

**2020 7<sup>th</sup> INTERNATIONAL CONFERENCE ON ENERGY  
EFFICIENCY AND AGRICULTURAL ENGINEERING  
(EE&AE)**

**12<sup>th</sup> - 14<sup>th</sup> November, 2020**

**Ruse, Bulgaria**



**CONFERENCE PROGRAMME**

**EE&AE 2020**

# **EE&AE 2020 CONFERENCE PROGRAMME**

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# INTERNATIONAL CONFERENCE ON ENERGY EFFICIENCY AND AGRICULTURAL ENGINEERING

12<sup>th</sup>-14<sup>th</sup> November 2020

Ruse, Bulgaria

## Organized by:



Association for Engineering  
and Research in Agriculture



IEEE Bulgaria Section

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## Sponsored by:



## WELCOME ADDRESS



Dear colleagues,

I am pleased to greet all the participants in the "2020, 7<sup>th</sup> International Conference on Energy Efficiency and Agricultural Engineering (EE&AE)", which is hosted by the University of Ruse.

In the anniversary year 2020, when on the 12<sup>th</sup> November we celebrate the 75<sup>th</sup> anniversary of the University of Ruse, numerous initiatives and events have been planned. We are happy that the "2020 7<sup>th</sup> International Conference on Energy Efficiency and Agricultural Engineering (EE&AE)" is one of them.

On the academic map of Bulgaria, the 75<sup>th</sup> anniversary of University of Ruse is a sign for a long-standing tradition, continuous advancement and a lasting mark left in education, science and public life. Besides all this, for the University of Ruse this remarkable anniversary is an occasion for satisfaction and pride and a sign for Strength, Dignity and Authority, built over the years.

The first edition of the conference was held in 2002, with the support of International Commission of Agricultural and Biosystems Engineering (CIGR). Then, it attracted more than 120 authors from 23 countries in Europe, Asia and Africa. Since then, a total of six conferences have been held, which have maintained the initial interest in the topics.

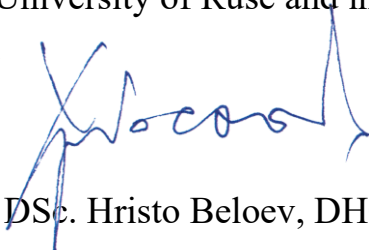
This year's edition marks the highest number of submitted papers, in comparison to all the previous conferences – a total of 148 papers. More than 101 scientists from Bulgaria, Russia, Romania, Turkey, Slovakia, France, Ukraine, Kazakhstan, India, Finland, Cyprus and Lithuania will present their work.

The EE&AE conference was created by a group of researchers from the University of Ruse to challenge several fundamental world problems – world hunger and energy insufficiency. Today, together with all the other challenges we face globally, these issues are also a high priority to the society. The University of Ruse appreciates and highly supports all initiatives, which aim at raising these issues, discussing possible improvements and outlining better perspectives.

It should also be acknowledged that the IEEE Bulgarian section is a technical sponsor of the event, and the conference proceedings will be indexed in IEEE Xplore Digital Library.

Once again, I wish success to all the participants in the conference and a wonderful stay at the University of Ruse and in the beautiful city of Ruse.

Rector,



Cor.-Mem. Prof. DSc. Hristo Beloev, DHC Mult

## WELCOME ADDRESS



Dear colleagues and friends,

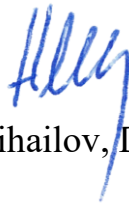
We are together again to hold the 7th International Conference on Energy Efficiency and Agricultural Engineering (EE&AE 2020). But this time we are holding it while the whole world is fighting an uncompromising battle with the insidious enemy COVID 19. And that is why your participation has an exceptional message - research in sectors that guarantee sustainable development of modern society.

For several days we will get acquainted with the results related to renewable energy and modern agriculture. We will hold discussions on the state and prospects of Smart grids, Energy storage, Electromobility, precision agriculture, Internet of Things, Biosystems, Environment and more. We will look at modern technological innovations related to the efficient application of energy. The participation of representatives from academic staff of leading Bulgarian universities and from universities and research organizations from Europe and Asia confirms the importance of this forum.

The organization of the EE&AE 2020 conference would not have been possible without the active support of the teaching staff of the University of Ruse Angel Kanchev and its leadership. This year's edition coincides with the jubilee events dedicated to the 75th anniversary of the founding of our Alma mater. All participants are welcome to the parallel events related to this celebration.

Dear colleagues and friends, I cannot fail to mention the technical co-sponsorship of the Institute of Electrical and Electronics Engineers (IEEE Conference # 49144) and the selfless financial and moral support of our sponsors. To all of them I convey my heartfelt gratitude from the organizers of this event! And finally – I wish success to all participants! Be healthy, strong and ambitious in research! Great stay in the Danube capital of Bulgaria - Ruse!

With respect,



Prof. Dr. Nicolay Mihailov, DHC

## PROGRAMME AT A GLANCE

### Thursday, November 12<sup>th</sup> 2020

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10:00 – 16:00	Registration (University of Ruse, Building 2, Floor 1 Lobby)
11:00 – 11:30	Opening ceremony (University of Ruse, Building 2, Hall 101 and Hall “Werner von Siemens”)
11:30 – 13:30	Plenary Session (University of Ruse, Building 2, Hall 101 and Hall “Werner von Siemens”)
13:30 – 14:30	Lunch for participants and guests
14:30 – 15:30	Poster Session 1 (University of Ruse, Building 2, Floor 2 Lobby)
15:45 – 16:45	Poster Session 2 (University of Ruse, Building 2, Floor 2 Lobby)
19:00	Welcome Cocktail (Grand Hotel Riga)

### Friday, November 13<sup>th</sup> 2020

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09:00 – 16:00	Registration (University of Ruse, Building 2, Floor 1 Lobby)
09:00 – 10:30	Oral Session 1 (University of Ruse, Building 2, Hall 101 and Hall “Werner von Siemens”)
10:30 – 11:00	Coffee Break
11:00 – 11:45	Virtual Poster Session 1 ( <b>ONLINE</b> )
12:00 – 12:45	Virtual Poster Session 2 ( <b>ONLINE</b> )
12:45 – 14:00	Lunch
14:00 – 15:30	Oral Session 2 (University of Ruse, Building 2, Hall 101 and Hall “Werner von Siemens”)
15:30 – 16:00	Coffee Break
16:00 – 16:45	Virtual Poster Session 3 ( <b>ONLINE</b> )
17:00 – 17:45	Virtual Poster Session 4 ( <b>ONLINE</b> )
19:30	Gala Dinner (Mehana Chiflika)

