

CONTENTS

PLENARY REPORT

"MODERN DENTISTRY - SYMBIOSIS BETWEEN DENTIST AND ENGINEER"

Tsanka Dikova,

DSc Medical University "Prof. Dr. P. Stoyanov" – Varna, Bulgaria

"MANIFESTATION OF THE LAWS OF EVOLUTION IN VARIOUS FIELDS OF TECHNOLOGY"

Prof. Yurii Kuznetsov,

DSc, Igor Sikorsky Kyiv Polytechnic Institute, Kyiv, Ukraine

VOLUME I

ELECTRICAL ENGINEERING

- RESONANT TANK COMPONENTS STRESS OF A DC-DC CONVERTER AT CONSTANT OR VARIABLE FREQUENCY CONTROL 3**
Angel Angelov Lichev
University of Food Technologies – Plovdiv, Bulgaria
- PREDICTING WIND ENERGY PRODUCTION IN THE SHORT-TERM USING MACHINE LEARNING ALGORITHM 8**
Hilmi KUŞÇU¹, Taşkın TEZ²
¹Department of Mechanical Engineering, Trakya University, Edirne, TR Türkiye
²Edirne Provincial Health Department, Ministry of Health, Edirne, TR Türkiye
- INDOOR LED LUMINAIRE LUMINOUS AREA OPTIMIZATION TO MINIMIZE THE UNIFIED GLARE RATING 13**
Milko Yovchev
Technical University of Gabrovo, Bulgaria
- DEVELOPMENT OF A LABORATORY MODEL WITH EDUCATIONAL PURPOSE FOR PRACTICAL APPLICATION OF METHODS FOR DIAGNOSTICS OF ELECTRICAL CONTACT SYSTEMS 18**
Valentin Gyurov, Yuliyana Yordanova, Birjan Ilyazov
Technical University of Varna, Department of Electric Power Supply and Equipment, Bulgaria
- DEVELOPMENT OF A LABORATORY MODEL WITH EDUCATIONAL PURPOSE FOR PRACTICAL APPLICATION OF METHODS FOR EVALUATING LIGHT FLUX PULSATION 24**
Valentin Gyurov, Tsvetomir Dimitrov, Iliyan Iliev
Technical University of Varna, Department of Electric Power Supply and Electrical Equipment, Bulgaria

IMPLEMENTATION OF 40 MW PHOTOVOLTAIC POWER PLANT BITOLA IN THE REPUBLIC OF NORTH MACEDONIA	29
Elizabeta Arsova¹, Plamen Tsankov²	
¹ <i>Regulatory Commission for Energy and Water Services of Republic of North Macedonia</i>	
² <i>Technical University of Gabrovo, Bulgaria</i>	
DESIGN OF 20MW PHOTOVOLTAIC POWER PLANT OSLOMEJ IN NORTH MACEDONIA	35
Elizabeta Arsova¹, Plamen Tsankov²	
¹ <i>Regulatory Commission for Energy and Water Services of Republic of North Macedonia</i>	
² <i>Technical University of Gabrovo, Bulgaria</i>	
COMPARATIVE ANALYSIS OF TECHNICAL CHARACTERISTICS, CONTROL METHODS AND THE POSSIBILITY OF REPLACING ASYNCHRONOUS MOTORS WITH SYNCHRONOUS RELUCTANCE MOTORS	39
Hristian Panchev, Nikola Makedonski, Milen Duganov	
<i>Technical University of Varna, “Department of Electric Power Supply and Equipment”, Bulgaria</i>	
DETERMINING THE VALUE OF ADDITIONAL ACTIVE POWER LOSSES WHEN TRANSFERRING REACTIVE ENERGY.....	46
Ilian Iliev, Nikolay Lakov, Desislava Delcheva, Rosen Yordanov	
<i>University of Mining and Geology “St. Ivan Rilski”, Bulgaria</i>	
ELECTRICITY EFFICIENCY IN THE OPERATION OF ELECTROLYSIS PLANTS	50
Ilian Iliev, Desislava Delcheva, Rosen Yordanov, Nikolay Lakov	
<i>University of Mining and Geology “St. Ivan Rilski”, Bulgaria</i>	
ANALYSIS OF THE PERFORMANCE OF PHOTOVOLTAIC SYSTEM WITH CdTe, M-SI AND CIGS AT WINTER CONDITIONS	55
Ivaylo Lazarov	
<i>Technical University of Gabrovo, Bulgaria</i>	
STUDY OF THE SOLAR IRADIATION IN THE AREA OF GABROVO TECH PARK.....	61
Plamen Tsankov, Ivaylo Lazarov	
<i>Technical University of Gabrovo, Bulgaria</i>	
SAFETY OF THE USE OF ULTRAVIOLET BACTERICIDAL LED LAMPS.....	66
Pylyp Hovorov, Anastasiia Kindinova	
<i>O.M. Beketov National University of Urban Economy in Kharkiv</i>	
STUDY OF THE FACTORS DETERMINING THE ENERGY EFFICIENCY OF PASSENGER SHIPS IN OPERATION	73
Iliyan Donev	
<i>Technical University of Varna, Bulgaria</i>	
INCREASING THE EFFICIENCY OF A SHIP'S AIR-CONDITIONING SYSTEM USING SYNCHRONOUS JET MOTORS.....	78
Plamen Parushev¹, Ginka Ivanova², Iliyan Donev³	
^{1,2} <i>Technical University of Varna, Department of Electric Power Supply and Equipment, Bulgaria</i>	
³ <i>Technical University of Varna, Department of Shipbuilding and Marine Engineering, PhD Student, Bulgaria</i>	

UTILIZATION OF NATURAL PIGMENTS IN DYE-SENSITIZED SOLAR CELLS.....	82
Stefan Đorđević¹, Marko Krstić¹, Ivana Radonjić¹, Lana Pantić¹, Dragoljub Mirjanić², Denis Mitov¹	
<i>¹University of Niš, Faculty of Sciences and Mathematics, Višegradska 33, 18000 Niš, Serbia</i>	
<i>²Academy of Sciences and Arts of the Republic of Srpska, Bana Lazarevića 1, 78000 Banja Luka, Republic of Srpska</i>	
ON THE SELECTION OF RELAY PROTECTION OF A SINGLE-PHASE EARTH FAULT IN OPEN-PIT MINES	88
Kiril Dzhustrov	
<i>University of Mining and Geology “St. Ivan Rilski”, Bulgaria</i>	
TRANSIENT PROCESSES DURING SINGLE-POLE CONTACT OF A PERSON WITH A DC NETWORK	93
Kiril Dzhustrov	
<i>University of Mining and Geology “St. Ivan Rilski”, Bulgaria</i>	
DETERMINATION OF THE PULSE COEFFICIENT AND RESISTANCE OF VERTICAL GROUNDING DEVICES.....	98
Peter Kolev Petrov, Krasimir Marinov Ivanov, Georgi Tsonev Velev	
<i>Technical University of Gabrovo, Bulgaria</i>	
SIMULATION OF LABORATORY STAND FOR LOAD SCHEDULES STUDY	103
Tsvetozar Petkov	
<i>Technical University of Gabrovo, Bulgaria</i>	
ANALYSIS OF THE ELECTRICITY QUALITY IN A PUBLIC FACILITY.....	108
Lyubomir Dimitrov	
<i>Technical University of Gabrovo, Bulgaria</i>	
RESEARCH AND ANALYSIS OF ELECTRICITY CONSUMPTION IN THE ELECTRICITY SUPPLY SYSTEM OF AN INDUSTRIAL FACILITY.....	113
Milen Duganov	
<i>Technical University of Varna, “Department of Electric Power Supply and Equipment” PhD Student, Bulgaria</i>	
ELECTROMAGNETIC COMPATIBILITY FOR TRACTION CONTACT NETWORK AND NEIGHBORING CABLE LINES	120
Emiliya Dimitrova, Vasil Dimitrov	
<i>Todor Kableshkov University of Transport – Sofia, Bulgaria</i>	
DESIGN AND ENERGY ANALYSIS OF A CONVERTED ELECTRIC CAR.....	126
Vasil Dimitrov, Atanas Nikolov	
<i>Todor Kableshkov University of Transport – Sofia, Bulgaria</i>	
DETECTION AND ISOLATION OF A MULTIPLICATIVE FAULT IN A WIRELESS POWER TRANSFER SYSTEM	133
Dejan Janjic, Sanja Antic, Branko Koprivica	
<i>University of Kragujevac, Faculty of technical sciences Čačak, Serbia</i>	

USAGE OF FREQUENCY LOCKED LOOP FOR TIME-DIGITAL FILTERING AND OTHER APPLICATIONS	143
Djurdje M. Perišić¹, Aleksandar Žorić.²	
<i>¹Technology, Slobomir P Faculty of Information University, Slobomir, BiH</i>	
<i>²Faculty of Technical Science, K. Mitrovica, Serbia</i>	
THE RECENT EVOLUTION OF GAN TRANSISTORS AND THEIR APPLICATIONS.....	149
Petko Marinov, Dobroslav Dankov	
<i>Department of Electronics, Faculty of Electrical Engineering and Electronics</i>	
<i>Technical University of Gabrovo, Bulgaria</i>	
METHODS AND MEANS FOR EVALUATING THE STATE OF CHARGE IN BATTERIES FOR ELECTRIC VEHICLES	156
Strahil Sabev, Nikolai Madjarov, Dobroslav Dankov	
<i>Department of Electronics</i>	
<i>Technical University of Gabrovo, Bulgaria</i>	
DEVELOPMENT OF A CONTROLLER FOR SMALL WIND TURBINES WITH A MOBILE SETUP	163
Petar Panayotov, Goran Goranov	
<i>Technical University of Gabrovo, Bulgaria</i>	
OVERVIEW OF MEASUREMENT SYSTEM FOR TESTING HALL ELEMENTS	169
Gergana Mironova, Goran Goranov	
<i>Technical University of Gabrovo, Bulgaria</i>	
IMPROVING PERFORMANCE OF A WIRELESS POWER TRANSFER SYSTEM USING DIFFERENT INDUCTANCE VALUE	174
Desislav Iliev	
<i>Technical University of Gabrovo, Bulgaria</i>	
TWO-AXIS MAGNETIC-FIELD SENSOR.....	180
S.V. Lozanova, A.J. Ivanov, M.L. Ralchev, C. S. Roumenin	
<i>Institute of Robotics at Bulgarian Academy of Sciences “Acad. G. Bonchev” Str., Bl.2, Sofia</i>	
<i>1113, Bulgaria</i>	
DOUBLE-HALL MICROSENSOR.....	187
S.V. Lozanova, A.J. Ivanov, M.L. Ralchev, C. S. Roumenin	
<i>Institute of Robotics at Bulgarian Academy of Sciences “Acad. G. Bonchev” Str., Bl.2, Sofia</i>	
<i>1113, Bulgaria</i>	

<p>ENERGY EFFICIENCY OF THE TRANSMITTER DVB-T2 SYSTEM.....</p> <p>Jovan Zlatanovic¹, Ivana Milosevic², Mirko Milosevic³ ¹<i>PE Transmitter and Communications, Belgrade, Serbia</i> ²<i>The School of Electrical and Computer Engineering of Applied Studies, Belgrade, Serbia</i> ³<i>Organization</i></p>	195
<p>SOUND EFFECTS.....</p> <p>Ivanka Valova <i>Faculty of Journalism and Mass Communication, Educational Television Studio Sofia University “St. Kliment Ohridski”, Bulgaria</i></p>	205
<p>SYNTHESIS OF PREDICTIVE MODELS FOR NETWORK TRAFFIC WITH FFNNS AND TRAINING ALGORITHMS SELECTION.....</p> <p>Teodora Valentinova Zhorova <i>Department of Communications Equipment and Technologies Technical University of Gabrovo, Bulgaria</i></p>	211
<p>DISTRIBUTED GSM SIGNAL QUALITY IMPROVEMENT ACROSS THE ENTIRE 890-960 MHz BAND.....</p> <p>Stanimir Sadinov¹, Miroslav Tomov¹, Boris Arsov², Aysun Ahmed¹ ¹<i>Technical University of Gabrovo, Bulgaria</i> ²<i>International Slavic University Sv Nikole, N. Macedonia</i></p>	217
<p>COMPARATIVE ANALYSIS OF SOFTWARE TOOLS FOR TESTING RADIO COVERAGE THROUGH A MOBILE TERMINAL</p> <p>Stanimir Sadinov¹, Boris Arsov², Aysun Ahmed¹, Egnar Ozdikililer³ ¹<i>Technical University of Gabrovo, Bulgaria</i> ²<i>International Slavic University Sv Nikole, N. Macedonia</i> ³<i>Istanbul Technical University, Turkey</i></p>	223
<p>NETWORK TRAFFIC MONITORING AN URBAN ENVIRONMENT BY MULTILAYER CFNNS</p> <p>Ivelina Stefanova Balabanova <i>Department of Communications Equipment and Technologies Technical University of Gabrovo, Bulgaria</i></p>	228
<p>NOISE CLASSIFICATION AND TRAFFIC PARAMETER PREDICTION IN ICT INFRASTRUCTURES WITH ARTIFICIAL NEURAL NETWORKS</p> <p>Georgi Ivanov Georgiev <i>Department of Communications Equipment and Technologies Technical University of Gabrovo, Bulgaria</i></p>	233
<p>SIMULATION STUDY OF PARAMETERS AND CHARACTERISTICS OF OPTICAL COMMUNICATION LINE WITH SPECTRAL MULTIPLEXING.....</p> <p>Stanimir Sadinov <i>Technical University of Gabrovo, Bulgaria</i></p>	238

LAND CHANGE DETECTION STUDIES WITH INFORMATION OBTAINED FROM SATELLITE IMAGES.....	244
Egnar Özdikililer¹, Denis Byalev²	
<i>¹Istanbul Technical University, Faculty of Aeronautics and Astronautics, Istanbul, Turkey</i>	
<i>²University of Telecommunication and Posts, Faculty of Telecommunications and Management, Sofia, Bulgaria</i>	

TYPES OF REMOTE SENSING ANALYSIS IN DISASTER MANAGEMENT AND LANDSLIDE IDENTIFICATION	250
Denis Byalev¹, Egnar Ozdikililer²	
<i>¹University of Telecommunication and Posts, Faculty of Telecommunications and Management, Sofia, Bulgaria</i>	
<i>²Istanbul Technical University, Faculty of Aeronautics and Astronautics, Istanbul, Turkey</i>	

TIME SYNCHRONIZATION IN LORA WIRELESS NETWORKS	254
Sladana Đurašević Pešović, Uroš Pešović	
<i>Faculty of technical sciences Cacak, University of Kragujevac, Serbia</i>	



COMPUTER SYSTEMS

SYSTEM FOR MANAGEMENT OF A CIRCUIT BOARDS CLEANING PROCESS	261
Gergana Spasova	
<i>Technical University of Varna, Bulgaria</i>	

A SURVEY OF HARDWARE AND SOFTWARE SYSTEMS FOR INDUSTRIAL PROCESS CONTROL	266
Gergana Spasova, Iliyan Boychev, Milen Angelov	
<i>Technical University of Varna, Bulgaria</i>	

APPLICATION OF TL-VERILOG FOR MODELLING COMPONENTS OF MICROPROCESSOR ARCHITECTURES	273
Ilian Varbov, Valentina Kukenska, Petar Minev, Matyo Dinev	
<i>Technical University of Gabrovo, Bulgaria</i>	

APPLICATION OF TL-VERILOG FOR MODELLING A PIPELINED MICROPROCESSOR ARCHITECTURE	280
Petar Minev, Valentina Kukenska, Ilian Varbov, Matyo Dinev	
<i>Technical University of Gabrovo, Bulgaria</i>	

SYSTEM FOR MICROWAVE SPEED MEASUREMENT OF MOVING OBJECTS	286
Borislav Nedev, Hristo Kilifarev	
<i>Technical University of Gabrovo, Bulgaria</i>	

SOFTWARE DEVELOPMENT OF A SYSTEM FOR MICROWAVE SPEED MEASUREMENT OF MOVING OBJECTS	291
Hristo Kilifarev, Borislav Nedev	
<i>Technical University of Gabrovo, Bulgaria</i>	

POSSIBILITY OF DEMOCRATIZATION OF INTEGRATED CIRCUITS DESIGN FOR EDUCATIONAL AND SMALL PROJECTS	297
Mihailo Knezevic¹, Zeljko Jovanovic¹, Milentije Lukovic¹	
<i>¹University of Kragujevac, Faculty of Technical Sciences, Čačak, Serbia</i>	

COMPARISON OF ETL EXECUTION SPEEDS WHEN USING SQL CODE AND WHEN USING SSIS BUILT IN COMPONENTS.....	302
Slaviša Vučetić¹, Slaviša Ilić², Slavica Savić¹, Siniša Ilić¹	
¹ Faculty of Technical Sciences, University of Priština in Kosovska Mitrovica	
² University Singidunum, Belgrade	

DETERMINING THE COMPLEXITY OF AN ITERATIVE GRAPH DECOMPOSITION ALGORITHM.....	309
Matyo Dinev, Valentina Kukenska, Petar Minev, Ilian Varbov	
<i>Technical University of Gabrovo, Bulgaria</i>	

AN ANALYSIS OF DIFFERENT CHAINING MODES IN SYMMETRIC CRYPTOGRAPHIC ALGORITHMS APPLIED IN DIGITAL IMAGE TRANSMISSION.....	314
Djordje Sarcevic¹, Dragan Rudnjanin², Ana Djokic³, Hana Stefanovic³	
¹ Academy of Professional Studies, Department of Medical and Business-Technological Studies, Sabac, Serbia	
² Faculty of Technical Science, University of Pristina in Kosovska Mitrovica, Kosovska Mitrovica, Serbia	
³ Information Technology School ITS Comtrade, Belgrade, Serbia	



COMPUTER TECHNOLOGIES


REACTIVE APPROACH FOR MULTI-AGENT TOURIST GUIDE FOR GABROVO.....	321
Iliya Iliiev Nedelchev	
<i>University of Plovdiv “Paisii Hilendarski”, Bulgaria</i>	

APPLICATION OF LARGE LANGUAGE MODELS AND NATURAL LANGUAGE UNDERSTANDING IN MULTI-AGENT TOURIST GUIDE FOR GABROVO	328
Iliya Iliiev Nedelchev	
<i>University of Plovdiv “Paisii Hilendarski”, Bulgaria</i>	

APPLICATION OF ARTIFICIAL INTELLIGENCE FOR IMAGE DETECTION AND RECOGNITION IN VIDEO MATERIALS.....	334
Tsvetislava Lavchieva, Delyan Genkov	
<i>Technical University of Gabrovo, Bulgaria</i>	

DEVELOPMENT OF AN IP CAMERA SYSTEM USING MACHINE LEARNING FOR THE PURPOSE OF PRIVACY PROTECTION	340
Oliver Popović¹, Nikola Nikolić¹, Vladica Ubavić², Marina Jovanović-Milenković³, Marko Asanović⁴, Ivana Buzdovan⁴	
¹ Toplica Academy of Applied Studies, Prokuplje	
² Republic Geodetic Authority, Belgrade	
³ Faculty of Project and Innovation Management, Educons University, Belgrade	
⁴ Faculty of Transport, Communications and Logistics, Budva	

SOFTWARE DEFINED NETWORKING – CONCEPTS, IMPLEMENTATIONS AND TOOLS.....	345
Delyan Genkov, Tsvetan Raykov	
<i>Technical University of Gabrovo, Bulgaria</i>	

APPLICATION OF NEURAL NETWORKS IN ANDROID APPLICATIONS FOR OBJECT RECOGNITION IN REAL TIME.....	350
Zeljko Jovanovic¹, Filip Petrovic¹, Mihailo Knezevic¹	
<i>¹University of Kragujevac, Faculty of technical sciences Čačak, Serbia</i>	
AN APPLICATION OF BITSET IN CODING THEORY.....	356
Stoyan Kapralov, Valentina Kukenska	
<i>Technical University of Gabrovo, Bulgaria</i>	
QUALITY CONTROL OF PARTS IN INDUSTRIAL PRODUCTION WITH IMAGE PROCESSING METHODS.....	359
M. Ozan AKI¹, Aydın GULLU²	
<i>^{1,2}Trakya University Ipsala Vocational School, Department of Electronics and Automation Edirne / Turkey</i>	
USING IMAGE PROCESSING TECHNIQUES FOR PART CLASSIFICATION.....	365
Aydın GULLU¹, M. Ozan AKI²	
<i>^{1,2}Trakya University Ipsala Vocational School Department of Electronics and Automation Edirne / Turkey</i>	
DETECTION OF BUILDING CRACKS FROM IMAGES IN CLOUD-FOG COMPUTING	371
Dušan Marković¹, Dejan Vujičić², Dijana Stojić², Uroš Pešović², Siniša Randić²	
<i>¹Faculty of Agronomy Čačak, University of Kragujevac, Serbia</i>	
<i>²Faculty of Technical Sciences Čačak, University of Kragujevac, Serbia</i>	
	
DEVELOPMENT OF A MODEL OF THE THIN-FILM HUMIDITY SENSING ELEMENT CHARACTERISTICS	379
Stefan Ivanov, Nedyu Nedev, Zvezditzza Nenova	
<i>Technical University of Gabrovo, Bulgaria</i>	
EXPERIMENTAL INVESTIGATION OF THE EFFECT OF SURFACE CONTAMINATION ON POWER OUTPUT IN PHOTOVOLTAIC PANELS.....	385
İlhan UMUT	
<i>Tekirdag Namik Kemal University, Turkey</i>	
A STUDY OF DEPTH INACCURACY IN TIME-OF-FLIGHT (TOF) CAMERAS CAUSED BY COLOR VARIATIONS OF OBJECTS.....	390
Alexandar Lyubenov, Stefan Ivanov	
<i>Technical University of Gabrovo, Bulgaria</i>	
CASCADE CHAOTIC SYNCHRONIZATION BETWEEN THREE THREE-DIMENSIONAL CHAOTIC SYSTEMS.....	397
Dragomir Chantov	
<i>Technical University of Gabrovo, Bulgaria</i>	

SYNTHESIS OF CHAOTIC SYNCHRONIZATION SCHEME WITH HYBRID SYNCHRONIZATION BETWEEN TWO TANG CHAOTIC MODELS	405
Dragomir Chantov	
<i>Technical University of Gabrovo, Bulgaria</i>	

APPLICATION OF A MULTISENSOR SYSTEM FOR DATA ACQUISITION OF CHEESE MATURING PROCESS.....	411
Todor Todorov, Elena Monova, Stefan Ivanov	
<i>Technical University of Gabrovo, Bulgaria</i>	

VOLUME II

TECHNOLOGIES IN MECHANICAL ENGINEERING AND DESIGN OF MACHINES AND INSTRUMENTS

THE EFFECT OF MOLYBDENUM ON MICROSTRUCTURE AND MECHANICAL PROPERTIES OF DUCTILE IRON.....	3
Vladimir Todorov	
<i>Technical University of Gabrovo, Bulgaria</i>	

MULTI-CHANNEL MEASURING INSTRUMENT AND DESIGN OF A ROLLING BEARINGS TEST RIG.....	10
Biljana SAVIĆ, Uroš PEŠOVIĆ, Marko POPOVIĆ, Marija NIKOLIĆ	
<i>Faculty of Technical Science Čačak, Serbia</i>	

COATING OF ST37 STRUCTURAL STEEL SURFACE WITH WC-ST6-ST21 AND FERRO55 USING LASER CLADDING TECHNIQUE AND INVESTIGATION OF SURFACE HARDNESS	15
Beyza AVCI¹, Ibrahim Savas DALMIS², Serdar Osman YILMAZ²	
¹ <i>DOMEKS Machinery Inc. Design Center, Türkiye</i>	
² <i>Tekirdağ Namik Kemal University, Çorlu Engineering Faculty, Mechanical Engineering Department, Turkey</i>	

DESIGN AND EXPERIMENTAL ANALYSIS OF A TEST MACHINE TO DETERMINE BUCKLING IN THE RODS OF HYDRAULIC CYLINDER.....	21
Soydan Yurekli¹, Ibrahim Savas Dalmis²	
¹ <i>HIDROSER Hydraulic Systems Ltd. Design Center, Turkey</i>	
² <i>Tekirdag Namik Kemal University, Corlu Engineering Faculty, Mechanical Engineering Department, Turkey</i>	

RESEARCH OF THE FUNCTIONAL POSSIBILITIES ON A COOLING SYSTEM WITH COLD AIR IN REAL CONDITIONS	27
Kalin Anastasov, Hristian Mitev	
<i>Technical University of Gabrovo, Bulgaria</i>	

PERFORMANCE ANALYSIS OF CONTINUOUS LINEAR MOTION OF SINGLE AND SERIES CONNECTED PIEZOELECTRIC ELEMENTS BY USING METHOD OF IMPACT DRIVE MECHANISM	33
Kuşçu Hilmi¹, Kaya Ulaş²,	
<i>¹Professor, Department of Mechanical Engineering, Trakya University, Edirne, Türkiye</i>	
<i>²PHD Candidate, Department of Mechanical Engineering, Trakya University, Edirne, Türkiye</i>	
THE EFFECT OF ECONOMIZER APPLICATION ON ENERGY ECONOMY IN STENTER MACHINES USED	43
Kenan KARACAVUS¹, Furkan HAMZAOĞLU²	
<i>¹ Trakya University, Turkey</i>	
<i>² Termo Isı Sistemleri A.Ş., Turkey</i>	
DEVELOPMENT OF A HIGH CAPACITY THREE HEADED COIL-SPOOL WINDING MACHINE	53
Beyza AVCI¹, Sercan KAVAK¹, Figan DALMIS², Serdar Osman YILMAZ³, Ibrahim Savas DALMIS³	
<i>¹DOMEKS Machinery A.S. Design Center, Türkiye</i>	
<i>²TNKU, Vocational College of Technical Sciences, Electronic and Automation Department, Türkiye</i>	
<i>³TNKU, Çorlu Engineering Faculty, Mechanical Engineering Department, Türkiye</i>	
PARAMETER SCREENING IN LONGITUDINAL TURNING OF C45E STEEL FOR SURFACE ROUGHNESS ANALYSIS	61
Milan Trifunović, Miloš Madić, Predrag Janković, Miroslav Radovanović	
<i>University of Niš, Faculty of Mechanical Engineering in Niš, Niš, Serbia</i>	
PRODUCTION AND CHARACTERIZATION OF 2024 ALUMINUM ALLOYS	68
Cem Misirli	
<i>Trakya University, Edirne, Turkey</i>	
ANALYSIS OF ADDITIVELY MANUFACTURED ALSI10MG ALLOY USING X-RAY DIFFRACTION	74
Jiří Čapek¹, Karel Trojan¹, Radim Halama², Nikolaj Ganev¹, Jiří Hajnýš², Kamil Kolařík¹	
<i>¹Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague</i>	
<i>²Faculty of Mechanical Engineering, VSB – Technical University of Ostrava</i>	
INVESTIGATION OF MICROSTRUCTURE OF AA7075 ALLOYS AFTER SEVERE PLASTIC DEFORMATION APPLICATION	76
Cem Misirli	
<i>Trakya University, Edirne, Turkey</i>	
INVESTIGATION OF ROUGHNESS IN MACHINING OF 42CrMo4+QT STEEL ON ROBOT-FEED CNC MACHINES.....	80
Nikolay Kolev, Irina Alexandrova, Hristo Metev	
<i>Department of Mechanical Engineering and Technologies</i>	
<i>Technical University of Gabrovo, Bulgaria</i>	

ELIMINATION OF THE DEFECTIVE LAYER AND STRESS CONCENTRATORS DURING MICROMACHINING OF HOLES IN THIN SHEET BLANKS OF METAL CELLULAR PANELS	86
---	-----------

Salenko O.F.¹ Cholodny V.Yu.² W. Alnusirat,³ Habuzyan H.V.⁴

¹*National Technical University of Ukraine, "Igor Sikorsky Kyiv Polytechnic Institute"*

²*Kremenchuk Mikhailo Ostrogradskyi National University*

³*Maan University college Al-balqa Applied University*

⁴*Vocational College of Kremenchuk Mikhailo Ostrogradskyi National University*

DETECTION OF NON-RADIOCONTRAST FRAGMENTS IN MILITARY FIELD SURGERY BY THE NOISE EMISSION METHOD.....	90
---	-----------

Salenko O.F.¹, Orel V.M.², Salenko B.O.³, Karpenko K.K.⁴, Cherniak V.A.⁵

¹*National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"*

²*Kharkiv National University of Internal Affairs, Kremenchuk Flight college*

³*National Center "Small Academy Of Sciences Of Ukraine"*

⁴*National Military Medical Clinical Center "Main Military Clinical Hospital"*

⁵*Kyiv National University named after Taras Shevchenko*

HYDRAULICS, PNEUMATICS AND HEAT ENGINEERING AND TECHNOLOGIES IN TEXTILE PRODUCTIONS

INVESTIGATION OF TENSILE STRENGTH CHANGE OF DENIM TYPE COTTON FABRIC DURING LASER TREATMENT	97
--	-----------

Borislav Tsonev Stoyanov, Krasimir Iliev Drumev, Dobrin Nenchev Genov, Sonya Paskaleva Ilieva

Technical University of Gabrovo, Bulgaria

THE INFLUENCE OF THE PROCESS OF FRICTION - ABRASION ON THE AIR PERMEABILITY AND APPEARANCE OF CLASSIC COTTON-TYPE SOCKS	104
--	------------

Nenad Cirkovic*, Sladjana Kapusi, Tatjana Sarac, Dusan Trajkovic, Natasa Stamenkovic, Jovan Stepanovic, Andjela Ilic

Faculty of Technology in Leskovac, Serbia

THE TRANSFER PHENOMENON OF ENERGY IN MECHANICAL SYSTEMS OF VIBRATION DAMPING	110
---	------------

Ihor Nochnichenko¹, Oleg Yakhno², Dmytro Kostiuk², Vladyslav Kryvosheiev²

¹*Jagiellonian University*

²*National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute»*

AN OVERVIEW OF GROUND SOURCE HEAT PUMPS	117
--	------------

Ahmet CAN¹, Ertan BUYRUK²

¹*Istanbul Rumeli University, Industrial Eng. Dept., Istanbul, Türkiye*

²*Sivas Cumhuriyet University, Mechanical Eng. Dept., Sivas, Türkiye*

INFLUENCE OF INERTIAL FORCES ON FLOW OF ELECTRICALLY CONDUCTIVE LIQUIDS IN A TRANSVERSE MAGNETIC FIELD	124
---	------------

Mamedov A. N., Lavrukhin E. V., Murashchenko A. M., Yakhno O. M.

National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

EXPERIMENTAL STUDY OF THE GEOMETRIC CHARACTERISTICS OF WATERING ZONES FORMED BY A HANDLINE NOZZLE PROTEK-366	129
Stas S., Bychenko A., Pustovit M., Myhalenko O., Kolesnikov D.	
<i>Cherkasy Institute of Fire Safety named after Chornobyl Heroes</i>	

**SOCIAL SCIENCES AND HUMANITIES, ORGANIZATION AND MANAGEMENT,
ENTREPRENEURSHIP AND ECONOMY, EDUCATION TECHNOLOGIES,
MATHEMATICS AND INFORMATICS**

THE CHALLENGES ENTREPRENEURS FACE	135
Dobrin Ganchev, Milena Racheva	
<i>Technical University of Gabrovo, Bulgaria</i>	
THEORETICAL ASPECTS OF ASSESSING THE INVESTMENT ATTRACTIVENESS OF SOCIALLY RESPONSIBLE COMPANIES.....	142
Rima Tamošiūnienė	
<i>Vilnius Gediminas Technical University, Financial Engineering Department, Saulėtekio ave. 11, LT-10223, Vilnius, Lithuania</i>	
<i>Mykolas Romeris University, Business and Economics Institute, Ateities str. 20, LT-08303, Vilnius</i>	
COMPARISON OF THE EFFICIENCY OF BALTIC INVESTMENT FUNDS.....	149
Rima Tamošiūnienė¹, Katažyna Sucharevska²	
<i>^{1, 2} Vilnius Gediminas Technical University, Financial Engineering Department, Saulėtekio ave. 11, LT-10223, Vilnius, Lithuania</i>	
THE CONCEPT OF SUSTAINABLE DEVELOPMENT AND RENEWABLE ENERGIES	156
Ventsislava Aleksandrova Nikolova-Minkova	
<i>Technical University of Gabrovo, Bulgaria</i>	
PATENT ACTIVITY IN THE FIELD OF PHOTOVOLTAICS	163
Ventsislava Aleksandrova Nikolova-Minkova	
<i>Technical University of Gabrovo, Bulgaria</i>	
WORK IN PROGRESS – SIMULATION APPROACH.....	169
Petko Naydenov	
<i>Technical University of Gabrovo, Bulgaria</i>	
APPLICATION OF ABC ANALYSIS TO THE COMPANY'S PRODUCTION PROGRAM: A CASE STUDY.....	174
Jasmina Ćurčić, Milan Vesković, Zoran Nešić, Andrijana Gaborović, Jelena Plašić	
<i>University of Kragujevac, Faculty of Technical Sciences in Čačak, Serbia</i>	
PLANING RESEARCH OF STUDENT'S READINESS TO ENTER THE LABOR MARKET	180
Veryana Boeva	
<i>Technical University of Gabrovo, Bulgaria</i>	

THE PHILOSOPHY OF RESPONSIBILITY IN THE NEWEST EXISTENTIAL CONTEXTS	187
Usov Dmytro	
<i>Cherkasy Institute of Fire Safety named after Chornobyl Heroes of the National University of Civil Protection of Ukraine</i>	
COMPARATIVE ANALYSIS OF THE SOCIAL SERVICES SYSTEM IN BULGARIA AND ROMANIA	191
Lilyana Rusanova	
<i>Technical University of Gabrovo, Bulgaria</i>	
HYBRID SOURCES OF FINANCE OF CORPORATION.....	196
Milos Ivanis	
<i>Faculty of Economics and Engineering Management, University Business Academy, Novi Sad, Serbia</i>	
FACTORS OF CORPORATE CAPITAL STRUCTURE.....	203
Milos Ivanis	
<i>Faculty of Economics and Engineering Management, University Business Academy, Novi Sad, Serbia</i>	
FIGURE OF THE NATIONAL BULGARIAN HERO IHNATIEV IN THE LIGHT OF THE UKRAINOCENTRIC VISION.....	210
Horenko L.¹, Zelinskyi R.²	
¹ <i>Cherkasy Institute of Fire Safety named by Chernobyl Heroes, Ukraine</i>	
² <i>Honorary regional historian of Ukraine</i>	
BASIC THEORETICAL CONCEPTS OF CRIME WITH A FOCUS ON CHILDREN	215
Denitsa Svetoslavova Savova	
<i>Technical University – Varna, Bulgaria</i>	
ORGANIZING THE SOCIAL SERVICE CENTER FOR THE CARE OF PEOPLE WITH MENTAL DISORDERS	219
Plamen Kolev	
<i>Technical University of Gabrovo, Bulgaria</i>	
ANTISOCIAL BEHAVIOR IN ADOLESCENTS – RISK FACTORS, TENDENCIES, SOCIAL CONSEQUENCES	225
Ivanka Stoyanova - Todorova	
<i>Technical University of Gabrovo, Bulgaria</i>	
USE OF AUGMENTED REALITY TECHNOLOGIES IN THE EDUCATIONAL PROCESS TO VISUALIZE EDUCATIONAL MATERIAL.....	235
Halyna Sazhko, Alina Chaika	
<i>Ukrainian Engineering Pedagogics Academy, Faculty of Innovative Technologies, Universitetskaya st. 16, Kharkiv, 61003, Ukraine</i>	
SOME RESULTS ON FIXED POINT OF FUNCTION IN S -METRIC SPACES.....	242
H.Karayilan	
<i>Science Faculty, Department of Mathematics, Trakya University, Edirne-Türkiye</i>	

DISCRETE DATA APPROXIMATIONS AND THEIR APPLICATION IN ENGINEERING RESEARCH	246
Milena Racheva <i>Technical University of Gabrovo, Bulgaria</i>	

EFFECTIVE CUBATURE FORMULA FOR THE APPROXIMATE CALCULATION OF THE TRIPLE INTEGRAL ON THE CLASS OF DIFFERENTIABLE FUNCTIONS	250
Olesia Nechuiviter¹, Kyrylo Kovalchuk² ¹ <i>Ukrainian Engineering Pedagogics Academy</i> ² <i>Taras Shevchenko Kyiv National University</i>	

CHEMISTRY, PHYSICS AND ECOLOGY

SONOCHEMICAL SYNTHESIS OF FATTY ACIDS ESTERS FOR PLASTIC'S BIO-ADDITIVES WITH PLASTICIZING EFFECT	259
Dragomir Vassilev¹, Nadezhda Petkova², Dobromira Yaneva¹, Panteley Denev² ¹ <i>Technical University of Gabrovo, Gabrovo, Bulgaria</i> ² <i>University of Food Technologies, Plovdiv, Bulgaria</i>	

AGROECOLOGICAL ASSESSMENT OF SEWAGE SLUDGE AND ITS UTILIZATION	263
Dragomir Vassilev <i>Technical University of Gabrovo, Bulgaria</i>	

DEVELOPMENT OF A TRYAVNA MUNICIPALITY PROGRAM FOR ENVIRONMENTAL PROTECTION	268
Dobromira Yaneva, Kristiyan Stefanov, Dragomir Vassilev <i>Technical University of Gabrovo, Bulgaria</i>	

DEVELOPMENT OF A WASTE MANAGEMENT PROGRAM FOR THE MUNICIPALITY OF GABROVO	272
Kristiyan Stefanov, Dobromira Yaneva, Dragomir Vassilev <i>Technical University of Gabrovo, Bulgaria</i>	

THEORETICAL CHARACTERIZATION OF A IMIDAZOPHENANTHROLINE DERIVED LIGAND BY THE DENSITY FUNCTIONAL METHOD	276
Gühergül Uluçam <i>Chemistry Department, Faculty of Science, Trakya University, 22030 Edirne, Turkey</i>	

CHALLENGES TO THE ECOLOGICAL STATUS ASSESSMENT OF THE BLACK SEA MEDIUM SALT LAKES AND MARSHES	282
Diyana Dimova <i>Technical University of Varna, Department of Ecology and Environmental Protection, Bulgaria</i>	

REVIEW OF THE STATUS OF GROUNDWATER BODIES IN VARNA MUNICIPALITY	289
Daniela Toneva, Desislava Dimitrova <i>Technical University of Varna, Bulgaria</i>	

SPATIO-TEMPORAL SULPHATE ACCUMULATIONS IN WATER OF FELENT STREAM (KÜTAHYA, TÜRKİYE)	294
Cem Tokatlı¹, Esengül Köse², Fikret Ustaoglu³	
¹ <i>Trakya University, Edirne, Turkey</i>	
² <i>Eskişehir Osmangazi University, Eskişehir, Turkey</i>	
³ <i>Giresun University, Giresun, Turkey</i>	
SEASONAL VARIATION OF FLUORIDE ACCUMULATIONS IN ARTIFICIAL POND WATERS ON THE GELIBOLU PENINSULA (TÜRKİYE)	299
Cem Tokatlı¹, Mediha Büyükgöze Dindar¹, Şirin Güner Onur²	
¹ <i>Trakya University, Edirne, Turkey</i>	
² <i>Altınbaş University, İstanbul, Turkey</i>	
THE HYDROSTATIC PRESSURE EFFECT ON THE NORMALIZED INTRADONOR TRANSITION ENERGY IN A GAAS/GA_{1-x}AL_xAS SPHERICAL QUANTUM DOT	304
A.I. Mese	
<i>Department of Physics, Trakya University, Edirne 22030, Turkey</i>	
THE EFFECT OF TEMPERATURE ON THE SELF-POLARIZATION IN AN INFINITE GaAs/AlAs CYLINDRICAL QUANTUM WELL-WIRE	310
Engin ÇİCEK	
<i>Trakya University, Science Faculty Physics Department Edirne, Turkey</i>	
THE PRE-WELL POTENTIAL AND CENTRAL WELL WIDTH EFFECTS ON A RESONANT TUNNELLING DIODE UNDER LASER FIELD.....	316
Hulya KES	
<i>Department of Physics, Faculty of Science, Trakya University, 22030 Edirne, Turkey</i>	
OPTICAL AND ELECTRONIC PROPERTIES OF COAXIAL SQUARE QUANTUM WELL WIRES AND FIELD EFFECTS	321
Saban Aktas, Figen Karaca Boz, Sevet Erol Okan	
<i>Department of Physics, Faculty of Science, Trakya University, 22030 Edirne, Turkey</i>	
GAMMA RADIATION DISTRIBUTION MAPS IN SOIL SAMPLES FROM SHUMEN PLATEAU, BULGARIA	327
Seniha Salim¹, Daniela Nedeva², Nina Arhangelova¹	
¹ <i>Shumen University “Konstantin Preslavsky”, Bulgaria</i>	
² <i>Technical university of Gabrovo, Bulgaria</i>	
HIGH-ENERGY MATERIALS PROCESSING METHODS.....	333
Daniela Nedeva¹, Fatme Padikova^{1,2}, Georgi Kotlarski²	
¹ <i>Technical University of Gabrovo, Bulgaria</i>	
² <i>Institute of Electronics-BAS, Bulgaria</i>	
DISTRIBUTION OF RADIONUCLIDES IN SANDS FROM THE BULGARIAN BLACK SEA.....	339
Nina Arhangelova¹, Seniha Salim¹, Daniela Nedeva²	
¹ <i>Konstantin Preslavsky University of Shumen, Bulgaria</i>	
² <i>Technical University of Gabrovo, Bulgaria</i>	
EFFECT OF Ge-DOPING POSITION ON THE ELECTRONIC BAND STRUCTURE OF InP NANOWIRE	344
Sena Guler Ozkapi	
<i>Trakya University, Edirne Vocational School of Technical Sciences, 22030, Edirne, Türkiye</i>	

STRUCTURE, MORPHOLOGY AND HARDNESS OF A WAAM BUILT AL99.7 SPECIMEN	349
Georgi Kotlarski¹, Maria Ormanova¹, Alexander Nikitin², Ralf Ossenbrink², Nikolay Doynov^{2,3}, Stefan Valkov^{1,4}, Vesselin Michailov²	
¹ <i>Institute of Electronics, Bulgarian Academy of Sciences, 72 Tsarigradsko Chaussee, 1784 Sofia, Bulgaria</i>	
² <i>Department of Joining and Welding Technology, Brandenburg University of Technology, Platz der Deutschen Einheit 1, 03046 Cottbus, Germany</i>	
³ <i>Institute of Metal Science, equipment, and technologies with Center for Hydro- and Aerodynamics, Bulgarian Academy of Sciences, 67 Shipchenski prohod Blvd., 1574 Sofia, Bulgaria</i>	
⁴ <i>Faculty of Mathematics, Informatics, and Natural Sciences, Technical University of Gabrovo, 4 H. Dimitar Str., 5300 Gabrovo, Bulgaria</i>	
THE STRUCTURE PARAMETER EFFECTS ON THE ELECTRONIC AND OPTICAL PROPERTIES OF GAUSSIAN SHAPED DOUBLE QUANTUM WELLS UNDER ELECTRIC FIELD	354
Sevket Erol OKAN, Figen Karaca BOZ, Saban AKTAS	
<i>Department of Physics, Faculty of Science, Trakya University, 22030 Edirne, Turkey</i>	
ENERGY STATES IN A CERTAIN TYPE COAXIAL GAAS/AL_xGA_{1-x}AS QUANTUM WELL WIRES AND ELECTRIC AND MAGNETIC FIELD EFFECTS	359
Abdullah BİLEKKAYA	
<i>Trakya University, Edirne Vocational College of Technical Sciences, 22030 Edirne, Turkey</i>	
WELDING OF TITANIUM AND ALUMINUM ALLOYS USING OSCILLATING ELECTRON BEAM AND NIOBIUM FILLER	363
Darina Kaisheva^{1,2}, Borislav Stoyanov³, Vladimir Dunchev³, Georgi Kotlarski¹, Maria Ormanova¹, Stefan Valkov^{1,3}	
¹ <i>Academician Emil Djakov Institute of Electronics, Bulgarian Academy of Sciences, 72 Tsarigradsko Chausse Blvd, 1784 Sofia, Bulgaria</i>	
² <i>South-West University „Neofit Rilski“, 66 Ivan Michailov Str., 2700 Blagoevgrad, Bulgaria</i>	
³ <i>Technical University of Gabrovo, 4 H. Dimitar Str., 5300 Gabrovo, Bulgaria</i>	