

**2025 10th INTERNATIONAL CONFERENCE ON
ENERGY EFFICIENCY AND AGRICULTURAL
ENGINEERING (EE&AE 2025)**

CONFERENCE PROGRAM



5 – 7 November, 2025

Starozagorski bani, Bulgaria

**2025 10th INTERNATIONAL CONFERENCE ON
ENERGY EFFICIENCY AND AGRICULTURAL ENGINEERING (EE&AE 2025)**
5 – 7 November 2025
Starozagorski Bani, Bulgaria

Organized by:



Association for Engineering and Research in Agriculture



Laboratory Digital Energy Systems 4.0

Technical co-sponsors:



IEEE Bulgaria Section



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TABLE OF CONTENTS

WELCOME ADDRESS	3
EE&AE 2025 - PROGRAM AT A GLANCE.....	4
COMMITTEES.....	6
EE&AE HISTORY	10
KEYNOTE SPEAKERS.....	11
PROGRAM IN DETAILS	15
VENUE	48

WELCOME ADDRESS

Dear colleagues and friends,



Tradition is what makes a scientific event remarkable. And the conference on Energy Efficiency and Agricultural Engineering is being held for the tenth time in a row! The beginning was laid back in 2002, when Assoc. Prof. Chavdar Vezirov proposed to organize and hold an international scientific seminar with the participation of representatives from universities in South-Eastern Europe. Today once again university professors, researchers, and business representatives meet to discuss the global challenges of the modern world in the field of energy and agriculture. The wide range of topics that the conference covers, such as renewable energy sources, smart grid, circuits and systems, precision agriculture, remote sensing, challenges in education, machine learning, etc., as well as the shared

experience from research conducted in different countries are undoubtedly a contribution to overcoming the aforementioned problems.

This scientific event became possible thanks to the sense of solidarity and the desire to develop joint research of the academic community. But it also became possible thanks to the support of the business community in our country and the academic leadership of the University of Ruse "Angel Kanchev", for which we offer them our heartfelt gratitude and appreciation.

Dear friends, I believe that this wonderful corner of Sredna Gora, and the hospitality and dedication of the organizers will leave lasting and wonderful memories of this conference!

To all participants, I wish an unforgettable stay and successful participation!

Yours sincerely,

Prof. Dr. Nicolay Mihailov, DHC
Chair of the EE&AE 2025 Conference

EE&AE 2025 - PROGRAM AT A GLANCE

All times are EET (Eastern European Time), i.e. GMT+2 (Bulgarian Time).
All events are in SPA Hotel Calista.

Wednesday, 5 November 2025

10:30 – 17:30	Registration (In front of Calista Grand Hall)		
11:00 – 18:00	Virtual Poster Session		
11:00 – 11:15	Opening Ceremony (Calista Grand Hall)		
11:15 – 12:30	Plenary Oral Session 1 (Calista Grand Hall)		
12:30 – 14:00	Lunch (Calista Restaurant)		
14:00 – 15:30	In-Person Oral Session 1 (Calista Grand Hall)	In-Person Oral Session 2 (Calista Meeting Room)	
15:30 – 16:00	Coffee Break (In front of Calista Grand Hall)		
16:00 – 17:00	In-Person Poster Session 1 (In front of Calista Grand Hall)	Virtual Oral Session 1 (online)	Virtual Oral Session 2 (online)
17:00 – 18:00	In-Person Poster Session 2 (In front of Calista Grand Hall)	Virtual Oral Session 3 (online)	Virtual Oral Session 4 (online)
20:00	Welcome Cocktail (Calista Restaurant)		

Thursday, 6 November 2025

09:00 – 17:30	Registration (In front of Calista Grand Hall)	
09:00 – 17:30	Virtual Poster Session	
09:00 – 10:30	In-Person Oral Session 3 (Calista Grand Hall)	In-Person Oral Session 4 (Calista Meeting Room)
10:30 – 10:45	Coffee Break (In front of Calista Grand Hall)	
10:45 – 11:30	Industrial Session (Calista Grand Hall)	
11:30 – 12:45	Plenary Oral Session 2 (Calista Grand Hall)	
12:45 – 14:00	Lunch (Calista Restaurant)	
14:00 – 15:30	In-Person Oral Session 5 (Calista Grand Hall)	In-Person Oral Session 6 (Calista Meeting Room)
15:30 – 16:00	Coffee Break (In front of Calista Grand Hall)	

16:00 – 17:00	In-Person Poster Session 3 (In front of Calista Grand Hall)	Virtual Oral Session 5 (online)	Virtual Oral Session 6 (online)
17:00 – 18:00	In-Person Poster Session 4 (In front of Calista Grand Hall)	Virtual Oral Session 7 (online)	Virtual Oral Session 8 (online)
20:00	Gala Dinner (Calista Grand Hall)		

Friday, 7 November 2025

09:00 – 09:30	Registration (In front of Calista Grand Hall)		
09:00 – 11:30	Virtual Poster Session		
09:00 – 10:00	In-Person Oral Session 7 (Calista Meeting Room)	In-Person Poster Session 5 (In front of Calista Grand Hall)	Virtual Oral Session 9 (online)
10:00 – 10:30	Farewell Coffee. End of Conference (In front of Calista Grand Hall)		

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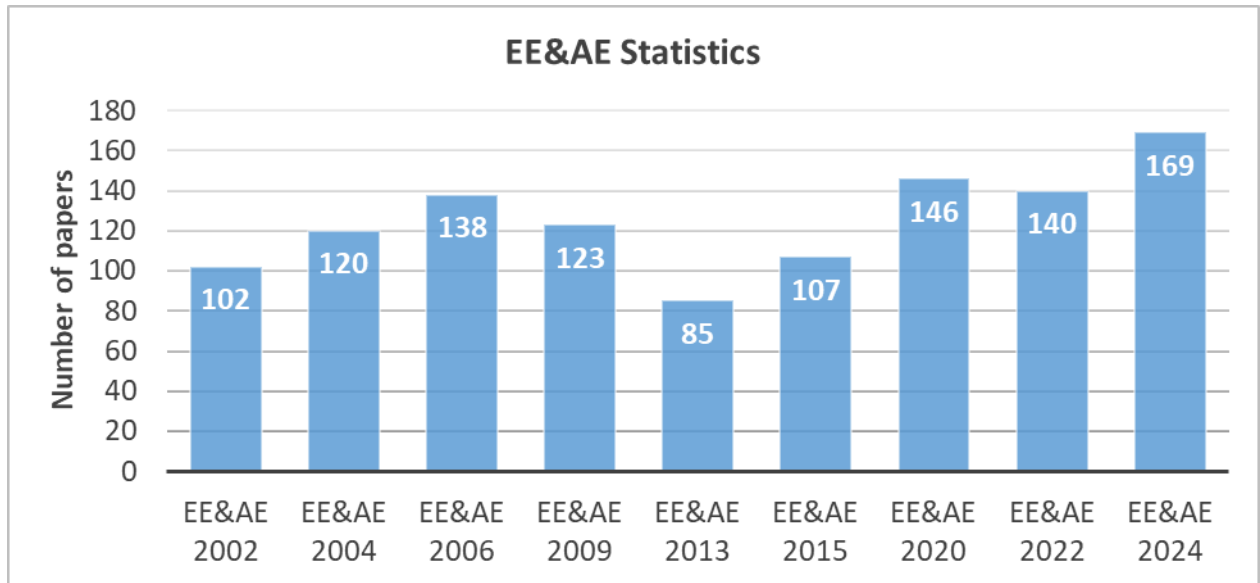
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EE&AE HISTORY

The EE&AE conference was organized by a group of researchers from the University of Ruse “Angel Kanchev”, aiming to challenge several fundamental world problems related to the world hunger and energy poverty. The first International Conference on Energy Efficiency and Agricultural Engineering was held back in the year 2002, with the support of the International Commission of Agricultural and Biosystems Engineering (CIGR). It has attracted the attention of more than 102 researchers, academicians, engineers, and students from 23 countries in Europe, Asia, and Africa. Since then, a total of nine conferences were held in Ruse, Bulgaria, which maintained the initial interest in the topics.



Traditionally, the EE&AE conference is supported by the University of Ruse “Angel Kanchev”, as well as by several national and international companies, and since 2020 EE&AE has been technically co-sponsored by IEEE. Their assistance provides the necessary technical infrastructure and organization of cultural activities creating beneficial conditions for the efficient organization and pleasant atmosphere of the events.

Since 2022, in the conference were introduced the so-called Industrial Sessions, allowing leading companies in the energy and agricultural sectors to demonstrate their state-of-the-art products and technologies to the academic community, which led to deepened cooperation between Business and Science.

KEYNOTE SPEAKERS

Name: Rafat Al Afif, PhD

Job position: Ao. Univ. Prof. DU. and Senior Scientist

Affiliation: Institute of Chemical and Energy Engineering,
Department of Natural Sciences and Sustainable Resources,
BOKU University, Vienna, Austria

E-mail: rafat.alafif@boku.ac.at

Presentation: Bioenergy conversion technologies: Case studies



Rafat Al Afif's research focuses primarily on bioenergy and optimizing hybrid renewable energy systems. He serves on the editorial boards of two prestigious international journals. With a portfolio of over 50 peer-reviewed publications, his work has accumulated more than 609 citations, and he has an h-index of 15. In addition to his research accomplishments, he is the BOKU University Coordinator for two networks within the Central European Exchange Program. He is fluent in German, English, Russian, and Arabic. Throughout his distinguished academic career, he has supervised numerous master's and doctoral theses, significantly contributing to the development of emerging scholars in the field.

ORCID: [0000-0002-8818-8292](https://orcid.org/0000-0002-8818-8292)

W: www.boku.ac.at

Name: Tatiana Atanasova PhD

Job position: Professor, Head of Department “Modelling and Optimization”

Affiliation: Institute of Information and Communication Technologies – Bulgarian Academy of Sciences, Sofia, Bulgaria

E-mail: tatiana.atanasova@iict.bas.bg

Presentation: Integrating AI into the energy transition towards renewable energy sources



Prof. Atanasova’s research interests lie at the cross-section of information society technologies, AI-based systems and complex control systems. Her scientific publications have accumulated more than 860 citations. She participated in numerous national scientific programs and international projects. In addition to her scientific achievements, she has lectured at several universities in Bulgaria. Prof. Atanasova has supervised doctoral research of many PhD students. She is a member of the “Information” Topical Advisory Panel and the Reviewer Board of “Symmetry”, published by MDPI.

ORCID: [0000-0002-6084-3179](https://orcid.org/0000-0002-6084-3179)

Profile: <https://www.iict.bas.bg>

Name: Angel Terziev, PhD

Job position: Professor, Dean of Faculty of Power Engineering and Power Machines

Affiliation: Technical University of Sofia, Bulgaria

E-mail: aterziev@tu-sofia.bg

Presentation: Review on the Role of Green Hydrogen in the Transition to a Carbon-Neutral Energy System



Prof. Dr. Angel Terziev is Dean of the Faculty of Power Engineering and Power Machines at the Technical University of Sofia. He is an expert in the field of renewable and energy efficiency technologies, hydrogen technologies, circular economy and efficiency improvement. Specialized in two phase flows and systems, fuel engineering, sustainable energy resources in Germany, Greece, Romania, USA.

He has been visiting professor at EPMI, France; Polytechnic University of Bucharest, Romania; Karaganda University, Kazakhstan; Almaty University, Kazakhstan. He is responsible for a number of bilateral agreements with Bulgarian and foreign universities, including the Erasmus+ programme.

Served on the Editorial Board of Energy, Renewable Energy and MDPI journals.

Prepared over 300 energy surveys on improving energy efficiency in industrial and commercial buildings.

ORCID: [0000-0003-1666-2781](https://orcid.org/0000-0003-1666-2781)

Name: Gilles Notton, PhD

Job position: Professor

Affiliation: University of Corsica Pasquale Paoli, France

E-mail: notton_g@univ-corse.fr

Presentation: Collective Photovoltaic Self-Consumption and Energy Communities: A New Solution to Favorize the Energy Transition in Urban Areas



Gilles Notton is a senior researcher in renewable energy systems with more than 37 years of experience. He received his PhD Degree in Energy Engineering and his “accreditation to supervise researches” degree from the University of Corsica Pasquale Paoli in 1992 and 2002, respectively.

The main objective of his research make intermittent and random renewable energies as easily manageable as conventional energies. The topics are renewable energy potential estimation and forecasting, hybrid renewable systems and energy management in smart electrical grid.

His main research interests concern renewable energy potential estimation and forecasting, hybrid renewable systems and energy management in smart electrical grid.

