

TECHNICAL UNIVERSITY OF GABROVO



**INTERNATIONAL
SCIENTIFIC CONFERENCE**

UNITECH 2020
GABROVO

P R O G R A M

**20 - 21 NOVEMBER 2020
GABROVO**

International Scientific Conference UNITECH'20 is organized by the Technical University of Gabrovo with the assistance of regional business establishments and companies. The conference is a 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.

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Assoc. Prof. Lilyana Rusanova, PhD

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Petya Peneva, MA

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Prof. Ivan Yachev, DSc, Bulgaria
Prof. Raycho Ilarionov, DSc, Bulgaria
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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
Assoc. Prof. Rosen Ivanov, PhD, Bulgaria
Assoc. Prof. Angel Anchev, PhD, Bulgaria
Assoc. Prof. Stanimir Sadinov, PhD, Bulgaria

***UNITECH'20 will be held on 20 and 21 November 2020
at the Technical University of Gabrovo***

WORKING PROGRAM OF THE SCIENTIFIC CONFERENCE

19th November 2020, Thursday

14.00 – 17.00 h Registration, Rectorat building

20th November 2020, Friday

08.00 – 10.30 h Registration, Rectorat building

10.30 – 11.00 h Opening ceremony – Library building, Conference hall

11.00 – 12.00 h "*Electron beam welding - process, materials and techniques*",
Prof. Peter Petrov, DSc, Institute of Electronics, BAS

12.00 – 13.00 h Lunch

13.00 – 18.00 h 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
- Economics and Finance
- Organization and Management
- Social Sciences and Humanities
- Educational Technologies
- Physics

14.30 Coffee break

16.00 – 17.00 h Information day Project BG05M20P001-1.002-0023 Centre of Competence "Smart Mechatronic, Eco- and Energy Saving Systems and Technologies", (SMEEST)

19.00 h Formal dinner Restaurant Balkan Hotel

21th November 2020, Saturday

09.00 – 12.00 h Thematic sessions

THEMATIC SESSIONS

ELECTRICAL ENGINEERING

Chairmen: Assoc. Prof. Svilen Rachev, PhD, Sen. Assist. Luybomir Dimitrov, PhD
Building № 2A, Hall 2603
Beginning: 13.00 h.

Solar radiation atlas in Trebinje in the Republic of Srpska

**Dragoljub Lj. Mirjanić¹, Tomislav M. Pavlović², Ivana S. Radonjić², Lana S. Pantić²,
Anđelina V. Marić², Galina I. Sazhko³**

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

²*University of Niš, Faculty of Sciences and Mathematics, Department of Physics, Višegradska 33, 18000 Niš, Serbia*

³*Ukrainian engineering pedagogics academy, Kharkov, Ukraine*

Determination of reserve by sensitivity and boundary conditions when using unselective instantaneous overcurrent relay protection in medium voltage electrical grids

Mediha Mehmed-Hamza¹, Plamen Stanchev²

¹*Medical University of Varna, Department of Medical Equipment, Electronic and Information Technologies in Health care, 9002 Varna, Bulgaria*

²*Technical University of Varna, Department of Electric Power Engineering, 9010 Varna, Bulgaria*

Fault investigation and operation of relay protections and autoreclose with the use of simulation models in medium voltage electrical grids

Mediha Mehmed-Hamza¹, Plamen Stanchev²

¹*Medical University of Varna, Department of Medical Equipment, Electronic and Information Technologies in Health care, 9002 Varna, Bulgaria*

²*Technical University of Varna, Department of Electric Power Engineering, 9010 Varna, Bulgaria*

Real time speed control of electric motor via Matlab

Osman ULKIR¹

¹*Department of Electronics and Automation, Mus Alparslan University, Mus, 49100, Turkey*

Software simulation of the presence of mechanical unbalance in electrical equipment with asynchronous motors

Yuliyana Yordanov

Technical University of Varna, Department of Electric Power Supply and Equipment

Mode control of lighting system based on the smart-light concept

**Hovorov Pylyp, Kindinova Anastasiia, Hovorova Kateryna, Dyumin Eduard,
Abdelrahim Omer**

O.M. Beketov National University of Urban Economy in Kharkiv

Effect of calcination time on the dielectric properties of doped with tin dioxide barium titanate

