keywords: Dams, alluvial ground, injection method.

Özet

Barajlarda gövde dolgusu, dipsavak ve dolusavak imalatlarının oturacağı zeminin üniform olarak taşıma gücünün yüksek ve geçirimliliğinin az olduğu alanlar üzerinde inşaa edilmesi istenmektedir. Barajlar ve Göletler, su ile temas halindeki yapılar olduğu için riskli yapılardır. Bu sebeple baraj gövdesinin oturacağı zeminin anakayaya oturması istenilmektedir. Taşıma gücü zayıf ve geçirimliliği yüksek zemin grupları Baraj ve Gölet inşaatlar için büyük sorunlar oluşturmaktadır. Alüvyon zeminlerin özellikle geçirimliliği yüksek olması sebebiyle baraj ve gölet yapımında uygun bir zemin grubu değildir. Bu sebeple bu tip zeminlerin ya kaldırılması ya da iyileştirilmesi gerekmektedir. Bu çalışmada Elazığ Baskil Odabaşı Göleti zemini incelenmiştir. Gölet dipsavak imalatının oturacağı kısmın alüvyon zemine denk gelmesi sebebiyle istenmeyen bir durum ile karşılaşılmıştır. Alüvyon zeminlerin geçirimli olması sebebiyle zeminin iyileştirilmesi ve enjeksiyon çalışmalarıyla zemin geçirimsiz hale getirilmeye çalışılmıştır. Bunun için deneme enjeksiyonları yapılmıştır ve enjeksiyon alış miktarları ile ilgili veriler elde edilmiştir.

Bu çalışma da Elazığ Baskil Odabaşı Göleti yerinde Dipsavak Kondüvisinin oturacağı Sol Sahilde ortaya çıkan alüvyon birimin taşıma gücü ve otuma miktarının tespit edilmesi ve geçirimli bir birim olan alüvyonun enjeksiyon ile geçirimsizliğinin sağlanabilirliği araştırılmıştır. Bu amaçla presiyometre deneyi ile Eşkenar Üçgen metodu yöntemiyle deneme enjeksiyonları yapılmıştır. Yapılan bu deneysel çalışmalardan sonra zeminin taşıma gücü ve temel zeminde oluşacak oturma miktarı ile enjeksiyon alış miktarı ile ilgili elde edilen verilerin ışığında sonuç kısmında Sol Sahilde ortaya çıkan alüvyon birimin geçirimsizliği ve taşıma gücü yönünden değerlendirme yapılacaktır. Elazığ Baskil Odabaşı Göleti yerinde yapılan presiyometre deneyleri sonucunda elde edilen verilerin ışığında temel tipi, temel boyutları ve derinliğe bağlı olarak, temel zeminin emniyetli taşıma gücü ile temel zemininde oluşacak oturma miktarı hesapları ile elde edilen sonuçlar değerlendirilecektir.

Anahtar Kelimeler: Baraj, alüvyon zemin, enjeksiyon yöntemi.

ASSESSMENT OF STRUCTURAL INSPECTION APPLICATIONS IN THE CONSTRUCTION SECTOR IN TERMS OF INDIVIDUALS WORKING IN THE SECTOR

İNŞAAT SEKTÖRÜNDE YAPI DENETIMI UYGULAMALARININ SEKTÖRDE ÇALIŞAN BIREYLER AÇISINDAN DEĞERLENDIRILMESI

Aziz İLHAN
Munzur University / Çemişgezek Vocational School / Computer Programming Department
Haydar ERTAŞ
Munzur University / Çemişgezek Vocational School / Department of Building Inspection

Abstract

Audit architect engineers, control engineers and auxiliary control personnel who play an important role in the realization of the projects which have been designed in the construction production process as expected are affected positively or negatively by the characteristics of the sector (Ng, Skitmore, Lam and poon, 2004). However fast to avoid urbanization as a result of rapid population growth and experienced internal migration in our country has brought numerous involves the production of poor quality building, in this case, especially experienced in the wake of natural disasters, civil engineering in Turkey, need training, and the implementation stages of qualification and position are discussed in terms of quality (Gürer and Koç, 1996). The purpose of the research in this framework is to examine the construction supervision practices in the construction sector in the light of the views of the individuals working in the sector. The study was carried out on 64 people selected by appropriate sampling method among the individuals working in 6 construction supervision companies located in two middle sized villages (Tunceli and Elazığ) in the Eastern Anatolia region. The study is a qualitative research due to the fact that it is verbal. Structured Interview Form was used as data collection tool in the research. The data has been exploited by the interpretive content analysis method. As a result of the analysis of the data, the construction supervision companies have determined that the employees do not qualify their personal rights, that the 4708 and 6331 laws can be applied and developed, that the relations with the municipality are in good working order, they actively use the Building Inspection System (BIS), that communication with the contractors of the supervised structures is not good they stated that communication with the employees in the construction process of the audited structures is good. As a result of research findings, proposals have been made to researchers who want to work in this area.

Key words: Building Inspection, Construction, building inspection laws numbered 4708 and 6331, statistics.

Referance

Ng, S.T., Skitmore, R.M., Lam, K.C. ve Poon, A.W.C. (2004). Demotivating Factors Influencing the Productivity of Civil Engineering Projects, International Journal of Project Management, 22(2004), 139–146.

Gürer, İ. ve Koç, M. L. (1996). Civil engineering education in Turkey, IX Engineering Symposium, Isparta, s. 1-6.

Özet

Yapı üretim sürecinde tasarımı tamamlanan projelerin beklenildiği şekilde hayata geçirilme sürecinde önemli rol oynayan denetçi mimar mühendisler, kontrol mühendisleri ve yardımcı kontrol elemanları çalıştıkları sektörün özelliklerinden olumlu veya olumsuz etkilenip demotive olmaktadırlar (Ng, Skitmore, Lam ve Poon, 2004). Bununla beraber ülkemizdeki hızlı nüfus artışı ve yaşanan iç göçlerin sonucu olarak hızlı kentleşmeye gidilmesi çok sayıda kalitesiz yapının üretimini beraberinde getirmiş, bu durum, özellikle yaşanan doğal felaketlerin ardından, Türkiye'deki inşaat mühendisliğini, gerek eğitim, gerekse uygulama aşamasında yeterlilik ve kalite bakımından tartışılır konuma getirmiştir (Gürer ve Koç, 1996). Bu çerçevede araştırmanın amacı, inşaat sektöründeki yapı denetimi uygulamalarını, sektörde çalışan bireylerin görüşleri neticesinde incelemektir. Araştırma Doğu Anadolu bölgesinde bulunan orta büyüklükteki iki ilde (Tunceli ve Elazığ) bulunan 6 yapı denetimi şirketinde çalışan bireyler arasından uygun örnekleme yöntemiyle seçilen 64 kişi üzerinde yürütülmüştür. Çalışma sözel veriler içermesi sebebiyle nitel bir araştırmadır. Araştırmada veri toplama aracı olarak Yapılandırılmış Görüşme Formu kullanılmıştır. Veriler yorumlanırken içerik analizi yönteminden faydalanılmıştır. Verilerin analizi neticesinde yapı denetimi şirketleri çalışanları özlük

haklarını uygun bulmadıklarını, 4708 ve 6331 sayılı kanunların uygulanabilir ve geliştirilebilir olduğunu, belediye ile çalışma bağlamında ilişkilerinin iyi olduğunu, Yapı Denetim Sistemini (YDS) aktif bir şekilde kullandıklarını, denetimi gerçekleştirilen yapıların müteahhitleri ile iletişimlerinin iyi olmadığını ve denetimi gerçekleştirilen yapıların yapım sürecindeki çalışanlar ile iletişimlerinin iyi olduğunu ifade etmişlerdir. Araştırma bulguları neticesinde bu alanda çalışmak isteyen araştırmacılara önerilerde bulunulmuştur.

Anahtar sözcükler: Yapı Denetimi, İnşaat, 4708 ve 6331 sayılı yapı denetim kanunları, istatistik.

Kaynaklar

Ng, S.T., Skitmore, R.M., Lam, K.C. ve Poon, A.W.C. (2004). Demotivating Factors Influencing the Productivity of Civil Engineering Projects, International Journal of Project Management, 22(2004), 139–146.

Gürer, İ. ve Koç, M. L. (1996). Civil engineering education in Turkey, IX Engineering Symposium, Isparta, s. 1-6.

A COLLOCATION METHOD FOR SOLVING THE MODIFIED KDV EQUATION

Seydi Battal Gazi KARAKOC
Nevsehir Haci Bektas Veli University, Department of Mathematics, Faculty of Science and Art, 50300, Turkey, sbgkarakoc@nevsehir.edu.tr
Gökhan TURK
Nevsehir Haci Bektas Veli University, Department of Mathematics, Faculty of Science and Art, 50300, Turkey, gturk53@gmail.com

Abstract

A nonlinear wave phenomenon is one of the important areas of scientific research which many scientists during the past have studied. Various mathematical models such as KdV equation, RLW equation, Rosenau equation and many others have been designed by scientists. In the study of the Dynamics of dense discrete systems, the case of wave-wave and wave-wall interactions cannot be described using the well-known KdV equation. To overcome the shortcoming of the equation Rosenau proposed the Rosenau equation.

In this study, numerical solutions of the modified Korteweg- de Vries (MKdV) equation have been obtained by collocation finite element method using quintic B- spline functions. Solitary wave motion, interaction of two and three solitary waves are studied using the suggested method. Accuracy and efficiency of the proposedmethod are tested by calculating the numerical conserved laws and error norms L2 and L∞. The obtained results show that the method is an effective numerical scheme to solve the MKdV equation. In addition, a linear stability analysis of the scheme is found to be unconditionally stable.

Keywords: Modified Korteweg-de Vries equation; finite element method; collo- cation; quintic B-spline.

AMS classification: 65N30, 65D07, 74S05,74J35, 76B25.

References

Korteweg, D. J. & De Vries G. (1895) On the change of form of long waves advancing in a rectangular canal, and on a new type of long stationary wave. Philosophical Magazine, 39: 422-443.

Ismail, H. N. A., Raslan, K. R. & Salem, G. S. E. (2004) Solitary wave solu- tions for the general KdV equation by adomain decompositon method. Applied Mathematics and Computation, 154(1): 17-29.

Wazwaz, A.-M. (2008) New sets of solitary wave solutions to the KdV, mKdV and the generalized KdV equations. Communications in Nonlinear Science and Numerical Simulation, 13(2): 331-339.

Mansour, M. B. A. (2012) Traveling waves for a dissipative modified KdV equa- tion. Journal of the Egyptian Mathematical Society, 20(2): 134-138.

Miura, R. M., Gardner, C. S. & Kruskal, M. D. (1968) Korteweg-de Vries equa- tion and generalizations. II. Existence of Conservation Laws and Constants of Motion. Journal of Mathematical Physics, 9(8): 1204.

THE SPECIAL GAPS OF SOME ARF NUMERICAL SEMIGROUPS

Burak Yasin YALÇIN
Batman University, Institute of Science, Master's Degree in Mathematics, Batman-Turkey
burakyasin_yalcin@hotmail.com
Meral SÜER
Batman University, Faculty of Science and Letter, Department of Mathematics, Batman-Turkey,
meral.suer@batman.edu.tr

Abstract

The concept of special gap of a numerical semigroup is used to by the problem of finding the set of all numerical semigroups containining a given numerical semigroup. In this study, we will find the specific gaps of some Arf numerical semigroups families and all numerical semigroups containining them.

Keywords: Numerical semigroups, special gaps, Arf numerical semigroup.

References

Arf, C., Une interpretation algebrique de la suite des orderes de multiplicite d'une branche algebrique. Proc. London Math. Soc., 50(2) , 256-287 (1949). .