### Saturday, November 14<sup>th</sup> 2020

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09:00 – 11:00	Registration (University of Ruse, Building 2, Floor 1 Lobby)
09:00 – 10:30	Oral Session 3 (University of Ruse, Building 2, Hall 101 and Hall “Werner

von Siemens’')

10:30 – 11:00	Coffee Break
11:00 – 11:45	Virtual Poster Session 5 (ONLINE)
12:00 – 12:45	Virtual Poster Session 6 (ONLINE)
12:45 – 13:15	End of Conference (ONLINE)

## COMMITTEES

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## 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 120 researchers, academicians, engineers and students from 23 countries in Europe, Asia and Africa. Since then, a total of six 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

Traditionally, the EE&AE conference is supported by the University of Ruse Angel Kanchev, as well as by several national and international companies. 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



**Gilles Notton, Ph.D.**

Affiliation: **University of Corsica Pasquale Paoli, France**

Position: **Senior researcher**

E-mail: [notton\\_g@univ-corse.fr](mailto:notton_g@univ-corse.fr)

Presentation: **Tilos, an autonomous Greek island thanks to a PV/Wind/Zebra battery plant and a smart Energy Management System**

**Gilles Notton** is a senior researcher in renewable energy systems with more than 30 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.

His main research interests concern renewable energy potential estimation and prediction, hybrid renewable systems, energy management in smart electrical grid and integration of thermal solar collectors into building sector. He has published around 120 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.



**Gabriela Cîrciumaru, Ph.D.**

**Affiliation: National Institute for Research and Development in Electrical Engineering ICPE-CA Bucharest, Romania**

**Position: Senior researcher, Head of the Renewable Energy Sources and Energy Efficiency Department**

**E-mail: [gabriela.circiumaru@icpe-ca.ro](mailto:gabriela.circiumaru@icpe-ca.ro)**

**Presentation: Experimental Study on the Performance of Small-Scale Wind Turbine Rotors**

**Gabriela Cîrciumaru** has a Ph.D. degree (2007) in Power Engineering and a B.S. in Environmental Engineering (2003, University POLITEHNICA of Bucharest). She is currently senior researcher (qualification level II) and head of the Renewable Energy Sources and Energy Efficiency Department within National Institute for Research and Development in Electrical Engineering ICPE-CA Bucharest and has expertise in theoretical and applied research in renewable energy sources conversion, power engineering and environmental engineering.

Mrs. Cîrciumaru coordinated several applied research activities and ensured the operative efficiency of technical, scientific and administrative decisions of activities related to efficient energy conversion from renewable energy sources, development of efficient scale models of wind turbines and kinetic turbines, integration of designed solutions into practical applications, knowledge transfer activities to the private environment in the field of energy, ecological river transport systems using RES (photovoltaic panels and wind turbines), waste water aeration and remediation.



**Assoc. Prof. Radosveta Sokullu, Ph.D.**

**Affiliation: Ege University, Turkey**

**Position: Head of the Telecommunications Branch**

**E-mail: [radosveta.sokullu@ege.edu.tr](mailto:radosveta.sokullu@ege.edu.tr)**

**Presentation: IoT in Agriculture: Irrigation Monitoring and Control System Example**

**Radosveta Sokullu**, graduated with an MSc degree in Radio Engineering and PhD in the field of Telecommunications from Sofia Technical University. She is an Associate Professor in the Department of Electrical and Electronic Engineering of Ege University and since 2004 is the Head of the Telecommunications Branch. Her current research interests are in the area of IoT applications in industry and agriculture, next generation networks, random access and resource allocation for 5G and Beyond 5G networks, integration of deep learning methods in next generation networks and UAV Networks. She has led 10 successfully completed research projects sponsored by various institutions among which the European Commission, the Scientific and Technological Research Council of Turkey, the Ministry of Technology and Industrial Development and the Ege University Research Fund.

A total of over 90 publications, including 16 journal publications, over 75 conference proceedings and 6 book chapters reflect Radosveta Sokullu's research efforts during these years. As a mark of research quality she has won several prizes and scholarships among which the prestigious GLEC scholarship for education by the GJCSTE - Kumamoto University (2011); the Physical Sciences and Engineering Project Award, EU (2009); the Best Paper Award SENSORCOMM 2008, the Best Paper Award UBICOMM 2016, the Outstanding Paper Award IET 2016 at the World Conference on Innovation, Engineering, and Technology, Sapporo, Japan and the Best Presentation Award ICENTE 2017.

Besides being a long term member of IEEE member and IEEE Communication Society member she is also a member of technically and socially beneficial committees and societies: the Bulgarian Technical Sciences Society (since 1992); the Turkish Association of University Women – branch of the IFUW (International Foundation of University Women) (since 2006); Women in Engineering Society (since 2011); Advisor for the IEEE Student Branch and the Women in Engineering Student Branch at the EEE Department, Ege University.





**Assoc. Prof. Ludmil Stoyanov, Ph.D.**

**Affiliation: Technical University of Sofia, Bulgaria**

**Position: Vice-dean of R&D and International Cooperation, French Faculty of Electrical Engineering**

**E-mail: [ludiss@tu-sofia.bg](mailto:ludiss@tu-sofia.bg)**

**Presentation: Application of renewable energy sources for irrigation power supply in Bulgaria**

**Ludmil Stoyanov** graduated MSc (2004) and MScR (2005) in the field of Electrical engineering respectively in Technical University of Sofia and National Polytechnic Institute of Grenoble. He obtained his PhD in co-direction from Technical University of Sofia and University of Corsica Pasquale Paoli in 2011.

His research is oriented to the energy and electrical modelling and study of different generators, using renewable energy sources, with consideration of the full conversion system – from the primary resource to the consumption. The application of those generators varies from stand alone, through hybrid systems (smart grids) to grid connected.

He has published about 80 papers in journals or international conferences, 5 of them with impact factor or SJR, 2 chapters from books in English published by Springer and Nova publishers. He participated in a research team in 3 internal projects at TU-Sofia, 6 national projects under various European programs and 1 international project. He had 2 inventions, one of them awarded for Inventor of the Year award in the field of Electrical Engineering and Electronics (2016).

