

TECHNICAL UNIVERSITY OF GABROVO



**INTERNATIONAL
SCIENTIFIC CONFERENCE**

UNITECH **2022**
GABROVO

P R O G R A M

18 - 19 NOVEMBER 2022
GABROVO

International Scientific Conference UNITECH'22 is organized by the Technical University of Gabrovo with the assistance of regional business establishments and companies. The conference is a

International Scientific Conference "UNITECH 2022" – Gabrovo

forum at which traditionally every year at the end of November lecturers and research workers from home and abroad meet to promote the Development of Science and Education.

ORGANIZING COMMITTEE

Chairman: Assoc. Prof. Plamen Tsankov, PhD
Vice Rector in charge of Research and Development

Members: Prof. Jordan Maximov, DSc
Prof. Anatoliy Aleksandrov, PhD
Prof. Todor Todorov, PhD

Technical Assistant:
Petya Peneva, MA

PROGRAM COMMITTEE

Chairman: Prof. Iliya Zhelezarov, PhD
Technical University of Gabrovo, Bulgaria

Members:
Acad. Chavdar Rumenin, Bulgaria
Acad. Dragoljub Mirjanić, Rep. Srpska, B&H
Acad. Tomislav Pavlović, Serbia
Acad. Dimitar Dimitrov, Bulgaria
Corr. Mem. Prof. Tony Spassov, Bulgaria
Prof. DHC Yuriy Kuznetsov, DSc, Ukraine
Prof. DHC Nikolay Ganev, PhD, Czech Republic
Prof. DHC Helmut Hopp, PhD, Germany
Prof. Lothar Otto, PhD, Germany
Prof. Emil Kolev, PhD, Germany
Prof. Ludwig Hilmer, PhD, Germany
Prof. Elena Kovalenko, PhD, Ukraine
Prof. Iurii Iaremchuk, DSc, Ukraine
Prof. Mikhail Prokofiev, PhD, Ukraine
Prof. Igor Sazonov, DSc, Belarus
Prof. Ivan Yachev, DSc, Bulgaria
Prof. Vasil Kavardjikov, DSc, Bulgaria
Prof. Raycho Ilarionov, DSc, Bulgaria
Prof. Galya Duncheva, DSc, Bulgaria
Prof. Irina Aleksandrova, PhD, Bulgaria
Prof. Zvezditsa Nenova, PhD, Bulgaria
Prof. Nikolay Madzharov, PhD, Bulgaria
Prof. Dimitar Dichev, DSc, Bulgaria
Prof. Toshko Nenov, PhD, Bulgaria
Prof. Stanimir Sadinov, PhD, Bulgaria
Assoc. Prof. Rosen Ivanov, PhD, Bulgaria
Assoc. Prof. Angel Anchev, PhD, Bulgaria

***UNITECH'22 will be held on 18 and 19 November 2022
at the Technical University of Gabrovo***

WORKING PROGRAM OF THE SCIENTIFIC CONFERENCE

17th November 2022, Thursday

14.00 – 17.00 Registration, Rectorat building

18th November 2022, Friday

08.00 – 10.30 Registration, Rectorat building

10.30 – 11.00 Opening ceremony – Library building, Conference Hall

11.00 – 12.00 "*Modern Lasers and Their Applications in Industry*",
Assoc. Prof. Stanislav Němeček, Ph.D. University of West
Bohemia, Czech Republic

12.00 – 13.00 Lunch

13.00 – 18.00 Thematic sessions

- Electrical Engineering
- Electronics and Sensors
- Automation
- Chemistry and Ecology
- Communication Engineering and Technologies
- Computer Systems
- Computer Technologies
- Information Security
- Mathematics and Informatics
- Design of Machines and Instruments
- Technologies in Mechanical Engineering
- Technologies in Textile Production
- Mechatronics, Metrology and Quality Management
- Hydraulics, Pneumatics and Heat Engineering
- Entrepreneurship and Economy
- Organization and Management
- Social Sciences and Humanities
- Educational Technologies
- Physics

15.00 Seminar on the project "Digitalization of the economy in a Big data environment" - applied problems and technological solutions, Rectorat Building, Hall 3312

15.00 Milara Inc. Presentation,
Donation of an electric car from Milara Inc. to the Technical University of Gabrovo, Gabrovo Tech Park

15.30 Coffee break

16.00 – 17.00 Information Day Project BG05M20P001-1.002-0023 Centre of Competence "Smart Mechatronic, Eco- and Energy Saving Systems and Technologies", (SMEEST), Library building, Conference Hall

19.00 Formal dinner Restaurant Balkan Hotel

19th November 2022, Saturday

09.00 – 12.00 Thematic sessions

THEMATIC SESSIONS

ELECTRICAL ENGINEERING

Chairmen: Assoc. Prof. Hristo Ibrishimov, PhD, Sen. Assist. Milko Yovchev, PhD
Building № 2A, Hall 2603
Beginning: 13.00 h.

ANALYSIS OF THE SHADING EFFECT OF THIN LAYER CADMIUM TELLURIDE PHOTOVOLTAIC PANELS ON THEIR ELECTRICAL PERFORMANCE

Emil Stanev, Ivaylo Stoyanov

*Department of Electric Power Distribution and Electrical Equipment
Technical University of Gabrovo, Bulgaria*

STUDY OF THE LED LIGHTING FLICKER FOR INDOOR APPLICATION

Milko Yovchev

Technical University of Gabrovo, Bulgaria

CONSIDERATION OF BIOMEDICAL FACTORS WHEN CALCULATING ARCHITECTURAL AND ARTISTIC LIGHTING

Pylyp Hovorov¹, Plamen Tsankov², Anastasiia Kindinova¹

¹OM Beketov National University of Urban Economy in Kharkiv

²Technical University of Gabrovo, Bulgaria

THEORETICAL MODEL OF A HALL ELEMENT INTELLIGENT SENSOR USING VIRTUAL INSTRUMENTS

Dimitar Georgiev, Anatoliy Aleksandrov, Dobroslav Dankov, Prodan Prodanov

Technical University of Gabrovo, Bulgaria

TEMPERATURE AND FREQUENCY CHARACTERISTICS OF FERROCERAMICS $\text{BaTi}_{0.9}\text{Sn}_{0.1}\text{O}_3$