Barucci, V., Dobbs, D.e., Fontana, M., Maximality properties in numerical semigroups and applications to one-dimensional analyticalle irreducible local domain. Memoirs of the Amer. Math. Soc., 598 , 13-25 (1997).

Froberg, R., Gottlieb, C., Haggkvist, R., On numerical semigroups. Semigroup Forum, 35 , 63-83 (1987).

Garcia-Sanchez, P.A., Heredia, B.A., Karaka¸s, H.˙I., Rosales, J.C., Parametizing Arf numerical semigroups. J. Algebra Appl., 16(11), 31 pages (2017).S. M Johnson, A linear Diophantine problem, Can. J. Math., 12 (1960), 390-398

Rosales, J.C., Branco, M.B., Numerical semigroups that can be expressed as an intersection of symmetric numerical semigroups. J. Pure Appl. Algebra., 171(2-3),303-314(2002).

Rosales, J.C., Garcia-Sanchez, P.A.,Garcia-Garcia, J.I.,JimenezMadrid, J.A., The over semigroups of a numerical semigroup. Semigroup Forum, 67, 145-158(2003).

Rosales, J.C., Garcia-Sanchez, P.A., Numerical semigroups. Springer, New York 181, (2009).

SOME FIXED POINT RESULTS IN GENERALIZED METRIC SPACES

S. Melike AYDOĞAN
[1]Istanbul Technical University, Department of Mathematics, Istanbul, Turkey;
aydogansm@itu.edu.tr
Sh. REZAPOUR
Azarbaijan Shahid Madani University, Department of Mathematics, Tabriz, Iran;
sh.rezapour@azaruniv.edu
F. Müge SAKAR
Batman University, Department of Business Administration, Batman, Turkey;
mugesakar@hotmail.com

Abstract

In this paper, we give some fixed point results in D^*-complete metric spaces under some conditions. Also, we give a result about D^*-version of some result of Suzuki.

Keywords: Generalized metric space, some fixed point, complete metric space, common fixed point, multi-valued mappings.

References

[1] F. Agliari, M. Cicchese, Continuity conditions and convergence properties in generalized metric spaces, Riv. Mat. Univ. Parma (Italian), 2 (4) (1979), pp. 329-336.

[2] P. Azzimondi, C. Scaravelli, A xed-point theorem in generalized metric spaces, Riv. Mat. Univ. Parma (Italian), 5 (4) (1979), pp. 773-780.

[3] P. Azzimondi, C. Scaravelli, An observation on a xed-point theorem in generalized metric spaces, Riv. Mat. Univ. Parma (Italian), 7 (4) (1981), pp. 507-508.

[4] P. Azzimondi, C. Scaravelli, The common fixed point of two mappings in generalized metric spaces, Rend. Istit. Mat. Univ. Trieste (Italian), 15 (1-2) (1983), pp. 39-49.

[5] P. Azzimondi, C. Scaravelli, The common fixed point of two mappings in generalized metric spaces, Riv. Mat. Univ. Parma (Italian), 10 (4) (1984), pp. 161-176.

[6] B. K. Lahiri, P. K. Saha, R. Tiwari, A generalized metric space is not Hausdorff, Bull. Calcutta Math. Soc., 16 (2) (2008), pp. 177-178.

[7] E. Muhamadiev, V. J. Stecenko, A fixed point principle in generalized metric space, (Russian) Izv. Akad. Nauk Tadzik. SSR Otdel. Fiz.-Mat. Geolog.-Him. Nauk, 4 (34) (1969), pp. 8-19.

[8] Jun-iti Nagata, On multi-valued mappings and generalized metric spaces, Proc. Japan Acad., 46 (1970), pp. 93-940.

[9] I. A. Rus, Approximation of common fixed point in a generalized metric space, Anal. Numer. Theor. Approx., 8 (1) (1979), pp. 83-87.

[10] S. P. Singh, C. W. Norris, Fixed point theorems in generalized metric spaces, Bull. Math. Soc. Sci. Math. R. S. Roumanie (N.S.), 14 (62) (1970), pp. 87-91.

[11] D. J. Souppouris, Generalized metric spaces are paracompact, Math. Proc. Cambridge Philos. Soc., 77 (1975), pp. 325-326.

[12] T. Suzuki, A new type of fixed point theorem in metric spaces, Nonlinear Analysis, 71 (2009), pp. 5313-5317.

NUMERICAL SOLUTIONS OF GR-RLW EQUATION USING COLLOCATION METHOD WITH SEPTIC B-SPLINES

Seydi Battal Gazi KARAKOC
Nevsehir Haci Bektas Veli University, Department of Mathematics, Faculty of Science and Art, 50300, Turkey, sbgkarakoc@nevsehir.edu.tr
Gökhan TURK
Nevsehir Haci Bektas Veli University, Department of Mathematics, Faculty of Science and Art, 50300, Turkey, gturk53@gmail.com

Abstract

A nonlinear wave phenomenon is one of the important areas of scienti_c research which many scientists during the past have studied. Various mathematical models such as KdV equation, RLW equation, Rosenau equation and many others have been designed by scientists. In the study of the Dynamics of dense discrete systems, the case of wave-wave and wave-wall interactions cannot be described using the well-known KdV equation. To overcome the shortcoming of the equation Rosenau proposed the Rosenau equation.

In this work, generalized Rosenau-RLW (GR-RLW) equation has been solved numerically by using collocation finite element method with septic B-spline func- tions. Accuracy of the suggested method is examined by computing the numerical conserved laws L2, L∞ error norms and lowest two invariants IM and IE. The ob- tained numerical results are compared with some published numerical solutions. This comparison indicates that our results are better than or found in good agree- ment with them. A linear stability analysis of the scheme is also investigated.

Keywords: Generalized Rosenau–RLW equation; finite element method; collo- cation; septic B-spline.

References

Pan, X. and Zhang, L. Numerical simulation for general Rosenau-RLW Equa- tion: An Average Linearized Conservative Scheme, Mathematical Problems in Engineering, 2012, Article ID 517818, 15 pages (2012).

Mittal, R. C. and Jain, R.K. Numerical solution of general Rosenau- RLW,equations using quintic B-splines collocation method, Commun. Numer. Anal.,Article ID cna-00129, pp. 1-16 (2012).

Wongsaijai, Ben. Poochinapan, K. and Disyadej, T. A compact nite difference method for solving the general Rosenau-RLW equation, IAENG international journal of applied mathematics, 44(4), pp. 1-8 (2014).

Wang, H.Wang, J. and Li, S. A new conservative nonlinear high order compact finite difference scheme for the general Rosenau- RLW equation, Bound. Value Probl., 2015(77), pp. 1-16 (2015).

Cai, W. Sun, Y. and Wang, Y. Variational discretizations for the generalized Rosenau type equations, Appl. Math.Comput., 271, pp. 860-873 (2015).

INITIAL FABER POLYNOMIAL COEFFICIENT ESTIMATES FOR A SUBCLASSES OF M-FOLD SYMMETRIC AND BI-UNIVALENT FUNCTIONS

Adnan CANBULAT
Batman University, Institute of Science, Master's Degree in Mathematics, Batman-Turkey, canbulatadnan@hotmail.com
Fethiye Müge SAKAR
Batman University, Faculty of Management and Economics, Department of Business Administration, Batman-Turkey, mugesakar@hotmail.com

Abstract

A function is said to be univalent (or schlicht) if it never takes the same value twice: $f(z_1) \neq f(z_2)$ if $z_1 \neq z_2$. A function f in the class of analytic functions is said to be bi-univalent in the open unit disc $U = \{z \in \mathbb{C} : |z| < 1\}$ if both f and f^{-1} are univalent in U. Also, The Faber polynomials for a region of the complex plane are of interest as a basis for polynomial approximations to analytic functions. The purpose of the present paper is to introduce a new subclass of bi-univalent functions f and its inverse f^{-1} which are m-fold symmetric analytic functions in the open unit disc. We also determine the estimate for the general Taylor-Maclaurin coefficient of the functions in this class. Furthermore, using the Faber polynomial expansion, initial upper bounds of coefficients for analytic bi-univalent functions are found in this study.

Keywords: Analytic functions, Univalent functions, Bi-univalent functions, m-fold symmetric.

References

H. Airault and A. Bouali, Differential calculus on the Faber polynomials, Bull. Sci. Math. 130 (3) (2006), 179–222.

H. Airault and J. Ren, An algebra of differential operators and generating functions on the

set of univalent functions, Bull. Sci. Math. 126 (5) (2002), 343–367.

G. Faber, Über polynomische Entwickelungen, Math. Ann. 57 (3) (1903), 389–408.

S.G. Hamidi, S.A. Halim and J.M. Jahangiri, Coefficient estimates for a class of meromorphic bi-univalent functions, C. R. Acad. Sci. Paris, Ser. I 351 (9-10) (2013), 349–352.

F.M. Sakar and H.O. Güney, Faber Polynomial Coefficient Estimates for Subclasses of m-Fold Symmetric Bi-univalent Functions Defined by Fractional Derivative, Malaysian Journal of Mathematical Sciences 11(2) (2017), 275–287.

INITIAL COEFFICIENT BOUNDS ON SOME SUBCLASSES OF M-FOLD SYMMETRIC BI-UNIVALENT FUNCTIONS

Naci TAŞAR
Batman University, Institute of Science, Master's Degree in Mathematics, Batman-Turkey, e-mail: nacitasar_72@hotmail.com
Fethiye Müge SAKAR
Batman University, Faculty of Management and Economics, Department of Business Administration, Batman-Turkey, mugesakar@hotmail.com

Abstract

Let the functions $f(z) = z + a_2 z^2 + a_3 z^3 + \ldots$ and its inverse f^{-1} be analytic and univalent in the open unit disc. Such class of functions are called bi-univalent and generally, denoted by Σ. In this work, we consider two new subclasses of function class Σ_m consisting of analytic and m-fold symmetric bi-univalent functions in the open unit disc U. Furthermore, for functions in each of the subclasses introduced in the present investigation, we obtain non-sharp bounds on the initial coefficients $|a_{m+1}|$ and $|a_{2m+1}|$. Finally, several closely-related earlier known results are indicated in the form of corollaries. Thus, for certain cases, our estimates improve some of those existing coefficient bounds.

Keywords: Univalent functions, Bi-univalent functions, Coefficient bounds.

References

P. L. Duren, Univalent Functions, Grundlehren der Mathematischen Wissenschaften, Springer, New York, NY, USA, 1983.J. M. Jahangiri and S. G. Hamidi, "Coefficient estimates for certain classes of bi-univalent functions", International Journal of Mathematics and Mathematical Sciences, vol. 2013, Article ID 190560, 4 pages, 2013.

C. Pommerenke, Univalent Functions, Vandenhoeck & Ruprecht, Göttingen, Germany, 1975.

H. M. Srivastava, S. Bulut, M. Çağlar, and N. Yağmur, "Coefficient estimates for a general subclass of analytic and biunivalent functions", Filomat, vol. 27, no. 5, pp. 831–842, 2013.

H. M. Srivastava, A. K. Mishra, and P. Gochhayat, "Certain subclasses of analytic and bi-univalent functions," Applied Mathematics Letters, vol. 23, no. 10, pp. 1188–1192, 2010.

H. M. Srivastava, S. Sivasubramanian, and R. Sivakumar, "Initial coefficient bounds for a subclass of m-fold symmetric biunivalent functions", Tbilisi Mathematical Journal, vol. 7, no. 2, pp. 1–10, 2014.