Ivaylo Lazarov

Technical University of Gabrovo

Development of technical solution for experimental research and verification of methods for analyzing of dynamic modes in urban electric transport

Nikolay Bezhanov

Technical University of Varna, Department of Electric Power Supply and Equipment

Design and development of a laboratory model of a pure sine wave inverter for power supply of low power consumers

Hristo Ibrishimov

Technical University of Gabrovo

Investigation of some parameters of electromagnetic compatibility from dimmable LED bulbs

Tsvyatko Kolev Varbov, Krasimir Marinov Ivanov

Technical University of Gabrovo

Research of the influence of the inter-row spacing for ground mounted PV systems on the annual production of electric energy using PVGIS-SARAH

Tsvyatko Kolev Varbov

Technical University of Gabrovo

Faults in power grids 20KV

Mediha Mehmed-Hamza¹, Anton Filipov²

¹ *Medical University of Varna, Department of Medical Equipment, Electronic and Information Technologies in Health care, 9002 Varna, Bulgaria*

² *Technical University of Varna, Department of Electric Power Engineering, 9010 Varna, Bulgaria*

Influence of individual standard uncertainties on total uncertainty of energy efficiency of a three-phase induction motor

Branko Koprivica¹, Alenka Milovanović¹, Srđan Divac*, Marko Šućurović²

University of Kragujevac, Faculty of Technical Sciences Čačak Svetog Save 65, 32000 Čačak, Serbia

¹ *Department of Electrical and Electronic Engineering, ²Department of Power Engineering,*

**PhD Scholarship of the Ministry of Education, Science and Technological Development of Serbia*

Dynamic temperature modeling of industrial LED luminaire

Hristo Ibrishimov

Technical University of Gabrovo

Modeling of planar transformer for DC DC converter

Hristo Ibrishimov

Technical University of Gabrovo

Temperature measurement and current determination of horizontally and vertically placed low-voltage single core cable

Marko Sucurovic¹, Milan Marjanovic², Marko Rosic¹, Miroslav Bjekic¹, Branko Koprivica³

University of Kragujevac, Faculty of Technical Sciences in Cacak

¹ *Department of Power Engineering,*

² *Department of Mechanical Engineering,*

³ *Department of Electrical and Electronic Engineering, Svetog Save 65, 32000 Cacak, Serbia*

Study of the electrical quality parameters of smart LED luminaires

Plamen Tsankov, Milko Yovchev, Teodor Todorov

Technical University of Gabrovo

On the conversion of a conventional car into an electric vehicle – some considerations, guidelines and practical steps

Dimitrina Koeva, Petko Stanchev, Svilen Rachev

Technical University of Gabrovo

Energy efficient system for air conditioning of electrical bus

Vasil Dimitrov, Stanislav Ilchev

Todor Kableshkov University of Transport – Sofia

Remote control and management system for air-conditioning installation

Emiliya Dimitrova, Vasil Dimitrov

Todor Kableshkov University of Transport – Sofia

Commissioning of a goniophotometer and an integrating sphere with spectroradiometer in a new lighting laboratory at the Technical University of Gabrovo

Plamen Tsankov

Technical University of Gabrovo

Creating a model of phase-controlled bridge rectifiers in simulink for student training

Hristo Ibrishimov

Technical University of Gabrovo

Analysis of the participation of electric transport in the total energy mix in accordance with the planned indicators in the strategy for sustainable energy development of Varna for the period 2014-2020

Valentin Gyurov

Technical University of Varna, Department of Electric Power Supply and Equipment

Investigation of the power reduction of horizontally mounted solar module due to soiling

Tomislav M. Pavlović¹, Ivana S. Radonjić¹, Dragoljub Lj. Mirjanić², Darko Divnić²

¹ *University of Niš, Faculty of Sciences and Mathematics, Department of Physics,*

Višegradska 33, 18000 Niš, Serbia

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

ELECTRONICS AND SENSORS TECHNICS

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

Capabilities of a mobile system for information processing by an inertion measuring system

Iskren Kandov, Anatoliy Aleksandrov, Goran Goranov
Technical University of Gabrovo

New kind of digital filter based on the frequency locked loop **Perišić Đurđe¹, Miroslav Bojović², Željko Gavrić¹, Vanja Mišković¹**