Ivaylo Lazarov

Technical University of Gabrovo, Bulgaria

ELECTRICAL SIZING OF A RECIPROCATING COMPRESSOR

Svilen Rachev, Lyubomir Dimitrov

Technical University of Gabrovo, Bulgaria

ANALYSIS OF DATA FROM THE OPERATION OF ELECTRIC ARC FURNACES

Svilen Rachev

Technical University of Gabrovo, Bulgaria

PHOTOVOLTAIC MODULES SOILING DURING HEATING SEASON IN NIŠ, SERBIA

Ivana Radonjić¹, Lana Pantić¹, Tomislav Pavlović¹, Dragoljub Mirjanić², Darko Divnić²

¹University of Niš, Faculty of Sciences and Mathematics, Department of Physics, Višegradska 33, 18000 Niš, Serbia

²Academy of Sciences and Arts of the Republic of Srpska, Bana Lazarevića 1, 78000 Banja Luka, Republic of Srpska

A REVIEW OF IoT BASED PHOTOVOLTAIC MONITORING SYSTEM APPLICATIONS

Stefan Đorđević¹, Marko Krstić¹, Lana Pantić¹, Ivana Radonjić¹, Tomislav Pavlović¹

¹University of Niš, Faculty of Sciences and Mathematics, Department of Physics, Višegradska 33, 18000 Niš, Serbia

QUICK ANALYSIS OF THE DANGER FROM STATIC ELECTRICITY

Peter Kolev Petrov, Krasimir Marinov Ivanov, Georgi Tsonev Velev

Technical University of Gabrovo, Bulgaria

DETERMINATION OF THE MAXIMUM POWER OF POWER PLANTS FROM RENEWABLE ENERGY SOURCES IN 35 KV NETWORKS

Krasimir Marinov Ivanov, Peter Kolev Petrov, Georgi Tsonev Velev

Technical University of Gabrovo, Bulgaria

ANALYSIS OF THE ANNUAL PERFORMANCE OF PHOTOVOLTAIC SYSTEMS WITH MonoSi, CdTe AND CIGS PV MODULES

Plamen Tsankov, Ivaylo Lazarov

Technical University of Gabrovo, Bulgaria

LOW POWER ELECTRIC MOTORS - DIRECTIONS OF DEVELOPMENT AND COMPARATIVE ANALYSIS

Dimitrina Koeva

Technical University of Gabrovo, Bulgaria

GRAPHICAL REPRESENTATION OF BASIC ELECTRICAL POWER QUANTITIES MEASURED WITH POWER LOGIC PM5000 SERIES

Marko Rosić, Uroš Pešović

University of Kragujevac, Faculty of Technical Sciences Čačak, Serbia

Chairmen: Prof. Nikolay Madzharov, PhD, Assoc. Prof. Prodan Prodanov, PhD
Building № 2, Hall 2311
Beginning: 13.00 h.

A SIMPLE LOW COST FUNCTION GENERATOR CONTROLLED BY ANDROID APPLICATION

Nikola Žorić¹, Aleksandar Žorić¹, Siniša Ilić¹, Bojan Jovanović²

¹*Faculty of technical sciences - University of Priština, Serbia*

²*Kosovo and Metohija Academy of applied studies-Department Uroševac, Serbia*

CLARIFICATION OF UTILIZED MEASUREMENT CIRCUITS FOR PIEZOELECTRIC VIBRATIONAL HARVESTERS

Rumyana Stoyanova, Dimo Kolev, Velimira Todorova

Technical University of Gabrovo, Bulgaria

RADIOMETRIC METHOD OF RESEARCHING THE EMISSION PROPERTIES OF BIO-OBJECTS

Oleksiy Yanenko¹, Kostiantyn Shevchenko¹, Vasyl Kuz², Mikhail Prokofiev³, Sergey Peregudov¹

¹*Igor Sikorsky Kyiv Polytechnic Institute*

²*Ternopil Ivan Puluj National Technical University*

³*Vasyl Stus Donetsk National University*

MAXIMUM POWER POINT TRACKING BASED ON PERTURB AND OBSERVATION ALGORITHM COMBINED WITH AQUILIA OPTIMIZER ALGORITHM FOR THERMOELECTRIC GENERATORS

Mehmet Ali Üstüner¹, Hayati Mamur¹, Sezai Taşkın¹

¹*Manisa Celal Bayar University, Department of Electrical and Electronics Engineering, Manisa, Turkey*

EFFECT OF LOAD VARIATIONS ON MAXIMUM POWER POINT TRACKING WITH INCREMENTAL CONDUCTANCE METHOD FOR NON-ISOLATED BOOST CONVERTERS IN THERMOELECTRIC GENERATORS

Mehmet Ali Üstüner¹, Hayati Mamur², Sezai Taşkın³

^{1,2,3}*Manisa Celal Bayar University, Department of Electrical and Electronics Engineering, Manisa, Turkey*

IMPLEMENTATION OF THE HARDWARE MODULE FOR IMAGE SKELETONIZATION SYSTEM

Jana Janković

Faculty of Technical Sciences University of Novi Sad

PROCESSING OF THE PULSE SIGNALS PERIODS

Perišić Đurđe, Željko Gavrić, Vanja Mišković

Faculty of Information Technology, Slobomir P University, Slobomir, BiH

APPLICATION OF SiC AND GaN TRANSISTORS IN HIGH-FREQUENCY INVERTER CIRCUITS FOR INDUCTION HEATING

Petko Stefchov Marinov

Department of Electronics, Faculty of Electrical Engineering and Electronics

Technical University of Gabrovo, Bulgaria

**DEVELOPMENT OF A MATHEMATICAL MODEL OF A TRIAXIAL
INTERPOLATION FOR A CNC MACHINE IMPLEMENTED IN CONTROL
SOFTWARE**

Petar Panayotov, Goran Goranov

Technical University of Gabrovo, Bulgaria

CONVERTERS WITH ENERGY DOSING BY INDUCTANCE

Desislav Iliev, Nikolay Madzharov

Technical University of Gabrovo, Bulgaria

ENERGY STORAGE CHARGING MODULE WITH DIGITAL CONTROL

Ivan Stefanov, Dimitar Arnaudov

Technical University of Sofia, Bulgaria

MOBILE CONTACTLESS AMMETER

G.N. Velichkov, S.V. Lozanova

Institute of Robotics at Bulgarian Academy of Sciences "Acad. G. Bonchev" Str., Bl.2, Sofia 1113, Bulgaria

**SENSOR SYSTEM FOR DETERMINING THE DEFORMATION STATE OF
ROCK MASSIVES**

M. L. Ralchev, S. V. Lozanova

Institute of Robotics at Bulgarian Academy of Sciences "Acad. G. Bonchev" Str., Bl.2, Sofia 1113, Bulgaria

COMMUNICATION ENGINEERING AND TECHNOLOGIES

Chairmen: Prof. Stanimir Sadinov, PhD, Assoc. Prof. Krasen Angelov, PhD

Building № 2, Hall 2215

Beginning: 13.00 h.

TRAFFIC INFORMATION ANALYSIS USING DEEP LEARNING ARTIFICIAL NEURAL NETWORKS

Ivelina Stefanova Balabanova, Teodora Valentinova Zhorova

Department of Communications Equipment and Technologies

Technical University of Gabrovo

TESTING THE EFFECTIVENESS OF THE CANNY ALGORITHM FOR EDGE

Bojan Prlincevic¹, Zoran Milivojevic², Dijana Kostic²

¹*Kosovo and metohy academy of Applied studies, Leposavic, Serbia*

²*Academy of Applied Technical and Preschool Studies Nis, Serbia*

THE EVALUATION QUALITY OF THE SPEECH INTELLIGIBILITY IN THE ORTHODOX CHURCH "HOLI GREAT MARTYR PROCOPIUS" IN KATUN

Zoran Milivojević¹, Violeta Stojanović²

^{1,2}*The Academy of Applied Technical and Preschool Studies - Department Niš, Serbia*

STATE AND DEVELOPMENT OF TELECOMMUNICATION SERVICES IN BULGARIA

Aysun Ahmed¹, Stanimir Sadinov¹

¹*Technical University of Gabrovo, Bulgaria*

FILTER SIMULATION FOR MULTI-PHASE CURRENT SENSOR WITH INTEGRATED NOISE COMPENSATION FOR ELECTRIC VEHICLES

Ivaylo Stoyanov¹, Teodor Iliev², Grigor Mihaylov³

¹*University of Ruse, Department of Electrical Power Engineering, Ruse, Bulgaria*

²*University of Ruse, Department of Telecommunication, Ruse, Bulgaria*

³*University of Telecommunications and Post, Department of Telecommunication, Sofia, Bulgaria*

EXAMPLE DESIGN, CONSTRUCTION AND OPERATIONAL MEASUREMENTS OF A PASSIVE OPTICAL NETWORK USING LOG TECHNOLOGY

Stanimir Sadinov

Technical University of Gabrovo, Bulgaria

SURVEY AND ASSESSMENT OF THE RANGE AND QUALITY OF WIRELESS RADIO COVERAGE IN A LORAWAN COMMUNICATION NETWORK

Nikolay Manchev

Technical University of Gabrovo, Bulgaria

ANALYSIS OF SC, EGC AND MRC MACRO DIVERSITY SYSTEMS

Borivoje Milosevic¹, Dusan Regodic¹, Slobodan Obradovic²

¹*University MB, Belgrade, Serbia*

²*ITS, Belgrade, Serbia*

RECOGNITION OF FINGERPRINTS BY DISCRETE COSINE TRANSFORM AND ARTIFICIAL INTELLIGENCE

Ivelina Stefanova Balabanova, Kristina Maksimova Sidorova

Department of Communications Equipment and Technologies

Technical University of Gabrovo, Bulgaria

MODELING AND RELIABILITY ASSESSMENT OF LORAWAN NETWORKS

Krasen Angelov¹, Plamen Tashev¹, Panagiotis Kogias²

¹*Technical University of Gabrovo, Bulgaria*

²*International Hellenic University - Kavala Campus, Greece*

APPLICATION OF LORA IN IOT HOME AUTOMATION PLATFORM

Krasen Angelov, Nikolay Manchev, Stanimir Sadinov, Michail Angelakis

Technical University of Gabrovo, Bulgaria

COMPARATIVE ANALYSIS OF PRECISION OF SINE SIGNALS INTERPOLATION USING OF THE FIFTH AND SEVENTH ORDER POLYNOMIAL INTERPOLATION KERNELS

Nataša Savić¹, Zoran Milivojević¹, Bojan Prlinčević²

¹*Academy of Applied Technical and Preschool Studies, Niš, Serbia*

²*Kosovo and Metohija Academy of Applied Studies, Leposavić, Serbia*

SIMULATION MODEL OF A RADIO FREQUENCY AMPLIFIER FOR OPERATING FREQUENCIES OVER 1 GHz

Miroslav Tomov¹, Panagiotis Kogias², Michail Malamatoudis²

¹*Technical University of Gabrovo, Bulgaria*

²*Department of Physics International Hellenic University, Kavala, Greece*

USING GEOSERVER AND POSTGRESFOR CHANGE DETECTION OF SATELITE IMAGES

Denis Byalev¹, Egnar Özdikililer^{1,2}

¹*University of Telecommunications and Post, Sofia, Bulgaria*

²*Istanbul Technical University, Faculty of Aeronautics and Astronautics, Istanbul, Turkey*

DEVELOPMENT A TAG TEMPLATE ENGINE EXTENTION WITH PHP

Egnar Ozdikililer

Istanbul Technical University, Faculty of Aeronautics and Astronautics, Istanbul, Turkey

COMPUTER SYSTEM, COMPUTER TECHNOLOGIES AND INFORMATION SECURITY

Chairmen: Assoc. Prof. Delyan Genkov, PhD, Sen. Assist. Miroslav Slavov, PhD
Building № 3, Hall 3311
Beginning: 13.00 h.