Q.-H. Xu, Y.-C. Gui, and H. M. Srivastava, "Coefficient estimates for a certain subclass of analytic and bi-univalent functions", Applied Mathematics Letters, vol. 25, no. 6, pp. 990–994, 2012.

SOME RESULTS ABOUT COMMON FIXED POINT THEOREMS FOR MULTI-VALUED MAPPINGS

S. Melike AYDOĞAN
Istanbul Technical University, Department of Mathematics, Istanbul, Turkey;
aydogansm@itu.edu.tr
F. Müge SAKAR
Batman University, Department of Business Administration, Batman, Turkey;
mugesakar@hotmail.com
Sh. REZAPOUR
Azarbaijan Shahid Madani University, Department of Mathematics, Tabriz, Iran;
sh.rezapour@azaruniv.edu

Abstract

Fixed point theory is one of the most powerful and fruitful tools in nonlinear analysis. Its core subject is concerned with the conditions for the existence of one or more fixed points of a mapping or multi-valued mappings T from a topological space X into itself, that is, we can find $x \in X$ such that $Tx = x$ (for mapping) or $x \in Tx$ (for multi-valued mapping).

V. Popa has proved common fixed point theorems for multi-valued mappings which verify rational inequalities, which contain the Hausdorff metric in their expressions. Recently, A. Petcu has proved other common fixed point theorems for two or more multi-valued mappings without using the Hausdorff metric. In this study, by providing some different conditions we shall study existence of common fixed points for multi-valued mappings.

Keywords: Complete metric space, common fixed point, multi-valued mappings.

References

[1] A. Petcu, Common Fixed Points for Multifunctions Satisfying a Polynomial Inequality, Bultinul Universitatii Petrol-Gas din Ploiesti, Seria Matematica-Informatica-Fizica, Vol.LXII, pp.60-65, 2010.

[2] V. Popa, Common fixed points for multifunctions satisfying a rational inequality, Kobe Jornal of Mathematics, 2 (1), pp 23-28, 1985.

[3] I .A. Rus, Fixed points Theorems for Multi-valued Mappings in Complete Metric spaces, Mathematica Japonicae, 20, pp.21-24, 1975.

COMPARISON OF EXTRACORPOREAL SHOCK WAVE THERAPY AND WRIST EXTENSOR SPLINT APPLICATION IN THE TREATMENT OF LATERAL EPICONDYLITIS: A PROSPECTIVE RANDOMIZED CONTROLLED STUDY

Dr.Öğr.Üyesi. Abdulkadir AYDIN
Dicle University Medical School Prosthetics and Orthotics Department/ Diyarbakır
akcosut@dicle.edu.tr

Abstract

Background: Extracorporeal shock wave therapy (ESWT) and wrist extensor splint (WES) are two commonly used methods in the treatment of lateral epicondylitis. In this study, efficacy of these two methods was compared.

Methods: The study was planned as a prospective randomized controlled study. Sixty-seven patients were enrolled. The patients were divided into two groups; Group 1 received ESWT (32 patients) and Group 2 received WES (35 patients). The patients in Group 1 underwent 4 sessions of ESWT once every week. In each session, an ESWT device at 10–12 Hz, 2000 pulses and 1.6–1.8 bar pressure was used. The patients in Group 2 used a wrist splint, holding the wrist at a 30°–45° extension for 4 weeks. Both groups were given isometric and eccentric exercises for wrist and forearm strengthening. Patients were assessed for handgrip strength, pain at rest, pain while working and quality of life. The data were collected before and after treatment (at weeks 4, 12 and 24). A visual analogue scale (VAS) was used to evaluate pain at rest and while working; hand dynamometer was used for handgrip strength; subscales of short form SF-36 was used to evaluate the quality of life; the Turkish version of the patient-rated tennis elbow evaluation (PRTEE-T) was used to evaluate functioning of the affected arm during various daily life activities; and Nirschl scores were used to evaluate pain in the affected arm during exercise.

Results: In both ESWT and WES groups, although there were considerably significant improvements ($p < 0.001$) in the evaluated parameters (pain at rest and pain while working, handgrip strength, patient-rated tennis elbow evaluation (PRTEE)-T score, Nirschl score and subscales of SF-36 (general health, physical functioning, physical role functioning, emotional role functioning, social functioning, bodily pain, mental health and vitality)) were observed at 4, 12 and 24 weeks compared to pretreatment values, there was no statistically significant difference between the two groups in terms of our evaluation parameters at the three time points ($p > 0.05$).

Conclusion: Both ESWT and WES application were found to yield significantly superior results when compared to pretreatment values. In comparison of the two groups, on the other hand, there was no statistically significant difference.

Keywords: Lateral epicondylitis, extracorporeal shock wave therapy, wrist splint, pain, quality of life

EFFECTS OF THE USE OF CONVENTIONAL VERSUS COMPUTER-AIDED DESIGN/COMPUTER-AIDED MANUFACTURING SOCKETS ON CLINICAL CHARACTERISTICS AND QUALITY OF LIFE OF TRANSFEMORAL AMPUTEES

Abdulkadir AYDIN
Dicle University Medical School Prosthetics And Orthotics Department/ Diyarbakir,
Akcosut@Dicle.Edu.Tr
Ramazan ATIÇ
Dicle University Medical School Orthopedics and Traumatology Department/Diyarbakir
Zekiye Sevinç AYDIN
Dicle University Ataturk health services vocational high School/Diyarbakir
Celil ALEMDAR
Dicle University Medical School Orthopedics and Traumatology Department/Diyarbakir
Mehmet KARAKOÇ
Dicle University Medical School Physical Medicine and Rehabilitation Department/Diyarbakir
Kemal NAS
Dicle University Medical School Physical Medicine and Rehabilitation Department/Diyarbakir
Serda EM
Dicle University Medical School Physical Medicine and Rehabilitation Department/Diyarbakir

Abstract

Background: Amputee mobilization requires prosthetic device use regardless of the amputation level and type. The socket is the most important part of the prosthesis and is manufactured by conventional methods worldwide. Recently, computer-aided design/computer-aided manufacturing (CAD/CAM) systems have been frequently used in Europe and the United States for socket design. With CAD / CAM method socket production is increasing day by day. Are the sockets obtained by this method advantageous and disadvantageous in terms of amputations compared to the sockets obtained by the conventional method? These results will provide guidance for units and centers that produce both under-knee and below-knee prosthesis. For this purpose, we investigated whether there are differences between amputees fitted with conventional sockets and those fitted with CAD/CAM sockets in terms of their clinical characteristics and quality of life (QOL).

Methods: In total, 56 patients, 28 fitted with a conventional socket (CS group) and 28 fitted with a CAD/CAM socket (CAD/CAM group), were included. The duration of daily prosthetic use, walking time with the prosthesis, walking distance with the prosthesis, walking time with the prosthesis without pain, time of adaptation to the prosthesis, causes of amputation and manufacturing and fitting time of the prosthesis were investigated. Quality of life was evaluated using 36-item Short-Form Health Survey and Turkish version of the Trinity Amputation and Prosthesis Experience Scales (TAPES). Pain was evaluated using the visual analogue scale (VAS).

Results: General and mental health statuses were some better in the CAD/CAM group. Results were more favourable in the CAD/CAM group for the other items of the Short-Form 36 (SF-36) questionnaire ($p > 0.05$). The CAD/CAM group performed better in restriction of activity subscale ($p = 0.012$). There were no statistically significant differences between the groups regarding other parameters of TAPES ($p > 0.05$). The daily walking time with the prosthesis was higher in the CAD/CAM group than in the CS group (statistically significant; $p = 0.020$). The manufacturing and fitting time of the prosthesis was significantly different between the CAD/CAM and CS groups ($p = 0.017$). The VAS pain score was significantly different favouring the CAD/CAM group ($p < 001$).

Conclusions: Prosthetic sockets manufactured for above-knee amputees using the CAD/CAM method yielded some better outcomes than those manufactured with conventional methods in terms of quality of life.

Keywords: CAD/CAM Socket, Conventional Socket, Transfemoral Amputation, Quality of Life, TAPES, SF-36

DETERMINATION OF THE SKIN CANCERS INCIDENCE AND EVALUATION OF PATIENTS SERUM PARAMETERS

Hasan KARAGECILI
Siirt University, School of Health, 56100, Siirt, Turkey, hasankaragecili@siirt.edu.tr
Emrah YERLIKAYA
Siirt University, School of Health, 56100, Siirt, Turkey, emrahyerlikaya@siirt.edu.tr
Mustafa Oguzhan KAYA
Siirt University, Faculty of Veterinary Medicine, 56100, Siirt, Turkey, oguzhan@siirt.edu.tr

Abstract

Skin cancer is the most common type of cancer throughout the world, and its incidence continues to increase annually. Basal cell carcinoma (BCC) is the most common skin cancer among white races in the world, accounting for 70% of non-melanoma skin cancers. In the United States, 1-3 million melanoma skin cancers are diagnosed each year. The country with the highest incidence of these cancers is Australia. It has four times more prevalence than other whole cancers [1]. Squamous cell carcinoma (SCC) is a malignant tumour arising from squamous keratinocytes in the epidermis of the skin or mucous membranes. BCC and SCC are known as non-melanoma skin cancers. Cancers deriving from melanocytes (melanoma) is less common than BCC and SCC. SCC responsible from deaths in rare cases but malanoma is responsible for the most deaths of the skin cancer. Basal cell carcinoma, squamous cell carcinoma and malign melanoma cancers patients biochemical serum datas were examined retrospectively with using Hospital information system. The incidence of the patients were determined. BCC patients number were recorded as 155 with 63%, SCC patients number were enrolled in73 with 30% and malign melanoma patients number were noted as 10 with 4%. Skin cancers were recorded to be the most seen cancer types in 246 patients with 22 % in five years (between 2013-2017 years). Skin cancers incidence were detected approximately as 49 patients in each year. All types of cancer patients number were calculated as 1134 between these years. Skin cancer patients serum parameters levels were compared with control group serum parameters. In this study, there were seen statisticaly significant difference between skin cancer patient's serum glucose, ast, alt, sodium, bilirubin direct, bilirubin total, creatinine, urea level and control group serum parameters level, $p<0.05$. This study was approved ethically by the decision of Siirt University Non-Interventional Clinical Research Ethics Committee dated 24/05/2017 and number 02.02.

Keywords: Skin cancer, bazal cell, squamouse cell, carcinoma, malign

Acknowledgement

This study was supported by Siirt University Scientific Research Projects Coordination (2017-SİÜSYO-66).