## PROGRAMME IN DETAILS

### Thursday, November 12<sup>th</sup> 2020

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

### Thursday, November 12<sup>th</sup> 2020

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11:00 – 11:30      Opening ceremony (University of Ruse, Building 2, Hall 101 and Hall “Werner von Siemens”)

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

Corr.-Mem. Prof. DSc Hristo Beloev, Rector of University of Ruse Angel Kanchev

Assoc. Prof. Kiril Alexiev, IEEE Bulgaria Chair

### Thursday, November 12<sup>th</sup> 2020

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11:30 – 13:30      Plenary Session (University of Ruse, Building 2, Hall 101 and Hall “Werner von Siemens”)

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

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

#### **11:30    PL1    Tilos, an Autonomous Greek Island Thanks to a PV/Wind/Zebra Battery Plant and a Smart Energy Management System**

Gilles NOTTON (University of Corsica); Marie Laure NIVET (University of Corsica); Cyril Voyant (University of Corsica); Jean Laurent DUCHAUD (University of Corsica); Alexis FOUILLOY (University of Corsica); Dimitrios Zafirakis (Technological Educational Inst); John KALDELIS (University West Attica)

#### **12:00    PL2    Experimental Study on the Performance of Small-Scale Wind Turbine Rotors**

Gabriela Circiumaru (INCDIE ICPE-CA); Rareş Chihaia (ICPE-CA); Dragos Ovezza (ICPE-CA); Ionel Chirita (ICPE-CA); Sergiu Nicolaie (ICPE-CA); Andreea El-Leathey (ICPE-CA); Adrian Nedelcu (ICPE-CA)

#### **12:30    PL3    IOT in Agriculture: Irrigation Monitoring and Control System Example**

Radosveta Sokullu (Ege University)

#### **13:00    PL4    Application of Renewable Energy Sources for Irrigation Power Supply in Bulgaria**

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

## Thursday, November 12<sup>th</sup> 2020

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13:30 – 14:30      Lunch for participants and guests

## Thursday, November 12<sup>th</sup> 2020

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14:30 – 15:30      Poster Session 1 (University of Ruse, Building 2, Floor 2 Lobby)

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

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

### **P1.1      State-Of-The-Art of Superconducting Materials and Their Energy-Efficiency Applications**

Katerina Ilieva (University of Ruse Angel Kanchev); Ognyan Dinolov (University of Ruse Angel Kanchev)

### **P1.2      Increasing energy efficiency of a gas boiler using remote access control**

Nikolay Valov (University of Ruse Angel Kanchev); Donka Ivanova (University of Ruse Angel Kanchev); Velina Valova (RSK Group Limited)

### **P1.3      Near-time Optimal Control of a System with Quazistationary Switching Line**

Donka Ivanova (University of Ruse Angel Kanchev); Nikolay Valov (University of Ruse Angel Kanchev); Maria Popova (University of Ruse Angel Kanchev); Anka Krasteva (University of Ruse Angel Kanchev)

### **P1.4      Home Automation System with Raspberry Pi**

Nikolay Valov (University of Ruse Angel Kanchev)

### **P1.5      Design of Technical Systems by Functional–Structural Analysis**

Aneliya Manukova-Marinova (University of Ruse Angel Kanchev)

### **P1.6      An Approach to Developing a Monitoring and Control of Pollution from Industrial Processes**

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

### **P1.7      Investigation of the Secondary School Teachers' Opinion About Mobile Learning**

Tsvetozar Georgiev (University of Ruse Angel Kanchev); Evgeniya Georgieva (University of Ruse Angel Kanchev)

### **P1.8      Lean Startup and Agile for Addressing Educational Challenges**

Zornitsa Yordanova (University of National and World Economy)

### **P1.9      An Approach to Use Virtual and Remote Labs in Mechatronics Education Based on Cloud Services**

Pavel Vitliemov (University of Ruse Angel Kanchev)

**P1.10 Research of the Formation of Nitrogen Oxides During the Burning of Ekibastuz Coal**

Bulbul Ongar (Kazakh Academy of Transport and Communications); Hristo Beloev (University of Ruse Angel Kanchev); Almagul Mergalimova (S. Seifullin Kazakh AgroTechnical University); G. Yergaliyeva (Almaty University of Power Engineering and Telecommunications)

**P1.11 Methodology and Results of the Experiment of the Formation of Nitrogen Oxides in a Powder Torch**

Bulbul Ongar (Kazakh Academy of Transport and Communications); Hristo Beloev (University of Ruse Angel Kanchev); Almagul Mergalimova (S. Seifullin Kazakh AgroTechnical University); N. Aitzhanov (Almaty University of Power Engineering and Telecommunications)

**P1.12 Interactive Methods for Investigating Frequency Modulation Applied in the Educational Process**

Ivanka Tsvetkova (University of Ruse Angel Kanchev); Adriana Borodzhieva (University of Ruse Angel Kanchev)

**P1.13 Moved to a virtual session (V1.12)**

**P1.14 Moved to a virtual session (V5.13)**

**P1.15 Moved to a virtual session (V5.14)**

**P1.16 A Study of the Influence of HHO Gas on the Performance and Emissions of a Diesel Engine**

Simeon Iliev (University of Ruse Angel Kanchev)

**P1.17 An Experimental Investigation of a Common-Rail Diesel Engine with Butanol Additives**

Simeon Iliev (University of Ruse Angel Kanchev); Hristo Stanchev (University of Ruse Angel Kanchev); Emil Mitev (University of Ruse Angel Kanchev)

**P1.18 The Impact of Channel Correlation on the System Performance And Quality of Service in 5G Networks**

Stanimir Sadinov (Technical University of Gabrovo); Krasen Angelov (Technical University of Gabrovo); Panagiotis Kogias (International Hellenic University); Michail Malamatoudis (Technological Educational Institute of Eastern Macedonia and Thrace)

**P1.19 Modelling and Simulation Analysis of Routing Algorithms in Multichannel Optical Communication Networks**

Krasen Angelov (Technical University of Gabrovo)

**P1.20 Recent Trends in FMEA Methodology**

Tzvetelin Gueorguiev (University of Ruse Angel Kanchev); Miroslav Kokalarov (University of Ruse Angel Kanchev); Boris Sakakushev (University of Ruse Angel Kanchev)

**P1.21 An Approach for Building of Radar Sensor Networks for Observation of UAVs**

Mihail Iliev ('Angel Kanchev' University of Ruse); Borislav Bedzhev ("Vasil Levski" National Military University)