GENETIC ALGORITHMS PERFORMANCE IMPROVEMENT IN SLOWLY-CALCULATED FITNESS FUNCTIONS

Todor Balabanov

*Institute of Information and Communication Technologies
Bulgarian Academy of Sciences*

LIBRE CALC PERFORMANCE IN OPTIMIZATION OF MULTIDIMENSIONAL NON-LINEAR FUNCTIONS

Todor Balabanov

*Institute of Information and Communication Technologies
Bulgarian Academy of Sciences*

EVALUATION OF ELECTRIC VEHICLES USING THE SIMPLIFIED WISP METHOD

Branislav Ivanov, Dragisa Stanujkic

University of Belgrade, Technical Faculty in Bor, Vojske Jugoslavije 12, 19210 Bor, Serbia

COMPARATIVE ANALYSIS OF THE QUALITY OF DATA OBTAINED FROM INTERNET SEARCH ENGINES

Živković Miloš¹, Blagojević Marija², Stanišević Ilja¹

¹*Western Serbia Academy of Applied Studies, department Valjevo, Serbia*

²*Faculty of Technical Science Čačak, Serbia*

MEASUREMENT OF THE INTERNET IMPACT ON DBMS RESPONSE SPEED

Živković Miloš¹, Stanišević Ilja¹, Obradović Slobodan², Petrović Đorđe¹

¹*Western Serbia Academy of Applied Studies, department Valjevo, Serbia*

²*Information Technology School Belgrade, Serbia*

A WEB-BASED SYSTEM FOR REMOTE ACCESS TO FPGA DEVELOPMENT HARDWARE

Ivan Panayotov, Petar Minev

Technical University of Gabrovo, Bulgaria

MICROSERVICE FOR CREATING GEOFENCES

Victoria Velkova, Rosen Ivanov

Technical University of Gabrovo, Bulgaria

MODELING DIALOGUE IN AUTOMATED DESIGN SYSTEMS

V. Kukenska, P. Minev, I. Varbov, M. Dinev

Technical University of Gabrovo, Bulgaria

CONTROLLER FOR ULTRASONIC MEASUREMENT OF WIND SPEED AND DIRECTION

Hristo Kilifarev

Technical University of Gabrovo, Bulgaria

COMPARATIVE ANALYSIS OF VIDEO EFFECTS IN AUDIO-VISUAL PRODUCTION

Ivanka Valova

Faculty of Journalism and Mass Communication Educational Television Studio

Sofia University "St. Kliment Ohridski", Bulgaria

LORA AND ZIGBEE SENSOR NETWORK DATA STORING SYSTEM

Diyan Dinev, Aydan Haka

Technical University of Varna, Bulgaria

USING THE PRINCIPLE OF DECOMPOSITION IN FUNCTIONAL AND STRUCTURAL DESIGN

V. Kukenska, M. Dinev, P. Minev, I. Varbov

Technical University of Gabrovo, Bulgaria

PROGRAMMING FOR TOUCH-SCREEN DISPLAYS USING RASPBERRY PI AND KIVY LIBRARY

Delyan Genkov

Technical University of Gabrovo, Bulgaria

CREATING A VIRTUAL PRIVATE NETWORK USING WIREGUARD

Delyan Genkov

Technical University of Gabrovo, Bulgaria

DETERMINING AN EFFECTIVE SET OF TIME SERIES DATA PARAMETERS SUITABLE FOR IDENTIFYING SECURITY INCIDENTS

Vasyl Komarov, Dmitrii Chernov, Vladimir Krizhanovski

Vasyl' Stus Donetsk National University

AUTOMATION

Chairmen: Assoc. Prof. Dragomir Chantov, PhD, Assoc. Prof. Stanimir Yordanov, PhD
Building № 3, Hall 3410
Beginning: 13.00 h.

A SYSTEM FOR GATHERING AND VISUALIZATION OF AIR QUALITY DATA FROM A GEO-REFERENCED MULTI-SENSOR GAS-SENSING HEAD

Kamen Boyadzhiev, Stefan Ivanov

*Department of Automation, Information and Control Systems
Technical University of Gabrovo, Bulgaria*

INVESTIGATION OF THE TEMPERATURE INFLUENCE ON THE CHARACTERISTICS OF HUMIDITY SENSOR ELEMENTS BASED ON Ti-Si-O-Ce-Zn-Cu THIN FILMS

Nedyu Nedev¹, Zvezditzza Nenova¹, Stephan Kozhukharov², Toshko Nenov¹

¹*Technical University of Gabrovo, Bulgaria*

²*University of Chemical Technology and Metallurgy, Bulgaria*

ACQUIRING DATA FOR CHEESE AGING USING GAS SENSORS

Stefan Ivanov, Todor Todorov, Elena Monova

Technical University of Gabrovo, Bulgaria

DEVELOPMENT OF ARTIFICIAL NEURAL NETWORK FOR CLASSIFICATION OF CHEESE

Stefan Ivanov, Todor Todorov, Elena Monova

Technical University of Gabrovo, Bulgaria

ANALYSIS OF PID CONTROL SYSTEM USING EXPERIMENT SET FOR UNDERGRADUATE ENGINEERING STUDENTS

Ozgur Mercanli, Hilmi Kuscü

Trakya University, Department of Mechanical Engineering, Engineering Faculty, Edirne/Turkey

DEVELOPMENT OF A PLC BASED EXPERIMENTAL SETUP FOR UNDERSTANDING CONTROL AND AUTOMATION APPLICATIONS

Figan DALMIŞ

Namik Kemal University, Vocational School of Technical Sciences, Turkey

DESIGN OF SYNCHRONIZATION SCHEME FOR TWO NON-IDENTICAL CHAOTIC SYSTEMS

Dragomir Chantov

Technical University of Gabrovo, Bulgaria

SYNCHRONIZATION OF WANG CHAOTIC MODEL BY MEANS OF ONE-VARIABLE COUPLING

Dragomir Chantov

Technical University of Gabrovo, Bulgaria

LABORATORY MULTI-AGENT TRAFFIC MANAGEMENT SYSTEM
Stanimir Yordanov, Georgi Mihalev, Hristina Stoycheva, Valentin Vladimirov
Technical University of Gabrovo, Bulgaria

TECHNOLOGIES IN MECHANICAL ENGINEERING AND DESIGN OF MACHINES AND INSTRUMENTS

Chairmen: Prof. Galya Duncheva, DSc, Assoc. Prof. Angel Anchev, PhD
Building № 1, Hall 1343
Beginning: 13.00 h.

CURRENT STATUS AND DEVELOPMENT PROSPECTS OF MOTOR-SPINDLES FOR MACHINE TOOLS

Yurii Kuznietsov¹, Ľubomír Šooš², Vasyl Shynkarenko¹, Oleksandr Shevchenko¹, Oksana Yurchyshyn¹, Anna Shymanska¹, Viktoriia Kotliarova¹

¹*Igor Sikorsky Kyiv Polytechnic Institute (Ukraine)*

²*Slovak University of Technology in Bratislava (Slovak Republic)*

SOFT PVC COMPOUNDING EXTRUDER DESIGN

Beyza AVCI¹, Ibrahim Savas DALMIS², Serdar Osman YILMAZ²

¹*DOMEKS Machinery Ltd. Design Center, Turkey*

²*Tekirdag Namik Kemal University, Corlu Engineering Faculty, Mechanical Engineering Department, Turkey*

A PROTOTYPE CHARPY AND IZOD IMPACT TESTER DESIGN AND IMPACT TEST ANALYSIS OF DIFFERENT ALUMINUM ALLOYS

Mustafa UNAL¹, Ibrahim Savas DALMIS²

¹*YKK Metal and Plastic Products Industry and Trade Inc., Turkey*

²*Tekirdağ Namık Kemal University, Çorlu Engineering Faculty, Mechanical Engineering Department, Turkey*

CURRENT STATUS AND DEVELOPMENT PROSPECTS OF MOTOR-SPINDLES FOR MACHINE TOOLS

Yurii Kuznietsov¹, Ľubomír Šooš², Vasyl Shynkarenko¹, Oleksandr Shevchenko¹, Oksana Yurchyshyn¹, Anna Shymanska¹, Viktoriia Kotliarova¹

¹*Igor Sikorsky Kyiv Polytechnic Institute (Ukraine)*

²*Slovak University of Technology in Bratislava (Slovak Republic)*

PROCESSING EFFICIENCY RESEARCH ON CNC LATHES

Kalin Krumov

Technical University of Gabrovo, Bulgaria

PROCESSING OF COMPLEX DETAILS WITH VARIABLE CUTTING MODES IN THE CONDITION OF PARTIAL AUTOMATION

Kalin Krumov

Technical University of Gabrovo, Bulgaria

3D SIMULATION AND RESIDUAL STRESS ANALYSIS OF JOINING AA7075 ALLOY SHEET WITH LASER WELDING METHODS

Cenk MISIRLI, Isik CETINTAV

Trakya University, Turkey

ANALYSIS OF THE POSSIBILITIES FOR REDUCING ENVIRONMENTAL POLLUTION THROUGH THE USE OF BIOPLASTICS

Emil Velev

Paisii Hilendarski University of Plovdiv, Bulgaria

ANALYSIS OF TAPPING TORQUE STUDIES WITH DIFFERENT TYPES OF TAPS

Hristo Radev, Hristian Mitev, Hristo Yakimov

Technical University of Gabrovo, Bulgaria

APPLICATION OF FRACTIONAL FACTORIAL DESIGN FOR ANALYSIS OF CUTTING ENERGY IN TURNING

Milan Trifunović, Miloš Madić

University of Niš, Faculty of Mechanical Engineering in Niš, Niš, Serbia

EFFECTS OF MACHINING PARAMETERS ON TOOL LIFE

Önder AYER¹, Burak ÇOLAKOĞLU^{1,2}

¹Trakya University, Department of Mechanical Engineering, Turkey

²Eksal Aluminum Extrusion Dies&Tooling

EFFECT OF HEAT-TREATMENT TEMPERATURE ON THE MECHANICAL AND MICROSTRUCTURAL PROPERTIES OF AISI 4140 STEEL

Gürkan İRSEL¹, Betül Nur GÜZEY¹, Bilgin KARA²

¹Trakya University, Faculty of Engineering, Mechanical Engineering Department, Edirne / Turkey

²İnan Makina Industry and Trade Inc., Tekirdağ / Turkey

VECTOR-MATRIX APPROACH IN ANALYSIS OF RAPIER LOOM

Marin Jordanov Marinov

Department of Industrial Design and Textile Engineering

Technical University of Gabrovo, Bulgaria

HYDRAULICS, PNEUMATICS AND HEAT ENGINEERING AND MECHATRONICS, METROLOGY AND QUALITY MANAGEMENT

Chairmen: Assoc. Prof. Hristo Hristov, PhD, Assoc. Prof. Dimcho Pulov, PhD
Building № 1, Hall 1300
Beginning: 13.00 h.

CHANGING THE GEOMETRIC PARAMETERS OF FIRE HOSES WHEN THEY TRANSPORT WATER

Stas S. V., Kolesnikov D. V., Bychenko A. O., Horenko L. M.

Cherkasy Institute of Fire Safety named after Chornobyl Heroes of National University of Civil Defence of Ukraine

EVALUATION OF FACTORS AFFECTING THE UNSTABILIZED FLOW OF ELECTRICALLY CONDUCTIVE LIQUIDS

Mamedov A. N., Murashchenko A. M., Yakhno O. M.

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

FEATURES OF DETERMINING THE CONVERSION OF ENERGY IN HYDRAULIC SYSTEMS

Dmytro Kostyuk, Igor Nochnichenko, Alona Murashchenko, Oleg Jakhno

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

EXPERIMENTAL EQUIPMENT FOR RESEARCHING THE EFFICIENCY OF THE COMPRESSED AIR ENERGY STORAGE SYSTEM

Oleksandr Haletskyi

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

GEROTOR PUMP OF VARIABLE PERFORMANCE

Oleksandr Haletskyi, Oleksandr Yukhymchuk

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

EFFECTS OF THE PROJECTILE POSITION INSIDE THE CARTRIDGE AND CARTRIDGE THICKNESS ON THE COOK-OFF

Çiğdem Susantez, Kamil Kahveci, Oktay Hacihafızoğlu, Hilmi Kuşçu

Trakya University Engineering Faculty Mechanical Engineering Department, Turkey

VALVES AND DRIVE METHODS OF VALVES USED IN THE HYDRAULIC INDUSTRY

Hilmi KUSCU, Umut EREN

Trakya University, Faculty of Engineering, Department of Mechanical Engineering, Edirne, Turkey

FULLY AUTOMATIC SAMPLING AND DATA MONITORING AUTOMATION FOR WASTEWATER TREATMENT PLANTS

Aydin GULLU¹, Emir OZTURK², Mustafa ARDA²

¹*Ipsala Vocatonal School Trakya University Edirne, Turkey*

²*Engineering Faculty Trakya University Edirne, Turkey*

INVESTIGATION OF SWARM ROBOT APPLICATIONS AND SWARM ROBOT EXPERIMENT PLATFORMS

Aydin GULLU¹, Gurkan TUNA², M. Ozan AKI¹, Ozcan CETINKAYA³, Hilmi KUSCU⁴

¹Ipsala Vocatonal College Trakya University Edirne, Turkey

²Edirne Vocational School of Technical Sciences Trakya University Edirne, Turkey

³Kesan Vocatonal College Trakya University Edirne, Turkey

⁴Engineering Faculty Trakya University Edirne, Turkey

IMPROVED RELIABILITY OF PSEUDORANDOM OPTICAL ROTARY ENCODER

Goran Miljković, Ivana Randelović, Dragan Denić, Milan Simić

University of Niš, Faculty of Electronic Engineering, Aleksandra Medvedeva 14, 18000 Niš, Serbia

SOCIAL SCIENCES AND HUMANITIES, ORGANIZATION AND MANAGEMENT, ENTREPRENEURSHIP AND ECONOMY, MATHEMATICS

Chairmen: Assoc. Prof. Svetla Panayotova, PhD, Sen. Assist. Plamen Kolev, PhD
Building № 1, Hall 1201
Beginning: 13.00 h.

EVALUATION OF THE INTELLECTUAL CAPITAL IMPACT ON THE COMPANY'S ATTRACTIVENESS

Rima Tamošiūnienė¹, Monika Sajavičiūtė²

^{1,2} *Vilnius Gediminas Technical University, Financial Engineering Department, Saulėtekio ave. 11,
LT-10223, Vilnius, Lithuania*

ENTREPRENEURSHIP – AN IMPORTANT FACTOR FOR THE ECONOMIC DEVELOPMENT OF THE COUNTRY

Dobrin Ganchev, Milena Racheva

Technical University of Gabrovo, Bulgaria

FINANCING OF HEALTHCARE INSTITUTIONS AS A SOCIAL NECESSITY AND CURRENT PRACTICE

Bojan Kocić¹, Oliver Popović², Nikola Vasić³

¹ *Toplica Academy of Applied Studies, Prokuplje, Serbia*

² *Toplica Academy of Applied Studies, Prokuplje, Serbia*

³ *Belgrade Business and Arts Academy of Applied Studies, Belgrade, Serbia*

HEALTHCARE FINANCING THROUGH THE DEVELOPMENT OF MODERN INFORMATION SYSTEMS

Bojan Kocić¹, Oliver Popović², Nikola Vasić³

¹ *Toplica Academy of Applied Studies, Prokuplje, Serbia*

² *Toplica Academy of Applied Studies, Prokuplje, Serbia*

³ *Belgrade Business and Arts Academy of Applied Studies, Belgrade, Serbia*

DIGITAL MARKETING CAMPAIGN AS A LEARNING TOOL ON CUSTOMER REQUIREMENTS IN PRODUCT DEVELOPMENT

Lidija Paunović, Sandra Milunović Koprivica

University of Kragujevac, Faculty of Technical Sciences Čačak, Serbia

PATENTS FOR ENVIRONMENTALLY SOUND TECHNOLOGIES IN THE FIELD OF USING WASTE HEAT

Ventsislava Aleksandrova Nikolova-Minkova

Technical University of Gabrovo, Bulgaria

ENVIRONMENTAL TECHNOLOGY PATENTS IN EU FOR THE PERIOD 2010-2020

Ventsislava Aleksandrova Nikolova-Minkova

Technical University of Gabrovo, Bulgaria

DIGITAL TRANSFORMATION OF SMALL AND MEDIUM-SIZED ENTERPRISES IN THE CONTEXT OF THE GREEN TRANSITION – A CONCEPTUAL FRAMEWORK

Veryana Boeva, Anton Antonov

Technical University of Gabrovo, Bulgaria

STANDARDS FOR DIGITALIZATION AND DATA ARCHIVING

Sandra Milunovic Koprivica, Olga Ristic, Lidija Paunovic

Faculty of Technical Sciences in Cacak, University of Kragujevac, Svetog Save 65, 32000 Cacak

ANALYSIS OF LEADING CONCEPTS IN THE FIELD OF SOCIAL SERVICES AND BULGARIAN PRACTICE

Lilyana Rusanova

Technical University of Gabrovo, Bulgaria

DYNAMICS OF DEMOGRAPHIC INDICATORS AND MORBIDITY OF SOCIALLY SIGNIFICANT DISEASES IN GABROVO REGION

Ivanka Stoyanova - Todorova

Technical University of Gabrovo, Bulgaria

EMPIRICAL STUDY ON UNIVERSITY CURRICULUM SATISFACTION OF UNIVERSITY GRADUATES

Irina Todorova Todorova

Technical University of Varna, Bulgaria

THE PROBLEM OF RECOGNITION: MODERN SOCIO-PHILOSOPHICAL CONTEXT

Usov Dmytro

Cherkasy Institute of Fire Safety named after Chornobyl Heroes of the National University of Civil Protection of Ukraine

FAMILY FUNCTIONING, RISK AND PROTECTIVE FACTORS

Zhaneta Tsoneva

Technical University of Gabrovo, Bulgaria

APPLICATION OF WOLFRAM MATHEMATICA IN THE TEACHING PROCESS CONCERNING THE TOPIC “EXTREMA OF FUNCTIONS IN TWO VARIABLES”

Valentina Todorova-Lazarova, Penka Ivanova

Technical University of Gabrovo, Bulgaria

EDUCATION TECHNOLOGIES

Chairmen: Assoc. Prof. Diana Izvorska, PhD, Sen. Assist. Tzanka Zlateva, PhD
Building № 1, Hall 1324
Beginning: 13.00 h.

INNOVATION METHODS IN PREVENTING OF EARLY SCHOOL LEAVING
Petar Rosenov Dimitrov

EDUCATION THROUGH BETTER COMMUNICATION
Petar Rosenov Dimitrov

IMPROVING THE STUDENTS' LEARNING OF OPTICS AND ATOMIC AND MOLECULAR PHYSICS BY COMPUTER-ASSISTED SCHOOL EXPERIMENTS
Fabien Kunis¹, Konstantin Ilchev², Milena Stoyanova³, Vesela Dimova³, Tsanislava Genova⁴, Stefan Valkov^{4,5}, Christina Andreeva^{3,4}

¹*High School 125 Prof. Boyan Penev, Sofia, Bulgaria*

²*Private English Language School "Prof. Ivan Apostolov", Sofia, Bulgaria*

³*Faculty of Physics, Sofia University "St. Kliment Ohridski", Sofia, Bulgaria*

⁴*Institute of Electronics, Bulgarian Academy of Sciences, Sofia, Bulgaria*

⁵*Technical University of Gabrovo, 4 H. Dimitar Str., 5300 Gabrovo, Bulgaria*

PECULIARITIES OF TEACHING SOCIAL-ECONOMIC DISCIPLINES IN VOCATIONAL COLLEGES OF UKRAINE DURING THE PERIOD OF MARTIAL STATUS

Yuliia Lastovets¹, Valentina Ovod¹, Natalia Zagorulko²

¹*Kyiv Electromechanical Professional College*

²*Optical-Mechanical Professional College of Taras Shevchenko Kyiv National University*

ON MAKING USE OF MOODLE IN TEACHING ENGLISH TO FUTURE ENGINEERS

Nadezhda Slavova

Technical University of Gabrovo, Bulgaria

THE IMPORTANCE OF VISUALIZATION IN THE PROCESS OF TRANSLATION OR TRANSLATION THROUGH VISUALIZATION

Nadezhda Slavova

Technical University of Gabrovo, Bulgaria

CHEMISTRY, PHYSICS AND ECOLOGY

Chairmen: Assoc. Prof. Dragomir Vasilev, PhD, Sen. Assist. Daniela Nedeva, PhD
Building № 1, Hall 1314
Beginning: 13.00 h.

TRACE – TOXIC ELEMENT ACCUMULATIONS IN WATER OF ATIKHISAR DAM LAKE (ÇANAKKALE, TÜRKİYE)

Cem Tokatlı

Trakya University, Evrenos Gazi Campus, Laboratory Technology Program, İpsala, Edirne, Turkey

MACRO – MICRO ELEMENT CONCENTRATIONS IN WATER OF SAZLIDERE DAM LAKE (İSTANBUL, TÜRKİYE)

Cem Tokatlı

Trakya University, Evrenos Gazi Campus, Laboratory Technology Program, İpsala, Edirne, Turkey

APPLICATION OF SONOCHEMISTRY FOR THE SYNTHESIS OF CAPRIC ALIPHATIC ESTERS

Dragomir Vasilev¹, Nadezhda Petkova², Panteley Denev²

¹*Technical University of Gabrovo, Bulgaria*

²*University of Food Technologies, Plovdiv, Bulgaria*

APPLICATION OF CAPRATE ALIPHATIC ESTER AS BIO-PLASTICIZER AND BIO-ADDITIVE IN PLASTICS

Dragomir Vasilev¹, Nadezhda Petkova², Milka Atanasova¹, Panteley Denev²

¹*Technical University of Gabrovo, Bulgaria*

²*University of Food Technologies, Plovdiv, Bulgaria*

ENVIRONMENTAL MANAGEMENT SYSTEMS' EFFECTIVENESS OF ENTERPRISES IN DEVNYA MUNICIPALITY

Elena Valkova

Technical University of Varna, Bulgaria

ENVIRONMENTAL PERFORMANCE OF PADINA SETTLING BASIN

Elena Valkova

Technical University of Varna, Bulgaria

THE EFFECT ON INCOMPRESSIBLE STRIPS OF THE DISTANCE BETWEEN THE METALLIC GATES AND THE TWO-DIMENSIONAL ELECTRON SYSTEM

Deniz Eksi

Vacational School of Health, Yeni Yuzyil University, Istanbul, 34010, Turkey

A RESONANT TUNNELLING STRUCTURE OF GaAs ALLOYS

Sevket Erol OKAN¹, Abdullah BILEKKAYA², Saban AKTAS¹

¹*Department of Physics, Trakya University, Edirne-Turkey*

²*Department of Electronics, Edirne Vocational College of Technical Sciences, Trakya University, Edirne-Turkey*

SIZE EFFECT ON THE MECHANICAL PROPERTIES OF BCC TANTALUM NANOWIRES BY MOLECULAR DYNAMICS SIMULATIONS

Vildan GUDER

Department of Physics, Faculty of Science, Trakya University, 22030 Edirne, Turkey

THE OPTICAL ABSORPTION CHANGES IN TWO-STEP INFINITE SPHERICAL QUANTUM DOT

Sevket Erol Okan^{1,2}, Hande Temel², Abdullah Bilekkaya^{2,3}, Figen Karaca Boz^{1,2}

¹*Trakya University, Faculty of Science, Department of Physics, 22030 Edirne, Turkey*

²*Trakya University, Institute of Science, 22030 Edirne, Turkey*

³*Trakya University, Edirne Vocational College of Technical Sciences, 22100 Edirne, Turkey*

STRONTIUM UNDER HIGH PRESSURE AND DIFFERENT TEMPERATURE CONDITIONS: A MOLECULAR DYNAMICS SIMULATION STUDY

Murat Celtek¹, Unal Domekeli², Sedat Sengul²

¹*Faculty of Education, Trakya University, 22030, Edirne – Turkey*

²*Dept. of Physics, Trakya University, 22030, Edirne – Turkey*

INVESTIGATION OF THE EFFECT OF COOLING RATE ON ATOMIC STRUCTURE OF LIQUID CALCIUM: A MOLECULAR DYNAMICS SIMULATION STUDY

Murat Celtek¹, Sedat Sengul², Unal Domekeli²

¹*Faculty of Education, Trakya University, 22030, Edirne – Turkey*

²*Dept. of Physics, Trakya University, 22030, Edirne – Turkey*

THERMAL PROPERTIES OF ZINC NANOCRYSTALS: A COMPARISON STUDY USING THEORETICAL MODELS

Unal Domekeli¹, Murat Celtek², Sedat Sengul¹

¹*Dept. of Physics, Trakya University, 22030, Edirne – Turkey*

²*Faculty of Education, Trakya University, 22030, Edirne – Turkey*

A MOLECULAR DYNAMICS STUDY OF STRUCTURAL AND DYNAMIC PROPERTIES OF GOLD NANOPARTICLES WITH PALLADIUM COATING

Unal Domekeli¹, Sedat Sengul¹, Murat Celtek²

¹*Dept. of Physics, Trakya University, 22030, Edirne – Turkey*

²*Faculty of Education, Trakya University, 22030, Edirne – Turkey*

INVESTIGATION OF THE MELTING PROCESS OF BCC IRON USING DIFFERENT INTERATOMIC POTENTIALS

Sedat Sengul¹, Unal Domekeli¹, Murat Celtek²

¹*Dept. of Physics, Trakya University, 22030, Edirne – Turkey*

²*Faculty of Education, Trakya University, 22030, Edirne – Turkey*

EVOLUTION OF THE ATOMIC STRUCTURE OF CADMIUM IN THE HEATING AND COOLING PROCESS

Sedat Sengul¹, Murat Celtek², Unal Domekeli¹

¹*Dept. of Physics, Trakya University, 22030, Edirne – Turkey*

²*Faculty of Education, Trakya University, 22030, Edirne – Turkey*

VERIFYING THE REPEATABILITY OF AUTO MACH RESULTS WITH THE XVI SYSTEM

Nikolay Mutkurov¹, Stanimir Radushev¹, Virginia Payakova²

¹*Complex Oncology Center – Burgas, Radiation oncology department, Bulgaria*

²*UMHAT" Dr. Georgi Stranski", Radiation oncology department, Bulgaria*

ELECTRON BEAM WELDING OF DISSIMILAR METALS AND ALLOYS

Darina Kaisheva^{1,2}, Georgi Kotlarski¹, Borislav Stoyanov³, Vladimir Dunchev³, Maria Ormanova¹, Stefan Valkov^{1,3}

¹*Academician Emil Djakov Institute of Electronics, Bulgarian Academy of Sciences, 72 Tzarigradsko Chausse Blvd, 1784 Sofia, Bulgaria*

²*South-West University „Neofit Rilski“, 66 Ivan Michailov Str., 2700 Blagoevgrad, Bulgaria*

³*Technical University of Gabrovo, 4 H. Dimitar Str., 5300 Gabrovo, Bulgaria*

USE OF INTERPOLATION AND EXTRAPOLATION METHODS IN THE LABORATORY PRACTICUM IN PHYSICS

Fatme Padikova, Daniela Nedeva, Nikolay Angelov

Technical University of Gabrovo, Bulgaria

RADIOACTIVITY IN ACHILLEA MILLEFOLIUM L. COLLECTED FROM TWO REGIONS IN BULGARIA

Nina Arhangelova¹, Seniha Salim¹, Daniela Nedeva², Zheni Dimitrova¹

¹*Konstantin Preslavsky University of Shumen, Bulgaria*

²*Technical University of Gabrovo, Bulgaria*

RADIOACTIVITY IN THREE HERBS COLLECTED FROM REGION IN SHUMEN, BULGARIA

Nina Arhangelova¹, Seniha Salim¹, Daniela Nedeva², Zheni Dimitrova¹

¹*Konstantin Preslavsky University of Shumen, Bulgaria*

²*Technical University of Gabrovo, Bulgaria*

LARGE HYDROPOWER PLANTS IN THE VLASINA MICROREGION

Andelina V. Marić Stanković¹, Tomislav M. Pavlović¹, Ivana S. Radonjić¹

¹*University of Niš, Faculty of Sciences and Mathematics, Višegradska 33, 18000 Niš, Serbia*