He has published around 150 articles in international scientific journals and has more than 200 presentations in international conferences. He has participated to the development of several scientific books. He has been responsible for the creation of a scientific network on renewable energy between France and Eastern and Central European Countries. He has participated to various European projects in renewable energy as the Horizon 2020 Tilos Project and COST Action TU1205.

He is associate-editor for the journal Renewable Energy, Elsevier.

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Profile: <https://scholar.google.com>

PROGRAM IN DETAILS

Wednesday, 5 November 2025

10:30 – 17:30 **Registration** (In front of Calista Grand Hall)

Wednesday, 5 November 2025

11:00 – 11:15 **Opening ceremony** (Calista Grand Hall)

Prof. Dr. Nicolay Mihailov, University of Ruse Angel Kanchev, Conference Chair

Wednesday, 5 November 2025

11:15 – 12:30 **Plenary Oral Session 1** (Calista Grand Hall)

Session chair: Boris EVSTATIEV, University of Ruse “Angel Kanchev”

Session co-chair: Ioan Viorel BANU, Universitatea Vasile Alecsandri din Bacau

PL1.1 Collective Photovoltaic Self-Consumption and Energy Communities: A New Solution to Favorize the Energy Transition in Urban Areas

Gilles Notton (University of Corsica Pascal Paoli, France)

PL1.2 Bioenergy conversion technologies: Case studies

Rafat Al Afif (Institute of Chemical and Energy Engineering, BOKU University, Vienna, Austria)

Wednesday, 5 November 2025

12:30 – 14:00 **Lunch** (Calista Restaurant)

Wednesday, 5 November 2025

14:00– 15:30 **In-Person Oral Session 1** (Calista Grand Hall)

Session chair: Todor STOILOV, IICT-BAS

Session co-chair: Ventsislav KESEEV, University of Ruse "Angel Kanchev"

O1.1 Field-Based Performance Analysis of R32 Split-Type Air-to-Water Heat Pumps

Ivan Dimchev (Technical University of Sofia); Pavel Vlahov (Technical University of Sofia); Martin Ivanov (Technical University of Sofia); Stoil Ivanov (Technical University of Sofia)

O1.2 Fabric Ducting Systems: A Technical Perspective on Sustainable HVAC Design

Radka Atanasova (Technical University of Sofia); Martin Ivanov (Technical University of Sofia); Ivan Dimchev (Technical University of Sofia)

O1.3 Increasing Student Engagement when Learning the Topic “Investigation of Power Amplifier Characterization Using Spectrum Analyzer”

Ivanka Tsvetkova (University of Ruse)

O1.4 Investigation of Multipath Fading in the Narrowband Channel in Mobile Cellular Networks for Education

Ivanka Tsvetkova (University of Ruse)

O1.5 Modular Arduino-Based Low-Cost Automated Home Brewing System

Filip Tsvetanov (South-West University); Iva Dacheva (South-West University)

O1.6 Assessment of CO₂ pollution reduction through a photovoltaic system

Todor Stoilov (Institute of information and communication technologies - Bulgarian Academy of Sciences); Krasimira Stoilova (Institute of Information and Communication Technologies - Bulgarian Academy of Sciences); Denis Chikurtev (Institute of Information and Communication Technologies - Bulgarian Academy of Sciences)

Wednesday, 5 November 2025

14:00 – 15:30 **In-Person Oral Session 2** (Calista Meeting Room)

Session chair: Krasimira STOILOVA, IICT-BAS

Session co-chair: Stanislav PENCHEV, University of Ruse “Angel Kanchev”

O2.1 Detection of weeds using UAV and vegetation indices in organic field bean (*Vicia faba* L.)

Oktizalia Pratiwi (University of Molise); Stefano Marino (University of Molise)

O2.2 Innovative Solution for Restoring Longitudinal Connectivity at Small Dams in the Context of Ecological Flow Implementation

Cornel Ilinca (Technical University of Civil Engineering Bucharest); Madalina Ene (Technical University of Civil Engineering Bucharest - Faculty of Hydrotechnics); Valentin Minghiras (Technical University of Civil Engineering Bucharest - Faculty of Hydrotechnics); Bogdan Ilinca (S.C. Aqua-Invest S.R.L.)

O2.3 Study of the possibilities for detecting hypocalcemia in dairy cows using infrared thermography

Hristo Hristov (IICT - BAS)

O2.4 Study Of The Influence Of Variable Selection Algorithms In Determination The Content Of Nitrogen-Containing Compounds In Soil Samples Based On Spectrophotometric Data

Georgi Manchev (University of Ruse); Stanislav Penchev (University of Ruse); Eleonora Nedelcheva (University of Ruse); Tsvetelina Georgieva (University of Ruse); Plamen Daskalov (University of Ruse)

O2.5 Conceptual model of a multifunctional web-based advisory system for determining basic quality indicators of agricultural areas

Tsvetelina Georgieva (University of Ruse Angel Kanchev); Antonina Mihaylova (University of Ruse); Stanislav Penchev (University of Ruse); Eleonora Nedelcheva (University of Ruse); Plamen Daskalov (University of Ruse)

O2.6 Forecasting Photovoltaic Power Generation Using Neural Network Modeling Towards Energy Efficiency

Tsvetelina Stefanova (University of Ruse); Slavi Georgiev (University of Ruse)

O2.7 Assessment and Prediction of Carbon Emissions Associated with Grid Electricity

Krasimira Stoilova (Institute of Information and Communication Technologies - Bulgarian Academy of Sciences); Todor Stoilov (Institute of Information and Communication Technologies-Bulgarian Academy of Sciences); Galia Angelova (Institute of Information and Communication Technologies-Bulgarian Academy of Sciences)

Wednesday, 5 November 2025

15:30 – 16:00 **Coffee Break** (In front of Calista Grand Hall)

Wednesday, 5 November 2025

16:00 – 17:00 **In-Person Poster Session 1** (In front of Calista Grand Hall)

Session chair: Boris EVSTATIEV, University of Ruse “Angel Kanchev”

Session co-chair: Dimitar TRIFONOV, University of Ruse "Angel Kanchev"

P1.1 Ethanol extracts of thyme (Thyme sp.) obtained by static and ultrasound assisted extraction – chemical composition and antioxidant activity

Krasimira Dobрева (Trakia University, Faculty of Technics and Technologies), Tsvetan Valev (Trakia University, Faculty of Technics and Technologies), Milen Dimov (Trakia University, Faculty of Technics and Technologies), Ivan Iliev (University of Plovdiv "Paisii Hilendarski", Plovdiv), Maria Dushkova (University of Food Technologies, Plovdiv), and Albena Stoyanova (University of Food Technologies, Plovdiv)

P1.2 Oxidative stability and chemical composition of Labneh cheese during storage in sunflower oil and thyme essential oil

Ira Taneva (Trakia University, Faculty of Technics and Technologies), Krasimira Dobрева (Trakia University, Faculty of Technics and Technologies), Milen Dimov (Trakia University, Faculty of Technics and Technologies), Tsvetan Valev (Trakia University, Faculty of Technics and Technologies), Mihaela Ivanova (University of Food Technologies, Plovdiv), Ivan Iliev (University of Plovdiv "Paisii Hilendarski", Plovdiv), and Albena Stoyanova (University of Food Technologies, Plovdiv)

P1.3 Labneh cheese with enhanced functional properties – composition, sensory profile and microbiological characteristics

Mihaela Ivanova (University of Food Technologies, Plovdiv), Ira Taneva (Trakia University, Faculty of Technics and Technologies), Krasimira Dobрева (Trakia University, Faculty of Technics and Technologies), Tsvetan Valev (Trakia University, Faculty of Technics and Technologies), Milen Dimov (Trakia University, Faculty of Technics and Technologies), Ivan Iliev (University of Plovdiv "Paisii Hilendarski", Plovdiv), Milena Dimitrova-Dicheva (University of Food Technologies, Plovdiv), Yulian Tumbarski (University of Food Technologies, Plovdiv), and Albena Stoyanova (University of Food Technologies, Plovdiv)

P1.4 Application of chestnut flour and date syrup as substitutes for wheat flour and sugar in functional sponge cake formulations

Hafize Fidan (University of Food Technologies)

P1.5 Chemical Composition and Biological Activity of Essential Oil from cumin (*Cuminum cyminum* L.)

Hafize Fidan (University of Food Technologies); Denis Dervish (University of Food Technologies); Ivayla Dincheva (Agrobiointstitute); Toncho Kolev (Trakia University)

P1.6 Phytochemical profiling and evaluation of the biological potential of caraway (*Carum carvi* L.) essential oil

Hafize Fidan (University of Food Technologies); Denis Dervish (University of Food Technologies); Ivayla Dincheva (Agrobiointstitute); Toncho Kolev (Trakia University)

P1.7 An Approach for Short-Term Forecasting of Household Consumers' Electricity Consumption

Tsvetozar Georgiev (University of Ruse Angel Kanchev); Georgi Krastev (University of Ruse Angel Kanchev)

P1.8 Understanding the Role of AI Chatbots in Education: A Cross-Context Analysis of Awareness, Trust, and Implementation

Kalina Nikiforova-Ilieva (University of Ruse Angel Kanchev); Tsvetozar Georgiev (University of Ruse Angel Kanchev)

P1.9 Analysis of energy consumption of poultry farm with a cyclical farming method

Seher Kadirova (University of Ruse "Angel Kanchev"); Tsvetozar Georgiev (University of Ruse "Angel Kanchev"); Tsvetelina Stefanova (University of Ruse "Angel Kanchev")

P1.10 Method for obtaining NDVI from a single photo for very small areas

Asparuh Atanasov (Technical University of Varna, Bulgaria); Svilen Stoyanov (Technical University of Varna, Bulgaria); Aleksandrina Bankova (Technical University of Varna, Bulgaria); Stefan Tenev (Technical University of Varna, Bulgaria); Desislava Mihaylova (Technical University of Varna, Bulgaria); Ivelin Ivanov (University of Shumen Episkop Konstantin Preslavski, Bulgaria)

P1.11 Ultrasonic density measurement of agricultural crops

Asparuh Atanasov (Technical University of Varna, Bulgaria); Svilen Stoyanov (Technical University of Varna, Bulgaria); Aleksandrina Bankova (Technical University of Varna, Bulgaria); Stefan Tenev (Technical University of Varna, Bulgaria); Desislava Mihaylova (Technical University of Varna, Bulgaria)

P1.12 Photogrammetry in precision agriculture for determining physical parameters

Asparuh Atanasov (Technical University of Varna, Bulgaria); Svilen Stoyanov (Technical University of Varna, Bulgaria); Aleksandrina Bankova (Technical University of Varna, Bulgaria); Stefan Tenev (Technical University of Varna, Bulgaria)

P1.13 Simulation research of convection heat transfer processes in a tube of finned heat exchanger

Zhivko Kolev (University of Ruse); Kliment Klimentov (University of Ruse); Pencho Zlatev (University of Ruse)

P1.14 Simulation determination of the external heat convection coefficient of finned heat exchanger

Zhivko Kolev (University of Ruse); Kliment Klimentov (University of Ruse); Plamen Mushakov (University of Ruse); Pencho Zlatev (University of Ruse)

P1.15 Digital protection for connected feeders with decentralized sources in medium voltage electrical networks

Misho Matsankov (TU-Sofia)

P1.16 Study of the efficiency of a Seebeck effect

Misho Matsankov (TU-Sofia); Mario Dechev (TU - Sofia); Atanas Radulov (TU-Sofia)

P1.17 Experimental study of technical, economic and environmental characteristics of a micro-flare frontal device of a heat generator

Aigerim Sapargaliyeva (S.Seifullin Kazakh Agrotechnical Research University)

Wednesday, 5 November 2025

16:00 – 17:00 **Virtual Oral Session 1 (online)**

Session chair: Teodor ILIEV, University of Ruse "Angel Kanchev"

VO1.1 Uptake of ML and IoT technologies in Cassava farming in Rwanda: Risks and opportunities

Omar Gatera (University of Rwanda); Elias Ntawuzumunsi (University of Rwanda); Raphael Uwamahoro (University of Rwanda); Innocent Uwiringiyimana (University of Rwanda); Felix Niyigena (Kinazi Cassava Plant); Jean Pierre Nyakuri (University of Rwanda)

VO1.2 Analysis of Cutting Parameters in Turning Processing of Workpieces from Calibrated Steel Using Multi-Pass Operations

Marin Zhilevski (Technical University of Sofia); Mikho Mikhov (Technical University of Sofia); Krasimir Kanev (Technical University of Sofia); Oleg Krol (Volodymyr Dahl East Ukrainian National University); Vladimir Sokolov (Volodymyr Dahl East Ukrainian National University)