**P1.22 Possibilities for Improvement the Ecological Effect of Battery Electric Vehicles Using Renewable Energy**

Georgi Kadikyanov (University of Ruse); Rosen Ivanov (University of Ruse Angel Kanchev); Donka Ivanova (University of Ruse Angel Kanchev)

**P1.23 Modelling the Energy Fluxes in a Biomass Gasifier**

Nadezhda Evstatieva ( University of Ruse Angel Kanchev); Hristo Beloev (University of Ruse Angel Kanchev)

**P1.24 Investigating the Influence of the Process Parameters on the Energy Characteristics of a Gasifier**

Hristo Beloev (University of Ruse Angel Kanchev); Nadezhda Evstatieva ( University of Ruse Angel Kanchev)

**P1.25 Loss of Nutrients by Soil Water Erosion Processes**

Gergana Kuncheva (ISSAPP "Nikola Poushkarov"); Petar Dimitrov (University of Ruse Angel Kanchev)

**P1.26 Study of the Operational Efficiency Indicators of Soil – Protecting Machine – Tractor Aggregates Used for Vertical Mulching by Importing Organic Matter in the Soil**

Kaloyan Stoyanov (University of Ruse Angel Kanchev); Petar Dimitrov (University of Ruse Angel Kanchev); Hristo Beloev (University of Ruse Angel Kanchev); Plamen Kangalov (University of Ruse Angel Kanchev); Volodymyr Kravchuk (Ukrainian Research Institute Leonid Pogorilly)

**P1.27 A Study of the Energy – Performance Indicators of a Machine - Tractor Aggregate for Vertical Mulching by Importing Organic Matter in the Soil**

Kaloyan Stoyanov (University of Ruse Angel Kanchev); Petar Dimitrov (University of Ruse Angel Kanchev); Hristo Beloev (University of Ruse Angel Kanchev); Plamen Kangalov (University of Ruse Angel Kanchev)

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:** Tzvetelin GUEORGUIEV, University of Ruse Angel Kanchev

**P2.1      A Virtual Lab for Demonstration of Temperature Measurement Errors Due to Transient Heat Transfer**

Boris Evstatiev (University of Ruse Angel Kanchev); Dimitar Trifonov ( University of Ruse Angel Kanchev); Nicolay Mihailov ( University of Ruse Angel Kanchev); Katerina Gabrovska-Evstatieva (University of Ruse Angel Kanchev); Ivan Beloev (University of Ruse)

**P2.2      Development of the Information System Based on Big Data Technology to Support Endocrinologist-Doctors**

Teodor Iliev (University of Ruse Angel Kanchev)\*; Assel Mukasheva (Satbayev University); Gani Balbayev (Almaty University of Power Engineering and Telecommunications)

**P2.3      Modelling and Simulation of Big Data Networks**

Elena Ivanova (University of Ruse Angel Kanchev); Teodor Iliev (University of Ruse Angel Kanchev); Ivaylo Stoyanov (University of Ruse Angel Kanchev)

**P2.4      GNSS For Accuracy Positioning in Mobile Communications with Multipath Propagation of the Signal**

Grigor Mihaylov (University of Telecommunications and Post); Teodor Iliev (University of Ruse Angel Kanchev); Elena Ivanova (University of Ruse Angel Kanchev); Ivaylo Stoyanov (University of Ruse Angel Kanchev); Ivan Beloev (University of Ruse Angel Kanchev)

**P2.5      Possibility Analysis for the Use of Remote Reference Wind Measurements, in the Evaluation of Energy Production from Low Complex Terrains**

Angel Terziev (Technical University of Sofia); Yancho Pantelev (Technical University of Sofia); Martin Ivanov (Technical University - Sofia)

**P2.6      Design and Study of an Automotive Thermoelectric Generator**

Kaloyan Ivanov (Prof. "Assen Zlatarov" University Burgas); Anatoliy Alexandrov (Technical University of Gabrovo)

**P2.7      Study of Multi-Stage Peltier Module in Generator Mode**

Kaloyan Ivanov (Prof. "Assen Zlatarov" University Burgas); Ivaylo Belovski (Prof. Assen Zlatarov University Burgas); Anatoliy Alexandrov (Technical University of Gabrovo)

**P2.8      Human Errors Simulator in Substations of Power Supply Systems**

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

**P2.9      Vibroacoustics in the Practice of Vehicle Diagnostics**

Radostin Dimitrov (Technical university of Varna)

**P2.10 Environmental Performance of Motorcycle Gasoline Engines**

Radostin Dimitrov (Technical university of Varna)

**P2.11 Environmental Characteristics of an SI Engine Running on Methane and Gasoline**

Radostin Dimitrov (Technical university of Varna)

**P2.12 Simulation of Starting Modes of Double Star Ship's Synchronous Propulsion Motor**

Nikolay Djagarov (Nikola Vaptsarov Naval Academy); Zhivko Grozdev (Nikola Vaptsarov Naval Academy); Julia Djagarova (Technical University of Varna); Gabriel Predoi (Nikola Vaptsarov Naval Academy ); Sergey Kokin (Ural Federal University)

**P2.13 Modeling of Work Modes of Double Star Ship's Synchronous Propulsion Drive**

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

**P2.14 Adaptive Vector Control of Induction Motor Drive**

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

**P2.15 Overview of Diagnostic Methods for Rotating Electrical Machines**

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

**P2.16 Determination of the Heat Convection Coefficient by CFD Simulation of Heat Transfer Processes at Forced Convection**

Seher Kadirova (University of Ruse Angel Kanchev)

**P2.17 Design of Power Wheelchair Controller**

Seher Kadirova (University of Ruse Angel Kanchev)

**P2.18 A Software Tool for Accuracy Evaluation of Calculated Similarity Factors Between Papers and Reviewers**

Yordan Kalmukov (University of Ruse Angel Kanchev)

**P2.19 Water Distribution at Alteration of Flow Regimes with Pressure Flows for Irrigation**

Roumen Gadjev (ISSAP)

**P2.20 Innovative Method for the Application of Green Energy in Technical Maintenance of Engines**

Georgi Komitov (AgriculturalUniversity-Plovdiv)

**Thursday, November 12<sup>th</sup> 2020**

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**P2.21 Justification of Agrotechnical Indicators of Agrorobot**