References

1. Cho E.A, Moloney F.J, Cai H, Yeung A.A, China C, Scolyer R.A, Yosufi B, Raftery M.J, Deng J.Z, Morton S.W, Hammond P.T, Arkenau H.T, Damian D.L, Francis D.J, Chesterman C.N, Barnetson R.S.C, Halliday G.M, Khachigian L.M. (2013) Safety and tolerability of an intratumorally injected DNAzyme, Dz13, in patients with nodular basal-cell carcinoma: a phase 1 first-in-human trial (DISCOVER). Lancet;381:1835–43

EVALUATION OF SOME BIOCHEMICAL PARAMETERS OF SICKLE CELL ANEMIA PATIENTS WITH HEALTHY INDIVIDUALS

Emrah YERLIKAYA
Siirt University, School of Health, 56100, Siirt, Turkey, emrahyerlikaya@siirt.edu.tr
Hasan KARAGECILI
Siirt University, School of Health, 56100, Siirt, Turkey, hasankaragecili@siirt.edu.tr
Mustafa Oguzhan KAYA
Siirt University, Faculty of Veterinary Medicine, 56100, Siirt, Turkey, oguzhan@siirt.edu.tr

Abstract

Thalassemia is the most frequently seen monogenetic disorders around the world that is inherited as a recessive single-gene disease, resulting from mutations in α- or β-globin gene clusters [1]. At the head of hemoglobinopathies are diseases such as beta thalassemia major, beta thalassemia minor and sickle cell anemia and these diseases required follow-up in the Department of Public Health. These diseases are detected and followed up according to the desired test result from the individuals who apply for marriage. In this study, serum parameters of patients diagnosed due to sickle cell anemia and the healthy control individuals were examined retrospectively between 2015-2017 in Public Health information system. This serum biochemical tests datas were controlled and taken from Siirt State Hospital Information System. Within 3 years, 22455 people applied to the Public Health Department and 99 of them were diagnosed as sickle cell anemia patients. Almost 33 new sickle cell anemia patients record were recognised in each years. In addition, the relationship between patient characteristics (age, sex, etc.) and serum biochemical test levels were examined. Sickle cell anemia patients serum parameters levels were compared with control group serum parameters. There were seen statisticaly significant difference between sickle cell anemia patient's serum ast, alt, albumin, sodium, calcium, bilirubin direct, bilirubin total, cholesterol, LDL level and control group serum parameters levels, $p<0.05$. This study was approved ethically by the decision of Siirt University Non-Interventional Clinical Research Ethics Committee dated 24/05/2017 and number 02.03.

Acknowledgement

This study was supported by Siirt University Scientific Research Projects Coordination (2017-SİÜSYO-76).

Keywords: Hemoglobinopathy, Sickle Cell, Anemia, Thalassemia

References

Tang, W.J., Zhang, CL., Lu, FF., Tang, J., Lu, Y., Cui, X., Qin, X., Li, S. Spectrum of α-thalassemia and β-thalassemia mutations in the Guilin Region of southern China. Clinical Biochemistry. 2015, 48(16-17), 1068–1072.

CLINICAL AND RADIOLOGIC RESULTS OF OPEN REDUCTION AND FIXATION WITH LOCKED PLATE SCREWS IN PROXIMAL HUMERUS FRACTURE DISLOCATION

Dr. Ramazan ATİÇ

Abstract

Background: Proximal fracture dislocations of the humerus are rarely seen in society compared to other fractures. In our study, we evaluated the clinical and radiological results of patients who underwent open reduction and locked plate screw fixation with proximal humerus fracture dislocation.

Methods: Between January 2009 and January 2016, 17 patients were treated with open reduction and locking plate screws in the Department of Orthopedics and Traumatology at the Faculty of Medicine, Dicle University. Patients were divided into 2 groups according to age. Group 1 consisted of 6 patients over 65 years of age and the mean age was 77.5 (69-87). Group 2 consisted of 11 patients under 65 years of age and the mean age was 41.6 (24-60). Group 1 consisted of all female patients and Group 2 consisted of male patients. Patient fractures were classified according to Neer Classification. Oxford Shoulder Scale, DASH Score, and Constant Murley Score were used in the clinical evaluation of the patients. Avascular necrosis phase was performed according to Cruess Phase

Results: The mean follow-up period of the patients was 13.8 months (range 10-38). The mean duration of surgery was 1.11 days (range 0-4). According to the Neer classification, 11.8% of the cases were in two-part fracture dislocation, 64.7% in three-part fracture dislocation and 23.5% in four-part fracture dislocation. There was a statistically significant difference between Oxford and DASH scores in evaluating the clinical outcome according to age groups ($p = 0{,}001$, $p = 0{,}049$). Avascular necrosis was observed in 14 of 17 (82.3%) patients. Additional complications such as wound infection, uncomplication were not observed.

Conclusion: In proximal humerus fracture–dislocations, the first surgical choice should be open reduction and internal fixation in young patients, whereas internal fixation in addition to arthroplasty should be considered in elderly patients.

Key words: Humerus, fracture, avascular necrosis, open reduction, plate

KRONİK HASTALIKLARIN TEDAVİSİNDE OYUN TERAPİSİ DESTEĞİ

GAME THERAPY SUPPORT İN THE TREATMENT OF CHRONIC DISEASES

Yasemin OĞUZ GÜNER

Özet

Kronik Hastalıklar, tüm dünyada ve ülkemizde sayısı hızla artan en önemli sağlık sorunlarındandır. Koruyucu sağlık önlemleri ve eğitimin yanı sıra tıbbi tedavi seçeneklerin geliştirilmesi için yapılan çalışmalar, bugün bu hasta grubunun sağ kalımında artma sağlarken, yaşam kalitesi istenilen düzeye getirilememektedir. Yaşam kalitesi, medikal desteği yaşam boyu sürdürme zorunluluğu olan kronik hastaların ortak sorunudur. Kanser, kronik organ yetmezliği ve organ nakli hastaları, tedavi süreçlerinin belirsizliği ile birlikte, çalışamama, aile içi görev kaybı, toplum dışına itilme gibi nedenlerle de pek çok psikososyal sorun yaşamaktadırlar. Bu sebeple multidisipliner yaklaşımda kronik hastalar, anksiyete ve depresyon başta olmak üzere çeşitli psikolojik sorun ve stresle başetme yöntemleri için klinik psikolog ve uğraş terapistleri gibi profesyonellerin de yardımına ihtiyaç duymaktadırlar.

Her yaştan insanı fizyolojik ve ruhsal açıdan etkileyen kronik hastalıklarla mücadele, hastaların oyunla, duygusal, psikosomatik, fiziksel ve diğer mekanizmaları harekete geçirerek onlarda stresle başetme ve rahatlama yöntemlerini kazandırmak, kendilerini anlamalarına, ifade etmelerine ve sorunlarının çözümünde farkındalıklarına imkan sağlayacağı düşünülmektedir.

Bu çalışmanın amacı, oyun terapisinin çocuklarda, gençlerde, yetişkinlerde, çiftlerde uygulanırlığının, kronik hastalıkla mücadele eden bireylerde de gerçekleştirilebileceğini ortaya koymaktır. Bir iletişim aracı olarak oyun, sözsüz ifade etme imkanı tanıyarak içine kapanan, duygularını kelimelere dökmekte zorlanan ya da kendi sorunlarına farkındalık geliştirmede kullanılmaktadır. Oyun esnasında uzman, bireylerin dışavurumuyla onların davranışlarını inceleme fırsatı bulur. Kronik hastaların bilişsel, duygusal, fiziksel, dilsel ve sosyal yönden kayıplarını, anksiyete, depresyon gibi dönüşen sorunlarını, yönlendirilmiş ya da yönlendirilmemiş oyun terapisi yoluyla aydınlatmak ve bu tür hastalara alternatif destek sunmak mümkündür. Hastaların zorlu tedavi sürecinde en çok ihtiyaç duydukları "seni dinliyorum", "seni önemsiyorum", "senin için burdayım", "seni anlıyorum", "başarabilirsin" desteğini vermede yapılabilecek uygulamalardan biri de oyun terapisi olduğu düşünülmektedir. Bu çalışmada, oyun terapisi kuramları ile kronik hastalıklarda kullanılabilmesi tartışılmıştır.

Anahtar Kelime: Kronik Hastalık, Oyun Terapisi, Yaşam Kalitesi, Psikososyal Destek

Abstract

Chronic Illnesses are the most important health problems that are rapidly increasing in the world and in our country. Preventive health care and education as well as studies for the development of medical treatment options have led to an increase in the survival of this patient group, but the quality of life can not be achieved at the desired level. The quality of life is the common problem of chronic patients who have the obligation to maintain life-long medical support. Cancer, chronic organ failure and organ transplant patients are living with many psychosocial problems due to reasons such as inability to work, loss of family duties, and pushing out of society together with uncertainty of the treatment process. For this reason, the multidisciplinary approach needs the help of professionals such as clinical psychologists and occupational therapists for various psychological problems, especially chronic patients, anxiety and depression, and stress coping methods.

It is thought that fighting chronic diseases that affects people of all ages physiologically and psychologically will enable them to act in ways such as playing, emotional, psychosomatic, physical and other mechanisms in order to help them to cope with stress and relaxation methods, to express themselves in their understandings and to be aware of their problems.

The aim of this study is to demonstrate that the application of gaming therapy in children, adolescents, adults, couples can also be achieved in individuals fighting chronic diseases. As a means of communication, play is used to provide a means of expressing verbal abuse, to force emotions into words, or to develop awareness of their own problems. During the game, the expert finds the opportunity to examine their behavior with the expression of the individual. It is possible to elucidate the cognitive, emotional, physical, linguistic and social deficits of chronic patients, such as anxiety and depression, through guided or unguided

play therapy, and offer alternative support to such illnesses. It is thought that one of the applications that can be done with the support of "I listen to you", "I care about you", "I understand you", "I am here for you", "can accomplish" most needed in the difficult treatment of patients. In this study, it was discussed that the theories of play therapy and its use in chronic diseases.

Keywords: Chronic Disease, Play Therapy, Quality of Life, Psychosocial Support

INVESTIGATION OF FATIGUE LIFE OF NEW DESIGNED GATLING GUN STRIKER

İbrahim Halil GÜZELBEY
Aircraft and Aerospace Engineering Department, Aeronautics and Aerospace Faculty/Gaziantep University; guzelbeyih@gantep.edu.tr
Edip ÖZTÜRK
Aircraft and Aerospace Engineering Department, Aeronautics and Aerospace Faculty/Gaziantep University; edipozturk@gantep.edu.tr
Mehmet Hanifi DOĞRU
Pilotage Department, Aeronautics and Aerospace Faculty/Gaziantep University;mhdogru@gantep.edu.tr

Abstract

The Gatling gun is an old war machine that has multiple barrels. These barrels rotate around a central axis and placed on a kind of drum. Since every barrel used for shooting only once per revolution of drum, every single barrel has enough time for cooling off. This cooling operation ensures that time for recycling for barrels can be shorter. A modern Gatling gun has a firing capacity nearly 2000 bullets per minute. This means every barrel and firing mechanism located inside drum are used 670 times per minute. When the working speed of barrel is considered, it is seen that the fatigue life becomes an important issue for every part of this type of gun. Striker is the most critical part of Gatling gun firing mechanism, as every weapon. A striker is used applying force to primer of bullet to ignite propellant. Striker shape is as important as recycling time in terms of bullet primer-striker interaction. Hence, in this study, new designed Gatling gun striker is investigated in terms of fatigue life. Three different striker geometries, which are flat, spherical and edged, is used to perform the study. Numerical simulation of the study is fulfilled using ANSYS-Workbench, which is finite element program. Static structural analysis is chosen for analysis system to perform numerical study. Structural steel is assigned for the striker material. Firing load is applied the tip of striker as 100 N. At the end of the study, fatigue life, deformation, and stress values on the Gatling gun striker is obtained.

Key words: Gatling gun, striker, structural analysis, fatigue life, deformation.

INFLUENCE OF THE DISTANCE BETWEEN THE YBA-CORE AND CUO-SHELL ON THE SUPERCONDUCTING PROPERTIES IN THE YBCO

Mustafa KESKIN
Department of Physics, Erciyes University, 38039 Kayseri, Turkey, keskin@erciyes.edu.tr
Numan ŞARLI
Department of Physics, Erciyes University, 38039 Kayseri, Turkey, numansarli82@gmail.com

Abstract

The influence of the distance between the YBa-core and CuO-shell on the superconducting properties of the YBCO is investigated by an Ising model within the effective field theory. We find that the superconducting properties of the Y, Ba and YBa-core strongly depend on the distance range between the YBa-core and CuO-shell. They exhibit non-superconducting (NSC), semi-superconducting (SSC) and full-superconducting (FSC) for the certain distance ranges between the YBa-core and CuO-shell. Moreover, it is found that there is a relationship between the superconducting properties and magnetic saturation, namely, when the magnetic saturations are stable, the superconducting properties do not appear (NSC case), when the magnetic saturations begin to decrease, the superconducting properties start to appear (SSC case) and when the magnetic saturations decrease from +1 to -1 (or from -1 to +1), full superconducting properties (the lower and the upper critical field points (Hc1 and Hc2)) evidently appear (FSC case) on the superconducting hysteresis curves. The total magnetization of the YBCO has very small distinct maximums for the NSC and SSC cases. These maximums decay in the FSC case.