VO1.3 Research on a Device for Rehabilitation of Knee and Hip Joints

Marin Zhilevski (Technical University of Sofia); Mikho Mikhov (Technical University of Sofia); Georgi Pashkulski (Technical University of Sofia)

VO1.4 Experimental study of stationary processes during injection of carbon dioxide into the reservoir

Serdar Gochakovich Nazarov (State Energy Institute of Turkmenistan)

VO1.5 Comparative Analysis of Classification Algorithms for Mango Leaves Disease Detection

Lea Ymalay (Guimaras State University)

Wednesday, 5 November 2025

16:00 – 17:00 **Virtual Oral Session 2** (online)

Session chair: Tsvetelina KANEVA, University of Ruse "Angel Kanchev"

VO2.1 Statistical Modeling and Comparative Analysis of Intense Precipitation in Bulgaria – Application of an Orthogonal Polynomial in the Shumen Region

Donika Dimanova (Konstantin Preslavsky University of Shumen)

VO2.2 Technical privacy risks in Generative AI (GenAI) – Lessons from OWASP and Real-World Failures

Elitsa Kuzmanova (Konstantin Preslavsky University of Shumen); Donika Dimanova (Konstantin Preslavsky University of Shumen)

VO2.3 Simulation and Analysis of Satellite Communication Channels Using the EnduroSat Educational Communication System

Zdravko Kuzmanov (Konstantin Preslavsky University of Shumen); Donika Dimanova (Konstantin Preslavsky University of Shumen)

VO2.4 Identification of Equipment Failure Behavior Through Comparative Analysis of Statistical and Theoretical Methods

Doru Cosofret (Naval Academy Mircea cel Batran); octavian narcis volintiru (Naval Academy Mircea cel Batran); marius cucu (Naval Academy Mircea cel Batran)

VO2.5 Aspects of high speed propeller simulation

Adrian Popa (Naval Academy Mircea cel Batran); Octavian Narcis Volintiru (Naval Academy Mircea cel Batran); Daniel Marasescu (Naval Academy Mircea cel Batran); Marius Cucu (Naval Academy Mircea cel Batran)

VO2.6 Smart City Through Big Data Integration

Leyla Muradkhanli (Baku Higher Oil School); Kamala Oghuz (Baku Higher Oil School); Minaya Musayeva (Baku Higher Oil School); Elnur Badalov (Baku Higher Oil School)

Wednesday, 5 November 2025

17:00 – 18:00 **In-Person Poster Session 2** (In front of Calista Grand Hall)

Session chair: Adriana BORODZHIEVA, University of Ruse "Angel Kanchev"

Session co-chair: Boris KOSTOV, University of Ruse "Angel Kanchev"

P2.1 Phytochemical and Microbiological Characterization of Essential Oils from the Lamiaceae Family: Majorana, Thyme and Lavender

Stanko Stankov (University of Food Tehnologies); Ivaila Dincheva (Agrobiointitute); Hafize Fidan (University of Food Tehnologies); Tatyana Balabanova (Universitu of Food Tehnologies); Petar Atanasov (University of Food Tehnologies); Marianna Baeva (University of Food Tehnologies)

P2.2 Cheese Quality, Characteristics and Technology of Bulgarian Artisanal White Brined Cheese from Raw Sheep Milk

Stanko Stankov (University of Food Tehnologies); Hafize Fidan (University of Food Tehnologies); Petar Atanasov (University of Food Tehnologies); Ivaila Dincheva (Agrobioinstitute); Salam Ibrahim (Nort Carolina A&T State University North Carolina); Tatyana Balabanova (University of Food Tehnologies)

P2.3 The impact of spearmint essential oil on the quality parameters of ice cream

Stanko Stankov (University of Food Tehnologies); Alexander Balabanov (University of Food Tehnologies); Ivan Iliev (University of Plovdiv “P. Hilendarski”); Vanya Gandova (University of Food Tehnologies); Hafize Fidan (University of Food Tehnologies); Albena Stoyanova (University of Food Tehnologies)

P2.4 Application of the Regulator Tuning Method Based on a Given Oscillation Index in Engineering Education

Kremena Dimitrova (TU-Sofia); Marlena Daneva (TU-Sofia)

P2.5 Foam Concrete as a Thermal Insulation Building Material

Penka Zlateva (Technical University of Varna); Rositsa Petkova-Slipets (Varna Free University "Chernorizets Hrabar"); Nevena Mileva (Technical university of Varna); Krum Yanazov (Technical university of Varna)

P2.6 Analysis of the Influence of Inverter Parameters and the Related PV System Configuration on the Performance of PV Plants

Ventsislav Keseev (University of Ruse "Angel Kanchev")

P2.7 Analysis of the causes of failures in common rail system for diesel engines

Simeon Iliev (University of Ruse)

P2.8 Investigation of the influence of fuel pressure at the start of injection of electromagnetic injectors CRI1

Simeon Iliev (University of Ruse)

P2.9 Predicting the performance of an internal combustion engine using linear models

Simeon Iliev (University of Ruse)

P2.10 Analysis of the Wind Potential in Breznik, Bulgaria, for Powering Pico Wind Turbines

Dimitar Trifonov (University of Ruse "Angel Kanchev"); Nikolay Valov (University of Ruse "Angel Kanchev"); Katerina Gabrovska-Evstatieva (University of Ruse "Angel Kanchev"); Nicolay Mihailov (University of Ruse "Angel Kanchev")

P2.11 Energy Management Strategies for Powering Irrigation Systems by PV-Hybrid Installations with Battery Storage

Kamen Simeonov (University of Ruse "Angel Kanchev"); Boris Evstatiev (University of Ruse "Angel Kanchev"); Atanas Atanasov (University of Ruse "Angel Kanchev")

P2.12 Hydrogen and Energy Storage within the Belt and Road: Pathways for Sustainable Electrification

Nikolay Hinov (Technical University of Sofia); Georgi Chankov (UNWE)

P2.13 Green Energy Transition along the Belt and Road: Opportunities and Challenges

Georgi Chankov (UNWE); Nikolay Hinov (Technical University of Sofia)

P2.14 eShipAI: An Integrated Platform for Marine Data, Diagnostics and Machine Learning

Georgi Enchev (Nikola Vaptsarov Naval Academy)

P2.15 Decision Tree-Based Approach for Diagnosing Power Transistor Faults in Switched Reluctance Motor Drives

Georgi Enchev (Nikola Vaptsarov Naval Academy); Nikolay Djagarov (Nikola Vaptsarov Naval Academy); Hristo Milushev (Nikola Vaptsarov Naval Academy)

P2.16 Web-Based System for Condition Monitoring and Maintenance Management in Marine Engineering

Georgi Enchev (Nikola Vaptsarov Naval Academy); Nikolay Djagarov (Nikola Vaptsarov Naval Academy); Dimitar Tsvetanov (Nikola Vaptsarov Naval Academy)

P2.17 Dependency for Distribution of Turbulent Tensions in River Flows

Roumen Gadjev (ISSAP)

P2.18 Soil Moisture Distribution during Drip Irrigation of Tomatoes

Vesela Petrova (ISSAP); Antoaneta Gigova (ISSAP); Emil Dimitrov (ISSAP); Roumen Gadjev (ISSAP); Yuriy Enakiev (ISSAP)

P2.19 Energy Efficient Dependencies and Methods at Exploitation of Open Canals in Irrigation Systems

Roumen Gadjev (ISSAP); Yordan Gerinski (UACEG–FHE); Vesela Petrova (ISSAP)

Wednesday, 5 November 2025

17:00 – 18:00 **Virtual Oral Session 3 (online)**

Session chair: Vasil KOZOV, University of Ruse "Angel Kanchev"

VO3.1 Noise Emissions and Stability in a Hydraulic System: Influence of Impeller Design Parameters

Nikolay Kovachev (University of Ruse); Vesela Mihova (University of Ruse); Ivaylo Nikolaev (University of Ruse)

VO3.2 Modelling of the Noise Emissions of Centrifugal Fan with Different Impellers Geometry

Vesela Mihova (University of Ruse); Nikolay Kovachev (University of Ruse); Ivaylo Nikolaev (University of Ruse)

VO3.3 AI image and text generation for students in Higher education

Vasil Kozov (University of Ruse "Angel Kanchev"); Serkan Sadulov (University of Ruse "Angel Kanchev")

VO3.4 Digital Industrial Solutions for Enhancing Student motivation and Prepare Them for Industry 4.0

Georgi Hristov (University of Ruse); Diyana Kinaneva (University of Ruse); Plamen Zahariev (University of Ruse); Georgi Georgiev (University of Ruse); Ivan Beloev (University of Ruse)

VO3.5 Using Modern Digital Solutions to Support Teaching in a STEAM-based Environment

Georgi Hristov (University of Ruse); Diyana Kinaneva (University of Ruse); Plamen Zahariev (University of Ruse); Ivan Beloev (University of Ruse); Georgi Georgiev (University of Ruse)

VO3.6 Assessment of Scalability and Resilience in Networks Based on the SCION Architecture

Pavel Dzhunev (South-West University “Neofit Rilski”)

Wednesday, 5 November 2025

17:00 – 18:00 **Virtual Oral Session 4 (online)**

Session chair: Irena VALOVA, University of Ruse “Angel Kanchev”

VO4.1 A Game-Based Approach to Improve Digital Skills Fundamental to Future Computer Engineers

Aneliya Ivanova (University of Ruse)

VO4.2 The Digital Transformation of Education – From Vision to Reality

Aneliya Ivanova (University of Ruse)

VO4.3 A Model of Achievement System for Interactive Training Simulators on Coding Theory and Error Detection

Aneliya Ivanova (University of Ruse)

VO4.4 Evaluation of fish migratory conditions at water intakes of small hydropower plants

Rareş Chihaia (ICPE-CA)

VO4.5 Emotional Response Analysis to Hemp-Based Products Using ECG and GSR Measurements

Maria Francesca Bozzini (Department of Pharmacy, University of Pisa); Francesco Sansone (Institute of Clinical Physiology, National Research Council of Italy (IFC-CNR)); Isabella Taglieri (Department of Agricultural and Food Science, University of Pisa); Ylenia Pieracci (Department of Pharmacy, Department of Agricultural and Food Science, University of Pisa); Alessandro Tonacci (Institute of Clinical Physiology, National Research Council of Italy, IFC-CNR); Chiara Sanmartin (Department of Agricultural and Food Science, University of Pisa); Guido Flamini (Department of Pharmacy, University of Pisa); Roberta Ascrizzi (Department of Pharmacy, University of Pisa); Francesca Venturi (Department of Agricultural and Food Science, University of Pisa)

From Wednesday, 5 November 2025 to Friday, 7 November 2025

10:00 – 18:00 Virtual Poster Session (Available at the conference website)

Session chair: Nikolay VALOV, University of Ruse "Angel Kanchev"

VP1 Thermodynamic, kinetic investigation and shelf life of Oreganum herachoticum essential oil

Vanya Gandova (University of Food Technologies)

VP2 Investigation of copigment couple between Aronia anthocianins and ascorbic acid in temperature range

Vanya Gandova (University of Food Technologies); Ivalina Petrova (Technical University Sofia, branch Plovdiv); Ivelina Ivanova (University of Food Technologies)

VP3 Surface properties determination as surface tension, energy and heat capacity of corn oil

Vanya Gandova (University of Food Technologies); Ivalina Petrova (Technical University Sofia, branch Plovdiv); Ivelina Ivanova (University of Food Technologies)

VP4 Studying the Effect of LED Screen Backlight on the Visual Cortex Using Electroencephalography

Kaloyan Ivanov (Prof. "Assen Zlatarov" University Burgas); Ivan Dimitrov (Burgas State University "Prof. Dr. Assen Zlatarov"); Stanislav Simeonov (Burgas State University "Prof. Dr. Assen Zlatarov")

VP5 Simulink Model Validation of Thermoelectric Module in Power Generation Mode

Kaloyan Ivanov (Burgas State University "Prof. Dr. Assen Zlatarov"); Aleksandar Mandadzhiev (Burgas State University "Prof. Dr. Assen Zlatarov"); Ivaylo Belovski (Burgas State University "Prof. Dr. Assen Zlatarov")

VP6 Active Thermoelectric Cooling of Motorcycle Voltage Regulator Impelemented with a Peltier Element

Kaloyan Ivanov (Burgas State University "Prof. Dr. Assen Zlatarov"); Plamen Kostov (Burgas State University "Prof. Dr. Assen Zlatarov"); Aleksandar Mandadzhiev (Burgas State University "Prof. Dr. Assen Zlatarov"); Ivaylo Belovski (Burgas State University "Prof. Dr. Assen Zlatarov")

VP7 Comparative Analysis of Original and Alternative Automotive Temperature Sensors