Georgi Komitov (Agricultural University-Plovdiv)

**P2.22 Challenges to Create “New Entrepreneurs” by Intergenerational Family Businesses at the University of Ruse “Angel Kanchev”**

Daniel Pavlov (University of Ruse Angel Kanchev)

**P2.23 Study of the Electric Field Between the Electrodes of a Chamber for Pre-Sowing Treatment of Seeds**

Kiril Sirakov (University of Ruse Angel Kanchev)

**P2.24 Optimization of the Design of a Chamber for Pre-Sowing Treatment of Seeds**

Kiril Sirakov (University of Ruse Angel Kanchev)

**P2.25 Modelling of Fuel Cell and Supercapacitor for Electric Vehicles**

Nikolay Hinov (Technical University of Sofia); Gergana Vacheva (Technical University of Sofia)

**P2.26 A Web-Based MATLAB Application for E-Learning and Simulation of Electric Vehicle Performance**

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

**P2.27 Automated Test and Measurements in Teaching of Power Supply Devices**

Nikolay Hinov (Technical University of Sofia); Tsveti Hranov (Technical University of Sofia)

**Thursday, November 12<sup>th</sup> 2020**

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19:00

Welcome Cocktail (Grand Hotel Riga)



## Friday, November 13<sup>th</sup> 2020

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

## Friday, November 13<sup>th</sup> 2020

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09:00 – 10:30                      Oral Session 1 (University of Ruse, Building 2, Hall 101 and Hall “Werner von Siemens”)

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

**Session co-chair:** Chavdar VEZIROV, University of Ruse Angel Kanchev

**09:00    O1    Validation and Ordering Test for an Formula of Soil Tillage Draft Force, Extended to the Dependence on Soil Moisture**

Petru Cardei (National Institute Of Research - Development For Machines And Installations Designed To Agriculture And Food Industry - INMA); Sebastian Muraru (National Institute Of Research - Development For Machines And Installations Designed To Agriculture And Food Industry - INMA); Cornelia Muraru (National Institute Of Research - INMA); Sfiru Raluca (INMA)

**09:12    O2    The Influence of Solar-Shading Systems on an Office Building Cooling Load**

Andrei Damian, Razvan-Gabriel Filip, Tiberiu Catalina, Rodica Frunzulică (UTCB); Gilles Notton (University of Corsica)

**09:24    O3    Sustainable Option to Reduce by-side Impact of Agricultural Growth on Hydropower Plants Efficiency**

Carmen Mateescu (ICPE-CA); Dorian Marin (INCDIE ICPECA)

**09:36    O4    Energy Efficiency of Intermittent Drying Regimes of Carrot**

Mariya Georgieva (University of Food Technologies ); Dimitar Atanasov (University of Food Technologies ); Atanas Tashev (University of Food Technologies )

**09:48    O5    Co-Generation Power Plants Based on Biomass Gasification**

Violeta Rasheva (UFT Plovdiv); Iliya Iliev (Ruse University); Angel Terziev (TU Sofia)

**10:00    O6    Building Integrated Solar Thermal Systems: Some Few Successful Examples**

Gilles NOTTON (University of Corsica); Andrei Damian (UTCB)

**10:12    O7    Feasibility study of irrigation system with wind generator**

Ivan Bachev (Technical University - Sofia); Ludmil Stoyanov (Technical university of Sofia); Vladimir Lazarov (Technical University of Sofia)

## Friday, November 13<sup>th</sup> 2020

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10:30-11:00                      Coffee break

**Friday, November 13<sup>th</sup> 2020**

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11:00 – 11:45

**Virtual Poster Session 1 (ONLINE)**

**Session chair:** Alexandru COTORCEA, Mircea cel Batran Naval Academy

**V1.1 Energy Supply of Autonomous Territories Based on Renewable Energy Sources**

Viktor Elistratov (Peter the Great Saint-Petersburg Polytechnic University)

**V1.2 Optimization of wind turbine operation in variable wind speed conditions**

Cristian Paul Chioncel (Babeş-Bolyai University); Marian Dordescu (Constanta Maritime University); Gelu Ovidiu Tirian (Politehnica University Timisoara); Elisabeta Spunei (Babeş-Bolyai University)

**V1.3 Proposed Location and Proposal For Canal Top Solar PV Plant in Pakistan(South Asian Region)**

Fahad Javaid (University of Gujarat)

**V1.4 Electric Bicycle Design Experiences and Riding Costs**

Ventsislav Keseev (University of Ruse Angel Kanchev)

**V1.5 Electric Vehicles Driving Cost and Competitiveness**

Ventsislav Keseev (University of Ruse Angel Kanchev)

**V1.6 Development of Load Cycle of Automotive Alternator**

Andrey Puzakov (Orenburg state university)

**V1.7 Thermodynamic Parameters of the Extraction of Three Nicotiana Species**

Stanislava Tasheva (University of Food Technologies)

**V1.8 Chemical composition and biological activity of pennyroyal (*Mentha pulegium* L.) grown in Turkey**

Stanislava Tasheva (University of Food Technologies)

**V1.9 Strawberry anthocyanins copigmentation process investigation at different temperatures with appropriate copigment chlorogenic acid**

Vanya Gandova (University of Food Technologies)

**V1.10 Monitoring the Quality of Services Provided in a Telecommunication Network by Analyzing the Statistics of PPPOE Packets**

Ayan Zhunussov (Almaty University of Power Engineering and Telecommunications); Alimjan Baikenov (University of Power Engineering and Telecommunications); Diana Ilieva (University of Telecommunications and Post)

**V1.11 Influence of Soil Fertilization Systems and Crop Rotation on Physical and Chemical Properties of the Soil**

Narcis Barsan ("Vasile Alecsandri" University of Bacau)

## **Friday, November 13<sup>th</sup> 2020**

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### **V1.12 Computer System for Microclimate Management in Closed Areas of the Post-Minining Galleries and Greenhouses**

Mila Ilieva (Mining and Geology University); Nicola Kolev (University of Ruse Angel Kanchev)

## **Friday, November 13th 2020**

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12:00 – 12:45

### **Virtual Poster Session 2 (ONLINE)**

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

### **V2.1 Development of an Innovative Agricultural Tool for Farmers Who Use Manual Labor in Crop Production**

Ivan Voiku (Pskov State University)