¹*Faculty of Information Technology, Slobomir P University, Slobomir, BiH*

²*School of Electrical Engineering, University of Belgrade, Beograd, Serbia*

Contactless power supply and communication of the device for measuring excess fuel in modern diesel engines

Nikolay Madzharov, Desislav Iliev
Technical University of Gabrovo

Application of the smallest squares method for determining the model parameters of a two-collector magnetotransistor

Kazolis Dimitrios Theodosius¹, Anatoliy Aleksandrov², Gergana Mironova²

¹*Eastern Macedonia and Thrace Institute of Technology*

²*Technical University of Gabrovo*

Improved IOT energy meter applicable in smart buildings

Aleksandar Č. Žorić¹, Muhamed Bejtović¹, Nikola Žorić¹, Bojan Jovanović²

¹*Faculty of Technical Sciences-University of Priština, Serbia*

²*The Technical School-Uroševac, Leposavić, Serbia*

Analysis of the influence of wind generators on the quality of electricity at the point of connection to the distribution network

Muhamed Bejtović, Aleksandar Č. Žorić

Faculty of Technical Sciences, University of Priština, Serbia

Microwave food fat meter

Konstantyn Shevchenko¹, Oleksiy Yanenko¹, Mikhail Prokofiev¹, Sergey Peregudov¹, Vasyl Kuz²

¹*Igor Sikorsky Kyiv Polytechnic Institute*

²*Ternopil Ivan Puluj National Technical University*

Simulink model of Bidirectional DC/DC converter for electric vehicle application

Evgeni Malev

Technical University of Varna, Bulgaria

Review of a hybrid structure for application in EVs

Gergana Vacheva, Nikolay Hinov

Technical University of Sofia

Department of Power Electronics

Thermal models of DC DC converters for ultralight electric vehicles application in Simulink

Evgeni Malev

Technical University of Varna, Bulgaria

Logical-probability approach in analysis of the reliability of mosfet transistors

Prodan Ivanov Prodanov

Technical University of Gabrovo

Indoor air quality monitoring processor system

Ivaylo Belovski¹, Anatoliy Aleksandrov²

¹*Prof. Assen Zlatarov University*

²*Technical University of Gabrovo*

Sensorics of the individual hall potentials

S. V. Lozanova

Institute of Robotics at Bulgarian Academy of Sciences

A modified laser doppler vibrometer sensor with optimal phase control for nano-amplitude measurements under harsh external conditions

I. V. Stepakhno¹, L. K. Yarovoi²

¹*Faculty of Physics and Mathematics. National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"*

²*Mechanics and Mathematics Faculty of Taras Shevchenko National University of Kyiv*

COMUNICATION ENGINEERING AND TECHNOLOGIES

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

Building № 2, Hall 2215

Beginning: 13.00 h.

Review of technics for traffic control from last decade

Vasil Shterev, Nikolay Hinov

Technical University of Sofia

Optimization of the 3P keys kernel parameters for interpolacion of audio signals

Nataša Savić, Zoran Milivojević

The Academy of Applied Technical and Preschool Studies, Section Niš, Aleksandra Medvedeva 20, 18000 Niš, Serbia

Evaluation of the influence of Pink Noise (PN) on the intelligibility of speech in the Serbian language, using Serbian Matrix Sentence Test (SMST) base and STOI algorithm

Dijana Kostić¹, Marina Milivojević², Zoran Milivojević³

¹*Geonais Niš, Serbia*

²*Mikkelsen Electronics, Niš, Serbia,*

³*College of Applied Technical Sciences of Niš, Serbia*

Robustness of the SD watermarking algorithm in is mapping on filtering audio signals using notch filtering

Bojan Princevic¹, Zoran Milivojevic², Milan Mistic¹

¹*Kosovo and Metohija Academy of Applied Studies, Leposavic, Serbia*

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

Planning and survey of radio coverage in lorawan communication network

Krasen Angelov, Nikolay Manchev, Stanimir Sadinov, Trayan Ivanov

Technical University of Gabrovo, Bulgaria

Analysis and evaluation of the transmission channel for communication with artificial pico- and nanosatellites

Krasen Angelov, Seyhan Myumyunali, Trayan Ivanov, Stanimir Sadinov

Technical University of Gabrovo, Bulgaria

A narrowband RF noise floor level analysis in case of electric arc

Kliment Angelov¹, Peter Matov², Sofia Angelova³

^{1,2,3}*Technical University of Sofia*

Noise recognition in communication channels by artificial neural networks

Dionisia Daskalaki

Technical University of Gabrovo

Topology of optical network in remote control systems

Emiliya Dimitrova, Vasil Dimitrov

Todor Kableshkov University of Transport – Sofia

Building and configuration of a playout multiviewer monitoring system
**Panagiotis Kogias¹, Stanimir Sadinov², Seyhan Sadak², Michail Malamatoudis¹,
Hristian Hristov²**

¹ *International Hellenic University – Kavala Campus, Greece*

² *Technical University of Gabrovo, Bulgaria*

Simulation of the 32-channel WDM-FSO system in different atmospheric phenomena
**Jelena Todorović¹, Branimir Jakšić¹, Petar Spalević¹, Majid Alsadi², Ahmad Mohammed
Salih²**

¹ *Faculty of Technical Sciences, University of Priština in Kosovska Mitrovica, Serbia*

² *School of Informatics and Computing, Singidunum University, Belgrade, Serbia*

**Performance of the mtseng algorithm for biometric on-line verification handwritten
signature**

Milivojević Zoran¹, Milivojević Marina²

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

² *Mikkelsen Electronics, Niš, Serbia*

COMPUTER SYSTEM AND AUTOMATION

Chairmen: Prof. Raycho Ilarionov, DSc, Assoc. Prof. Dragomir Chantov, PhD,
Building № 3, Hall 3312
Beginning: 13.00 h.

Multi-sensor gas-sensing head for air quality evaluation

Kamen Boyadzhiev¹, Stefan Ivanov²

¹ *Department of Automation, Information and Control Systems,
Technical University of Gabrovo, Gabrovo, Bulgaria*

² *Department of Automation, Information and Control Systems,
Technical University of Gabrovo, Gabrovo, Bulgaria*

Geo-referenced system for air quality monitoring

Kamen Boyadzhiev

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

Influence of the lookback period and the number of epochs in the prediction of time series using a neural network with a long short-term memory

Kiril Koparanov, Krasin Georgiev, Vasil Shterev

Technical University of Sofia

Optimal power flow and prices in the electricity market using the hybrid ppsogsa algorithm

Milena Jevtić¹, Miroljub Jevtić², Jordan Radosavljević², Sanela Arsić¹, Dardan Klimenta²

¹ *Technical Faculty in Bor, University of Belgrade, Bor, Serbia*

² *Faculty of Technical Sciences Kosovska Mitrovica, University of Pristina in Kosovska Mitrovica, Serbia*

Impact of brightness and complexities to edge detection with roberts and canny operator on compressed images

Vladimir Maksimovic¹, Mirko Milosevic², Branimir Jaksic¹, Mile Petrovic¹, Petar Spalevic¹

¹ *Faculty of Technical Sciences, University of Pristina in Kosovska Mitrovica, Serbia*

² *School of Electrical and Computer Engineering of Applied Studies Beograd, Serbia*

Mobile robot for fire detection

S. Stankov, S. Ivanov

Technical University of Gabrovo

Useful schemes for work with ultrasound sensors for quality testing of foods and materials

Hristo Kilifarev

Technical University of Gabrovo

Application of image processing in fog computing

Dušan Marković¹, Dejan Vujičić², Borislav Đorđević³, Siniša Randić²

¹ *Faculty of Agronomy Čačak, University of Kragujevac, Serbia*

² *Faculty of Technical Sciences Čačak, University of Kragujevac, Serbia*

³ *Institute Mihailo Pupin d.o.o., Belgrade, Serbia*

Humidity sensing elements based on V-doped SiO₂ surface layers

Zvezditzha Nenova¹, Nedyu Nedev¹, Stephan Kozhukharov², Toshko Nenov¹

¹*Technical University of Gabrovo*

²*University of Chemical Technology and Metallurgy – Sofia*

On the use of superclusters in automation

Georgi Mihalev, Aleksandar Lubenov

Technical University of Gabrovo

Design of a harmful gas detection system

Mustafa Kemal TEZCAN¹, Taşkın TEZ², Fatma TEZCAN³, Hilmi KUŞÇU⁴

¹*The University of Trakya,*

²*Edirne Provincial Health Directorate,*

³*The University of Kırklareli,*

⁴*The University of Trakya*

COMPUTER TECHNOLOGIES

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

Study of upload and download traffic on a 6lowpan wireless sensor network for internet of things (IOT)