Kaloyan Ivanov (Burgas State University "Prof. Dr. Assen Zlatarov"); Ivaylo Belovski (Burgas State University "Prof. Dr. Assen Zlatarov"); Aleksandar Mandadzhiev (Burgas State University "Prof. Dr. Assen Zlatarov")

VP8 Crop Yield Prediction Using Machine Learning

Gumma Eekshitha (Vellore Institute of Technology)

VP9 Environmental, social and governance aspects in Saudi Aramco and TAQA business processes: comparative analysis and compliance with international standards

Polina Anufrieva (Rostov State University of Economics); Karina Mekhantseva (Rostov State University of Economics); Inga Mezinova (Rostov State University of Economics); Julya Valeeva (Russian University of Cooperation)

VP10 Mitigation of Hyperthermia Stress in Tomato by Seed Priming with Boron-Based Nanoparticles

Ezequiel García-Locascio (Tecnologico de Monterrey); Pabel Cervantes-Avilés (Tecnologico de Monterrey)

VP11 Towards Design of Questionnaire to study the role of LCA tool to foster the eco-innovations in agri-food sector

Pavel Vitliemov (University of Ruse)

VP12 Inhibition Effect of Propolis from Central Bulgaria of Corrosion Steel Plates in H₂SO₄ Solutions

Stanka Damyanova (University of Ruse “Angel Kanchev” Razgrad); Temenuzhka Haralanova (University of Ruse “Angel Kanchev” Razgrad); Iliana Nikolova (University of Ruse); Martina Pencheva (University of Ruse “Angel Kanchev”); Vanya Prodanova-Stefanova (Technical University of Sofia Sliven); Darina Georgieva (University of Ruse “Angel Kanchev” Razgrad); Yana Koleva (University “Prof. Dr. Assen Zlatarov” Burgas); Albena Stoyanova (University of Food Technologies Plovdiv)

VP13 Effect of alginate and propolis-based edible coating on moisture loss and microbial status of raspberries cherries and blueberries during storage

Darina Georgieva (University of Ruse); Stanka Damyanova (University of Ruse)

VP14 Improving energy efficiency in meat processing: accelerated cooling of pork in sodium chloride solutions

Darina Georgieva (University of Ruse); Vanya Gandova (University of Food Technologies Plovdiv)

VP15 Securing the Internet of Things: The Role of Artificial Intelligence in Agricultural Cyber Defense

Stoyan Stoyanov (Konstantin Preslavsky University of Shumen); Dora Konstantinou (CtI Eurocollege); Teodora Stoyanova (Konstantin Preslavsky University of Shumen); Radostin Rafailov (Konstantin Preslavsky University of Shumen)

VP16 Investigation of quantitative and qualitative methods for risk assessment in agricultural management

Kristina Pavlova (Institute of Information and Communication Technologies (BAS)); Stanislav Dimitrov (Institute of Information and Communication Technologies (BAS)); Kamelia Ivanova (Institute of Information and Communication Technologies (BAS))

VP17 Improving the efficiency of direct-contact heat exchangers

Saparmyrat Hojageldiyev (TDEI)

VP18 CPU-less Water Tank Level Management System Using Configurable Logic Block on PIC16F13145 with Conductive Sensors and Leak Safety

Teodor-Emilian PETRE (Doctoral School of Electronics, Telecommunications & Information Technology, National University of Science and Technology POLITEHNICA Bucharest, Romania); Rodica-Claudia CONSTANTINESCU (Department of Applied Electronics and Information Engineering National University of Science and Technology POLITEHNICA Bucharest); Constantin-Daniel Oancea (Department of Applied Electronics and Information Engineering National University of Science and Technology POLITEHNICA Bucharest); Bogdan ALEXANDRESCU (Department of Applied Electronics and Information Engineering National University of Science and Technology POLITEHNICA Bucharest)

VP19 Synthesis and Antimicrobial Activity of 5-(2-Aminoethylamino)-2-(2,4-dioxo-1,3-diazaspiro[4.5]decan-3-yl)benzo[de]isoquinoline-1,3-diones

Marin Marinov (Agricultural University – Plovdiv); Iliana Nikolova (University of Ruse); Iliana Kostova (Razgrad Branch, “Angel Kanchev” University of Ruse)

VP20 Synthesis and Antimicrobial Study of 6-Phenothiazin-10-yl-benzo[de]isoquinoline-1,3-dione Derivatives

Marin Marinov (Agricultural University – Plovdiv); Iliana Nikolova (Razgrad Branch, “Angel Kanchev” University of Ruse); Iliana Kostova (Razgrad Branch, “Angel Kanchev” University of Ruse)

VP21 Energy Efficiency and Its Contribution to the Green Transition and Global Sustainable Development Goals

Ana Todorova (University of Ruse "Angel Kanchev"); Irina Kostadinova (University of Ruse "Angel Kanchev"); Elena Fleaca (National University of Science and Technology POLITEHNICA Bucharest); Theodora Mihaela Doltu (National University of Science and Technology POLITEHNICA Bucharest)

VP22 Green Jobs, Energy Efficiency and Sustainable Development: A Theoretical Overview of the Potential for Transformation and Synergistic Effects

Ana Todorova (University of Ruse "Angel Kanchev"); Irina Kostadinova (University of Ruse "Angel Kanchev"); Theodora Mihaela Doltu (National University of Science and Technology POLITEHNICA Bucharest); Tülay Kaya (Istanbul University)

VP23 Investigation of the thermal deformations of a CNC lathe

Svetlana Koleva (University of Ruse)

VP24 Energy-Efficient Task Scheduling in Data Centers using Adaptive Deep Reinforcement Learning

Ionuț-Cosmin Dinuț (Faculty of Electronics, Telecommunications and Information Technology, National University of Science and Technology POLITEHNICA Bucharest, Bucharest, Romania); Rodica-Claudia Constantinescu (Faculty of Electronics, Telecommunications and Information Technology, National University of Science and Technology Politehnica Bucharest); Bogdan Alexandrescu (Faculty of Electronics, Telecommunications and Information Technology, National University of Science and Technology Politehnica Bucharest)

VP25 An innovative approach to the design and construction of a thermocompensated soldering station

Bogdan Alexandrescu (National University of Science and Technology POLITEHNICA Bucharest); Rodica Claudia Constantinescu (National University of Science and Technology POLITEHNICA Bucharest); Ege Ebru Ferat (National University of Science and Technology POLITEHNICA Bucharest)

VP26 Integrated and Automated CCTV System: A Comprehensive Review of Current Challenges and Methods, Future Trends and Prospects for Emerging Electronics Engineering with AI Integration

Nicolae-Costin Pistol (National University of Science and Technology POLITEHNICA Bucharest); Bogdan Alexandrescu (National University of Science and Technology POLITEHNICA Bucharest); Rodica Constantinescu (National University of Science and Technology POLITEHNICA Bucharest)

VP27 Use of metallised membranes in the separation process of soybean flour extract

Violeta Raykova (TU-Sofia, College-Sliven); Konstantin Raykov (TU-Sofia, FEP-Sliven)

VP28 Regression Model Evaluation for Short-Term Temperature Prediction

Raluca-Alexandra Oană (University POLITEHNICA of Bucharest, SDETTI)

VP29 Forecast of SARIMA and ARIMA Models: An Application for Temperature Prediction

Raluca-Alexandra Oană (University POLITEHNICA of Bucharest, SDETTI)

VP30 Identification of ambient sounds based on characteristic parameters and numerical processing

Constantin Daniel Oancea (National University of Science and Technology POLITEHNICA); Raluca-Alexandra Oană (University POLITEHNICA of Bucharest, SDETTI)

VP31 A Web-Based innovative Approach of the Booking System for the Food Industry

Bogdan Alexandrescu (National University of Science and Technology POLITEHNICA Bucharest); Rodica Claudia Constantinescu (National University of Science and Technology POLITEHNICA Bucharest); Nicolae Daniel Gheorghe (National University of Science and Technology POLITEHNICA Bucharest)

VP32 Improving Cybersecurity Education with a Framework for Session Management Vulnerabilities

Pavel Zlatarov (University of Ruse); Galina Ivanova (University of Ruse)

VP33 Ergonomic Parameters of 3D CAD User Interface Design and Their Impact on Productivity and Engineering Training

Aleksandar Ivanov (University of Ruse); Galina Ivanova (University of Ruse)

VP34 Integrating Machine Learning into Assistive OCR Technology for People with Visual Impairments

Anton Anchev (University of Ruse); Maria Savova (University of Ruse); Galina Ivanova (University of Ruse)

VP35 ADME Potential of Porphyrin Derivative From Petroleum

Yana Koleva (University Prof. Dr. Assen Zlatarov); Viktoria Trifonova (Burgas State University Prof. Dr. Assen Zlatarov); Asen Kolev (LUKOIL Neftochim Burgas); Yordanka Tasheva (Burgas State University Prof. Dr. Assen Zlatarov)

VP36 Environmental Fate of Porphyrin Derivatives From Petroleum

Yana Koleva (University Prof. Dr. Assen Zlatarov); Asen Kolev (LUKOIL Neftochim Burgas)

VP37 Toxicological Profile of Porphyrin Derivative From Petroleum

Yana Koleva (University Prof. Dr. Assen Zlatarov)

VP38 Green Entrepreneurship in Agriculture: Leveraging Energy Efficiency for Competitive Advantage

Tsanka Zlateva-Petkova (Technical university - Gabrovo)

VP39 Sustainable Energy Management in Agricultural Engineering: ESG Trends and Entrepreneurial Practices

Tsanka Zlateva-Petkova (Technical university - Gabrovo)

VP40 Electromechanical and Grid Aspects of Wind Turbine Control in Europe and Northern Eurasia

Alina Fazylova (Almaty University of Power Engineering and Telecommunications); Teodor Iliev (University of Ruse); Bozhana Stoycheva (University of Ruse); Ivaylo Stoyanov (University of Ruse)

VP41 Innodiversification approach to modeling the sustainability of organizations

Mikhail Chernyakov (Siberian University of Consumer Cooperation, Kazan Cooperative Institute (branch) of the Russian University of Cooperation)

VP42 Innodiversification approach to assessing the sustainability and effectiveness of organizations

Mikhail Chernyakov (Siberian University of Consumer Cooperation, Kazan Cooperative Institute (branch) of the Russian University of Cooperation)

VP43 Forecasting the dynamics of organizational indicators: methodology and results

Mikhail Chernyakov (Siberian University of Consumer Cooperation, Kazan Cooperative Institute (branch) of the Russian University of Cooperation)

VP44 Survey on ICT-Supported Inclusive Education in Rural and Agricultural Communities

Valentina Voinohovska (University of Ruse)

VP45 Protective Subsystem For Marine Diesel Engines Against Crankcase Explosion-Induced Fires Through Control Of Engine Operation

Momchil Manov (Nikola Vaptsarov Naval Academy); Hristo Milushev (Nikola Vaptsarov Naval Academy); Milen Bonev (Nikola Vaptsarov Naval Academy)

VP46 Research and Analysis of Combustion Equipment Parameters through Neural Networks

Yulian Moskov (Nikola Vaptsarov Naval Academy); Hristo Milushev (Nikola Vaptsarov Naval Academy)

VP47 Computational Creation Of The Line Of Operating Modes Of Turbocharger Of Modern Marine Diesel Engines

Hristo Hristov (Nikola Vaptsarov Naval Academy); Hristo Milushev (Nikola Vaptsarov Naval Academy); Milen Bonev (Nikola Vaptsarov Naval Academy)

VP48 Preparation and Investigation of Some Possible Applications of Ecological Lubricants Based on Transesterified Vegetable Oils With Polyvalent Alcohols

Stanislav Bayryamov ("Angel Kanchev" University of Ruse)

VP49 Inertial fruit separator controllable factors optimizing in mechanized tomato harvesting

Yuriy Enakiev (Institute of Soil Science, Agro-technology and Plant Protection "Nikola Pushkarov"); Ivan Morteve (Institute of Soil Science, Agro-technology and Plant Protection "Nikola Pushkarov"); Krum Stanchev (Institute of Soil Science, Agro-technology and Plant Protection "Nikola Pushkarov"); Svilen Stoyanov (Dobrudzha College of Technology, Technical University of Varna); Petr Osadchuk (Odesa National University of Technology); Dmitry Domuschi (Odesa State Agrarian University)

VP50 Evapotranspiration in tomatoes variety Nikolina F1, under conditions of surface drip irrigation and optimal irrigation regime

Yuriy Enakiev (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Vesela Petova-Branicheva (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Stanislav Stanchev (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Antoaneta Gigova (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Emil Dimitrov (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Miladin Nanazarkov (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”)

VP51 Study on the Impact of Alternative Organic Fertilizers on the Dynamics of Mineral Nitrogen and the Mobile Forms of Phosphorus and Potassium under Increasing Application Rates

Yuriy Enakiev (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Zdravka Petkova (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Vesela Petova-Branicheva (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Antoaneta Gigova (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Steliyana Hristova (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Halyna Balan (Odesa State Agrarian University)

VP52 Study Of The Effect Of The C:N Ratio On Compost Temperature In A Three-Factor Experiment

Yuriy Enakiev (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Maria Hristova (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Ivan Mortevev (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Krum Stanchev (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Kiril Stefanov (University of Forestry); Svilen Stoyanov (Dobrudzha College of Technology, Technical University of Varna)

VP53 A hybrid Analog Ensemble – XG Boost Framework for Wind Energy Forecasting

Domnica Alpetri (National University of Science and Technology POLITEHNICA Bucharest); Mihaela Hnatiuc (Constanta Maritime University); Adrian Tulbure (“1 Dec. 1918” University of Alba Iulia); Florentin Helera (Constanta Maritime University)

VP54 Pattern Recognition Using Artificial Neural Networks: A Didactic Study Using MATLAB Simulation

Jung Mee Choi (University of Ruse); Aleksandar Ivanov (University of Ruse); Tanya Avramova (Technical University of Varna)

VP55 Increasing the Productivity of a Robotic System with Differential Drive Through the Application of Adaptive Vector Control and Artificial Intelligence

Anton Anchev (University of Ruse); Aleksandar Ivanov (University of Ruse)

VP56 Energy-based Performance Evaluation of Mobile Wireless Ad hoc Routing Protocols

Mohamed Gaballa (Kuwait University)

VP57 Design and Operational Impact of a 1.86 MWp Rooftop PV System in an Urban Waste Management Facility: The Case of Sofia, Bulgaria

Nikolay Savov (Technical University of Sofia)

VP58 Methodology for Application of Digital Models for Optimizing the Organization and Management of Automotive Transport

Toncho Balbuzanov (University of Ruse Angel Kanchev); Ivan Beloev (University of Ruse Angel Kanchev); Dzhemal Topchu (University of Ruse Angel Kanchev)

VP59 Integrating Digital Tools in Transportation Engineering Education: From Formulas to Simulations

Toncho Balbuzanov (University of Ruse Angel Kanchev); Ivan Beloev (University of Ruse Angel Kanchev); Dzhemal Topchu (University of Ruse Angel Kanchev)

VP60 Laboratory Tests on the Sowing Qualities of Cotton Seeds of the Variety Helius, After Their Pre-Sowing Electromagnetic Treatment

Kiril Sirakov (University of Ruse); Minka Koleva (Field Crops Institute, Agricultural Academy, Chirpan)

VP61 Effect of Pre-Sowing Electromagnetic Treatments on the Length and Mass of Sprouts and Roots of Cotton Plants of the Cotton Variety 'Helius'

Kiril Sirakov (University of Ruse)

VP62 Operational issues in U140/U240/U241 automatic transmissions

Rosen Hristov (Technical university of Varna); Stefan Stefanov (TU Varna)

VP63 Evaluation of Quality at University as Challenge in Education

Daniela Yordanova (University of Ruse)

VP64 Guidelines for the Application of Web-Based Platforms in the Work of Career Centers

Ivan Evstatiev (Ruse University); Georgi Georgiev (Ruse University)

VP65 Research on Mushroom Species Recognition Algorithms Based on Deep Learning

QI LUO (Wuhan Sports University); TONG WAN (Wuhan Sports University)

VP66 Digital Transformation of the Energy Sector in Kazakhstan: Prospects for the Implementation of Innovative Technologies and Business Models

Sergey Bespalyy (Toraighyrov University)

VP67 Sizing and Analysis of an Off-Grid Photovoltaic Power Supply for an Irrigation System

Reni Kabakchieva (University of Ruse "Angel Kanchev"); Atanas Kabakchiev (University of Ruse "Angel Kanchev"); Katerina Gabrovska-Evstatieva (University of Ruse "Angel Kanchev")

VP68 Role of the Professional Human Factor in the Application of Artificial Intelligence in Personalized Medicine

Ivelina Simeonova (University of Ruse "Angel Kanchev"); Diana Antonova (University of Ruse "Angel Kanchev")

VP69 Integrated Model for Quality Management and Digitalisation in the Creative Industries

Zdravko Saraliev (University of Ruse "Angel Kanchev"); Diana Antonova (University of Ruse "Angel Kanchev")

VP70 Integrated analysis of wheat storage parameters in uncontrolled environments: case study of Valea Seacă, Bacău county

Diana Poetelea („Vasile Alecsandri” University of Bacau); Emilian Mosneguțu („Vasile Alecsandri” University of Bacau); Claudia Tomozei („Vasile Alecsandri” University of Bacau); Florin Nedeff („Vasile Alecsandri” University of Bacau); Mirela Panainte-Lehadus („Vasile Alecsandri” University of Bacau); Diana Mirila („Vasile Alecsandri” University of Bacau); Oana Irimia („Vasile Alecsandri” University of Bacau); Valentin Nedeff („Vasile Alecsandri” University of Bacau)

VP71 Integrated Perspectives on Sludge and Biogas Management in Municipal Wastewater Management: A Case Study of the Bacau WWTP

Eduard Popescu ("Vasile Alecsandri" University of Bacau); Valentin Nedeff ("Vasile Alecsandri" University of Bacau); Florin Nedeff ("Vasile Alecsandri" University of Bacau); Narcis Barsan ("Vasile Alecsandri" University of Bacau); Andrei Zaharia ("Vasile Alecsandri" University of Bacau); Dana Chitimus ("Vasile Alecsandri" University of Bacau)

VP72 Operational Research on a Machine-Tractor Unit for Checkerboard Sowing of Trench Crops

Petar Dimitrov (University of Ruse "Angel Kanchev"); Hristo Beloev (University of Ruse "Angel Kanchev"); Kaloyan Stoyanov (University of Ruse "Angel Kanchev"); Atanas Atanasov (University of Ruse "Angel Kanchev"); Todor Delikostov (University of Ruse "Angel Kanchev"); Evgeni Enchev (University of Ruse "Angel Kanchev"); Vlado Donev (University of Ruse "Angel Kanchev")

VP73 Operational Studies of a Soil-Protecting Machine-Tractor Unit for Soil Loosening

Hristo Beloev (University of Ruse "Angel Kanchev"); Petar Dimitrov (University of Ruse "Angel Kanchev"); Kaloyan Stoyanov (University of Ruse "Angel Kanchev"); Atanas Atanasov (University of Ruse "Angel Kanchev"); Todor Delikostov (University of Ruse "Angel Kanchev"); Evgeni Enchev (University of Ruse "Angel Kanchev"); Vlado Donev (University of Ruse "Angel Kanchev")

VP74 Operational Studies of a Machine-Tractor Unit for Spring Pre-Seeding Soil Tillage

Petar Dimitrov (University of Ruse "Angel Kanchev"); Hristo Beloev (University of Ruse "Angel Kanchev"); Kaloyan Stoyanov (University of Ruse "Angel Kanchev"); Atanas Atanasov (University of Ruse "Angel Kanchev"); Todor Delikostov (University of Ruse "Angel Kanchev"); Evgeni Enchev (University of Ruse "Angel Kanchev"); Vladimir Donev (University of Ruse "Angel Kanchev")

VP75 Impact of Thruster-Induced Power Disturbances on LED Lighting in Shipboard Power Systems

Dimitar Tsvetanov (Naval academy N.Y.Vaptsarov); Nikolai Djagarov (Naval academy N.Y.Vaptsarov); Georgi Enchev (Naval academy N.Y.Vaptsarov)

VP76 Experimental Evaluation of Inverter Power Losses for BLDC Drive under Different PWM Techniques

Dimitar Tsvetanov (Naval academy N.Y.Vaptsarov); Nikolai Djagarov (Naval academy N.Y.Vaptsarov); Hristo Milushev (Naval academy N.Y.Vaptsarov)

VP77 Experimental Comparative Analysis of Power Losses and THD in BLDC Drives Using Different Inverter Platforms

Dimitar Tsvetanov (Naval academy N.Y.Vaptsarov); Nikolai Djagarov (Naval academy N.Y.Vaptsarov); Hristo Milushev (Naval academy N.Y.Vaptsarov)

VP78 Laboratory Study on the Synchronization Process in Shipboard Power Systems under Unbalanced Conditions

Dimitar Tsvetanov (Naval academy N.Y.Vaptsarov); Nikolai Djagarov (Naval academy N.Y.Vaptsarov); Hristo Milushev (Naval academy N.Y.Vaptsarov); Zhivko Grozdev (Naval academy N.Y.Vaptsarov)

VP79 Organic Communication in Plants: A Feasibility Analysis of Magnetic Coupling

Aaron Roopnarine (University of the West Indies); Sean Roche (University of the West Indies); Megan Mahadeo (University of the West Indies); Jeevan Persad (University of the West Indies)

VP80 Evaluation of Permittivity Values for Sargassum Seaweed Derived Bioplastic

Jeevan Persad (The University of The West Indies); Kyle Seales (The University of The West Indies); Sean Roche (The University of The West Indies); Akeem Mohammed (The University of The West Indies); Megan Mahadeo (The University of The West Indies); Aaron Roopnarine (The University of The West Indies)

VP81 Synthesis of 5-Bromonaphthalimide Derivatives with 3-Aminocycloalkanespiro-5-hydantoins

Marin Marinov (Agricultural University – Plovdiv); Iliana Nikolova (University of Ruse “Angel Kanchev”); Iliana Kostova (Razgrad Branch, University of Ruse “Angel Kanchev”)

VP82 Studying the Surface Radiation and Biopolymer Degradation of Soil under Normal and UV-Illuminated Conditions

Plamena Atanasova (Burgas State University); Sabina Georgieva (Burgas State University); Antoniya Ilieva (Burgas State University); Dimitrina Kiryakova (Burgas State University)

VP83 Study of the Effect of UV Exposure and Soil Type on the Biodegradation of Gelatin-Based Films

Antoniya Ilieva (Burgas State University); Dimitrina Kiryakova (Burgas State University); Plamena Atanasova (Burgas State University); Sabina Georgieva (Burgas State University)

VP84 Education Challenges in the Disaster Management: A Framework for University Students' Learning in Addressing Future Crises

Sabina Georgieva (Burgas State University); Plamena Atanasova (Burgas State University)

Wednesday, 5 November 2025

20:00

Welcome Cocktail (Calista Restaurant)

Thursday, 6 November 2025

09:00 – 17:30 **Registration** (In front of Calista Grand Hall)

Thursday, 6 November 2025

09:00 - 10:30 **In-Person Oral Session 3** (Calista Grand Hall)

Session chair: Daniel PAVLOV, University of Ruse “Angel Kanchev”

Session co-chair: Bozhana STOYCHEVA, University of Ruse “Angel Kanchev”

O3.1 Inheritance of family companies as an element of intergenerational businesses in Bosnia and Herzegovina, Bulgaria, Poland, Romania and Uzbekistan

Daniel Pavlov (University of Ruse "Angel Kanchev"); Denitsa Zagorcheva (“K. Preslavsky" University of Shumen); Margarita Bakracheva (Sofia University); Hamza Smajić (International University of Sarajevo); Šejma Aydin (International University of Sarajevo); Laura Miloş (Department of Business Administration-Resita at Faculty of Economics and Business Administration, Babes-Bolyai University); Suzana Demyen (Department of Business Administration-Resita at Faculty of Economics and Business Administration, Babes-Bolyai University); Anna Wójcik-Karpacz (Jan Kochanowski University of Kielce); Joanna Rudawska (Kielce Technology University); Aslitdin Nizamov (Bukhara State Technical University)

O3.2 Importance of the family constitution for improving intergenerational family businesses

Julia Murzina (Tyumen State University); Daniel Pavlov (University of Ruse "Angel Kanchev"); Dmitri Pletnev (Chelyabinsk State University); Marina Sheresheva (Lomonosov Moscow State University); Saeed Mirvahedi (Allameh Tabataba'i University); Veronika Kosolapova (Chelyabinsk State University)

O3.3 Environmentally sustainable entrepreneurship in the context of intergenerational business: attitudes and barriers

Aneta Deneva (D. A. Tsenov Academy of Economics); Daniel Pavlov (University of Ruse "Angel Kanchev"); Aleksandar Lichev (D. A. Tsenov Academy of Economics); Silvia Puiu (University of Craiova)

O3.4 Virtual Energy Communities in Rural Areas through Information and Communication Technologies: Architectures and Application Models

Iliyana Ivanova (Konstantin Preslavsky University of Shumen); Desislava Ivanova (Konstantin Preslavsky University of Shumen)