Keyword: YBCO; High-Tc superconductivity; Superconducting properties; distance range; effective field theory

This work was supported by the Scientific and Technical Research Council of Turkey (TUBITAK) under Grant No: 116R071 and Erciyes University Research funds, Grant No. FDA-2017-7675.

ANN BASED OPTIMIZATION OF VAPOUR COMPRESSION REFRIGERATION SYSTEM WITH GROUND SOURCE HEAT PUMP

TOPRAK KAYNAKLI ISI POMPALI BUHAR SIKIŞTIRMALI SOĞUTMA SISTEMININ YSA BAZLI OPTIMIZASYONU

Merve ŞENTÜRK ACAR
Bilecik Seyh Edebali University, Engineering Faculty, Mechanical Engineering Dept., Turkey
Fatih ÜNAL
Mardin Artuklu University, Mardin Vocational School, Machanical Program, Mardin, Turkey

Abstract

In the world and ın our country, an important part of the energy consumption is caused by the heating and cooling of the residences. Various applications are being made in our country in order to use energy efficiently. Heat pumps are preferred and widely used in many applications compared to conventional heating and cooling systems due to their high utilization efficiency. Ground-based heat pump systems, which are one of these, are generally used for heating and cooling commercial and residential buildings.

The aim of this study is to optimize the ground source heat pump aided vapour compression cooling system (GSHPVCC) by using artificial neural network (ANN). The system parameters were determined as a result of the experiments' datas which were made in Mardin province with ground source heat pump. ANN model was used to determine the values of COP and εHC of the GSHPVCC. 73 different system designs were used ANN model and 56 of this were used for training and the remaining used for testing. In this study, Levenberg-Marguardt (LM) and Scaled Conjugated Gradient (SCG) were used in the network which were the variants of the back-propagation learning algorithm to determine the best desing. The heat pump inlet and outlet temperatures, the working fluid mass flow in the heat pump, the compressor inlet and outlet temperatures, the refrigerant mass flow and the throttling valve outlet temperature were defined as inputs of the ANN model. According to the ANN results, the R2 values of the best network structures were calculated as 0.932 and 0.918 for COP and εHC, respectively. The best algorithm found was LM with 12 neurons in a single hidden layer.

Key Words: Ann, Heat Pump, Cooling, Energy, Exergy

Özet

Dünyada ve ülkemizde enerji tüketiminin önemli bir kısmı, konutların ısınması ve soğutulmasıyla gerçekleşmektedir. Enerji verimli kullanmak için ülkemizde çeşitli uygulamalar yapılmaktadır. Isı pompaları, yüksek kullanım verimleri nedeniyle geleneksel ısıtma ve soğutma sistemlerine kıyasla birçok uygulamada tercih edilir ve yaygın olarak kullanılır. Bunlardan biri olan toprak kaynaklı ısı pompası sistemleri, genellikle ticari ve konut binalarının ısıtılması ve soğutulması için kullanılmaktadır.

Bu çalışmanın amacı yapay sinir ağlarını (YSA) kullanarak toprak kaynaklı ısı pompası destekli buhar sıkıştırmalı soğutma sistemini (GSHPVCC) optimize etmektir. Mardin ilinde kullanılan toprak kaynaklı ısı pompası ile yapılan deney sonuçlarının bir sonucu olarak sistem parametreleri belirlenmiştir. GSHPVCC'nin COP ve εHC değerlerini belirlemek için YSA modeli kullanılmıştır. ANN modelinde 73 farklı sistem tasarımından, 56 tanesi eğitim için geriye kalanlar ise test için kullanılmıştır. Bu çalışmada, en iyi tasarımı belirlemek için geri yayılım öğrenme algoritmasının varyantları olan ağda Levenberg-Marguardt (LM) ve Scaled Conjugated Gradient (SCG) kullanılmıştır. Isı pompası giriş ve çıkış sıcaklıkları, ısı pompasında çalışan akışkan kütle akışı, kompresör giriş ve çıkış sıcaklıkları, soğutucu akışkan kütle akışı ve kısılma valfi çıkış sıcaklığı, ANN modelinin girdileri olarak tanımlanmıştır. YSA sonuçlarına göre, en iyi ağ yapılarının R2 değerleri sırasıyla COP ve εHC için 0.932 ve 0.918 olarak hesaplanmıştır. Bulunan en iyi algoritma, tek bir gizli katmandaki 12 nöronlu LM olarak belirlenmiştir.

Anahtar Kelimeler: Ann, Isı Pompası, Soğutma, Enerji, Ekserji

A STRUCTURE CALCULATION FOR HYDROGEN LIKE MENDELEVIUM

Güldem ÜRER
Sakarya University, Department of Physics, Sakarya, Türkiye, gurer@sakarya.edu.tr

Abstract

The simplest atomic structure is hydrogenic ions with only one electron moving in the strong coulomb field of the +Ze nucleus. Studying on hydrogen like ions gives a change understanding atomic structure besides to test methods used to determine of atomic structures. In addition, many fields need to precise spectroscopic data for allowed (E1, electric dipole) and forbidden (E2, M1and M2; electric quadrupole, magnetic dipole and quadrupole etc.) transitions and the initial step of the calculating precise spectroscopic data is to sensitively calculate the levels structure. For this purpose, it is investigated hydrogen like mendelevium (Md100+, Z=101) structure. The investigation is performed with widely used both multiconfiguration Hartree-Fock (MCHF) approximation and fully relativistic multiconfiguration Dirac-Fock (MCDF) methods. The multiconfiguration Hartree-Fock calculation contains Breit-Pauli (BP) relativistic corrections and the multiconfiguration Dirac-Fock method includes the transverse photon (Breit) and quantum electrodynamics (QED consist of self energy plus vacuum polarization) effects, besides correlations. nl (n=1-9, l=0-4) configurations is selected for both method calculations. The multiconfiguration Hartree-Fock approximation and multiconfiguration Dirac-Fock method results is compared with other few theoretical work in the available literature but there is no available experimental work yet for Md100+. It is thought that the present work is represented more sensitive results according to comparison. Furthermore, 8g and 9g levels are presented for the first time. This work is performed as a part of extensive study about hydrogen helium and lithium like actinide atoms (Z=89-103). It is a hope the present paper will lead to theoretical and experimental studies for Md100+ and also in the field of technology in future.

Key words: Energy levels, Relativistic corrections, QED effects

MAGNETIC PROPERTIES OF THE BINARY NICKEL/BISMUTH ALLOY

Mustafa KESKIN
Department of Physics, Erciyes University, 38039 Kayseri, Turkey, keskin@erciyes.edu.tr
Numan ŞARLI
Department of Physics, Erciyes University, 38039 Kayseri, Turkey, numansarli82@gmail.com

Abstract

Magnetic properties of the binary Nickel/Bismuth alloy (Ni/Bi) are investigated within the effective field theory. The Ni/Bi alloy has been modeled that the rhombohedral Bi lattice is surrounded by the hexagonal Ni lattice. According to lattice locations in the Ni/Bi, Bi atoms have two different magnetic properties. Bi1 atoms are in the center of the hexagonal Ni atoms (Ni/Bi1 single layer) and Bi2 atoms are between two Ni/Bi1 bilayers. The Ni, Bi1, Bi2 and Ni/Bi undergo a second-order phase transition from the ferromagnetic phase to paramagnetic phase at the critical temperature (Tc = 1.14). The magnetizations of the Ni/Bi alloy are observed as Bi1 > Bi2 > Ni/Bi > Ni at T < Tc; hence the magnetization of the Bi1 is dominant and Ni is at least dominant. However, the total magnetization of the Ni/Bi alloy is close to magnetization of the Ni at T < Tc. Magnetic hysteresis curves of the Ni/Bi alloy and its components overlap at T = 0.1 and they exhibit different behaviors at T > 0.1. The coercive field points of the Ni, Bi1, Bi2 and Ni/Bi alloy are the same with each other, but the values of the remanence magnetizations are different. Our theoretical results of the temperature dependence of the magnetization (M(T)) and the applied field dependence of the magnetization (M(H)) of the Ni/Bi alloy are in quantitatively good agreement with the some experimental results of binary Nickel/Bismuth systems.

Keywords: Binary Nickel/Bismuth alloy, Magnetization, Hysteresis, Coercivity, Effective field theory

AN ALLOWED AND FORBIDDEN TRANSITION PARAMETER CALCULATION FOR HYDROGEN LIKE MENDELEVIUM

Güldem ÜRER
Sakarya University, Department of Physics, Sakarya, Türkiye, gurer@sakarya.edu.tr

Abstract

It is an occasion to understand and test the methods for determination of atomic structure on hydrogen like ions especially with high atomic number, Z. Many studies such as interpretation of astrophysical spectra and atomic collision studies, the development of X-ray lasers etc. demand exact transition parameters data. This need is a reason of the present paper to support more precise atomic data of allowed electric dipole (E1) and forbidden electric quadrupole, magnetic dipole and quadrupole (E2, M1 and M2) transitions for hydrogen like mendelevium (Md100+, Z=101) between nl (n=1-9, l=0-4) levels. The investigation is performed with both multiconfiguration Hartree-Fock (MCHF) and fully relativistic multiconfiguration Dirac-Fock (MCDF) methods. The calculations are contained Breit-Pauli (BP) relativistic corrections in multiconfiguration Hartree-Fock calculation and the transverse photon (Breit) and quantum electrodynamics (QED comprises self energy and vacuum polarization) effects in multiconfiguration Dirac-Fock calculation besides electron correlations. Some transition parameters (wavelengths, λ, logarithmic weighted oscillator strengths, log gf-value, and transition probabilities, Aki) transitions are compared with only one available theoretical work but there is no available experimental data yet for Md100+. It is thought that the present work results are more sensitive than other work results according to comparison. 8g and 9g transitions for all type in the present work are presented for the first time. The present results belong to a large-scaled investigation about hydrogen helium and lithium like actinide atoms (Z=89-103). It is a hope the present paper will lead to theoretical and experimental studies for Md100+ and also in the field of technology in future

Key words: Transitions parameters, wavelengths, weighted oscillator strengths, transition probabilities

AERODYNAMIC PERFORMANCE COMPARISON OF DIFFERENT AIRFOILS

İbrahim Halil GÜZELBEY
Aircraft and Aerospace Engineering Department, Aeronautics and Aerospace Faculty/Gaziantep University; guzelbeyih@gantep.edu.tr
Yüksel ERASLAN
Aircraft and Aerospace Engineering Department, Aeronautics and Aerospace Faculty/Gaziantep University; yeraslan@gantep.edu.tr
Mehmet Hanifi DOĞRU
Pilotage Department, Aeronautics and Aerospace Faculty/Gaziantep University;mhdogru@gantep.edu.tr

Abstract

Airfoil can be defined as the shape of a wing or blade in cross section. Airfoil shaped body, moving through a fluid, produces aerodynamic forces which are named as lift and drag. The geometry of an airfoil determines chordwise lift distribution. It has an important role on sailplanes' wing aerodynamic performances. Hence, designing of aerodynamically efficient sailplane wing necessitates firstly selecting suitable airfoils. Lift-to-drag ratio (L/D) is one of the critical parameters according to fundamental flight principle of sailplanes. It is also desirable for sailplanes that the angle of attack, which is at the maximum of the L/D ratio, be as close as possible to the zero angle of attack. So, in this study, aerodynamic performances of a number of airfoils are investigated and compared to select suitable airfoils for a sailplane wing design. With respect to aim of the study, aerodynamic perfomance analyzes are performed according to different Reynold's Numbers and angle of attacks. The aerodynamic performances of the airfoils are investigated with respect to critical parameters which are the maximum lift to drag ratio (L/DMAX), maximum lift coefficient (CLMAX) and drag coefficient (CD). Firstly, it is observed that obtained analysis results for an airfoil are coincided with experimental data which is available in literature. The other selected airfoils are then analyzed under the same conditions by using the same validated analysis method. At the end of the study, the determined aerodynamic performance parameters of the airfoils are compared depending on the selected angle of attacks and Reynold's Numbers.