### **V2.2 Assessment of Sound Pressure Levels Using Experimental and Numerical Modelling of a Complex Office Space**

Tiberiu CATALINA (UTCB - University); Horatiu Dragne (UTCB - University); Andrei Damian (UTCB)

### **V2.3 Multi-Fuel Autonomous Electric Generating Unit With Stabilization System Of The Output Voltage**

Ekaterina Mirgorodskaya (Yuri Gagarin State Technical University of Saratov); Ivan Artyukhov (Yuri Gagarin State Technical University of Saratov); Sergei Stepanov (Yuri Gagarin State Technical University of Saratov); Nikita Mityashin (Yuri Gagarin State Technical University of Saratov); Vasilina Kovalenko (Yuri Gagarin State Technical University of Saratov); Pavel Kovalenko (Yuri Gagarin State Technical University of Saratov)

### **V2.4 Public Transport in Bacau City**

Claudia Tomozei (Vasile Alecsandri University of Bacau); Mirela Panainte Lehadus (Vasile Alecsandri University of Bacau); Oana Irimia (Vasile Alecsandri University of Bacau); Florin Nedeff (Vasile Alecsandri University of Bacau)

### **V2.5 Environmental Management: Global Threats and Key Determinants**

Anzhelika Chepelenko (Ukrainian Engineering Pedagogics Academy)

### **V2.6 Model Reference Adaptive Control for Steering Application of Agriculture Machines**

Alexander Mitov (Technical University of Sofia); Jordan Kralev (Technical University of Sofia); Tsonyo Slavov (Technical University of Sofia); Ilcho Angelov (Technical University of Sofia)

## Friday, November 13<sup>th</sup> 2020

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### **V2.7 Analysis of the Possibilities of Using a Sulfur-Free Solid Fuel at CET Deva-Romania**

Lucian Mihaescu, Tudor Prisecaru, Ionel Pisa, Elena Pop, Gabriel Negreanu, Viorel Berbece (Politehnica University of Bucharest) Adrian Adam, Cristian Mandrean (National Research and Development Institute for Energy, Bucharest)

### **V2.8 Energy and Cost -Efficient Air Flow Measurement Solution for Small Scale Processes**

Ivan Khvorostin (Häme University of Applied Sciences); Katariina Penttilä (HAMK Häme University of Applied Sciences)

### **V2.9 Led Transmitter for Plastic Optical Fibers**

Svetoslav Ivanov (TU Sofia, branch Plovdiv); Yanka Ivanova (TU Sofia, branch Plovdiv)

### **V2.10 Reducing Energy Losses in Realising MOSFET Control by an Active Du/Dt Feedback Driver**

Svetoslav Ivanov (TU Sofia, branch Plovdiv); Yanka Ivanova (TU Sofia, branch Plovdiv)

### **V2.11 Mathematical Modeling and Experimental Study of Heat Transfer Processes of a Two-Phase Thermosiphon with Complex Geometry**

Angel Terziev (Technical University of Sofia); Hristo Beloev (University of Ruse Angel Kanchev); Iliya Iliev (University of Ruse Angel Kanchev); Emilian Velkov (University of Ruse Angel Kanchev)

## Friday, November 13<sup>th</sup> 2020

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12:45-14:00

**LUNCH**

## Friday, November 13<sup>th</sup> 2020

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14:00 – 15:30

**Oral Session 2** (University of Ruse, Building 2, Hall 101 and Hall “Werner von Siemens”)

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

**Session co-chair:** Radostin Dimitrov, Technical University of Varna

### **14:00 O8 Experimental and Simulation Performance Investigation of a Hybrid PV/T Solar Panel**

Tiberiu CATALINA (UTCB - University); Andrei Damian (UTCB); Mihai BAICEANU (UTCB - University)

## **Friday, November 13<sup>th</sup> 2020**

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### **14:12 O9 Energy Efficient Built Environment of the R&D Institute of the Transilvania University of Brasov Romania**

Ion Visa (Transilvania University of Brasov); Macedon Moldovan (Transilvania University of Brasov)

### **14:24 O10 Adaptive Vector Control of Induction Motor Drives by Optimal Adaptive Observer**

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

### **14:36 O11 An Aproach for Application of UAVs for Observation of Processes in Agriculture**

Mihail Iliev (University of Ruse Angel Kanchev); Monika Bedzheva (University of Shumen)

### **14:48 O12 New Design of a Flame-Tube Steam Generator Based on a Hot Water Boiler Burning Agricultural Waste**

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

### **15:00 O13 Multiobjective Modelling in Choice of Route and Vehicle for Public City Transportation for Minimum Travel Time, Low Cost and Energy Consumption**

Velizara Pencheva (University of Ruse Angel Kanchev); Ivan Georgiev (University of Ruse Angel Kanchev); Asen Asenov (University of Ruse Angel Kanchev)

### **15:12 O14 Experimental Assessment of the Tilt Angle Influence on the Solar Thermal Collectors Performance**

Alexandru Cotorcea (Mircea cel Batran Naval Academy)

## **Friday, November 13<sup>th</sup> 2020**

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15:30 – 16:00                      **Coffee break**

## **Friday, November 13<sup>th</sup> 2020**

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16:00 – 16:45                      **Virtual Poster Session 3 (ONLINE)**

**Session chair:** Andrei DAMIAN, UTCB

### **V3.1 Fostering the Innovative University Student-Centred Learning by Application of ICT Tools Together with Stakeholders: a Project Methodology Overview**

Svilen Kunev (University of Ruse Angel Kanchev); Diana Antonova (University of Ruse Angel Kanchev); Bogdan Fleaca (University Politehnica); Radovan Drab (Technical University of Kosice)

**V3.2 Kinetic Parameters of the Extraction of Tannis from Three Nicotiana Species**

Stanislava Tasheva (University of Food Technologies)

**V3.3 Kinetic parameters investigation at reaction of pigment:copigment complex between quercetin and strawberry anthocyanins**

Vanya Gandova (University of Food Technologies)

**V3.4 Filtration Theory and Techniques. A Short Review on the Filtration Process**

Narcis Barsan ("Vasile Alecsandri" University of Bacau)

**V3.5 Research of the Impact of the Active Driver Circuit with a  $Dv/Dt$  Feedback on the Speed of a DC Motor**

Svetoslav Ivanov (TU Sofia, branch Plovdiv); Yanka Ivanova (TU Sofia, branch Plovdiv)

**V3.6 Analysis of Combustion Efficiency at Boilers Operating on Different Fuels**

Penka Zlateva (Technical university of Varna); Nina Penkova (University of chemical technology and metallurgy Sofia); Kalin Krumov (University of chemical technology and metallurgy Sofia)

**V3.7 Identification of Agricultural Plant Row Using the Clustering Algorithm in the Navigation of Mobile Robot**

Lukáš Vacho (Slovak University of Agriculture in Nitra); Dušan Hrubý (Slovak University of Agriculture in Nitra); Ladislav Tóth (Slovak University of Agriculture in Nitra); Zuzana Palkova (Slovak University of Agriculture)

**V3.8 Mathematical Modeling of Aeration Process in the Air-Water Interface**

Adele Vaideliene (Vytautas Magnus University)

**V3.9 Evaluating the Development of Activity Monitoring Systems for Small Scale Dairy Farms**

George Papageorgiou (European University Cyprus); Kyriacos Pourgouris (European University Cyprus); Andreas Efstathiades (European University Cyprus); George A. Papageorgiou (Veterinary Services Ltd.)

**V3.10 Research of the Combustion Process in a Heat Generator with Ansys Fluent**

Dias Umyshev (Satbayev University); Iliya Iliev (University of Ruse Angel Kanchev)

**V3.11 Reducing the Toxicity of Diesel Engines Due to Two-Phase Fuel Injection**

Iliya Iliev (University of Ruse Angel Kanchev); Abay Dostiyarov (Almaty University of Power Engineering and Telecommunications); Gulnara Saduakassova (Kazakh Agrotechnical University); B A Biakhmetov (Kazakh Agrotechnical University)

## **Friday, November 13<sup>th</sup> 2020**

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17:00 – 17:45

### **Virtual Poster Session 4 (ONLINE)**

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

#### **V4.1 Study of the Options for Joining Decentralized Electricity Generation to the Power Distribution Grid**

Stefka Nedelcheva (TU-Sofia,EPF-Sliven); Misho Matsankov (TU-Sofia,EPF-Sliven)

#### **V4.2 Assessment of the Adequacy of an Energy Model for Energy Flow Management System in Residential Premises**

Snezhinka Zaharieva (University of Ruse Angel Kanchev); Iordan Stoev (University of Ruse Angel Kanchev); Adriana Borodzhieva (University of Ruse Angel Kanchev); Valentin Mutkov (University of Ruse Angel Kanchev)

#### **V4.3 Influence of a Slotted Flap Gap Size on the Aerodynamic Characteristics of a Light Aircraft Wing at Taking off and Landing**

Ivo Angelov Angelov (Technical University of Sofia); Cvetelina Velkova (Naval Academy Nikola Vaspsarov)

#### **V4.4 Hybrid Nanocomposite RGO/ZnO as Sensing Material**

Ioana Ion (INCDIE ICPE-CA)

#### **V4.5 Selection of Optimal Configuration for Autonomous Solar-Wind Hybrid System for Household Consumption**

Tanya Pehlivanova-Gocheva (Trakia University - Stara Zagora); Atanas Atanasov (Trakia University - Stara Zagora)

#### **V4.6 Kinematic Modelling of the Tracking System for Parabolic Trough Collector**

Daniela CIOBANU (Transilvania University of Brasov); Radu SAULESCU (Transilvania University of Brasov); Codruta JALIU (Transilvania University of Brasov)

#### **V4.7 Air Source Heat Pump Performance Evaluation Based on Experimental Measurements and Neural Network**

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

#### **V4.8 Modelling and Evaluation of Electromagnetic Field of Urban High-Voltage Power Line**

Atanas Chervenkov (Technical University of Sofia)

#### **V4.9 Simulation Modelling of Reasonably Application of Small Wind Power System in Bulgaria**

Atanas Chervenkov (Technical University of Sofia); Atanas Yanev (Technical University of Sofia)

**Friday, November 13<sup>th</sup> 2020**

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**V4.10 Influence of Led Bulbs on Electromagnetic Compatibility Parameters**

Krasimir Ivanov (TU Gabrovo); Gergi Velez (TU Gabrovo); Tsvyatko Varbov (TU Gabrovo); Peter Petrov (TU Gabrovo)

**V4.11 Implementing a Large Lora Network for an Agricultural Application**

Gaudentiu Varzaru (Syswin Solutions); Adrian Zarnescu (SYSWIN Solutions); Razvan Ungurelu (SYSWIN Solutions); Mihai Secere (SYSWIN Solutions); Bogdan Mihailescu (UPB-CETTI)

**Friday, November 13<sup>th</sup> 2020**

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19:30

**Gala Dinner (Mehana Chiflika)**



## Saturday, November 14<sup>th</sup> 2020

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09:00 – 11:00

**Registration** (University of Ruse, Building 2, Floor 1 Lobby)

## Saturday, November 14<sup>th</sup> 2020

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09:00 – 10:30

**Oral Session 3** (University of Ruse, Building 2, Hall 101 and Hall “Werner von Siemens”)

**Session chair:** Nikolay DJAGAROV, Nikola Vaptsarov Naval Academy

**Session co-chair:** Angel TERZIEV, Technical University of Sofia

### **09:00 O15 Simulation of Water Turbine with Oscillating Blades**

Rositsa Velichkova (Technical University of Sofia)

### **09:12 O16 SARMENTI: In-Situ Real-Time Soil Nutrients and Gaseous Emission Measurement**

Suzanne Lesecq (CEA-List); Maxime Gougis (CEA-Leti); eric gouze (CEA-Leti); Gabriela Dudnik (CSEM); Marc Correvo (CSEM); Andrea di Matteo (STMicroelectronics); Vincenza di Palma (STMicroelectronics); Enrico Alessi (STMicroelectronics); Salvatore di Salvo (STMicroelectronics); Karen Daly (teagasc); Bastiaan Molleman (teagasc); Alan O’Riordan (Tyndall-UCC); Han Shao (Tyndall-UCC); Gerry Mouzakitis (Tyndall-UCC); Titus-Constantin Balan (ATOS); Catalin Dumitru (ATOS); Gael Ponsardin (Terrasolis); George Mailat (SPIRO)

### **09:24 O17 Lumped Circuit Model of High-Frequency Power Transformers for Time-Domain Analysis**

Lucian Mandache (University of Craiova); Andrei Marinescu (Technical Sciences Academy of Romania); Ioana-Gabriela Sirbu (University of Craiova)

### **09:36 O18 Increasing the Energy Efficiency of Fan Systems by Using Outlet Diffuser**

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

### **09:48 O19 IOT Applications and Protocols: an Air Quality Monitoring Example**

Radosveta Sokullu (Ege University); Abdullah Balcı (Yalova University); Önem Yıldız (Aydın Adnan Menderes University)

### **10:00 O20 Face Recognition Based Multifunction Smart Mailbox**

Radosveta Sokullu (Ege University); Özkan AKIN (Ege University); Erginay Aslan (Ege University)

### **10:12 O21 Study of Precipitation Influence on the Sizing of PV Installation for Irrigation System**

Ludmil Stoyanov (Technical university of Sofia); Ivan Bachev (Technical University - Sofia); Vladimir Lazarov (Technical University of Sofia)

**Saturday, November 14<sup>th</sup> 2020**

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10:30-11:00

**Coffee break**

**Saturday, November 14<sup>th</sup> 2020**

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11:00 – 11:45

**Virtual Poster Session 5 (ONLINE)**

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

**V5.1 The Soil Resistivity Influence on the Electrical Safety in Medium Voltage Power Grids with a Predominant Cable Part**

Marinela Yordanova (Medical University - Varna); Mediha Mehmed-Hamza (MU-Varna); Plamen Stanchev (TU-Varna)

**V5.2 Some Considerations for the Risk Assessment at Work with Medical Equipment**

Marinela Yordanova (Medical University - Varna)

**V5.3 Optimum Tilt Angle of Solar Thermal Collectors at Sea**

Alexandru Cotorcea (Mircea cel Batran Naval Academy)

**V5.4 Optimizing the Maintenance of Medical Apparatus**

Anton Georgiev (Medical University - Varna); Rosen Vasilev (Medical University - Varna)

**V5.5 Comparison of Some Variants of Emergency Maintenance Strategy**

Anton Georgiev (Medical University - Varna); Rosen Vasilev (Medical University - Varna)

**V5.6 Simulation of the Performance of Wireless Radio Controlled Fire Protection System**

Filip Tsvetanov (South West University, Blagoevgrad); Martin Pandurski (South West University, Blagoevgrad); Grigor Mihaylov (University of Telecommunications and Post); Ivanka Georgieva (South West University, Blagoevgrad)

**V5.7 Efficiency Analysis of a Planetary Speed Increaser for Wind Turbines with Counter-Rotating Versus Fixed-Stator Electric Generator**

Mircea Neagoe (Transilvania University of Brasov); Radu SAULESCU (Transilvania University of Brasov); Codruta JALIU (Transilvania University of Brasov); Nadia CRETESCU (Transilvania University of Brasov)

**V5.8 Investigation the Influence of the Active Resistance Value in the Neutral and the Transient Resistance of Earth Faults in Medium Voltage Electrical Grids**

Mediha Mehmed-Hamza (MU-Varna); Plamen Stanchev (TU-Varna)

**V5.9 Analysis of the Influences of the Electromagnetic Field Produced by an Electrified Railway Section**

Constantin Daniel Oancea (University Politehnica of Bucharest)

**Saturday, November 14<sup>th</sup> 2020**

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**V5.10 Survey of the Passive Protection on Board of the Ship against Low and High Frequency Electromagnetic Fields**

Alexandru Sotir (Mircea cel Bătrân Naval Academy); Petrica Popov (Mircea cel Bătrân Naval Academy); Vasile Dobref (Naval Academy Mircea cel Batran); Vlad Mocanu (Mircea cel Bătrân Naval Academy)

**V5.11 Simulation of Arduino Mega 2560 Board Controlling a Variable Frequency Converter Driving a BLDC Motor**

Vlad Mocanu (Mircea cel Bătrân Naval Academy); Petrica Popov (Mircea cel Bătrân Naval Academy); Vasile Dobref (Naval Academy Mircea cel Batran)

**V5.12 Evaluation of the Potential of Wind Energy as a Source of Electricity Generation: Case Study -Vanatori Wind Power Plant**

Oana Irimia ("Vasile Alecsandri" University of Bacau); Claudia Tomozei ("Vasile Alecsandri" University of Bacau); Mirela Panainte Lehadus ("Vasile Alecsandri" University of Bacau); Maria Cristina Dinu (S.C. Catalan Electric S.R.L.)

**V5.13 Study on the Effect of Some Major Environmental Factors on the Egg-Laying Capacity of Free-Range Guinea Fowls (Numida Meleagris)**

Petia Veleva (Trakia University); Tsvetelina Georgieva (University of Ruse Angel Kanchev)

**V5.14 Research of the Possibilities for Determination of Some Basic Soil Properties Using Image Processing**

Antonina Mihaylova (University of Ruse); Tsvetelina Georgieva (University of Ruse Angel Kanchev); Plamen Daskalov (University of Ruse)

**Saturday, November 14<sup>th</sup> 2020**

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12:00 – 12:45

**Virtual Poster Session 6 (ONLINE)**

**Session chair:** Filip TSVETANOV, South West University, Blagoevgrad

**V6.1 Statistical Analysis of Energization and Re-Energization Overvoltages in Overhead Transmission Line 220 KV**

Margreta Vasileva (Medical University of Varna); Danail Stanchev (Technical University of Varna)

**V6.2 Switching Transients In Overhead Transmission Line 220 KV**

Margreta Vasileva (Medical University of Varna); Danail Stanchev (Technical University of Varna)

**V6.3 Maintenance Strategies Where the Moment in Which Next in Line Prophylactic Repair of the Medical Apparatus Will Begin, is Known in Advance**

Anton Georgiev (Medical University - Varna); Rosen Vasilev (Medical University - Varna)

**V6.4 Sensitivity and Selectivity of Time Overcurrent Relay Protection in Medium Voltage Power Lines**

Mediha Mehmed-Hamza (MU-Varna); Plamen Stanchev (TU-Varna)

**V6.5 Coordination of the Time Overcurrent Relay Protection Settings in Medium Voltage Electric Power Grids**

Mediha Mehmed-Hamza (MU-Varna); Plamen Stanchev (TU-Varna)

**V6.6 Variability of Soil Nutritional Parameters in Small-Plot Experiment with Mineral Fertilizers Application in Different Depth**

Yuriy Enakiev (Institute of Soil Science, Agro-technology and Plant Protection "Nikola Pushkarov"); Aliya Bakhitova (Russian Timiryazev State Agrarian University); