

**2022 8<sup>th</sup> INTERNATIONAL CONFERENCE ON ENERGY  
EFFICIENCY AND AGRICULTURAL ENGINEERING  
(EE&AE 2022)**

**30<sup>th</sup> June – 2<sup>nd</sup> July, 2022**

**Ruse, Bulgaria**



**CONFERENCE PROGRAM**

# **EE&AE 2022 CONFERENCE PROGRAM**

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# INTERNATIONAL CONFERENCE ON ENERGY EFFICIENCY AND AGRICULTURAL ENGINEERING

30<sup>th</sup> of June – 2<sup>nd</sup> of July 2022

Ruse, Bulgaria

## Organized by:



Association for Engineering  
and Research in Agriculture



IEEE Bulgaria Section

## Supported by:



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INTERNATIONAL CONFERENCE ON ENERGY EFFICIENCY AND  
AGRICULTURAL ENGINEERING

30<sup>th</sup> of June – 2<sup>nd</sup> of July 2022

Ruse, Bulgaria

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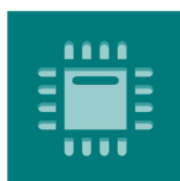
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## WELCOME ADDRESS



Dear colleagues,

The University of Ruse Angel Kanchev is once again the host of the traditional IEEE International Conference on Energy Efficiency & Agricultural Engineering. It is one of many scientific events which restore the normal rhythm of work in the academic circles after the global pandemic.

I am convinced that the results from the scientific research, which will be presented at the forum, are a solid foundation for discussion in the two most important European policies – energy and feeding the population. The 140 papers are a prerequisite for building joint teams in solving specific tasks in the field of renewable energy and precision agriculture. I believe that you will share experience about your work with students and PhD students for providing an efficient learning process of high quality, which is a priority for every university. Last but not least, I hope that this forum will contribute to the integration in internationalisation of our higher institutions. It is great that there are new participants in the Conference from Mexico, South Africa and Moldova.

Dear colleagues,

I am convinced that during the next few days, the hosts from the Organising Committee will do their best to help you get acquainted with our educational and research infrastructure, teaching resources and the University, so that the implementation of the above-mentioned ideas at a national, regional and international level can become a reality.

Once again, welcome and have a pleasant and useful participation in the 2022 8<sup>th</sup> International Conference on Energy Efficiency and Agricultural Engineering (EE&AE 2022)!

Rector,

A handwritten signature in blue ink, appearing to read 'Hristo Beloev', with a stylized flourish at the end.

Prof. DSc. Hristo Beloev, DHC mult.  
Academician of Bulgarian Academy of Sciences

## WELCOME ADDRESS



Dear colleagues and friends,

On starting the 2022 8<sup>th</sup> International Conference on Energy Efficiency & Agricultural Engineering (EE&AE2022), we provide once again indisputable evidence of our quest to overcome the challenges of the modern world, related to the environment and sustainable development of our society. Young scientists and doctoral students, representatives of industry and business will present and discuss original research findings and practical experience, related to Energy Efficiency, Smart Grid and Renewable Energy, Information and Communication Technologies, Big Data, Precision Agriculture, Education, Entrepreneurship and other relevant issues. The topics mentioned are directly oriented towards the European Green Package, which focuses on innovative technologies for clean energy and the education and training needed, which will guarantee prospective work places and knowledge, needed for the transition. The participation of many academics from leading Bulgarian universities is impressive. They are joined by our colleagues from Russia, Romania, Turkiye, the Slovak Republic, France, Kazakhstan, Mexico, South Africa, Moldova and others. That is why our conference is also a message to the world we want to live in – a world of peace without any brutal confrontation between the nations.

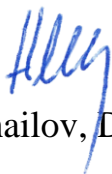
Dear colleagues and friends,

We have received some friendly support from IEEE. Once again we have received both financial and moral support by a number of sponsors, thanks to whom this scientific event will take off. I must emphasize the excellent interaction and understanding of the importance of the IEEE conference EE&AE2022 by the leadership of the University of Ruse.

I extend my deep and sincere gratitude to them on behalf of the event organisers!

And finally, I wish health and success to all participants! May you make good friendships, new scientific achievements and have wonderful experiences in our beautiful city!

Yours sincerely,



Prof. Dr. Nicolay Mihailov, DHC

## PROGRAM AT A GLANCE

### Thursday, June 30<sup>th</sup> 2022

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10:00 – 16:00	Registration (University of Ruse, Building 2, Floor 1 Lobby)	
10:00 – 17:15	Virtual Poster Session	
11:00 – 11:30	Opening Ceremony (University of Ruse, Building 2, Hall 101)	
11:30 – 13:00	Plenary Session 1 (University of Ruse, Building 2, Hall 101)	
13:00 – 14:30	Lunch break	
14:30 – 16:00	Oral Session 1 (University of Ruse, Building 2, Hall 204)	Oral Session 2 (University of Ruse, Building 2, Hall 206)
16:00 – 16:15	Coffee Break (University of Ruse, Building 2, Hall 203)	
16:15 – 17:15	Poster Session 1 (University of Ruse, Building 2, Floor 2 Lobby)	
19:00	Welcome Cocktail (Grand Hotel Riga, White Saloon)	

### Friday, July 1<sup>st</sup> 2022

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09:00 – 16:00	Registration (University of Ruse, Building 2, Floor 1 Lobby)		
09:00 – 16:45	Virtual Poster Session		
09:00 – 10:30	Oral Session 3 (University of Ruse, Building 2, Hall 204)	Oral Session 4 (University of Ruse, Building 2, Hall 206)	Oral Session 5 (University of Ruse, Building 2, Hall 101)
10:30 – 11:30	Coffee Break (University of Ruse, Building 2, Hall 203)	University – Industry Dialogue Booths (University of Ruse, Building 2, Hall 203)	
11:30 – 13:00	Plenary Session 2 (University of Ruse, Building 2, Hall 101)		
13:00 – 14:30	Lunch Break		
14:30 – 15:30	University – Industry Dialogue Session (University of Ruse, Building 2, Hall 101)		
15:30 – 15:45	Coffee Break (University of Ruse, Building 2, Hall 203)		
15:45 – 16:45	Poster Session 2 (University of Ruse, Building 2, Floor 2 Lobby)		
20:00	Gala Dinner (Mehana Chiflika)		

## **Saturday, July 2<sup>nd</sup> 2022**

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09:00 – 11:00	Registration (University of Ruse, Building 2, Floor 1 Lobby)
09:00 – 11:45	Virtual Poster Session
09:00 – 10:30	Oral Session 6 (University of Ruse, Building 2, Hall 206)
10:30 – 11:30	Poster Session 3 (University of Ruse, Building 2, Floor 2 Lobby)
11:30 – 11:45	Farewell Coffee. End of Conference (University of Ruse, Building 2, Floor 2 Lobby)



## COMMITTEES

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Zuzana Palkova, Slovak University of Agriculture, Slovakia

## EE&AE HISTORY

The EE&AE conference was organized by a group of researchers from University of Ruse Angel Kanchev, aiming to challenge several fundamental world problems – world hunger and energy poverty. The solutions to these problems are related to energy efficiency, renewable energy sources, precision agriculture, environmental protection and appropriate educational policies.

The first International Conference on Energy Efficiency and Agricultural Engineering was held back in the year 2002, with the support of 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 seven conferences were held in Ruse, which maintained the initial interest in the topics.

<b>№</b>	<b>Edition</b>	<b>Statistics</b>
1	EE&AE 2002	102 papers
2	EE&AE 2004	120 papers
3	EE&AE 2006	138 papers
4	EE&AE 2009	123 papers
5	EE&AE 2013	85 papers
6	EE&AE 2015	107 papers
7	EE&AE 2020	146 papers

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 is technically 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.

## PLENARY SPEAKERS



**Nikolay Filev Djagarov, DSc.**

**Affiliation: Nikola Vaptsarov Naval Academy, Varna, Bulgaria**

**Position: Professor**

**E-mail: [n.djagarov@nvna.eu](mailto:n.djagarov@nvna.eu), [jagarov@ieee.bg](mailto:jagarov@ieee.bg)**

**Presentation: Traction Motor Drive of Electrical Vehicle: Types, Performances and Control**

**Nikolay Djagarov** is a full professor in the Nikola Vaptsarov Naval Academy, Varna. He received his MSc, PhD and DSc in the Saint Petersburg Electrotechnical University (LETI), Russia. During his professional career he has been the Head of Power Delivery and Electrical Equipment Department in the Technical University of Varna. His research interests include shore and autonomous power systems (modeling, control, power quality, electrical propulsion, PSS, FACTS), wind generators and distributed generations, modelling and control of electrical drives and SCADA systems. He has been a supervisor of tens of PhD students in the above fields. Prof. Djagarov has published more than 60 articles in indexed research journals and conference proceedings with hundreds of citations. He is Member of the editorial board of journals: WSEAS Transactions of Power Systems, ACEEE International Journal on Control System and Instrumentation; Industrial energetics, Moscow, Russia; Electrical systems and complexes, Magnitogorsk, Russia. Active Reviewer in Wiley International Transactions on Electrical Energy Systems. Member of the Scientific Committee and Chairman of Session of over 50 conferences and symposia. In 2018 he received an individual Varna City Award on Technical Sciences "For outstanding scientific and pedagogical achievements in the field of electrical engineering, electric power and electrical equipment of ships".



**Zuzana Palkova, Ph.D.**

**Affiliation: Slovak University of Agriculture in Nitra, Slovakia**

**Position: Professor**

**E-mail: [zuzana.palkova@uniag.sk](mailto:zuzana.palkova@uniag.sk)**

**Presentation: Perspective of education in Agriculture 4.0 in selected countries in European Union and Palestine**

**Zuzana Palkova** was born in Komarno, Slovakia. She graduated at the Faculty of Electrical Engineering and Informatics, Slovak Technical University in Bratislava. She is currently professor at the Slovak University of Agriculture in Nitra. Her research interests include digital technologies, modeling and simulation of processes in agriculture, development of innovative educational methodologies, application of digital technologies to education. Prof. Palkova is a member of The Council for Vocational Training, Consultancy and Projects' Activity, The Centre of Agricultural Consultancy – expert for Agricultural Consulting, work group “Informatics, Vocational Education in the Agricultural area”, member of the Scientific Board of the Faculty of Engineering at Slovak University of Agriculture in Nitra; member of the Editorial board “Scientific Papers Series Management, Economic Engineering and Rural Development”, University of Agricultural Sciences and Veterinary Medicine, Bucharest, Romania; member of the Editorial board of „International Journal of Advanced Engineering Research and Applications“ (IJAERA), India; and member of the Editorial board Agris on-line Papers in Economics and Informatics. Prof. Palkova has participated in numerous EU projects funded under the programmes Horizon 2020, Erasmus+, Leonardo da Vinci, Visegrad Fund and European social fund.





**Mircea Neagoe, Ph.D.**

**Affiliation: Transilvania University of Brasov, Romania**

**Position: Professor**

**E-mail: [mneagoe@unitbv.ro](mailto:mneagoe@unitbv.ro)**

**Presentation: Trends and Innovations in Wind Power Systems**

**Mircea Neagoe** is full professor at Transilvania University of Brasov and member of the Renewable Energy Systems and Recycling R&D Center within the Faculty of Product Design and Environment. He has almost 30 years of experience on theoretical and experimental research of mechanical transmissions with a focus in the last decade on speed increasers for wind turbines, as well as on other complementary domains like solar tracking systems for PV & solar-collector applications, integrated product design, artificial intelligence, robotics, eco-innovation, e-learning. His current research activities focus on innovative development of mechanical speed increasers for traditional and counter-rotating wind turbines. Another research direction addresses design and optimization of PV tracking algorithms and systems implemented in the built environment, aiming at increasing the in-field electricity production during various meteorological conditions.



**Suzanne Leseq, Ph.D.**

Affiliation: **Cea Leti, Grenoble, France**

Position: **Research Director**

E-mail: [suzanne.lesecq@cea.fr](mailto:suzanne.lesecq@cea.fr)

Presentation: **Would digitalisation support transition towards more sustainable agriculture to meet the Green Deal ambition?**

**Suzanne Leseq** is Research Director at CEA-Leti where she is European Programme Manager in the System department in Leti. She has been student at Ecole Normale Supérieure de Cachan (ENS), France, where she passed the “Agrégation” in Electrical Engineering. She defended her PhD in Process Control from the Grenoble Institute of Technology, France, in 1997. She joined the University of Grenoble, France in 1998 where she has been appointed as Associate-Professor from 1998 to 2006 and full-time Professor from 2006 to 2009. She joined CEA-Leti in mid-2009 where she mainly works on collaborative programmes at national and EU levels. She has been coordinator of the H2020 INSPEX project for which she is recipient of the prize “les Etoiles de l’Europe” in 2020. She is currently coordinating the SARMENTI H2020 project (GA 825325). Her research interest is in data fusion, together with its robust implementation on computing devices, with a particular focus on the agri-food sector and environment perception.

## PROGRAM IN DETAILS

### Thursday, June 30<sup>th</sup> 2022

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10:00 – 16:00      Registration (University of Ruse, Building 2, Floor 1 Lobby)

### Thursday, June 30<sup>th</sup> 2022

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11:00 – 11:30      Opening ceremony (University of Ruse, Building 2, Hall 101)

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

Academician Prof. DSc. Hristo Beloev, Rector of University of Ruse Angel Kanchev

Prof. Dr. Valentina Markova, Chair of IEEE Bulgaria Section

### Thursday, June 30<sup>th</sup> 2022

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11:30 – 13:00      Plenary Session 1 (University of Ruse, Building 2, Hall 101)

**Session chair:** Boris EVSTATIEV, University of Ruse Angel Kanchev

#### **PL1.1 Trends and Innovations in Wind Power Systems**

Mircea Neagoe (Transilvania University of Brasov, Romania)

#### **PL1.2 Would digitalisation support transition towards more sustainable agriculture to meet the Green Deal ambition?**

Suzanne Lesecq (CEA-Leti, France); Gareth Keeley (CEA-Leti, France); Gabriela Dudnik (CSEM, Switzerland); Alan O’Riordan (Tyndall UCC, Ireland)

### Thursday, June 30<sup>th</sup> 2022

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13:00 – 14:30      Lunch break

### Thursday, June 30<sup>th</sup> 2022

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14:30 – 16:00      Oral Session 1 (University of Ruse, Building 2, Hall 204)

**Session chair:** Mircea NEAGOE, Transilvania University of Brasov

**Session co-chair:** Tsvetelina MLADENOVA, University of Ruse Angel Kanchev

#### **O1.1 Solar-Thermal Collector Energy Optimisation Based on Optimum Input Temperature Model**

Mugurel F Talpiga (Doctoral School of Technical University of Civil Engineering Bucharest)

## **O1.2 Using Solar Energy to Power an Agricultural Robot**

Rosen Ivanov (University of Ruse Angel Kanchev); Georgi Komitov (Agricultural University-Plovdiv); Donka Ivanova (University of Ruse Angel Kanchev); Georgi Kadikyanov (University of Ruse Angel Kanchev); Gergana Staneva (University of Ruse Angel Kanchev)

## **O1.3 Efficiency Improvement of Electric and Hybrid Vehicles by Better Utilization of Inertia**

Ventsislav P Keseev (University of Ruse Angel Kanchev)

## **O1.4 Electric Bicycle Battery Optimization for Lower Cost, Higher Safety, Affordability and Competitiveness**

Ventsislav P Keseev (University of Ruse Angel Kanchev)

## **O1.5 New design developments of a steam generator with flame tubes derived from a hot water boiler burning agricultural biomass**

Ionel Pisa (UP Bucuresti); Gabriel P Negreanu (University Politehnica of Bucharest); Lucian Mihaescu (University Politehnica of Bucharest); Viorel Berbece (University Politehnica of Bucharest); Gheorghe Lazaroiu (Politehnica University of Bucharest)

## **O1.6 An analysis of the efficiency of flue gases energy potential conversion through methanation**

Lucian Mihaescu (University Politehnica of Bucharest); Gheorghe Lazaroiu (Politehnica University of Bucharest); Gabriel P Negreanu (University Politehnica of Bucharest); Manuela Grigoriu (University Politehnica of Bucharest); Mihai Dragne (University Politehnica of Bucharest); Laura Alexandra Stanescu (University Politehnica of Bucharest); Florin I Balcu (National Institute for Research and Development in Electrochemistry and Condens); Cornel Panait (University MARITIMA of Constanța)

## **O1.7 Evaluation of $\beta$ -Carotene Content in Apricots During the Drying Process using Visual and Near-Infrared Spectroscopy**

Martin Dejanov (University of Ruse Angel Kanchev)

## **Thursday, June 30<sup>th</sup> 2022**

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14:30 – 16:00 Oral Session 2 (University of Ruse, Building 2, Hall 206)

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

**Session co-chair:** Ivaylo STOYANOV, University of Ruse Angel Kanchev

## **O2.1 Presentation of a New Technology for Incineration of Municipal Solid Waste (MSW)**

Dimitar Nikolaev Kolev (Institute of Chemical Engineering - Bulgarian Academy of Sciences)

## **O2.2 Production of Biochar from Wheat Straw with Muffle Furnace and Flow Reactor**

Rositsa Velichkova (Technical University of Sofia)

### **O2.3 An Investigation of the Energy Efficiency of a Grid Connected Photovoltaic System**

Konstantin G Koev (University of Ruse Angel Kanchev)

### **O2.4 Analysis of the Meteorological Factors Affecting the Efficient Use of Electricity in Water Supply Systems**

Anka Krasteva (University of Ruse Angel Kanchev); Donka Ivanova (University of Ruse Angel Kanchev)

### **O2.5 Constant Losses in Induction Motors and Possible Solutions for their Reduction**

Anka Krasteva (University of Ruse Angel Kanchev); Vyara Ruseva (University of Ruse Angel Kanchev); Miglena Hristova (University of Ruse Angel Kanchev)

### **O2.6 Possibilities for Reduction of Variable Losses in Induction Motors**

Anka Krasteva (University of Ruse Angel Kanchev); Vyara Ruseva (University of Ruse Angel Kanchev); Miglena Hristova (University of Ruse Angel Kanchev)

## **Thursday, June 30<sup>th</sup> 2022**

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16:00 – 16:15 Coffee Break (University of Ruse, Building 2, Hall 203)

## **Thursday, June 30<sup>th</sup> 2022**

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16:15 – 17:15 Poster Session 1 (University of Ruse, Building 2, Floor 2 Lobby)

**Session chair:** Nadezhda EVSTATIEVA, University of Ruse Angel Kanchev

**Sessoins co-chair:** Tzvetelin GUEORGUIEV, University of Ruse Angel Kanchev

### **P1.1 Indoor Air Measurements for Particle Pollution**

Lelia Popescu (Technical University of Construction of Bucharest); Razvan Popescu (Technical University of Construction of Bucharest)

### **P1.2 Outdoor Air Measurements with Mobile Laboratory in Bucharest**

Razvan Popescu (Technical University of Construction of Bucharest); Lelia Popescu (Technical University of Construction of Bucharest)

### **P1.3 Evapotranspiration, Development and Productivity of Wheat under Different Tillage Systems on Sloping Terrains**

Gergana Slavova Kuncheva (Institute of Soil Science, Agro-Technology and Plant Protection “Nikola Pushkarov”); Petar Dimitrov (University of Ruse Angel Kanchev); Iliana Ivanova (Institute of Agriculture and Seed Science "Obraztsov Chiflik"); Evgeni Enchev (University of Ruse Angel Kanchev)

### **P1.4 Impact of Two Energy Conservation Measures on Reducing CO<sub>2</sub> Emissions**

Mila Ilieva (University of Mining and Geology “St. Ivan Rilski”); Ivan Prodanov (University of Mining and Geology “St. Ivan Rilski”)

**P1.5 Optimal Power Factor of Synchronous Motors in Operating Conditions**

Mehmed Hassan (University prof. dr. Asen Zlatarov)

**P1.6 The Model of Maturity as a Factor for Sustainable Development of Organizations**

Pavel Vitliemov (University of Ruse Angel Kanchev)

**P1.7 An Approach to Design a Haptic and Autonomous Multi-Mission Incident Response Robot**

Pavel Vitliemov (University of Ruse Angel Kanchev)

**P1.8 Identification of Lighting Clouds Presented by Electric Dipole**

Atanas Chervenkov (Technical University of Sofia)

**P1.9 Good Practices in Implementing Energy Efficiency Measures in "Angel Kanchev" University of Ruse**

Ivaylo Stoyanov (University of Ruse Angel Kanchev); Hristo Beloev (University of Ruse Angel Kanchev); Teodor B. Iliev (University of Ruse Angel Kanchev)

**P1.10 Impact of the method of air suction on the energy efficiency of fan systems**

Gencho Popov (University of Ruse Angel Kanchev); Kliment Klimentov (University of Ruse Angel Kanchev); Boris Kostov (University of Ruse Angel Kanchev)

**P1.11 Design of a Smart System for Monitoring and Management of Pastures and Meadows: The Relational Database Approach**

Tsvetelina Mladenova (University of Ruse Angel Kanchev); Irena Valova (University of Ruse Angel Kanchev); Nikolay Valov (University of Ruse Angel Kanchev)

**P1.12 Water Erosion Hydrodynamical Impact on the Soil at Irrigation Processes**

Roumen Gadjev (Institute of Soil Science, Agro-Technology and Plant Protection "Nikola Pushkarov")

**P1.13 Filtration Flows in a Ground Field and Contamination Transfer**

Roumen Gadjev (Institute of Soil Science, Agro-Technology and Plant Protection "Nikola Pushkarov")

**P1.14 On the Laminar Flow Regime Forming in Pipelines for Drip Irrigation**

Roumen Gadjev (Institute of Soil Science, Agro-Technology and Plant Protection "Nikola Pushkarov")

**P1.15 Design of a Distribution Smart Grid**

Konstantin Raykov (Technical University of Sofia, EPF-Sliven); Joana Bakardjieva (SOT Sektron)

**P1.16 The Place of the Blockchain in the Recycling of Raw Materials**

Teodora V Hristova (University of Mining and Geology "St. Ivan Rilski")

### **P1.17 Development of Optimization Model for Herd Distribution in Animal Husbandry**

Kristina Pavlova (Institute of Information and Communication Technologies - Bulgarian Academy of Sciences); Stanislav Dimitrov (Institute of Information and Communication Technologies - Bulgarian Academy of Sciences)

### **P1.18 Neural Network a Way to Forecast the Generation of Electricity From a Wind Turbine**

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

## **Thursday, June 30<sup>th</sup> 2022**

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19:00 Welcome Cocktail (Grand Hotel Riga, White Saloon)

## **From Thursday, June 30<sup>th</sup> 2022 to Saturday, July 2<sup>nd</sup> 2022**

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10:00 – 16:00 Virtual Poster Session (Available at the conference website)

**Session chair:** Nicolay MIHAILOV, University of Ruse Angel Kanchev

### **VP1 Use of Thermoelectric Cooler as Humidity Regulator**

Kaloyan I Ivanov (University prof. dr. Asen Zlatarov); Ivaylo Belovski (University prof. dr. Asen Zlatarov); Anatoliy Alexandrov (Technical University of Gabrovo)

### **VP2 Simulation of Initial Characteristics of Thermoelectric Modules in Generation Mode Realized in MATLAB Environment**

Kaloyan I Ivanov (University prof. dr. Asen Zlatarov); Ivaylo Belovski (University prof. dr. Asen Zlatarov); Anatoliy Alexandrov (Technical University of Gabrovo)

### **VP3 Salvia Sclarea Essential Oil: Antioxidant Capacity, Kinetic and Thermodynamic Investigation**

Vanya D Gandova (University of Food Technologies); Nadezhda Traycheva Petkova (University of Food Technologies); Darina Georgieva (University of Food Technologies); Yana Koleva (University prof. dr. Asen Zlatarov); Albena Stoyanova (University of Food Technologies)

### **VP4 Evaluation of the Chemical Composition and Antimicrobial Activity of Summer Savory (*Satureja Hortensis* L.) Essential Oil**

Vanya D Gandova (University of Food Technologies); Stanko Stankov (University of Food Technologies); Hafize Fidan (University of Food Technologies); Ivalia Dincheva (AgroBioInstitute, Agricultural Academy); Anton Lazarov (University of Food Technologies); Albena Stoyanova (University of Food Technologies)

**VP5 Chemical Composition of Essential Oils from Different Mentha Ssp.**

Vanya D Gandova (University of Food Technologies); Hafize Fidan (University of Food Technologies); Stanko Stankov (University of Food Technologies); Ivaila Dincheva (AgroBioInstitute, Agricultural Academy); Ivan Iliev (University of Food Technologies); Albena Stoyanova (University of Food Technologies)

**VP6 Coupled Finite Element Analysis of Optical Ground Wire for Overhead Power Lines**

Petar Milkov Uzunov (Technical University of Gabrovo)

**VP7 Investigation of Emulsion Stability in Soybean Protein Isolates – Soybean Oil – Water System**

Ivalina Petrova (Technical University-Plovdiv); Vanya D Gandova (University of Food Technologies)

**VP8 Statistical Models for Observation the Uniformity of the Working Depth of Machine-Tractor Unit During Disking and Cultivation Depending on Soil Moisture**

Petya Veleva (Trakia University); Galya Hristova (Trakian University)

**VP9 A Study Related to the Influence of the Speed of a Machine-tractor Aggregate and Soil Moisture on Plowing Depth**

Petya Veleva (Trakia University); Galya Hristova (Trakian University); Manol A Dallev (Agriculture University of Plovdiv)

**VP10 Monitoring of Operation of Electric System by Radiocommunication Devices and Energy Consumption in Wastewater Treatment Plant**

Lukáš Vacho (Slovak University of Agriculture in Nitra); Tomáš Mlinarsik (Slovak University of Agriculture in Nitra); Stanislav Paulovič (Slovak University of Agriculture in Nitra)

**VP11 Intuitionistic Fuzzy Estimations of Implementation of Port Knocking on Routers**

Ivelina M Vardeva (University prof. dr. Asen Zlatarov)

**VP12 Comparative Analysis of Pulse Methods for DC Motor Control**

Svetoslav Cv Ivanov (Technical University of Sofia, branch Plovdiv); Yanka T Ivanova (Technical University of Sofia, branch Plovdiv)

**VP13 Mathematical Model of Operability of a Single-Phase Bridge Rectifier**

Andrey V Puzakov (Orenburg state university); Andrey Arhirejskij (Orenburg State University)

**VP14 Comparison of Seasonal Differences in Infrared Thermal Images Captured Through a Intelligent Pasture Monitoring System**

Tsvetan I Valkovski (Technical University of Sofia); Iliyan Damyanov (Technical University of Sofia); Kalin L Dimitrov (TU-Sofia)

**VP15 Chemical Characteristics of Soap with Using Plum Kernel Oil (Prunus Domestica L.)**

Nikolaya Delinska (University of Food Technologies); Mariyana Perifanva (University of Food Technologies)



**VP16 Physical Properties of Soaps Obtained with the Participation of Plum Kernel Oil (Prunus Domestica L.)**

Nikolaya Delinska (University of Food Technologies)

**VP17 Study of the Cattle Population with the Help of Remote Digital Photography and Videography**

Tsvetan I Valkovski (Technical University of Sofia); Kalin L Dimitrov (Technical University of Sofia); Durhan Saliev (Technical University of Sofia); Georgi Mladenov (Technical University of Sofia)

**VP18 Modelling and Analysis of the Electric Field in a Chamber for Pre-Sowing Electrical Treatment of Seeds of Field Crops**

Kiril Sirakov (University of Ruse Angel Kanchev)

**VP19 IoT Based Livestock Precision Feeding System using Machine Learning**

Radosveta Sokullu (Ege University); Baran Yusuf Tanriverdi (Ege University); Rossitza Goleva (New Bulgarian University)

**VP20 People/Animal Counting – Integrated Sensor Based and Wifi/Machine Learning Based System**

Radosveta Sokullu (Ege University)

**VP21 LoRa Based Smart Agriculture Network**

Radosveta Sokullu (Ege University)

**VP22 The Need for Artificial Intelligence for Energy-Efficiency Management: A Review**

Lehlogonolo David Mashapu (University of Johannesburg); Patrick Eboule (University of Johannesburg); Jan-Harm C Pretorius (University of Johannesburg)

**VP23 Tolerance Analysis of SEPIC DC-DC Converter**

Nikolay Hinov (Technical University of Sofia); Tsveti H Hranov (Technical University of Sofia); Bogdan Gilev (Technical University of Sofia)

**VP24 Study of the Possibilities for Optimization of Reactive Power According to the Criterion "Electric Power Quality" in the Power Supply System of a Port Complex**

Neli Simeonova (University prof dr Asen Zlatarov); Mladen A Proykov (University prof dr Asen Zlatarov)

**VP25 Opportunities for Rationalization the Electricity Consumption of a Port Complex**

Neli Simeonova (University prof dr Asen Zlatarov); Ginko Georgiev (Burgas Free University); Rumen Kirov (Technical University of Varna); Venelin Ivanov (Navbul Port Burgas)

**VP26 Novel Efficiency-Based Model for Road-Transport Energy Evaluation Using Gravitational Benchmark and Route-Profile Characteristics**

Ognyan Dinolov (University of Ruse Angel Kanchev)

**VP27 A New Method for Testing Peltier Modules**

Radostin Kasarov (University prof dr Asen Zlatarov)

**VP28 Temperature Dependence of Surface Tension in Three Essential Oils with Application as Adjuvants in Agriculture**

Ivalina Petrova (Technical University-Plovdiv); Vanya D Gandova (University of Food Technologies); Zdravko Gandov (Aqua Systems Ltd); Sabahtin Karaibryam (Oregano BG Ltd)

**VP29 3D Model of T-Shaped Inductor for Induction Brazing**

Dragomir Grozdanov (Technical University of Sofia); Philip Vasilev (Technical University of Sofia); Nikolay Hinov (Technical University of Sofia)

**VP30 Main Trends in the Organization of the Postgraduate Research and Education Process in the Context of Digitalization of Higher Education**

Valeeva Yulia Sergeevna (Kazan State Power Engineering University); Sargu Stefan Lilia (University of European Studies of Moldova); Valeeva Svetlana Nikolaevna (Kazan State Power Engineering University); Ergashov Yokub Suvonovich (National university of Uzbekistan named after M.Ulugbek)

**VP31 Peculiarities and Trends of National Environmental Policies of Countries**

Julya Sergeevna Valeeva (Kazan State Power Engineering University); Olga Dyudina (Kazan State Power Engineering University); Ilgiz Nurtdinov (Kazan State Medical University)

**VP32 Identification, Vulnerability Research and Cybersecurity of Raspberry Pi Devices**

Nikolay Hinov (Technical University of Sofia); Filip Krastev (Technical University of Sofia)

**VP33 A Multidimensional Comparative Analysis of Inverters Used in Wireless Power Transfer**

Vlad P Mocanu (Mircea cel Bătrân Naval Academy); Vasile Dobref ( Naval Academy Mircea cel Batran ); Deliu Florențiu (Mircea cel Bătrân Naval Academy); Popa Nicolae-Silviu (Mircea cel Bătrân Naval Academy)

**VP34 Optimization of the Design of a Chamber for Pre-Sowing Electric Treatment of Field Crop Seeds**

Kiril Sirakov (University of Ruse Angel Kanchev)

**VP35 Influence of Pre-Sowing Electromagnetic and Chemical Treatment on Sowing Qualities of Maize Seeds**

Kiril Sirakov (University of Ruse Angel Kanchev); Miroslav Mihaylov (University of Ruse Angel Kanchev)

**VP36 Ultrasonic Investigation of Thin Ceramic Plates by Means of Delay Line Contact Mode**

Radostin Kasarov (University prof dr Asen Zlatarov)

**VP37 Power Electronic Drive Circuit for DC Motor with Addition of Energy**

Svetoslav Cv Ivanov (Technical University of Sofia, branch Plovdiv)

**VP38 Measures to Stimulate the Development of Electric Transport as a Tool for the Development of the Territory**

Tatsiana G. Zoryna(Institute of Power Engineering of NAS of Belarus); Siarhei A. Aliaksandrovich (Institute of Power Engineering of NAS of Belarus); Yulia S. Valeeva (Kazan State Power Engineering University); Marina V. Kalinina (Kazan State Power Engineering University); Lilia E. Ilikova (Kazan Federal University); Ergashov Yokub Suvonovich (National university of Uzbekistan named after M.Ulugbek)