Keywords: Aerodynamics, XFLR5, Drag and lift coefficient.

COMPRESSED AIR STORAGE WITH RENEWABLE ENERGY RESOURCES

YENILENEBILIR ENERJI KAYNAKLARI İLE SIKIŞTIRILMIŞ HAVA DEPOLAMA

Betül SARAÇ
Karadeniz Technical University, SürmeneFaculty of Marine Sciences, Department of Naval Architecture and Marine Engineering,Trabzon, Turkey, bsarac@ktu.edu.tr
Teoman AYHAN
University of Bahrain Mechanical Engineering Department, P. O. BOX 32038, Isa Town, Bahreyn
tayhan@uob.edu.bh

Abstract

Electricity is used when it is generated. This situation is caused by electricity law. If electricity production and demand do not fluctuate, the need for energy storage goes away. Investigation and development of energy storage has become a growing interest in worldwide. Because energy storage plays an important supporting role in renewable energy production regions.

Electricity generation from renewable energy sources plays an important role in reducing dependence on fossil fuels and reducing greenhouse gas emissions. However, renewable energy sources such as wind, sun, tides and waves are free and change in nature. The variability of energy in renewable energy sources makes it difficult to integrate with the electricity grid. Because of the intermittent nature and variability of renewable energy sources, the integration of these energy sources into the network affects the quality of security and power. Useful energy storage systems are needed to improve the use of renewable energy sources in the electricity grid. Energy storage plays a supporting role in renewable energy production regions. The compressed air energy storage (CAES) system is a reliable, sustainable, large-scale, relatively low specific investment cost energy storage method. The purpose of the energy storage system is based on the process of generating electricity by expanding stored high pressure air to produce electricity when the demand for electricity is high.

The storage of renewable energy types as compressed air and the availability of direct compressed air in electricity generation compared to other types of energy storage methods are also important in today's research areas in terms of reducing the need for fossil-based fuels and also as an environmentally friendly method. It is stated that the high capacity compressed air storage is more efficient than other compressed air storage techniques when installed with a system installed at the sea floor.

In this study, it is aimed to present a general overview of current research trends in compressed air applications and air storage methods in power cycles and climate systems operating in compressed air storage methods, which are available in the literature.

Key words: Renewable energy sources, compressed air, energy

Özet

Elektrik üretildiği zaman kullanılır. Bu durum elektrik yasasından kaynaklanmaktadır. Elektrik üretimi ve talebi dalgalanmadığı takdirde, enerji depolama ihtiyacı ortadan kalkar. Enerji depolamasının araştırılması ve geliştirilmesi dünya çapında gittikçe büyüyen ilgi haline gelmiştir. Çünkü enerji depolanması, yenilenebilir enerji üretim bölgelerinde önemli destekleyici rol oynamaktadır.

Yenilenebilir enerji kaynaklarından elektrik üretimi, fosil yakıtlara bağımlılığın azaltılmasında ve sera gazı emisyonunun azaltılmasında önemli rol oynamaktadır. Ancak rüzgar, güneş, gelgit ve dalga gibi yenilenebilir enerji kaynakları doğada serbest ve değişkendir. Yenilenebilir enerji kaynaklarındaki enerjinin değişkenliği elektrik şebekesiyle bütünleşmeyi zorlaştırmaktadır. Yenilenebilir enerji kaynaklarının aralıklı niteliği ve değişkenliği nedeniyle, bu enerji kaynaklarının şebekeye entegrasyonu, güvenlik ve güç kalitesini etkilemektedir. Elektrik şebekesinde yenilenebilir enerji kaynaklarının kullanımını iyileştirmek için faydalı enerji depolama sistemleri gereklidir. Enerji depolanması, yenilenebilir enerji üretim bölgelerinde destekleyici rol oynamaktadır. Basınçlı hava enerji depolama (CAES) sistemi, güvenilir, sürdürülebilir, büyük ölçekli nispeten düşük özel yatırım maliyeti olan bir enerji depolama yöntemidir. Enerji deplama

sisteminin de amaç, elektrik talebi yüksek olduğunda, depolanan yüksek basınçlı havayı, elektrik üretmek için türbinde genişletilmesi ile elektrik üretilmesi işlemine dayanmaktadır.

Yenilenebilir enerji türlerinin, sıkıştırılmış hava olarak depolanması ve diğer tür enerji depolama yöntemlerine göre elektrik üretiminde doğrudan sıkıştırılmış havanın kullanılabilir olması, fosil kökenli yakıtlara ihtiyacı azaltması bakımından ve ayrıca çevre dostu bir yöntem olması açısından da günümüzün araştırma konularında önemli yer almaktadır. Yüksek kapasiteli sıkıştırılmış hava depolmanın deniz tabanında kurulu bir sistemle yapıldığında diğer sıkıştırılmış hava depolama tekniklerine göre daha verimli olduğu belirtilmektedir.

Bu çalışmada, literatürde mevcut bulunan, sıkıştırılmış hava depolama yöntemleriyle çalışan güç çevrimleri ve iklimlendirme sistemlerinde ayrıca tasisatlarda kulanılan sıkıştırılmış hava uygulamaları ve hava depolama yöntemlerindeki güncel araştırma eğilimlerine genel bir bakışın tanıtılması amaçlanmıştır.

Anahtar kelimeler: Yenilenebilir enerji kaynakları, sıkıştırılmış hava, enerji

SECOND RECORD OF MACHUELLA TURCICA BARAN Y AYYILDIZ, 2007 (ACARI, ORIBATIDA) FROM TURKEY

Şule BARAN
Sakarya University, Faculty Arts and Sciences, Department of Biology, Sakarya, Turkey,
sbaran@sakarya.edu.tr

Abstract

Oribatid mites are mainly soil living decomposer microarthropods and consist of abouth eleven thousands described species worldwide. Among the soil fauna, oribatid mites have an important role in mineralization and decomposition of plant residues especially in acidic soils.

Oribatid mites are the most abundant arthropod taxa in soils especially in decaying organic matter. They contribute to the process of organic matter decomposition, activation and dispersal of microbial flora and indication of soil quality. Oribatid mites comprise so many species, but due to their small size (0.2 mm-5 mm) and the estimated large number of unidentified species (Maraun et al. 2007), still many remain a mystery.

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

There are four known species and five subspecies belonging to the genus Machuella Hammer, 1961. This genus only distributed in Paleartic and Pantropical regions. The main characteristics of this genus are long epimeral setae directed toward the centre of the epimeral region to form a basket, within a thick layer of secretion.

In this study, in order to determine the mites belonging to the genus Machuella in Sakarya province, mites were collected in soil and litter samples from the different localities of province. Samples were placed in plastic bags and transported to the laboratory and extracted using a Berlese funnel apparatus.

This study comprises the redescription and Scanning electron microscopy investigations of the secondly recorded species Machuella turcica Baran and Ayyildiz, 2007. Morphological variations of our specimens are also discussed. Machuella turcica shows distribution only in Turkey and previosly recorded from Erzurum province.

Key words: Acari, Oribatida Machuella, Turkey

HEAVY METAL ACCUMULATION (NI, FE, CO, MN) IN SISYMBRIUM ALTISSIMUM L. SPECIES THAT IS SPREAD AT AMASYA PROVINCE'S ROADSIDE

Dudu Duygu KILIÇ
Amasya University Faculty of Arts and Sciences Department of Biology
Emine Ebru TUNA
Amasya University Faculty of Arts and Sciences Department of Biology
Hamdi Güray KUTBAY
Ondokuz Mayıs University Faculty of Arts and Sciences Department of Biology
Burak SÜRMEN
Ondokuz Mayıs University Faculty of Arts and Sciences Department of Biology

Abstract

İn recent years, studies have been carried out to pollution increase, to determine the amount of pollution and to take necessary precautions about pollution. These can be classified as chemical, physical and biological methods. Physical and chemical methods are often expensive and at the same time they can cause environmental degradation. For this reason biological methods are used in order to detect pollution and especially living things such as mushrooms, lichens, mosses, plants have begun to be used for this purpose. Living creatures that are used to identify specific properties of the biosphere are called "bioindicators" or "biomonitor" creatures. There is little difference in meaning between the two terms; "Biomarker" refers to all organisms that provide the quality of environmental changes or environmental information, while "biomonitor" refers to organisms that provide quantitative information in the quality of the environment.

Different methods are used to identify and control environmental samples and heavy metal concentrations in biological samples. One of these methods is the use of plant species with selectivity and accumulator characteristics for certain metal species.

In this study, the amounts of heavy metals (Ni, Fe, Co, Mn) in root, stem and leaves were determined by Inductively Coupled Plasma-Optical Emission Spectrometry (ICP-OES) in Sisymbrium altissimum L., the obtained data were evaluated. Fe> Mn> Ni> Co at the root was determined as Fe> Mn> Ni> Co in the resultant heavy metal accumulation (Fe> Mn> Co> Ni). There were statistically significant differences in the heavy metals studied (Ni, Fe, Co, Mn) between the stem and leaves of the plant. Ni, Fe, Co, Mn are found within toxic limits according to literature. As a result, leaf and stem of Sisymbrium altissimum L. species can be used as biomonitor for Pb, Ni, Fe, Co, Mn.

Key words: Sisymbrium altissimum L., heavy metal, biomonitor

This study was supported by Amasya University BAP unit with FMB-BAP 16-0167 project.

THE CALCULATION OF ELECTRONIC PARAMETERS OF THE Al/PSP/*n*-TYPE SILICON SCHOTTKY BARRIER DIODE

Enise ÖZERDEN
Department of Physics, Faculty of Sciences and Arts, University of Batman, Batman, Turkey
eniseozerden@gmail.com
Cihat OZAYDIN
Department of Computer Eng, Faculty of Enginering, University of Batman, Batman, Turkey
Ömer GÜLLÜ
Department of Physics, Faculty of Sciences and Arts, University of Batman, Batman, Turkey

Abstract

The metal-semiconductor (MS) contact is one of the most widely used rectifying contacts in the electronics industry. Schottky barrier diodes (SBDs) are the basis of a large number of compound semiconductor electronic devices, including microwave diodes, field-effect transistors (FETs), solar cells and photodetectors [1,2]. Organic/inorganic semiconductor structures or MS contacts are of great importance since they are present in most semiconductor device. It is well known that the interfacial properties of these contacts have a dominant influence on device performance, reliability and stability. There is a native thin insulating layer of oxide on the surface of the semiconductor in most practical MS contacts. This layer converts the MS structure into a metal/insulator/semiconductor device. This film modifies some characteristics of MS devices [3]. In this paper, electrical properties of an Al/phenolsulfonphthalein (PSP)/n-Si/Au-Sb Schottky diode structure as seen in figure 1 have been determined by using the current-voltage (I-V), capacitance-voltage (C-V) and capacitance-frequency (C-f) characteristics of the device at room temperature. Cheung functions and modified Norde functions have been used to obtain the electrical characteristics such as barrier height and series resistance of the diode. It has been seen that the PSP layer modifies the effective barrier height of the structure because the layer creates the physical barrier between the metal and the semiconductor. Electrical properties of the device obtained from C-V characteristics have been compared with the ones obtained from its I-V characteristics. The C-V characteristics were performed at 500 kHz frequency, and C-f characteristics were performed at various voltages from 0.0 Volt to 0.4 Volt.