Aydan Haka

Technical University of Varna, Bulgaria

Comprehensive evaluation of zigbee wireless sensor network simulators for purposes of education

Aydan Haka

Technical University of Varna, Bulgaria

Exploring the influence of demographic factors on the image-based captchas

Sanela Arsić¹, Milena Jevtić¹

¹University of Belgrade, Technical Faculty in Bor, Bor, Serbia

Methodology for evaluation of decomposition algorithms

Matyo Stefanov Dinev

Technical University of Gabrovo

University course timetabling using genetic algorithms

Ozan Aki

Trakya University

University exam timetabling using genetic algorithms

Ozan Aki

Trakya University

Process modeling in information systems

Valentina Kukenska

Technical University of Gabrovo

System for collection and storage of data from independent sources

Delyan Genkov, Emil Angelov

Technical University of Gabrovo

Modeling of business processes forthcoming for digitalization

Valentina Kukenska, Petar Minev

Technical University of Gabrovo

TECHNOLOGIES IN MECHANICAL ENGINEERING AND MECHATRONICS, METROLOGY AND QUALITY MANAGEMENT

Chairmen: Prof. Galya Duncheva, DSc, Assoc. Prof. Angel Anchev, PhD
Building № 1, Hall 1114
Beginning: 13.00 h.

Modeling of the process selection of clamping devices in the design of fixtures for the locating of workpieces during machining

Hristo METEV, Maria VLAHOVA

Technical University of Gabrovo

Effect of additive manufactured micro beam length on displacement

Osman ULKIR

Department of Electronics and Automation, Mus Alparslan University, Mus, 49100, Turkey

Density before sintering water dispersed iron powders

T. Kovachev, I. Miteva, I. Mitev

Technical University of Gabrovo

State and application of biosensors from biomechatronics in medicine

David Darinov Jonev¹, Stefan Kirilov Kartunov², Kristijan Kuk¹

¹Akademy of Criminalistic and Police Studies of Beograd

²Technical University of Gabrovo

Real time bicycle robot balance control using machine learning

Eray YILMAZLAR¹, Ercan COŞGUN², Hilmi KUŞÇU³

¹Kırklareli University, Technical Sciences Vocational School, Kırklareli, Turkey

²Kırklareli University, Technical Sciences Vocational School, Kırklareli, Turkey

³Trakya University, Mechanical Engineering Department, Edirne, Turkey

Analysis of 3D scanning technologies and comparison of existing scanning techniques

Aydın GÜLLÜ¹, Ali ÇAĞLAR², M. Ozan AKI³

¹Trakya University Vocational School of Ipsala

²Trakya University Institute of Science

³Trakya University Vocational School of Ipsala

Investigation of ventilator working principle and designing with equipment to be used for rapid production

Aydın GÜLLÜ¹, Kemal AKKUŞ², Özcan ÇETİNKAYA³

¹Trakya University Vocational School of Ipsala

²Trakya University Institute of Science

³Trakya University Vocational School of Keşan

Efficiency analysis in solar panel energy systems: AC-DC conversion cost and DC-DC energy use

Aydın GÜLLÜ¹, Hilmi KUŞÇU², Eray YILMAZLAR³

¹Trakya University Vocational School of Ipsala

²Trakya University Engineering Faculty

³Kırklareli University Vocational School of Technical Sciences

HYDRAULICS, PNEUMATICS AND HEAT ENGINEERING

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

Mathematical modeling of working processes in a liquid-magnetic damper

Nochnichenko I.V., Haletskyi O.S., Kostiuk D.V., S. V. Strutynskyi

National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Ukraine

Intensification of transfer phenomena in technological processes due to the use of cavitation impact

Nochnichenko Ihor, Jakhno Oleg, Lugovska Kateryna

National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Ukraine

Influence of the initial steam parameters on the operation efficiency of the ship utilization turbine

V. Aftaniuk, B. Garagula, S. Aboleshkin, Y. Korovaichenko

National University “Odessa Maritime Academy”

Mathematical modeling of dynamic processes of the terrestrial robotic complex manipulator

Serhii Strutynskyi, Roman Semenchuk

Igor Sikorsky Kyiv Polytechnic Institute

Simulation study of the ship's loss of speed while maneuvering

Y. Korovaichenko, V. Aftaniuk

National University “Odessa Maritime Academy”

Particularity of analysis for energy efficiency of industrial buildings

Mariya Raykova, Ivaylo Tsvyatkov

Technical University of Gabrovo

Influence of a transverse magnetic field on an electromagnetic fluid in hydrodynamic initial section

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

Igor Sikorsky Kyiv Polytechnic Institute, Ukraine

Study of the elastic characteristic of an element of a manometric device

Nikolay Stefanov

Technical University of Gabrovo

Experimental investigation on the heat transfer enhancement in single flow by wire-coil inserts

Plamen Bonev, Valentin Petkov, Hristo Hristov

Technical University of Gabrovo

Development of a device with increased consumption for fire extinguishing

Stas Serhiy¹, Buzun Oleksandr²

¹ *Cherkasy Institute of Fire Safety named after Chornobyl Heroes (ChIFS), Ukraine*

² *State Emergency Service of Ukraine*

International Scientific Conference “UNITECH 2020” – Gabrovo

ECONOMICS AND FINANCE, ORGANIZATION AND MANAGEMENT, EDUCATION TECHNOLOGIES

Chairmen: Assoc. Prof. Dobrin Ganchev, PhD, Sen. Assist. Petko Naydenov, PhD
Building № 1, Hall 1222
Beginning: 13.00 h.

Structure and dynamics of the national patent activity in Bulgaria for the period 2001-2019

Rumyana Ivanova Georgieva, Ventsislava Aleksandrova Nikolova-Minkova
Technical University of Gabrovo

Competitive advantages and economic benefits from licensing of industrial property sites

Ventsislava Aleksandrova Nikolova-Minkova
Technical University of Gabrovo

Application of multi-criteria methods to compose an optimal investment portfolio

Raimonda Martinkutė-Kaulienė¹, Rima Tamošiūnienė², Radvinė Skobaitė³
^{1,2,3} *Vilnius Gediminas Technical University, Lithuania*

Modeling of the implementation of green economies in Eastern Europe

Inessa Mikhno¹, Viktor Koval², Rima Tamošiūnienė³, Oksana Redkva⁴

¹ *Department of Management, International European University, Kyiv, Ukraine*

² *Odessa Institute of Trade and Economics of Kyiv National University of Trade and Economics, Ukraine*

³ *Mykolas Romeris University, Lithuania*

⁴ *Ternopil Ivan Puluj National Technical University, Ukraine*

Development of local economic potentials – an example of industrial zone

Bojan Kocić¹, Nikola Vasić², Oliver Popović¹

¹ *Academy of professional studies South Serbia, Leskovac, Serbia*

² *Belgrade Academy of business and art studies, Belgrade, Serbia*

Occupational safety management as part of the organization system management

Mirjana Galjak¹, Vesna Nikolić², Rosa Šapić³

¹ *Technical College of Applied Sciences, Leposavić, Serbia*

² *Faculty of Occupational Safety, University of Niš, Serbia*

³ *College for Social Work, Belgrade, Serbia*

Creation of business processes models in the field of manufacturing facilities maintenance

Valentina Kukenska, Petar Minev

Technical University of Gabrovo

The modernization of innovations in technique and systems as an alternative for development over the years

Simeon Tsenkulovski¹, Georgi Karlovski²

¹ *Mashtech BG Ltd.*

² *Adtech Ltd.*

Methods and preparedness for online education and training in the endurance discipline of equestrian sport in the conditions of COVID-19

Ruzha Nedkova-Ivanova

National Sports Academy "Vasil Levski"- Sofia

Personal competence as a result of education

Minka Miteva Yordanova

Technical University of Gabrovo, Bulgaria

Development of a curriculum on "computer networks" in the context of the development of the bologna process

Krassimir Iliev Kolev

University of Food Technologies – Plovdiv

Educational Aspects of Variable Frequency Controlled Pump System

Vojislav Vujičić¹, Miroslav Bjekić², Marko Šućurović², Marko Rosić²

¹*Department of Mechanical Engineering*

²*Department of Power Engineering*

University of Kragujevac, Faculty of Technical Sciences Čačak, Serbia

Software system for strength dimensioning of reservoirs and pressure tanks

D. R. Rusev, P. I. Milusheva

University "Prof. Dr. Asen Zlatarov", Burgas, Bulgaria

SOCIAL SCIENCES AND HUMANITIES

Chairmen: Assoc. Prof. Svetla Panayotova, PhD, Sen. Assist. Plamen Kolev, PhD

Building № 1, Hall 1201

Beginning: 13.00 h.

Concepts for defining social work as important element of social service

Plamen Nikolov Kolev

Department of Social and Economic Sciences

Technical University of Gabrovo

Historical and philosophical discourse of tolerance: from modern to postmodern

Usov Dmytro

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

Protection of Ukraine

Theories, practical models and standards of school social work

Zhaneta Tsoneva

Technical University of Gabrovo

Analysis of impact of the fourth industrial revolution on the sphere of economy and education of Ukraine

Valentina Ovod, Oleg Palash

Kyiv Electromechanical College

Research of government creating processes on the territory of modern Ukraine

Horenko Lesya¹, Zelinskyi Ruslan², Kosiak Svitlana¹

¹ *Cherkasy Institute of Fire Safety named after Chornobyl Heroes (ChIFS), Ukraine*

² *Vinnytsia Academy of Continuing Education, Ukraine*

The possibilities of the zentangle technique as art-therapy

Svetla Panayotova

Technical University of Gabrovo

Techniques for resolving conflict situations in personnel management

Svetla Panayotova

Technical University of Gabrovo

The COVID-19 pandemic and domestic violence against women and children

Ivanka Stoyanova - Todorova

Technical University of Gabrovo, Bulgaria

MATHEMATICS AND INFORMATICS

Chairmen: Sen. Assist. Valentina Lazarova, PhD, Msc. Minka Yordanova
Building № 1, Hall 1344
Beginning: 13.00 h.

Refinement Stability of Cubic Pyramidal Meshes

Miroslav S. Petrov¹, Todor D. Todorov²

¹ *Department of Technical Mechanics, Technical University, 5300 Gabrovo, Bulgaria*

² *Department of Mathematics, Informatics and Natural Sciences, Technical University, 5300 Gabrovo, Bulgaria*

The Abstract Angle between Pyramidal Finite Element Spaces

Miroslav S. Petrov¹, Todor D. Todorov²

¹ *Department of Technical Mechanics, Technical University, 5300 Gabrovo, Bulgaria*

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Some common fixed point theorems in C^* -algebra valued metric spaces

Parven Kumar¹, Ljiljana R. Paunović², Wasfi Shatanawi³

¹ *Department of Mathematics, Tau Devi Lal Govt. College for Women, Murthal, Sonipat, India*

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³ *Prince Sultan University, Department of Mathematics and General Courses, Riyadh 11586, Saudi Arabia*

C-class functions with coupled coincidence point results for a generalized compatible pair in ordered b -metric spaces

Ljiljana R. Paunović¹, Arslan Hojat Ansari², Penumarthi Parvateesam Murthy³

Nawab Hussain⁴

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Features of information support of conditions of safe functioning of personnel of management of objects of critical infrastructure

Azarenko Olena¹, Divizinyuk Mikhailo², Prokofiev Mikhailo³

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² *State Institution "Institute of Environmental Geochemistry of the National Academy of Sciences of Ukraine"*

³ *Igor Sikorsky Kyiv Polytechnic Institute*

CHEMISTRY AND ECOLOGY

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

Environmental protection and quality of life: case study

Mirjana Galjak¹, Vesna Nikolić², Rosa Šapić³

¹ *Technical College of Applied Sciences, Leposavić, Serbia*

² *Faculty of Occupational Safety, University of Niš, Serbia*

³ *College for Social Work, Belgrade, Serbia*

Application of sonochemistry in the synthesis of isoamyl esters of higher fatty acids

Dragomir Vasilev¹, Nadezhda Petkova², Milena Koleva¹, Panteley Denev²

¹ *Technical University of Gabrovo*

² *University of Food Technologies*

Synthesis and modification of organic compounds with the use of ultrasonic and microwave energy

Dragomir Vasilev¹, Nadezhda Petkova², Milena Koleva¹, Panteley Denev²

¹ *Technical University of Gabrovo*

² *University of Food Technologies*

Study of physico-chemical indicators of the waters in the local water sources of the Gabrovo companies

Pencho Stoychev

Technical University of Gabrovo

Active reaction, electrical conductivity and drinking water hardness in Gabrovo

Pencho Stoychev

Technical University of Gabrovo

Use of water quality index to assess the pollution levels of Anadere stream basin (Thrace Region, Turkey)

Cem Tokatlı

Trakya University, Evrenos Gazi Campus, İpsala Vocational School

An investigation on the ammonium accumulations in water of Meriç – Ergene river basin (Turkey)

Cem Tokatlı

Trakya University, Evrenos Gazi Campus, İpsala Vocational School

Evaluation of water qualities of Dam Lakes located in Edirne province as drinking water by using water quality index

Cem Tokatlı

Trakya University, Evrenos Gazi Campus, İpsala Vocational School

An application of a simple ecological indicator of freshwater quality assessment: a case study of Havsa Creek in Turkey

Cem Tokatlı

Trakya University, Evrenos Gazi Campus, İpsala Vocational School

Ecological monitoring of modular wastewater treatment plant

Blagovesta Midyurova¹, Katia Ivanova²

¹ *Prof. Dr Asen Zlatarov University*

² *Aitos Municipally*

Flexible electromagnetic radiation absorbers based on allotropic carbon forms

Elena S. Belousova, Olga V. Boiprav, Bogdan I. Dumchev, Al-Mahdawi M.S.Kh.

Belarusian University of Informatics and Radioelectronics

Layered oxide and carbon containing composite materials for electromagnetic radiation absorbers for providing integrity of information processed by the computers

Olga V. Boiprav¹, Natalia A. Pevneva², Natalia V. Bogush³, Elena S. Belousova⁴, Hesham Ayad⁵

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⁵ *Zawia University, Libya*

PHYSICS

Chairmen: Sen. Assist. Nikolay Angelov, PhD, Sen. Assist. Daniela Nedeva, PhD
Building № 1, Hall 1406
Beginning: 13.00 h.

Theoretical investigation of metallic contacts under inhomogeneous conditions

Deniz Eksi

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

The expectation value of 2P excited state of electron- hydrogenic donor impurity in a GAAS/GA_{1-x}AL_xAS spherical quantum DOT

Ali Ihsan Mese

Department of Physics, Trakya University, Edirne-22030, Turkey

The effect of cooling rate on the crystallization process of liquid rhodium: molecular dynamics simulations

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 melting process of Ni₃Al alloy by molecular dynamic simulations method

Murat Celtek¹, Sedat Sengul² and Unal Domekeli²

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Molecular dynamics simulations of the pressure effect on the melting point of HCP beryllium

Sedat Sengul¹, Murat Celtek², Unal Domekeli¹

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Size effect on the mechanical properties of HCP be nanowires in tensile deformation
Vildan GUDER

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

Melting behavior of Pb nanowires: molecular dynamics simulations

Sedat SENGUL¹, Unal DOMEKELI¹ and Murat CELTEK²

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A molecular dynamics simulations study of dimension-dependent melting process of Pd nanostructures

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Static and dynamic structural properties of liquid copper under high pressure
Unal DOMEKEL¹, Sedat SENGUL¹ and Murat CELTEK²

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Investigation of the impact of speed in laser marking of products from steel 15Cr2

Nikolay Angelov

Technical University of Gabrovo

Investigation of the impact of power density and frequency for laser marking of products of structural steel 45G

Nikolay Angelov

Technical University of Gabrovo

Gamma-spectrometric analysis of plant samples collected from Shumen plateau and Rhodope mountains

Nina Arhangelova¹, Seniha Salim¹, Hristo Hristov¹, Borislaba Pavlova¹, Daniela Nedeva², Zheni Dimitrova¹

¹ *Shumen University “Konstantin Preslavsky”*

² *Technical University of Gabrovo*

Allelopathic activity and content of radionuclides of calendula officinalis L. (asteraceae)

Borislaba Pavlova, Hristo Hristov, Seniha Salim, Zheni Dimitrova, Nina Arhangelova

Shumen University “Konstantin Preslavsky”