**VP39 Online Education: Modern Management in University System**

Elmira Ildarovna Nazmieva (Kazan Federal University); Guzel Raisovna Chumarina (Kazan National Research Technical University named after A.N. Tupolev); Lilia E. Ilikova (Kazan Federal University); Yulia S. Valeeva (Kazan State Power Engineering University)

**VP40 Structural–Functional Model of the Students’ Adaptation Process to the European Credit Transfer System**

Eremeeva Guzel Rinatovna (Kazan Federal University Kazan); Fakhrutdinova Anastasiia Viktorovna (Kazan Federal University); Kondrateva Irina Germanovna (Kazan Federal University); Sabirova Diana Rustamovna (Kazan Federal University); Ilikova Lilia Ernstovna (Kazan Federal University)

**VP41 Numerical Modelling Biogas Combustion in the Novel Burner**

Abay Dostiyarov (Almaty University of Power Engineering and Telecommunications named after Gumarbek Daukeyev); Hristo Beloev (University of Ruse Angel Kanchev); Maskat Anuarbekov (Kazakh Agrotechnical University named after S. Seifullin); Iliya Iliev (University of Ruse Angel Kanchev)

**VP42 Performance Analysis of a Stand-Alone PV System in Yemeni Rural Areas**

Musaab A. Mohsen Al-Maidan (Mugla Sitki Kocman University); Katerina Gabrovska-Evstatieva (University of Ruse Angel Kanchev); Nicolay Mihailov (University of Ruse Angel Kanchev)

**VP43 Bioconversion of Lemna sp and Nejayote into Biogas as a Starting Point for Agrowaste**

Pabel Cervantes-Avilés (Tecnologico de Monterrey); Valeria Sánchez-Velázquez (Tecnologico de Monterrey); Janet Gutiérrez-Urbe (Tecnologico de Monterrey); German Cuevas-Rodriguez (Universidad de Guanajuato)

**VP44 Drone Surveillance in the Modern Agriculture**

Tsviatko Bikov (University of Telecommunications and Post); Grigor Mihaylov (University of Telecommunications and Post); Teodor B. Iliev (University of Ruse Angel Kanchev); Ivaylo Stoyanov (University of Ruse Angel Kanchev)

**VP45 Optimizing the operation of the LiDAR sensor**

Constantin Daniel Oancea (University Politehnica of Bucharest)

**VP46 Numerical Analysis of Thermal Pollution Caused by Coal-Fired Power Plant**

Mirjana Lakovic (University of Nis); Milica Jovcevski (University of Nis); Marko Mančić (University of Nis); Filip Stojkovski (Iskra Impuls)

## Friday, July 1<sup>st</sup> 2022

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09:00 – 16:00      Registration (University of Ruse, Building 2, Floor 1 Lobby)

## Friday, July 1<sup>st</sup> 2022

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09:00 - 10:30      Oral Session 3 (University of Ruse, Building 2, Hall 204)

**Session chair:** Gilles NOTTON, University of Corsica

**Session co-chair:** Gabriel NEGREANU, University Politehnica of Bucharest

### **O3.1    Determining the Integral Law of Fuel Supply and Heat Dissipation Characteristics of Low Speed Marine Diesel Engines**

Yuliyank Moskov (Nikola Vaptsarov Naval Academy)

### **O3.2    Adequacy Analysis and Adaptation of the Mathematical Model for SSDE Management**

Yuliyank Moskov (Nikola Vaptsarov Naval Academy)

### **O3.3    Energy Management Improvement in a PV/Battery Smart-grid by Integration of Solar Resource Forecasting**

Gilles Notton (University of Corsica); Ghjuvan Faggianelli (University of Corsica); Jean Laurent Duchaud (University of Corsica); Cyril Voyant (University of Corsica); Sarah Ouedraogo (University of Corsica); Fabien Bouisset (University of Corsica)

### **O3.4    Applications of the Ultrafiltration Membranes in the Industrial Effluents Treatment Processes. A Short Review**

Andrei Zaharia (Vasile Alecsandri University of Bacau); Valentin Nedeff (Vasile Alecsandri University of Bacau); Mihaela Culea (Vasile Alecsandri University of Bacau); Narcis Barsan (Vasile Alecsandri University of Bacau)

### **O3.5    Investigation of Processes in the Ship's Power System Containing a Rectifier Under Different Control**

Nikolay Djagarov (Nikola Vaptsarov Naval Academy); Dimitar Tsvetanov (Nikola Vaptsarov Naval Academy); Zhivko Grozdev (Nikola Vaptsarov Naval Academy); Julia Djagarova (Technical University of Varna)

### **O3.6    Harmonic Compensation in Ship Power System Using p-q Theory Control Based Shunt Active Power Filter**

Dimitar Tsvetanov (Nikola Vaptsarov Naval Academy); Nikolay Djagarov (Nikola Vaptsarov Naval Academy); Zhivko Grozdev (Nikola Vaptsarov Naval Academy); Julia Djagarova (Technical University of Varna)

### **O3.7    Bi-Level Optimization of Ship Transportation by Collision Avoidance and Fuel Consumption**

Blagovest Belev (Nikola Vaptsarov Naval Academy)

**Friday, July 1<sup>st</sup> 2022**

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09:00 - 10:30

Oral Session 4 (University of Ruse, Building 2, Hall 206)

**Session chair:** Ludmil STOYANOV, Technical University of Sofia

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

#### **O4.1 Inventory Planning in Livestock Management**

Todor Stoilov (Institute of Information and Communication Technologies - Bulgarian Academy Of Sciences); Krasimira Stoilova (Institute of Information and Communication Technologies - Bulgarian Academy of Sciences); Elisaveta Trichkova-Kashamova (Institute of Information and Communication Technologies)

#### **O4.2 Cleaning Sunflower Oil With the Use of the Ultrasonic Field**

Yuriy I. Enakiev (Institute of Soil Science, Agro-Technology and Plant Protection “Nikola Pushkarov”); Petr Osadchuk (Odesa National Technological University); Dmitry Domuschi (Odesa State Agrarian University); Blagoj Elenov (Institute of Soil Science, Agro-Technology and Plant Protection “Nikola Pushkarov”)

#### **O4.3 Influence of Non-Traditional Organic Fertilizers on Spring Wheat Harvest and Carbon Dioxide Emission from Soil**

Yuriy I. Enakiev (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Vsevolod Lapushkin (Russian State Agrarian University – Moscow Timiryazev Agricultural Academy); Anastasia Lapushkina (Russian State Agrarian University – Moscow Timiryazev Agricultural Academy); Stepan Smirnov (Russian State Agrarian University – Moscow Timiryazev Agricultural Academy)

#### **O4.4 Assessment of Urban Traffic Control by Application of bi-Level Optimization Model**

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

#### **O4.5 Study of the Main Parameters of Composting Agricultural Waste in Bulgaria**

Yuriy I. Enakiev (Institute of Soil Science, Agro-Technology and Plant Protection “Nikola Pushkarov”); Ivan Mortevev (Institute of Soil Science, Agro-technology and Plant Protection “Nikola Pushkarov”); Aliya Bakhitova (Russian State Agrarian University – Moscow Timiryazev Agricultural Academy); Kiril Stefanov (University of Forestry)

#### **O4.6 Problems of Ensuring Data Security in Digital Management of Processes in Animal Husbandry**

Ivan Blagoev (Institute of Information and Communication Technologies-Bulgarian Academy of Sciences); Tatiana Atanasova (Institute of Information and Communication Technologies-Bulgarian Academy of Sciences)

#### **O4.7 Smart Dairy Farm - Digitalization and Innovation**

Nikolay Markov (Research Institute of Mountain Stockbreeding and Agriculture); Svetoslava Stoycheva (Research Institute of Mountain Stockbreeding and Agriculture); Tatiana Atanasova (Institute of Information and Communication Technologies-Bulgarian Academy of Sciences); Ivan Blagoev (Institute of Information and Communication Technologies-Bulgarian Academy of Sciences); Plamen Petrov (Institute of Information and Communication Technologies-Bulgarian Academy of Sciences); Irena Valova (University of Ruse Angel Kanchev); Nikolay Valov (University of Ruse Angel Kanchev); Tsvetelina Mladenova (University of Ruse Angel Kanchev); Miroslav Hristov (Research Institute of Mountain Stockbreeding and Agriculture); Lora Mondeshka (Research Institute of Mountain Stockbreeding and Agriculture)

### **Friday, July 1<sup>st</sup> 2022**

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09:00 - 10:30 Oral Session 5 (University of Ruse, Building 2, Hall 101)

**Session chair:** Pavel VITLIEMOV, University of Ruse Angel Kanchev

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

#### **O5.1 Design and Implementation of a Remote Lab for Investigation of DC Motors**

Teodor Nenov (University of Ruse Angel Kanchev); Boris I Evstatiev (University of Ruse Angel Kanchev); Seher Kadirova (University of Ruse Angel Kanchev)

#### **O5.2 The Influence of Catalyst (p-TSA) Weight Percentage (as One of the Main Factors) on Reaction Rate During Oleic Acid Esterification Process with Trimethylolpropane (TMP)**

Stanislav Bayryamov (University of Ruse Angel Kanchev); Vasil Kopchev (University of Ruse Angel Kanchev)

#### **O5.3 The Influence of Temperature (as One of the Main Factors) on Reaction Rate During Oleic Acid Esterification Process with Trimethylolpropane (TMP)**

Vasil Kopchev (University of Ruse Angel Kanchev); Stanislav Bayryamov (University of Ruse Angel Kanchev)

#### **O5.4 Research of the Need for Training Financial Literacy under Economic Uncertainty in the Framework of the Educational Process at Schools**

Sargu Lilia Sargu (University of European Studies of Moldova); Julya Sergeevna Valeeva (Kazan State Power Engineering University); Gatina Elvira Arslanovna (Russian University of Cooperation); Yelesin Evgeniy Yurievich (Russian University of Cooperation)

#### **O5.5 Quantifying the Values of Selected KPIs of on-Farm Using Statistical Methods of Analysis**

Elisaveta Trichkova-Kashamova (Institute of Information and Communication Technologies-Bulgarian Academy of Sciences)

#### **O5.6 Model for the Frequency of Extreme Natural Events Algorithm**

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

## **O5.7 Modelling the Probability of Intense Rainfall Events**

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

### **Friday, July 1<sup>st</sup> 2022**

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10:30 - 11:30 Coffee Break (University of Ruse, Building 2, Hall 203)

### **Friday, July 1<sup>st</sup> 2022**

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10:30 - 11:30 University – Industry Dialogue Booths (University of Ruse, Building 2, Hall 203)

### **Friday, July 1<sup>st</sup> 2022**

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11:30 – 13:00 Plenary Session 2 (University of Ruse, Building 2, Hall 101)

**Session chair:** Irena VALOVA, University of Ruse Angel Kanchev

#### **PL2.1 Traction Motor Drive of Electrical Vehicle: Types, Performances and Control**

Nikolay Djagarov (Nikola Vaptsarov Naval Academy)

#### **PL2.2 Perspective of Education in Agriculture 4.0 in Selected Countries in European Union and Palestine**

Zuzana Palkova (Slovak University of Agriculture); Marta Harnicarova (Institute of Technology and Business in České Budějovice); Jan Valicek (Institute of Technology and Business in České Budějovice); Vojtěch Stehel (Institute of Technology and Business in České Budějovice); Nicolay Mihailov (University of Ruse Angel Kanchev); Maria Frangkaki (University of Patras); Walid Khalilia (Al-Istiqlal University); Aziz SALAMEH (Al-Quds Open University)

### **Friday, July 1<sup>st</sup> 2022**

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13:00 - 14:30 Launch Break

### **Friday, July 1<sup>st</sup> 2022**

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14:30 – 15:30 University – Industry Dialogue Session (University of Ruse, Building 2, Hall 101)

**Session chair:** Tzvetelin GUEORGUIEV, University of Ruse Angel Kanchev

**UI1 Presentation of Schrack Technik - Bulgaria**

**UI2 Presentation of Solar MD – South Africa**

**UI3      Presentation of the Open Access Journal Energies**

**UI4      Presentation of the Project Boosting Innovation in Education and Research of Precision Agriculture in Palestine (BENEFIT)**

## **Friday, July 1st 2022**

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15:30 - 15:45      Coffee Break (University of Ruse, Building 2, Hall 203)

## **Friday, July 1<sup>st</sup> 2022**

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15:45 – 16:45      Poster Session 2 (University of Ruse, Building 2, Floor 2 Lobby)

**Session chair:** Stanislav PENCHEV, University of Ruse Angel Kanchev

**Sessoins co-chair:** Seher KADIROVA, University of Ruse Angel Kanchev

### **P2.1      Concentration for monitoring of air pollutants of domestic and industrial nature**

Aneliya Manukova-Marinova (University of Ruse Angel Kanchev); Kamen Krastev (SIVIKO LTD); Iordan Stoev (University of Ruse Angel Kanchev)

### **P2.2      Innovative Approach in the Implementation of an Electronic System for Monitoring and Control of Production Processes**

Aneliya Manukova-Marinova (University of Ruse Angel Kanchev); Kamen Krastev (SIVIKO LTD)

### **P2.3      Methods for Automated Remote Sensing and Counting of Animals**

Yordan Kalmukov (University of Ruse Angel Kanchev); Boris I Evstatiev (University of Ruse Angel Kanchev)

### **P2.4      Analysis of the Key Factors Influencing the Outdoor Animal Recognition and Counting Accuracy**

Boris I Evstatiev (University of Ruse Angel Kanchev); Yordan Kalmukov (University of Ruse Angel Kanchev)

### **P2.5      Determining the Planned Error of a Measurement Transducer with a Pointer**

Danko Tonev (University of Ruse Angel Kanchev); Tzvetelin Gueorguiev (University of Ruse Angel Kanchev)

### **P2.6      Study of PV Technology Influence on the Battery Sizing in PV-based Irrigation System**

Ludmil S Stoyanov (Technical University of Sofia); Ivan Bachev (Technical University of Sofia); Zahari Zarkov (Technical University of Sofia); Vladimir Lazarov (Technical University of Sofia)



### **P2.7 Portable on-Site Testing System for Hydrokinetic Turbines**

Rareș A Chihaiia (ICPE-CA); Gabriela Circiumaru (INCDIE ICPE-CA); Nicolae Tanase (INCDIE ICPE-CA); Andreea Voina (National Institute for Research and Development in Electrical Engineering ICPE-CA Bucharest); Andreea El-Leathey (ICPE-CA); Constantin Dumitru (INCDIE ICPE-CA)

### **P2.8 Bio Mix Diesel for Significant Lowering of CO<sub>2</sub>,NO<sub>x</sub> Emissions and FSN from CI Engine**

Radostin D Dimitrov (Technical University of Varna); Veselin Mihaylov (Technical University of Varna)

### **P2.9 Investigation Of Braking Deceleration In Vehicle**

Veselin Mihaylov (Technical University of Varna); Radostin D Dimitrov (Technical University of Varna); Zdravko Ivanov (Technical University of Varna)

### **P2.10 Evaluation Of Errors At Measuring Of Braking Process In Vehicles**

Veselin Mihaylov (Technical University of Varna); Radostin D Dimitrov (Technical University of Varna); Zdravko Ivanov (Technical University of Varna)

### **P2.11 About the Methodology for Working a Robot to Destroy Weeds**

Georgi Komitov (Agricultural University-Plovdiv); Vladimir Kotev (Institute of mechanics); Ivan Ivanov (Institute of mechanics); Ivan Mitkov (Agricultural University-Plovdiv)

### **P2.12 An alternative methodology for distance monitoring of the micro-climate in field tomato production**

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

### **P2.13 Artificial Intelligence Systems for Warehouses Stocks Control**

Vladimir Dimitrov Hristov (Technical University of Sofia); Danail Slavov (Technical University of Sofia); Durhan Saliev (Technical University of Sofia)

### **P2.14 Machine learning for automation of warehouse activities**

Vladimir Dimitrov Hristov (Technical University of Sofia); Danail Slavov (Technical University of Sofia); Georgi Mladenov (Technical University of Sofia); Iliyan Damyanov (Technical University of Sofia)

### **P2.15 Studies and Research on the Possibilities of Implementing Ergonomic Principles in Increasing Labor Productivity**

Iosif Ioja (Vasile Alecsandri University of Bacau); Claudia C Tomozei (Vasile Alecsandri University of Bacau); Valentin Nedeff (Vasile Alecsandri University of Bacau); Emilian Mosnegutu (Vasile Alecsandri University of Bacau); Mirela Panainte Lehadus (Vasile Alecsandri University of Bacau); Oana Irimia (Vasile Alecsandri University of Bacau); Narcis Barsan (Vasile Alecsandri University of Bacau)

**P2.16 Applications of the GIS and Remote Sensing Methods in the Land Use and Cover Maps. Case Study: Roman City and the Surroundings of the Northern Side Area**

Petruț-Liviu BOGDAN (Vasile Alecsandri University of Bacau), Valentin NEDEFF (Vasile Alecsandri University of Bacau), Narcis BARSAN (Vasile Alecsandri University of Bacau), Mirela PANAINTE-LEHADUȘ (Vasile Alecsandri University of Bacau), Dana CHITIMUS (Vasile Alecsandri University of Bacau), Florin NEDEFF (Vasile Alecsandri University of Bacau), Claudia TOMOZEI (Vasile Alecsandri University of Bacau)

**P2.17 The Effect of a Special Form of the Piston Skirt Profile on Power Friction Losses in Internal Combustion Engines**

Simeon P Iliev (University of Ruse Angel Kanchev); Sergey G Belchev (Technical University of Varna); Trifon Uzuntonev (Technical University of Varna); Rosen Hristov (Technical University of Varna); Sergey Kirov (Technical University of Varna); Dimitar Kovachev (Technical University of Varna)

**P2.18 Influence of Dynamically Changing Operating Conditions on the Content of Nitrogen Oxide in Old and New Diesel Vehicles**

Simeon P Iliev (University of Ruse Angel Kanchev); Trifon Uzuntonev (Technical University of Varna); Sergey G Belchev (Technical University of Varna); Krassimir Ts Bogdanov (Technical University of Varna); Preslav Dimitrov (Technical University of Varna); Sergey Kirov (Technical University of Varna)

**P2.19 Analysis of the Main Factors Behind the Origination and Propagation of Cracks in Aluminium Cylinder Heads**

Simeon P Iliev (University of Ruse Angel Kanchev); Sergey Kirov (Technical University of Varna); Plamen Petrov (Technical University of Varna); Trifon Uzuntonev (Technical University of Varna); Sergey G Belchev (Technical University of Varna); Krassimir Ts Bogdanov (Technical University of Varna)

**Friday, July 1<sup>st</sup> 2022**

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20:00

**Gala Dinner (Mehana Chiflika)**

## Saturday, July 2<sup>nd</sup> 2022

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09:00 – 11:00      **Registration** (University of Ruse, Building 2, Floor 1 Lobby)

## Saturday, July 2<sup>nd</sup> 2022

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09:00 – 10:30      **Oral Session 6** (University of Ruse, Building 2, Hall 206)

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

**Session co-chair:** Yordan KALMUKOV, University of Ruse Angel Kanchev

### **O6.1    Insulation Materials and Energy Efficiency**

Tatyana Stoyanova Stoyanova (Varna Free University "Chernorizets Hrabar")

### **O6.2    Design, Fabrication, and Testing of a High-Load, Low-Cost Thermal Chamber**

Philip Gh Coanda (University Politehnica of Bucharest)

### **O6.3    Specific Security Issues in the Integration between Sensor Network and Cloud Structure**

Filip A. Tsvetanov (South-West University "Neofit Rilski"); Martin Pandurski (South-West University "Neofit Rilski")

### **O6.4    A Study of Measurement Systems Analysis by Attributes**

Tzvetelin Gueorguiev (University of Ruse Angel Kanchev); Danko Tonev (University of Ruse Angel Kanchev); Svetlin Parvanov (University of Ruse Angel Kanchev)

### **O6.5    Investigation of the Processes in a Ship 's Bow Thruster with Synchronous Reluctance Motor**

Hristo Milushev (Nikola Vaptsarov Naval Academy); Nikolay Djagarov (Nikola Vaptsarov Naval Academy); Milen Bonev (Nikola Vaptsarov Naval Academy); Julia Djagarova (Technical University of Varna)

## Saturday, July 2<sup>nd</sup> 2022

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10:30 – 11:30      **Poster Session 3** (University of Ruse, Building 2, Floor 2 Lobby)

**Session chair:** Yordan KALMUKOV, University of Ruse Angel Kanchev

**Sessoins co-chair:** Seher KADIROVA, University of Ruse Angel Kanchev

### **P3.1    Equipment and Methodology for State of Charge Determination in Lithium - ion Batteries at Different Operating Modes**

Petko H Mashkov (University of Ruse Angel Kanchev); Viktor Mashkov (Technical University of Varna)

**P3.2 M-Learning - Before and During COVID-19**

Tsvetozar S Georgiev (University of Ruse Angel Kanchev)

**P3.3 Selection of an Appropriate Method for Automatic Deposition of Weld Coatings in the Rebuilding of Worn out Agricultural Machinery Parts**

Daniel Atanasov Lyubenov (University of Ruse Angel Kanchev); Seher Kadirova (University of Ruse Angel Kanchev); Zhivko Kolev (University of Ruse Angel Kanchev); Georgi Kadikyanov (University of Ruse Angel Kanchev)

**P3.4 The Role of Intergenerational Family Businesses for the Transition to Green Economy**

Daniel Y Pavlov (University of Ruse Angel Kanchev)

**P3.5 Web-Based Platform - a Defining Factor for Career Orientation Under the Conditions of a Pandemic**

Ivan Evstatiev (University of Ruse Angel Kanchev); Georgi Georgiev (University of Ruse Angel Kanchev)

**P3.6 Electronic System for Control of a Submersible Water Pump**

Nadezhda Evstatieva (University of Ruse Angel Kanchev); Boris I Evstatiev (University of Ruse Angel Kanchev); Norocel Codreanu (Politehnica University of Bucharest, Center for Technological Electronics and Interconnection Techniques)

**P3.7 Concept of an Electronic System for Energy Monitoring of Industrial Plants**

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

**P3.8 A Conceptual Model for Remote and Virtual Investigation of Photovoltaic Modules**

Todor Yordanov (University of Ruse Angel Kanchev); Nicolay Mihailov (University of Ruse Angel Kanchev); Boris I Evstatiev (University of Ruse Angel Kanchev)

**P3.9 The Relationships Between Different Vegetation indices and Chlorophyll Content Index Values (CCI) in Strawberry Leaves**

Petya Veleva (Trakia University); Stanislava Atanasova (Trakia University); Tsvetelina Georgieva (University of Ruse Angel Kanchev); Stefka Atanasova (Trakia University)

**P3.10 Research of the Color Features for Strawberry Leaves Sorting and Chlorophyll Assessment**

Tsvetelina Georgieva (University of Ruse Angel Kanchev); Stanislav Penchev (University of Ruse Angel Kanchev); Petya Veleva (Trakia University); Stefka Atanasova (Trakia University); Plamen Daskalov (University of Ruse Angel Kanchev)

**P3.11 Analysis of the possibilities for using computer vision and spectral analysis to assess the wheat crops condition**

Tsvetelina Georgieva (University of Ruse Angel Kanchev); Stanislav Penchev (University of

## Saturday, July 2<sup>nd</sup> 2022

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Ruse Angel Kanchev); Plamen Daskalov (University of Ruse Angel Kanchev)

### **P3.12 Performance Analysis of a Grid-Connected PV Park in Ruse, Bulgaria**

Viktor Mihov (University of Ruse Angel Kanchev); Katerina Gabrovska-Evstatieva (University of Ruse Angel Kanchev); Dimitar Trifonov (University of Ruse Angel Kanchev); Nicolay Mihailov (University of Ruse Angel Kanchev)

### **P3.13 Analysis of a PV Installation with a Battery Storage and BMS at a Residential Building**

Kamen Simeonov (University of Ruse Angel Kanchev); Nicolay Mihailov (University of Ruse Angel Kanchev); Nikolay Valov (University of Ruse Angel Kanchev); Katerina Gabrovska-Evstatieva (University of Ruse Angel Kanchev)

### **P3.14 Solar Irradiance Measurements Using Smart Device**

Vladislav Hinkov (University of Ruse Angel Kanchev); Tsvetelina Mladenova (University of Ruse Angel Kanchev); Nicolay Mihailov (University of Ruse Angel Kanchev)

### **P3.15 A Critical Overview of the Normative, Regulatory and International Standard Requirements for Healthy and Safe Public Facilities**

Emil H Yankov (University of Ruse Angel Kanchev); Tzvetelin Gueorguiev (University of Ruse Angel Kanchev)

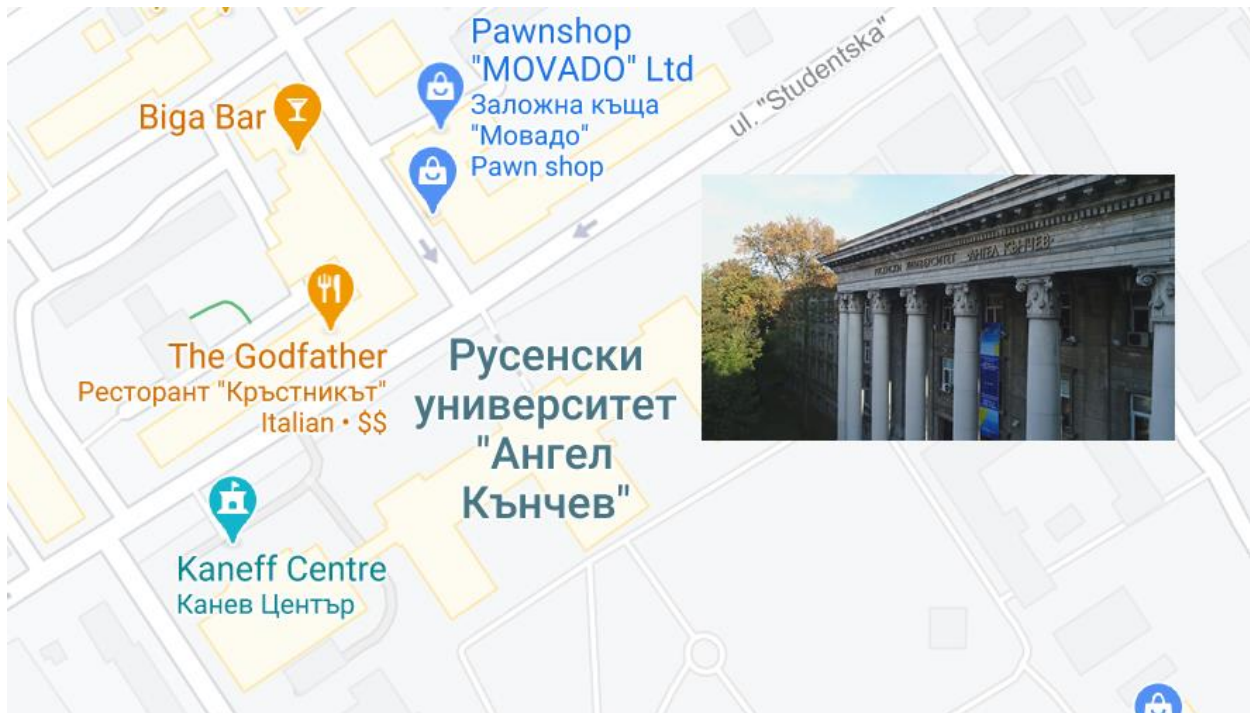
## Saturday, July 2<sup>nd</sup> 2022

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11:30-11:45	<b>Farewell Coffee, End of Conference (University of Ruse, Building 2, Floor 2 Lobby)</b>
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## VENUE

The EE&AE 2022 conference will take place in the University of Ruse Angel Kanchev, 8 Studentska str., 7017 Ruse, Bulgaria.



For further directions use the GPS coordinates: 43.8546277, 25.9701036.



### CONTACT INFORMATION:

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Mobile 1: (00359) 888 53 93 88

Mobile 2: (00359) 887 49 99 34

### WIFI INFORMATION:

WiFi SSID: EEAE22

Password: EEAE22.uni-ruse.bg





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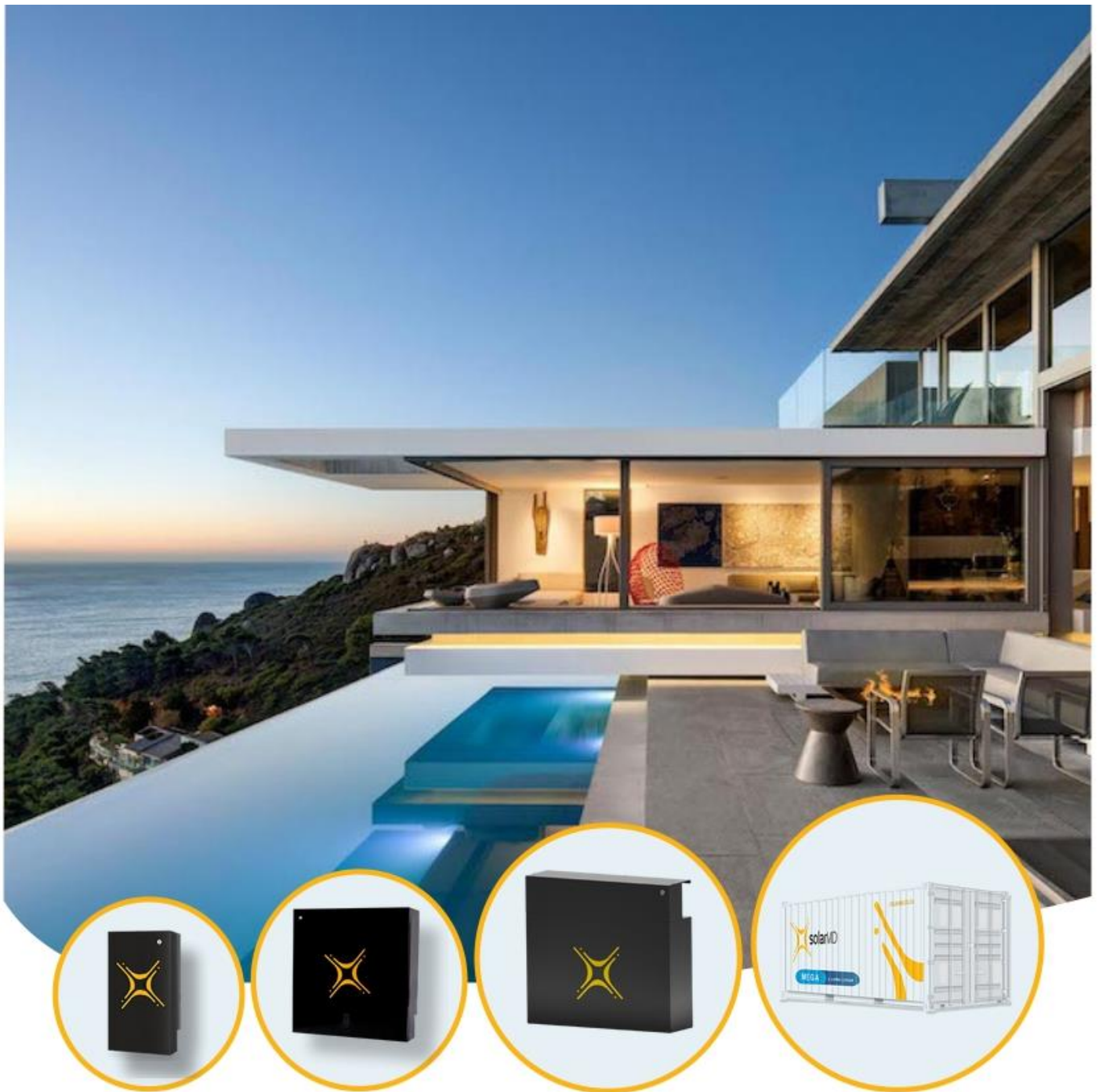
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