O3.5 Optimization of production planning for discrete manufacturing using a genetic algorithm

Borislav Borisov (Konstantin Preslavsky University of Shumen)

O3.6 Risk management in the context of sustainable agriculture: overview and perspectives

Elisaveta Trichkova-Kashamova (Institute of Information and Communication Technologies); Desislava Kioseva (Institute of Information and Communication Technologies)

O3.7 Sustainable Energy Management in Organizations: Opportunities and Challenges

Bozhana Stoycheva (University of Ruse "Angel Kanchev"); Alina Fazylova (Almaty University of Power Engineering and Telecommunications)

Thursday, 6 November 2025

09:00 - 10:30 **In-Person Oral Session 4** (Calista Meeting Room)

Session chair: Roxana GRIGORE, Universitatea Vasile Alecsandri din Bacau

Session co-chair: Luis Antonio GARCIA GUTIERREZ, University of Corsica Pascal Paoli

O4.1 Information Fusion for Real-Time Occupancy Estimation Using CO2 Dynamics and PIR Sensors in Smart Building

Geoffrey BOURGOIN (CESI LINEACT); Kevin MICHENEAU (CESI LINEACT); Abhinandana BOODI (CESI LINEACT); Karim BEDDIAR (CESI LINEACT)

O4.2 Gaussian Mixture Model-Driven Scenario Analysis and Human-Centered Performance Assessment for Autonomous Photovoltaic-Battery Electric Vehicles Charging Stations

Fadila Barkat (University of Ghardaia); Josep M. Guerrero (Aalborg University); Ioan Viorel Banu (University of Bacau)

O4.3 Comparative Performance and Environmental Assessment of Conventional and Condensing Wall-Mounted Gas Boilers in Residential Applications

Roxana Grigore (Universitatea Vasile Alecsandri din Bacau); Ioan Viorel Banu (Universitatea Vasile Alecsandri din Bacau); Sorin Gabriel Vernica (Universitatea Vasile Alecsandri din Bacau); Sorin Popa (Universitatea Vasile Alecsandri din Bacau); Ionel Catalin Paladie (Universitatea Vasile Alecsandri din Bacau)

O4.4 Quality Check of Global Horizontal Irradiance Time Series

Luis Antonio GARCIA GUTIERREZ (University of Corse); Cyril VOYANT (Observation, Impacts, Energy Laboratory Mines-PS Sophia Antipolis); Gilles NOTTON (University Of Corse); Michel Aillerie (University of Lorraine); Milan DESPOTOVIC (University of Kragujevac)

O4.5 Experimental investigation of vapor injection heat pump system for electric vehicles

Changqing Tian (Technical Institute of Physics and Chemistry, Chinese Academy of Sciences)

O4.6 Extending the Capabilities of MATLAB and Signal Processing Toolbox for Generating Digital Signals

Adriana Borodzhieva (University of Ruse)

O4.7 Bayesian Neural Networks with Monte Carlo Dropout for Probabilistic Electricity Price Forecasting

Abhinav Das (Ulm University); Stephan Schlüter (Ulm University of Applied Sciences)

Thursday, 6 November 2025

10:30 - 10:45 **Coffee Break** (In front of Calista Grand Hall)

Thursday, 6 November 2025

10:45 - 11:30 **Industrial Session** (Calista Grand Hall)

Session chair: Nicolay MIHAILOV, University of Ruse “Angel Kanchev”

IN1 Fire Safety of PV and Battery Systems

Eng. Ivan Valchev (Technical Solution Manager at Photomate Bulgaria)

IN2 Decarbonization and competitiveness - the guarantee of a sustainable future for manufacturing in Europe

Eng. Blagovesta Shineva (Manager at Center for Testing and European Certification)

Thursday, 6 November 2025

11:30 – 12:45 **Plenary Oral Session 2** (Calista Grand Hall)

Session chair: Irena VALOVA, University of Ruse “Angel Kanchev”

Session co-chair: Ludmil STOYANOV, Technical University of Sofia, Bulgaria

PL2.1 Integrating AI into the Energy Transition Towards Renewable Energy Sources

Tatiana Atanasova (Institute of Information and Communication Technologies – Bulgarian Academy of Sciences, Sofia, Bulgaria)

PL2.2 Review on the Role of Green Hydrogen in the Transition to a Carbon-Neutral Energy System

Penka Zlateva (Technical university of Varna); Petrini Marinov (Technical University of Sofia); Krastin Yordanov (Technical university of Varna); **Angel Terziev** (Technical University of Sofia); Cvetomir Beremski (Technical University of Sofia)

Thursday, 6 November 2025

12:45 – 14:00 **Lunch** (Calista Restaurant)

Thursday, 6 November 2025

14:00 – 15:30 **In-Person Oral Session 5** (Calista Grand Hall)

Session chair: Tzvetelin GUEORGUIEV, Technical University of Gabrovo

Session co-chair: Seher KADIROVA, University of Ruse "Angel Kanchev"

O5.1 Testing the water distribution of fire suppression nozzles

Diana Makedonska (University of Mining and Geology); Blagovesta Vladkova (University of Mining and Geology "St. Ivan Rilski"); Nadezhda Kostadinova (University of Mining and Geology "St. Ivan Rilski")

O5.2 Educational Quality – A Matter of Principles

Tzvetelin Gueorguiev (Technical University of Gabrovo); Iliya Zhelezarov (Technical University of Gabrovo); Tsanko Karadzhov (Technical University of Gabrovo)

O5.3 Forecasting monthly electricity consumption using neural networks

Ivan Torlakov (Technical University of Sofia)

O5.4 Experimental Investigation of Economic Parameters, Noise and Exhaust Emissions, and Thermal Behavior of a Spark-Ignition Engine Operating with CNG

Atanasi Tashev (Technical University of Sofia, Branch Plovdiv); Nikolay Paitakov (Technical university of Sofia, Branch Plovdiv); Krasimir Ambarev (Technical University of Sofia, Branch Plovdiv); Valyo Nikolov (Technical University of Sofia, Branch Plovdiv)

O5.5 Energy Consumption Evaluation for Large Language Models

Stela Stoykova (Technical University Sofia, Plovdiv Branch); Nikola Shakev (Technical University Sofia, Plovdiv Branch)

O5.6 Machinability Modeling and Evaluation of Alloy Steels in Turning with Alumina-based Ceramic Cutting Tools using the Machinability Index

Irina Aleksandrova (Technical University of Gabrovo); Hristian Mitev (Technical University of Gabrovo)

O5.7 Digital Approach for Predicting Main Honey Parameters Based on Color Imaging and Regression Analysis Methods

Tsvetelina Georgieva (University of Ruse Angel Kanchev); Eleonora Nedelcheva (University of Ruse); Stanislav Penchev (University of Ruse); Plamen Daskalov (University of Ruse)

Thursday, 6 November 2025

14:00 – 15:30 **In-Person Oral Session 6** (Calista Meeting Room)

Session chair: Ioan Viorel BANU, Vasile Alecsandri University of Bacau

Session co-chair: Katerina GABROVSKA-EVSTATIEVA, University of Ruse "Angel Kanchev"

O6.1 Powering greenhouses with photovoltaics and battery packs in Southern Bulgaria

Borislav Boychev (Technical University of Sofia); Polina Petkova (Technical University of Sofia)

O6.2 Comparative Study the Noise Emissions of Some Electric Vehicles

Rosen Ivanov (University of Ruse Angel Kanchev); Gergana Staneva (University of Ruse Angel Kanchev); Georgi Kadikyanov (University of Ruse Angel Kanchev); Iliana Minkovska (University of Ruse Angel Kanchev)

O6.3 Ships Electric Propulsion Drive Control with Double Star Synchronous Motor

Nikolay Djagarov (Nikola Vaptsarov Naval Academy); Zhivko Grozdev (Nikola Vaptsarov Naval Academy)

O6.4 Faults Investigation in Ships Electric Propulsion Drive with Double Star Synchronous Motor

Nikolay Djagarov (Nikola Vaptsarov Naval Academy); Zhivko Grozdev (Nikola Vaptsarov Naval Academy)

O6.5 Some Considerations About Importance of Virtual Power Plants in Romanian Power System

Ioan Viorel Banu (Vasile Alecsandri University of Bacau); Roxana Grigore (Vasile Alecsandri University of Bacau); Sorin Eugen Popa (Vasile Alecsandri University of Bacau); Petru Gabriel Puiu (Vasile Alecsandri University of Bacau); Sorin Gabriel Vernica (Vasile Alecsandri University of Bacau); Ioana Madalina Barbu (Vasile Alecsandri University of Bacau)

O6.6 Modeling and Simulation of Vehicle-to-Grid (V2G) Systems for Frequency Regulation in Microgrids

Ioan Viorel Banu (Vasile Alecsandri University of Bacau); Fadila Barkat (University of Ghardaia); Marcel Istrate ("Gheorghe Asachi" Technical University of Iasi); Josep M. Guerrero (Aalborg University); Roxana Grigore ("Vasile Alecsandri" University of Bacau); Justina G. Motas ("Gheorghe Asachi" Technical University of Iasi)

O6.7 Modeling of Perovskite Solar Cells Under Cyclic Environmental Conditions with a Focus on Improving Stability

Fadila Barkat (University of Ghardaia); Josep M. Guerrero (Aalborg University); Djemoui Lalmi (University of Ghardaia); Ioan Viorel Banu (Vasile Alecsandri University of Bacau)

Thursday, 6 November 2025

15:30 – 16:00 **Coffee Break** (In front of Calista Grand Hall)

Thursday, 6 November 2025

16:00 – 17:00 **In-Person Poster Session 3** (In front of Calista Grand Hall)

Session chair: Tsvetelina GEORGIEVA, University of Ruse "Angel Kanchev"

Session co-chair: Nadezhda EVSTATIEVA, University of Ruse "Angel Kanchev"

P3.1 Performance Analysis and Evaluation of Grid-Connected Photovoltaic Power Plants with m-Si and CIGS Photovoltaic Modules

Ivaylo Lazarov (Technical University of Gabrovo)

P3.2 Thermal and Structural Analysis of Disc Brake

Stiliyana Taneva (Technical University of Sofia, Plovdiv Branch); Krasimir Ambarev (Technical University of Sofia, Plovdiv Branch)

P3.3 The Engineer of the Future in the Light of Contemporary Professional and Personal Transformations

Monika Simeonova-Ingilizova (Faculty of Engineering and Pedagogy – Sliven Technical University of Sofia)

P3.4 Artificial Intelligence in the Context of Engineering Education

Ivelina Metodieva (Technical University of Sofia); Marina Dimitrova (Technical University of Sofia)

P3.5 Optimization of the Parameters of a Device for Grading Apples in Order to Obtain Maximum Separation Accuracy

Yuriy Enakiev (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Kiril Stefanov (University of Forestry); Ivan Morteve (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Dmitry Domuschi (Odesa State Agrarian University); Elena Dimitrova (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”)

P3.6 Theoretical Determination of the Radius of a Ring Die in Granulation Machines Operating by the Pressing Method

Yuriy Enakiev (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”)

P3.7 Simulation Study of a Non-ideal ZETA DC-DC Converter Operating in Continuous Conduction Mode

Tsvetana Grigorova (Technical University of Sofia, Plovdiv Branch); Dimitar Arnaudov (Technical University of Sofia); Dimitar Nikolov (Technical University of Sofia); Borislav Ganev (Technical University of Sofia)

P3.8 Educational Demonstration of Canny Edge Detection in an Electronic Systems Design Course

Ivan Maradzhiev (Technical University of Sofia, Plovdiv Branch)

P3.9 Educational Demonstration of Road Lane Detection in an Electronic Systems Design Course

Ivan Maradzhiev (Technical University of Sofia, Plovdiv Branch)

P3.10 Comparative analysis of the effect of two types of catalysts (Ti(OEt)₄ and pTSA) on the esterification process of trimethylolpropane with oleic acid

Vasil Kopchev (University of Ruse “Angel Kanchev”)

P3.11 Analysis of High-Efficiency Power Supply Devices Used in Mobile Base Stations

Ivelyn Stoykov (CETIN Bulgaria Ltd); Grigor Mihaylov (University of Telecommunication and Post); Teodora Hristova (University of Mining and Geology “St. Ivan Rilski”); Ivaylo Stoyanov (University of Ruse)

P3.12 Fuzzy logic approach for frequency inverter selecting for induction motor control

Teodora Hristova (University of Mining and Geology “St. Ivan Rilski”); Albena Taneva (TU-Plovdiv); Ivanka Dimitrova (TU-Plovdiv)

P3.13 Comparative Study of the Fuel Efficiency of a Tractor Unit in Surface Tillage with an Anemometer Added to Engine Oil

Evgeni Kehayov (Agricultural University-Plovdiv); Georgi Komitov (Agricultural University-Plovdiv); Ivan Mitkov (Agricultural University-Plovdiv); Lyubomir Popov (Agricultural University - Plovdiv)

P3.14 Expanding the Capabilities of Silicon Surge Arresters in Applications in High-power DC Networks

Kostadin Milanov (Technical University of Sofia)

P3.15 Estimation of the Meteorological Data Time Steps Influence on the Sizing of Hybrid PV Systems Without Energy Injection to the Grid – a Case Study

Ludmil Stoyanov (Technical University of Sofia); Ivan Bachev (Technical University of Sofia)

Thursday, 6 November 2025

16:00 – 17:00 **Virtual Oral Session 5 (online)**

Session chair: Nikolay HINOV, Technical University of Sofia

VO5.1 Thermodynamic Parameters for Distillation Process in Obtaining Essential Oil from Cut Fruits

Stanislava Tasheva (University of Food Technologies)

VO5.2 Kinetic Parameters for Distillation Process in Obtaining Essential oil from Fennel Fruits

Stanislava Tasheva (University of Food Technologies)

VO5.3 Biomass - Fuel Characteristics of Some Types of Wood

Stanislava Tasheva (University of Food Technologies)

VO5.4 Understanding the Drivers of Organic Food Consumption: A Machine Learning Approach Towards Consumer Behaviour

Suraj Kumar (Rajendra Mishra School of Engineering Entrepreneurship Indian Institute of Technology Kharagpur); Debasruti Bhattacharya (Agricultural and Food Engineering Department, Indian Institute of Technology Kharagpur, India-721302); Areon Banerjee (Department of Electrical & Electronics Engineering, Birla Institute of Technology and Science, Pilani – Hyderabad Campus, India- 500078); Mamoni Banerjee (Rajendra Mishra School of Engineering Entrepreneurship, Indian Institute of Technology Kharagpur, India-721302)

VO5.5 Differential Temperature Controller Based on Arduino Nano for Solar Water Heating Systems

Nikolay Komitov (University of food technologies); Margarita Terziyska (University of food technologies)

Thursday, 6 November 2025

16:00 – 17:00 **Virtual Oral Session 6** (online)

Session chair: Tsvetelina KANEVA, University of Ruse “Angel Kanchev”

VO6.1 Precision Irrigation Performance on Potato Under Varying Soil Conditions: A Simulation Study with Adaptive Center Pivot Control

Muhammet Sancı (University of Idaho); Liujun Li (University of Idaho)

VO6.2 Targeted Weed Control: AI-Driven Spot Spraying System with Environmental Adaptation

Muhammet Sancı (University of Idaho); Liujun Li (University of Idaho); Rohit Narwal (University of Idaho)

VO6.3 Environmental-Aware Intelligent Precision Agriculture: Fuzzy Logic and AI-Based Adaptive Herbicide Spraying Strategy for Ragweed

Muhammet Sancı (University of Idaho); Liujun Li (University of Idaho)

VO6.4 Non-destructive Biomass and SPAD Estimation Based on 3D Photogrammetry for Faba Bean

Murat Kaya (University of Lincoln)

VO6.5 Root Nodule Estimation Using a Non-Destructive Machine Learning Approach

Murat Kaya (University of Lincoln)

Thursday, 6 November 2025

17:00 – 18:00 **In-Person Poster Session 4** (In front of Calista Grand Hall)

Session chair: Tsvetozar GEORGIEV, University of Ruse "Angel Kanchev"

Session co-chair: Nikolay VALOV, University of Ruse “Angel Kanchev”

P4.1 Forecasting the Price of Electricity using an Artificial Neural Network

Ivelina Metodieva (Technical University of Sofia); Stoyan Bozhkov (Technical University of Sofia)

P4.2 Study of the Reliability of a Mobile Photovoltaic System

Evgeniya Vasileva-Ilieva (Technical University of Sofia, Faculty of engineering and pedagogy of Sliven)

P4.3 Role of Data Preprocessing and Transformation Methods in Classification Models for Recognising Bacteria in Raw Milk

Petya Veleva (Trakia University); Irina Baneva (Trakia University)

P4.4 Investigation of Brake Deceleration of Electric Scooter

Radostin Dimitrov (Technical University of Varna)

P4.5 Investigation of Brake Deceleration of Electric Bicycle

Radostin Dimitrov (Technical University of Varna)

P4.6 Investigation of the Indicated Parameters of a Diesel Engine Operating with Alcohol Additives

Radostin Dimitrov (Technical university of Varna)

P4.7 Blockchain as an “Energy Accumulator”: Tokenized Storage, Price Arbitrage, and State-of-Charge Governance

Nikolay Hinov (Technical University of Sofia); Plamen Stanchev (Technical University of Sofia)

P4.8 Digital Twins in Smart Power Grids: New Approaches for Simulation, Control and Optimization

Plamen Stanchev (Technical University of Sofia); Nikolay Hinov (Technical University of Sofia)

P4.9 AI-Enhanced Virtual Power Plants: Comparative Approaches, Future Architectures, and Policy Implications

Nikolay Hinov (Technical University of Sofia); Plamen Stanchev (Technical University of Sofia)

P4.10 A methodology for assessing the available solar energy based on hourly cloudiness data

Nadezhda Evstatieva (University of Ruse "Angel Kanchev"); Boris Evstatiev (University of Ruse "Angel Kanchev")

P4.11 Experimental Study on the Convective Heat Transfer Coefficient of a PV Module under Summer Conditions

Boris Evstatiev (University of Ruse "Angel Kanchev"); Nadezhda Evstatieva (University of Ruse "Angel Kanchev")

P4.12 CFD analysis of the non-premixed combustion of methane-air enriched by hydrogen

Masoud Sahami (Technical University of Sofia); George Pitchurov (Technical University of Sofia); Momchil Vasilev (Technical University of Sofia); Angel Terziev (Technical University of Sofia); Martin Ivanov (Technical University of Sofia); Petrini Marinov (Technical University of Sofia)

P4.13 NLP - Bayesian Network Framework - Integrating Scientific Knowledge and Data-Driven Models into Sustainable Turf Management Decision Support System

Atanas Sevov (Agricultural University - Plovdiv)

P4.14 Interface for Displaying and Analyzing Machine Learning Data

Georgi Enchev (Nikola Vaptsarov Naval Academy); Dimitar Tsvetanov (Nikola Vaptsarov Naval Academy); Nikolay Djagarov (Nikola Vaptsarov Naval Academy)

P4.15 ML-Powered Python Solution for Detecting Faults in Electrical Drives

Georgi Enchev (Nikola Vaptsarov Naval Academy)

Thursday, 6 November 2025

17:00 – 18:00 **Virtual Oral Session 7 (online)**

Session chair: Iliyan DAMYANOV, Technical University of Sofia

VO7.1 Numerically Controlled Optomechatronic System for Capture of Solar Energy

Daniel Besnea (National University of Science and Technology POLITEHNICA Bucharest); Iolanda Constanța Panait (National University of Science and Technology POLITEHNICA Bucharest); Edgar Moraru (National University of Science and Technology POLITEHNICA Bucharest); Victor Constantin (National University of Science and Technology POLITEHNICA Bucharest); Vlad-Andrei Stănescu (National University of Science and Technology POLITEHNICA Bucharest); Laurențiu-Adrian Cartal (National University of Science and Technology POLITEHNICA Bucharest); Ionela - Mihaela Popescu (National University of Science and Technology POLITEHNICA Bucharest)

VO7.2 Design and simulation of a smart hydraulic throttle

Ionela - Mihaela Popescu (National University of Science and Technology POLITEHNICA Bucharest); Victor Constantin (National University of Science and Technology POLITEHNICA Bucharest); Edgar Moraru (National University of Science and Technology POLITEHNICA Bucharest); Vlad-Andrei Stănescu (National University of Science and Technology POLITEHNICA Bucharest); Ionuț-Cosmin Nica (National University of Science and Technology POLITEHNICA Bucharest); George Baboianu (National University of Science and Technology POLITEHNICA Bucharest)

VO7.3 Necessity and Potential Applications of Artificial Intelligence in Higher Agricultural Education: A Case Study of the University of Ruse

Kalin Hristov (University of Ruse); Atanas Atanasov (University of Ruse); Boris Evstatiev (University of Ruse); Chavdar Vezirov (University of Ruse)

VO7.4 Intelligent hybrid wireless communication for management of cattle breeding system via FSO/RF

Iliyan Damyanov (Technical University of Sofia)

VO7.5 Remote Monitoring of Pasture Biomass and Vegetation Health in Free-Range Cattle Systems Using Block-Based RGB Drone Imagery Classification and the Excess Green Index

Iliyan Damyanov (Technical University of Sofia)

Thursday, 6 November 2025

17:00 – 18:00 **Virtual Oral Session 8 (online)**

Session chair: Ivaylo STOYANOV, University of Ruse “Angel Kanchev”

VO8.1 The Impact of Soybean Price Fluctuations on Final Product Pricing

Srinivas Raju Gottimukkala (Deere & Company); Shiva Kumar Bhuram (Dorman Products)

VO8.2 Stacked Negative Correlation Learning: A Framework for Specialisation in Deep Ensembles

Shiva Kumar Bhuram (Dorman Products Inc.); Srinivas R. Gottimukkala (John Deere Financial)

VO8.3 Integrated Smart Agriculture and Solar Monitoring System Using IoT and Deep Learning Techniques

Sree Siva Naga Surya Prakash Vemuri (University of the Pacific)

VO8.4 Carbon Emissions, Marketing Margins, and Price Transmission: Rethinking Power Dynamics in Global Agricultural Supply Chains

Kemalettin AĞIZAN (Aydın Adnan Menderes Üniversitesi); Süheyla Ağızan (Selcuk University)

VO8.5 Unraveling the Impact of Climate Anomalies on Agricultural Price Dynamics and Supply Chain Vulnerabilities: A Panel GARCH Approach

Kemalettin AĞIZAN (Aydın Adnan Menderes University); Süheyla Ağızan (Selcuk University)

Thursday, 6 November 2025

20:00

Gala Dinner (Calista Grand Hall)

Friday, 7 November 2025

09:00 – 09:30 **Registration** (In front of Calista Grand Hall)

Friday, 7 November 2025

09:00 – 10:00 **In-Person Oral Session 7** (Calista Meeting Room)

Session chair: Tsvetelina GEORGIEVA, University of Ruse “Angel Kanchev”

Session co-chair: Tsvetana GRIGOROVA, Technical University of Sofia, Branch Plovdiv

O7.1 Near-Infrared Spectroscopy Coupled with Chemometric Modeling for Rapid Assessment of Physicochemical Properties of Bulgarian Honey

Petya Veleva (Trakia University); Simeon Uzunov (University of Ruse “Angel Kanchev”); Tsvetelina Georgieva (University of Ruse “Angel Kanchev”); Svilen Lazarov (Trakia University)

O7.2 Statistical Analysis of Color Features for Wheat Phenophases Assessment

Svetoslav Petrov (University of Ruse); Tsvetelina Georgieva (University of Ruse Angel Kanchev); Stanislav Penchev (University of Ruse); Eleonora Nedelcheva (University of Ruse); Plamen Daskalov (University of Ruse)

O7.3 Design and Implementation of a Reversible One-Bit Full Adder Using Fredkin Gates in Logisim for Digital Electronics Education

Adriana Borodzhieva (University of Ruse)

O7.4 Implementing DNA-Based Cryptography Using Residue Number System in Microsoft Excel: An Educational Tool for Telecommunication Security

Adriana Borodzhieva (University of Ruse)

O7.5 Classification of Monofloral and Polyfloral Honey using Near-infrared Spectroscopy and Chemometric Techniques

Petya Veleva (Trakia University); Simeon Uzunov (University of Ruse “Angel Kanchev”); Tsvetelina Georgieva (University of Ruse “Angel Kanchev”); Svilen Lazarov (Trakia University)

Friday, 7 November 2025

09:00 – 10:00 **In-Person Poster Session 5** (In front of Calista Grand Hall)

Session chair: Seher KADIROVA, University of Ruse "Angel Kanchev"

Session co-chair: Teodora HRISTOVA, University of Mining and Geology "St. Ivan Rilski"

P5.1 Optimization of Energy Consumption in Industrial Enterprises Through an AI-based Microgrid Management Strategy

Plamen Stanchev (Technical University of Sofia); Ivelina Hinova (Technical University of Sofia)

P5.2 Sensitivity Analysis of SEPIC DC-DC Converter under Coupling Capacitance Variation

Plamen Stanchev (Technical University of Sofia); Nikolay Hinov (Technical University of Sofia)

P5.3 Metaheuristic Methods for Controlling Electronic Devices

Plamen Stanchev (Technical University of Sofia); Nikolay Hinov (Technical University of Sofia)

P5.4 Drive system of a 4x2 agricultural robot scheme with an electronic differential

Vladimir Kotev (University of National and World Economy); Georgi Komitov (Agricultural University-Plovdiv); Veselin Mengov (Paisii Hilendarski University of Plovdiv); Ivan Ivanov (Technical University-Sofia); Dobri Dobrev (Agricultural University-Plovdiv)

P5.5 Multifactorial Study of Transverse Static Stability of an Agricultural Robot

Georgi Ivanov (Agricultural University-Plovdiv); Vladimir Kotev (University of National and World Economy); Georgi Komitov (Agricultural University-Plovdiv); Ivan Ivanov (Technical University - Sofia); Evgeni Kehayov (Agricultural University-Plovdiv)

P5.6 Automatic Extraction and Analysis of Text and Stylistic Features of PDF Documents

Irena Valova (University of Ruse Angel Kanchev); Tsvetelina Kaneva (University of Ruse Angel Kanchev); Tsvetana Halacheva (University of Ruse Angel Kanchev)

P5.7 A Conceptual Model for a Photovoltaic Energy Monitoring and Forecasting System

Irena Valova (University of Ruse); Tsvetelina Kaneva (University of Ruse); Gabriel Kanev (University of Ruse)

P5.8 Methodology for improving soil conditions of meadows and pastures through the application of alternative technology

Georgi Stanchev (Agricultural University-Plovdiv); Atanas Sevov (Agricultural University-Plovdiv); Georgi Komitov (Agricultural University-Plovdiv)

P5.9 Determining the effectiveness of shading greenhouses with an agricultural drone

Georgi Stanchev (Agricultural University-Plovdiv); Atanas Sevov (Agricultural University-Plovdiv); Georgi Komitov (Agricultural University-Plovdiv); Ivan Mitkov (Agricultural University-Plovdiv)

P5.10 Study of a water supply system in Matlab/Simulink environment using criterion equations to determine the losses in the head pipelines

Donka Ivanova (University of Ruse Angel Kanchev); Gencho Popov (University of Ruse Angel Kanchev); Kaloyan Totev (University of Ruse Angel Kanchev)

P5.11 Conditional equivalent length of complex piping systems for fluid transport

Gencho Popov (University of Ruse Angel Kanchev)

P5.12 Analysis of Annual Changes in Electricity Prices and their Influence on the Value Return of 12.6 kW Peak Photovoltaic System

Ventsislav Keseev (University of Ruse "Angel Kanchev"); Boris Evstatiev (University of Ruse "Angel Kanchev"); Dimitar Trifonov (University of Ruse "Angel Kanchev"); Nikolay Valov (University of Ruse "Angel Kanchev"); Nicolay Mihailov (University of Ruse "Angel Kanchev")

P5.13 Analysis of the Performance of Bifacial Photovoltaic Panels with Different Reflective Surfaces in Urban Conditions

Tsvetelina Kaneva (University of Ruse “Angel Kanchev”); Irena Valova (University of Ruse “Angel Kanchev”); Nikolay Valov (University of Ruse “Angel Kanchev”); Boris Evstatiev (University of Ruse “Angel Kanchev”); Ventsislav Keseev (University of Ruse “Angel Kanchev”); Dimitar Trifonov (University of Ruse “Angel Kanchev”); Nicolay Mihailov (University of Ruse “Angel Kanchev”)

P5.14 Entropy criterion for assessing the effectiveness of protective devices

Hristo Ilchev (Technical University of Sofia); Petya Tsvetkova (Technical University of Sofia)

P5.15 Application of the mathematical theory of reliability in near redundancy of protective devices in the electric power grind

Hristo Ilchev (Technical University of Sofia); Petya Tsvetkova (Technical University of Sofia); Diyan Ivanov (Bulgarian Energy Holding EAD)

P5.16 Short-term prognostication of energy yield from wind power plants

Petya Tsvetkova (Technical University of Sofia)

P5.17 Selection of an option for connecting wind power farms to a medium voltage distribution grid

Petya Tsvetkova (Technical University of Sofia); Diyan Ivanov (Bulgarian Energy Holding EAD)

Friday, 7 November 2025

09:00 – 10:00 **Virtual Oral Session 9 (online)**

Session chair: Boris EVSTATIEV, University of Ruse “Angel Kanchev”

VO9.1 Synthetic Dataset for AI-Driven Photovoltaic Fault and Damage Detection via UAV Thermal Imaging

Panagiotis Christakakis (The Centre for Research & Technology Hellas, Information Technologies Institute); Periklis Dimou (The Centre for Research & Technology Hellas, Information Technologies Institute); Panagiotis Symeonidis (The Centre for Research & Technology Hellas, Information Technologies Institute); Dimosthenis Ioannidis (The Centre for Research & Technology Hellas, Information Technologies Institute); Dimitrios Tzovaras (The Centre for Research & Technology Hellas, Information Technologies Institute); Eleftheria Maria Pechlivani (The Centre for Research & Technology Hellas, Information Technologies Institute)

VO9.2 Deep Learning Meets qPCR: Detecting Fungal Plant Diseases

Panagiotis Christakakis (The Centre for Research & Technology Hellas, Information Technologies Institute); Eleni Kalogeropoulou (Benaki Phytopathological Institute, Laboratory of Mycology); Dimitrios Kapetas (The Centre for Research & Technology Hellas, Information Technologies Institute); Eleftheria Maria Pechlivani (The Centre for Research & Technology Hellas, Information Technologies Institute)

VO9.3 Evaluating Mobile Phone Microphone Recordings for Metal Processing Sound Analysis

Nikolay Yordanov (Technical University of Sofia); Marin Zhilevski (Technical University of Sofia); Mikho Mikhov (Technical University of Sofia); Oleg Krol (Volodymyr Dahl East

Ukrainian National University); Vladimir Sokolov (Volodymyr Dahl East Ukrainian National University)

VO9.4 Energy-Efficient Smart Irrigation Using Edge AI and Forecast-Driven Scheduling

Christopher Harris (University of Northern Colorado)

VO9.5 Multi-Agent RL for Coordinated Irrigation under Grid and Water Constraints

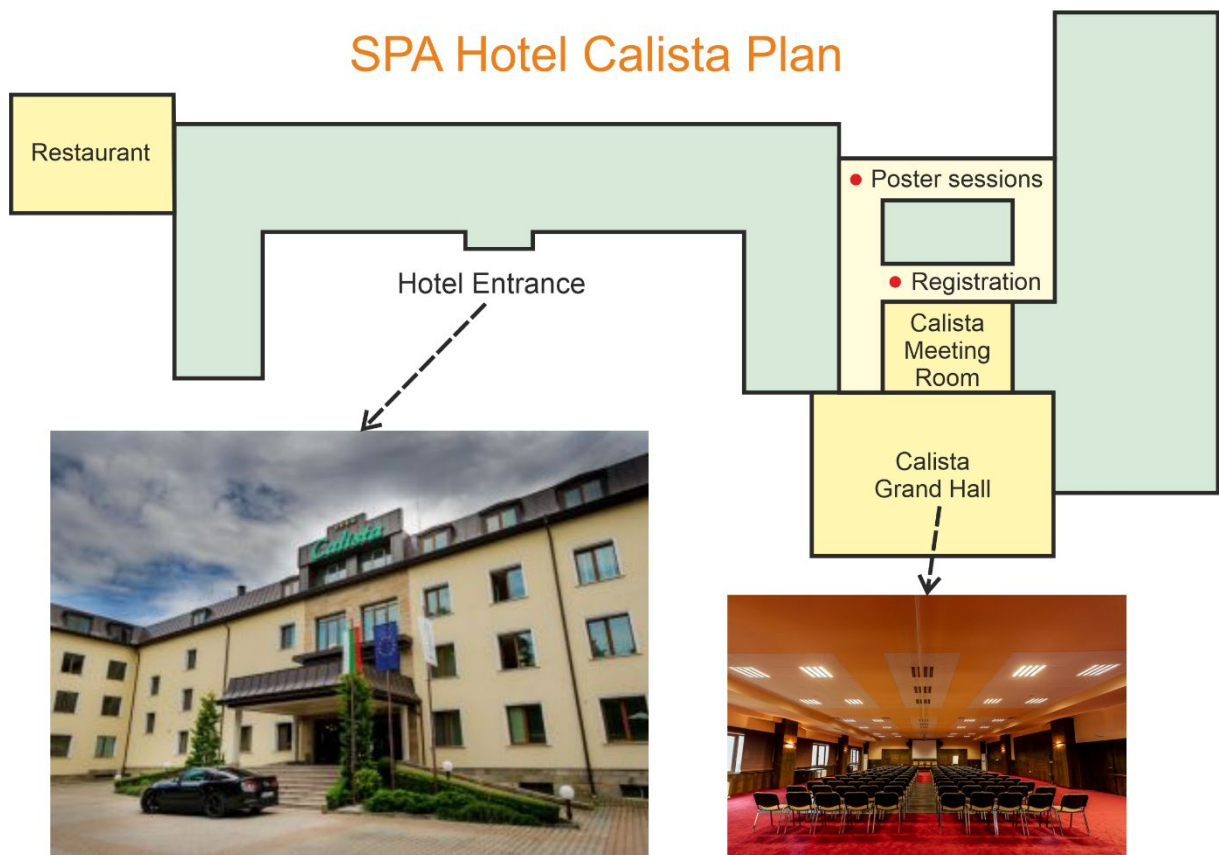
Christopher Harris (University of Northern Colorado)

VENUE

The 2025 10th International Conference on Energy Efficiency and Agricultural Engineering (EE&AE 2025) will take place in the SPA Hotel Calista, 6062 Starozagorski Bani, Bulgaria.



For further directions use the GPS coordinates: [42.4529491666277, 25.497837065474272](https://www.google.com/maps/place/42.4529491666277,25.497837065474272)



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ВАШИЯТ ПАРТНЬОР

ЗА ИНДУСТРИАЛНИ
ФОТОВОЛТАИЧНИ ПРОЕКТИ
И РЕШЕНИЯ ЗА СЪХРАНИЕНИЕ
НА ЕНЕРГИЯ



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Photomate е сертифициран VAP партньор (партньор с добавена стойност) и сертифициран сервизен партньор (CSP) на Huawei за соларни инвертори в Централна, Източна и Северна Европа.

Project “Scientific University of Ruse”



The project "Scientific University of Ruse", is funded by the European Union - NextGenerationEU, through the National Recovery and Resilience Plan of the Republic of Bulgaria, under contract BG-RRP-2.013-0001, for the implementation of investments under the Recovery and Resilience Mechanism for "Creating a Network of Research Higher Education Institutions in Bulgaria - 2", under the pillar "Innovative Bulgaria", Component 2 "Research and Innovation", Investment 1 (C2.I1): "Program for Accelerating Economic Recovery and Transformation through Research and Innovation". The vision of the Strategic Research and Innovation Development Program defines the University of Ruse "Angel Kanchev" as an internationally recognized research university with a significant contribution to the development of the European Research Area through the development of an innovation-stimulating

environments for conducting interdisciplinary research, with the potential for technological transfer, internationalization and commercialization of scientific products in support of resource-efficient, balanced and responsible socio-economic development of globally connected communities. The vision is developed in three main integrated scientific directions, incorporating 7 scientific groups which implement the current Strategic Scientific and Innovation Development Program of the Scientific University of Ruse.

Research and development of ICT-based solutions for digital secure transformation of processes and systems

- **Scientific Group 3.1.1.** Digital systems and technologies for sustainable smart agriculture (Smart Agriculture)
- **Scientific Group 3.1.3.** Intelligent cyber-physical systems and technologies for generating and visualizing spatial objects and processes
- **Scientific Group 3.2.1.** Integrated intelligent management systems for security

Researches on systems, subjects, processes and phenomena, technologies and innovations for a equitable and sustainable green society

- **Scientific Group 3.1.5.** Digital Energy Systems 4.0
- **Scientific Group 3.1.6.** Mathematical modeling, innovative business models and social innovations

Fundamental and scientific-applied research in mechatronics and new technologies

- **Scientific Group 3.1.2.** Sustainable transport mobility
- **Scientific Group 3.1.4.** Digital, layered, energy assisted innovative technologies and models

The implementation of the Strategic Research and Innovation Development Program supports all areas of higher education at the University of Ruse, with an emphasis on those, whose research and publication activity shape the profile of the University of Ruse internationally, as well as on those, for which the support creates a prerequisite for interdisciplinary research with the potential to reach high scientific results.