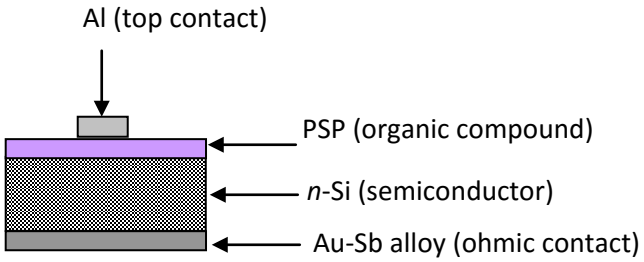


Figure 1. The schematic diagram of the Al/PSP/n-Si/Au-Sb structure for the electrical characterization.

Keywords: Schottky Diode, Organic compound, Capacitance.

References

E. H. Rhoderick, R. H. Williams, Metal–Semiconductor Contacts, Clarendon, Oxford, (1988).

R. L. Van Meirhaeghe, W. H. Lafle´re, F. Cardon, J. Appl. Phys. 76 (1994) 403.

Ö. Güllü, Ş. Aydoğan, A. Türüt, Microelectronic Engineering 85 (2008) 1647-1651.

ENANTIOMERIC RECOGNITION OF 1-ARYLETHYLAMINES USING C_2-SYMMETRICAL CHIRAL TETRAAMIDES

Murat SÜNKÜR
Batman Üniversitesi Fen Edebiyat Bölümü Kimya Bölümü
Deniz B. CEBE
Batman Üniversitesi Fen Edebiyat Bölümü Kimya Bölümü
Hayriye ARAL
Batman Üniversitesi Fen Edebiyat Bölümü Kimya Bölümü
Tarık ARAL
Batman Üniversitesi Fen Edebiyat Bölümü Kimya Bölümü

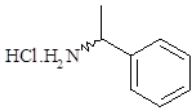
Abstract

Enantiomeric recognition is a special type of molecular recognition and is based on the principle that the molecular receptor form complexes with enantiomers of a chiral molecule with different ability.

Chiral amines, protonated amines, and amino acids are the basic building blocks of a wide variety of biological processes. And also, these chiral compounds play an important role in the design and synthesis of pharmaceuticals and other chiral molecules. Therefore the enantiomeric recognition study of these compounds is of very important.

Uv-Vis spectroscopy is a commonly used method for calculating binding constants. Standard Uv-vis titration experiments were applied for calculating association constant (Ka) of complex formed between receptor and guest molecules according to Benesi–Hildebrand equation basis of UV-Vis spectrum of complexes.

Plots of calculated 1/ΔA values as a function of 1/ΔG0 values gave excellent linear relationships for all guest molecules examined, supporting 1:1 complexation between receptor molecules and guests. To confirm 1:1 stoichiometry, Job plots for the complexes were studied.



(R) and (S)-PEA

Fig.1: An amine to be used in the enantiomeric recognition studies.

Keywords: Enantiomeric Recognition, chiral amines, UV-titration.

References

Marchi-Artzner, V.; Artzner, F.; Karthaus, O.; Shimomura, M.; Ariga, K.; Kunitake, T.; Lehn, J.M. Langmuir 1998, 14, 5164-5171.

Bohanon, T.M.; Caruso, P.L.; Denzinger, S.; Fink, R.; Mobius, D.; Paulus, W.; Preece, J.A.; Ringsdorf, H.; Schollmeyer, D.; Langmuir, 1999, 15, 174-184 .

Pu, L. Chem. Rev. 2004, 104, 1687-1716.

Hembury, G.A.; Borovkov, V.V.; Inoue, Y. Chem. Rev. 2008, 108, 1-73.

EFFECT OF LAMBDA-CYHALOTHRIN, A PYRETHROID PESTICIDE, ON PHOSPHOLIPID FRACTION IN THE GILL OF *OREOCHROMIS NILOTICUS*

Murat YOLCU
Dicle University, Faculty of Pharmacy, Department of Pharmaceutical Toxicology
Mehmet BAŞHAN
Dicle University, Faculty of Science, Department of Zoology
Veysi KIZMAZ
Mardin Artuklu University, Health Services Vocational School
İsmail YENER
Dicle University, Faculty of Pharmacy, Department of Analitical Chemistry
Elif İpek SATAR
Dicle University, Faculty of Pharmacy, Department of Pharmaceutical Toxicology

Abstract

Introduction: Lambda-cyhalothrin is a pyrethroid insecticide. Pyrethroids are synthetic derivatives of pyrethrins, which are toxic components found in the flowers of the Chrysanthemum cinerariaefolium plant. Pyrethroid pesticides are more preferred than organochlorinated and organophosphate pesticides because of their strong insecticide properties and because they are often non-toxic to untargeted animals, especially mammals. Pyrethroids reach the aquatic life by direct application or by washing the medicines from the plant and soil surfaces with rain water (agricultural currents). The 96 hour LC50 values range from 0.98 µg / L to 360 µg / L for different fish species. The 96 hour LC50 value for Oreochromis niloticus of lambda cyhalothrin was reported to be 2,901 µg / L. Fish gills are vital organs, because they are the main places where gas exchange is made. Since (Because) gills are the widest part of the outer surface area of the fish, they are primary markers for water pollution and are susceptible to chemical substances in the water. In addition, lipid components are very susceptible to stress factors and environmental changes. Therefore, in the present study, it was aimed to determine the changes that can occur in the fatty acids in the phospholipid fraction of O. Niloticus exposed to the subletal concentrations of Lambda-cyhalothrin.

Materials and Methods: The fish were provided from the pools of the Faculty of Fisheries of Çukurova University. Test groups were designated as lambda cyhalothrin exposure, acetone control and control groups. The lambda cyhalothrin concentration was prepared by dissolving in acetone and taking into account one-tenth of the LC50 values (0.29 µg / L Lambda cyhalothrin). In order to determine the changes that would occur in fatty acids, three fish were removed at the end of the 7th, 14th and 21st days of each of the experimental groups. Gill tissues from the sacrificed fish were homogenized in chloroform / methanol (2:1, v/v) solution. After the phospholipid fractions were obtained by thin layer chromatography (TLC), the fatty acids in the phospholipid were converted to fatty acid methyl esters. A gas chromatograph with an FID detector was used for the analysis of fatty acid methyl esters.

Results and discussion: The most important fatty acids in the phospholipid (PL) in the gill tissue of the control fish were C16:0, C18:0, C18:1, C18:2n-6, C20: 4n-6 and C22:6n-3. On days 7, 14 and 21, irregular increases and decreases were recorded. The results were meaningful at $P < 0.05$ level. In this study, the toxicity of lambda cyhalothrine on the gill phospolipid fatty acids of the Oreochormis niloticus was shown. In fresh water, even in small concentrations, the presence of lambda cyhalothrin may cause harmful effects on fish physiology and potentially impair survival in the natural environment. Therefore, control measures should be taken to prevent possible contamination of the water environment by such toxic pest insecticide.

Thank: This study is supported by the Dicle University Scientific Research Projects (16-EZF-001).

Keywords: Lambda-cyhalothrin, pyrethroid pesticide, phospholipid, gill, Oreochromis niloticus.

ELECTRICAL ANALYSIS OF THE METAL/SEMICONDUCTOR CONTACT WITH RHODAMINE 101 ORGANIC INTERLAYER

Cihat ÖZAYDIN
Department of Computer Eng., Faculty of Eng. & Arch., University of Batman, Batman, Turkey
cihat.ozaydin@batman.edu.tr
Enise ÖZERDEN
Department of Physics, Faculty of Sciences and Arts, University of Batman, Batman, Turkey
Ömer GÜLLÜ
Department of Physics, Faculty of Sciences and Arts, University of Batman, Batman, Turkey

Abstract

Organic semiconductors have attracted increasing interest due to their potential application in various electronic and optoelectronic devices. For example, Schottky contacts have been extensively used to build various organic electronic devices including organic Schottky diodes, organic light emitting diodes, and organic solar cells [1-3]. The electrical characteristics of a Schottky contact are extremely sensitive to interface state density at the metal-semiconductor interface. It is well known that the interfacial properties of metal/ semiconductor (MS) contacts have a dominant influence on device performance, reliability and stability. For this purpose, an organic thin film between metal and inorganic semiconductor can be intentionally made. This film may modify some electrical measurements of the device. The controlled growth of highly ordered thin films either by vacuum deposition or by solution processing is still a subject of ongoing research [4]. We have determined optical energy gaps of Rhodamine 101 (Rh101) from absorption spectrum as seen in figure 1 at the wavelength range of 400–700 nm in the present study. Moreover, we have formed Sn/Rh101/n-Si/Au-Sb contacts which show rectifying behaviour. The current voltage (I-V) and capacitance-voltage (C-V) characteristics of the Sn/Rh101/n-Si/Au-Sb structure were investigated at room temperature. The characteristic parameters of Sn/Rh101/n-Si/Au-Sb contact have been obtained from forward bias I-V data.

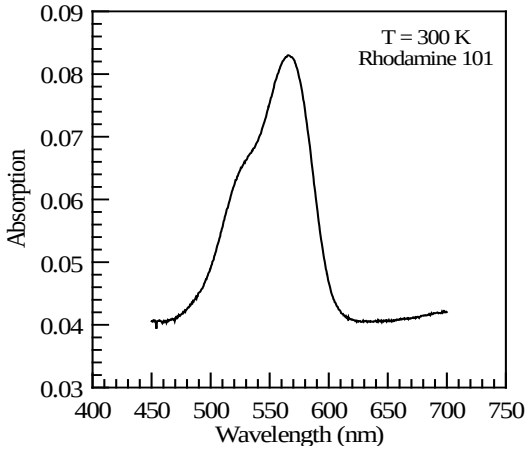


Figure 1. The optical absorption spectrum of the Rh101 thin film on the glass substrate.

References

M. Bohm, A. Ullmann, D. Zipperer, A. Knobloch, W.H. Glauert, W. Fix, Printable electronics for polymer RFID applications, presented at ISSCC (2006).

W. Brutting, S. Berleb, A.G. Muckl, Org. Electron. 2 (2001) 1-36.

C. J. Brabec, N. S. Sariciftci, J. C. Hummelen, Adv. Funct. Mater. 1 (2001) 15-26.

Ş. Aydoğan, K. Şerifoğlu, A. Türüt, Solid State Sciences 13 (2011) 1369-1374.

ANALYSIS OF ELECTRONIC PARAMETERS OF THE AL/ANILINE GREEN/P-TYPE SILICON DIODES

Enise ÖZERDEN
Department of Physics, Faculty of Sciences and Arts, University of Batman, Batman, Turkey
Cihat ÖZAYDIN
Department of Computer Eng., Faculty of Eng. & Arch., University of Batman, Batman, Turkey
Ömer GÜLLÜ
Department of Physics, Faculty of Sciences and Arts, University of Batman, Batman, Turkey
omergullu@gmail.com

Abstract

The interfaces of organic/inorganic semiconductor and organic semiconductor/metal junctions were implicitly assumed to be laterally uniform [1,2]. Barrier height and ideality factor are the fundamental parameters of Schottky diodes [3]. In this study, we identically prepared the aniline Al/aniline green/p-Si organic/inorganic semiconductor structures on the same p-Si inorganic semiconductor substrate and then, calculated the electrical parameters of each devices by using the related relationships from the I-V and C-V measurements. Although the diodes were all identically prepared, there was a diode-to-diode variation: the effective barrier heights changed from 0.556 eV to 0.605 eV, and the ideality factor from 2.052 to 3.802 as seen in figure 1. The obtained results were evaluated according to laterally inhomogeneous barrier height analysis, and existence of the interfacial native oxide and the organic aniline green thin layer between the semiconductor and top contact metal.

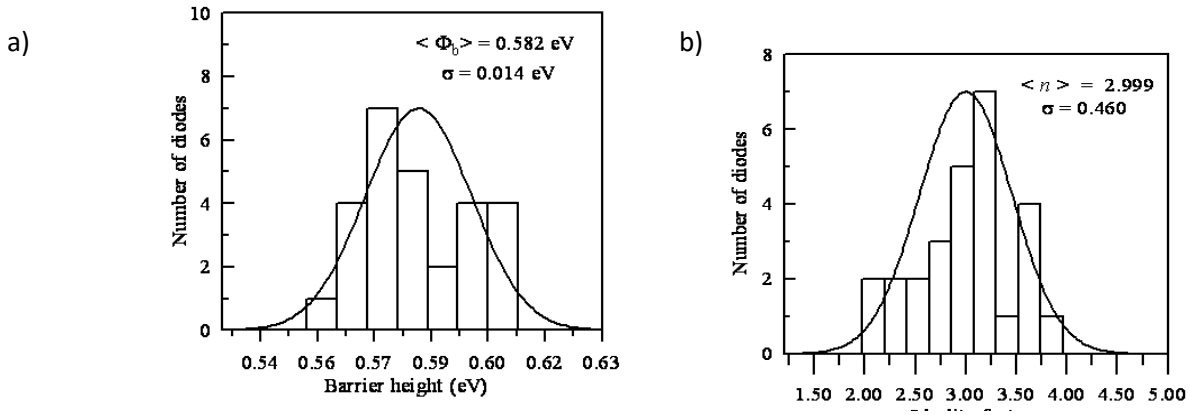


Figure 2. Distributions of the a) barrier heights and b) ideality factors of the Al/aniline green/p-Si diodes.

Keywords: Organic/inorganic structures, Ideality factor, Barrier height.

References

R.F. Schmitsdorf, T.U. Kampen, W. Monch, *J. Vac. Sci. Technol. B* **15**(4) (1997) 1221.
W. Monch, *J. Vac. Sci. Technol. B* **17** (4) (1999) 1867.
R.T. Tung, *Phys. Rev. B* **45** (23) (1992) 13509.

SOME MORPHOLOGIC PROPERTIES OF TWO *SALVIA* L. SPECIES FROM TURKEY

Ömer KILIÇ
Bingöl University, Technical Science, Vocational College, Bingol, Turkey,
omerkilic77@gmail.com

Abstract

In Turkey, Salvia L. is frequently consumed as teas. Many Salvia taxa are used in folk medicines throughout the world, possessing antimicrobial, antioxidant, antidiabetic, antiplasmodial, anti-inflammatory and antitumor properties. Some Salvia species are also used in food, cosmetics, perfumery and the pharmaceutical industry.Turkey is a country, either because of having different climate conditions and being located in the point of three gene centers, has got rich diversity of species. Salvia genus has about 900 species in the world and 97 in natural for Turkey. In Turkey 51 of Salvia taxa are endemic and endemism percent is high. Despite good conditions in this region, Salvia spices are often naturally found in Mediterranean and Central Anatolia regions. Species like Salvia fruticosa, S. cryptantha, S. multicaulis, S. sclarea and S. tomentosa are being traded. In addition to medicinal uses, many Salvia taxa are also grown in parks and gardens as ornamental and fragrant plants. In this research, seed, leaf, stem and pollen morphology of Salvia trichoclada Benth. and Salvia virgata Jacq. were studied with a Hitachi SU-1500 scanning electron microscope (SEM) in Wilfrid Laurier University (Canada) Herbarium. Description of nutlet, leaf, stem and pollen morphological features examined these species is provided and illustrated. S. trichoclada: nutlet shape is rounded, prolate to spheroidal, brown, widht x length is 2.9-3.4 x 3.5-4.30 mm, surface sculpturing is colliculate; shape of pollen is oblate-spheroidal, type of exine sculpturing reticulate-perforate; leaves pinnatisect, oblong to ovate, light green, with scarce pilose; stem procumbent, with scarce pilose hairs. S. virgata: nutlet shape is rounded, prolate to spheroidal, brown to black, widht x length is 1.63-1.84 x 2.14-2.35 mm, surface sculpturing is rugose; shape of pollen is oblate-spheroidal, type of exine sculpturing reticulate-perforate; leaves simple, oblong to ovate, light green, with scarce hirsute; stem erect, branched from base, with scarce hirsute hairs.

With this study basic datas obtained to contribute systematic and morphologic studies with Salvia taxa.

Keywords: Salvia, Lamiaceae, Morphology, SEM.

Acknowledgements

The authors thanks to Dr. Mihai Costea from Wilfrid Laurier University (Canada) for guidance and allow to use SEM.

SOME MORPHOLOGIC PROPERTIES OF TWO THYMUS L. TAXA FROM TURKEY

Ömer KILIÇ
Bingöl University, Technical Science, Vocational College, Bingol, Turkey,
omerkilic77@gmail.com

Abstract

The genus Thymus L. (Lamiaceae) consists of over 300 evergreen species of herbaceous perennials and subshrubs, native to Southern Europe and Asia. This genus is represented by 39 species and altogether 64 taxa, 24 of which are endemic in Turkey and the East Aegean Islands. Members of this genus are used as herbal tea, condiments and *Thymus* oil is widely used as an antiseptic agent in many pharmaceutical preparations and as a flavouring agent for many kinds of food products. In Turkey it is represented by 39 species with 64 taxa, 24 of which are endemic and members of this genus are called 'kekik' when dried herbal parts are used as herbal tea, condiments and folk medicine. Origanum, Thymbra, Coridothymus and Satureja are export commodities under the name 'kekik'. In this research, seed, leaf, stem and pollen morphology of Thymus kotschyanus Boiss. & Hohen. var. glabrescens and Thymus haussknechtii Velen. were studied with a Hitachi SU-1500 scanning electron microscope (SEM) in Wilfrid Laurier University (Canada) Herbarium. Description of nutlet, leaf, stem and pollen morphological features examined these species is provided and illustrated. Thymus kotschyanus var. glabrescens: nutlet shape is rounded-orbicular, 0.6-1.2 x 0.6-1 mm, brownish, surface sculpturing is rugose; shape of pollen is oblate-spheroidal, type of exine sculpturing reticulate-perforate; leaves glabrous light green; stem suberect, with variously hairy all round. Thymus haussknechtii: nutlet shape is rounded to elliptic, 0.6-1 x 0.5-1 mm light brown, surface is rugose; shape of pollen is oblate-spheroidal, type of exine sculpturing reticulate-perforate; leaves narrowly spathulate, pale green, with scabrid hairs; stem slender to erect, branched from base, with hirsute hairs. With this study basic datas obtained to contribute systematic and morphologic studies with Thymus taxa.

Keywords: Thymus, Lamiaceae, Morphology, SEM.

Acknowledgements

The authors thanks to Dr. Mihai Costea from Wilfrid Laurier University (Canada) for guidance and allow to use SEM.

DISTAL TIBIA KIRIKLARININ YENI TASARLANAN INTRAMEDÜLLER ÇIVI ILE TEDAVI SONUÇLARI

Ramazan ATIÇ
Dicle University Medical School Orthopedics and Traumatology Department/Diyarbakir

Özet

Amaç: Tibia distal diafiz kırıklı hastaların distal rijit kilitleme sistemli intramedüller çivilerle tedavisinin orta dönem sonuçlarını değerlendirmektir.

Yöntem: Nisan 2011 ile Haziran 2016 tarihleri arasında dİstal tibia diafiz kırığı nedeniyle distal rijit kilitleme sistemli intramedüller çivi uygulanan 20 hasta retrospektif olarak değerlendirdi. Hastaların 16'sı erkek 4'ü kadındı. Kırıkların 14'ü açık 6'sı kapalı kırıktı. Açık kırıklarda yaygın olarak kabul gören Gustillo-Anderson sınıflaması kullanıldı. Kırık tiplerini belirlemek için AO sınıflama sistemi kullanıldı. Hastaların fonksiyonel sonuçları AOFAS skorlama sistemi kullanılarak değerlendirildi.

Bulgular: Hastaların ortalama kaynama süresi 26.3 hafta (20-36 hafta)'idi. Ortalama tam yük verme süresi 9 hafta (6-16 hafta) idi. Hastaların ortalama yaşı 34.5 (18-74)'idi. Hastaların 2'sine cilt problemleri nedeniyle ilk olarak eksternal fiksatör uygulandı. 6. Haftada fiksatörler çıkarılıp 7 gün sonra çivi uygulandı. Tip II açık kırıklı bir (%5) hastamızda yüzeyel enfeksiyon gelişti, oral antibioterapiyle tedavi edildi. 3 (%15) hastamızda AP planda 5 dereceden fazla açılanma görüldü. Bunlardan 2 sinin açısı 6 derece olduğu için herhangi bir müdehale önerilmedi, diğer hastada 11 derece açılanma olduğu için cerrahi müdehale önerildi ama hasta kabul etmedi. Hastaların ortalama AOFAS skoru 92.25 (63-100) idi.

Sonuç: Distal tibia diafiz kırıklarında dital rijit kilitleme sistemli intramedüller çivi ile tedavi düşük enfeksiyon ve yüksek kaynama oranları nedeniyle kaynama sorunlarının sık görüldüğü distal tibia kırıklarında güvenle kullanılabilecek bir yöntemdir.

Anahtar Kelimeler: Humerus, kırık, avasküler nekroz, açık redüksiyon,plak

MICROWAVE PYROLYSIS OF COAL SLIME AND WOOD STRAW BY PYRITE FOR ACTIVE CARBON PRODUCT

Yıldırım TOSUN
Şırnak University Engineering Faculty, Mining Engineering Dept, yıldırımismailtosun@gmail.com

Abstract

In the Southeastern Anatolian Region of Turkey, in Ergani Elazığ and Siirt Şirvan copper ore concentrators, containing the pyrite and the high pyrite content discarded is received as pyrite concentrate from concentrating copper by flotation swept and waste products. Ergani Concentrator produce the pyrite concentrate by product about 350 thousand tons for sulfuric acid production and about 1,700 thousand tons of pyrite waste sent to dispose, Siirt Şirvan copper pyrite is not also evaluated. These pyrite waste products both should be evaluated by the microwave pyrolysis of Turkish Lignites and Şırnak Asphaltite which contains aproximately 8% coal pyrite at seperately disseminated micron and macro sized. The shale and clay content was also separated sellectively in this microwave processing in terms of high carbon contents.

In this study, samples are subjected to microwave pyrolysis by roasting of pyrite waste and subsequently pelletized slime mixtures with wood straw samples were subjected to microwave pyrolysis by pyrite at varied power under the temperature 500oC. Active carbon and char matter at the end of microwave pyrolysis were tested. The carbon, ash and moisture volatıle matter improves physical pore types for active carbon at certain degree. The energy need was also minimised at 73% for Şırnak Asphaltite slime by microwave pyrolysis.

Keywords: coal slime, active char, carbon, wood straw, microwave cleaning, asphaltite slime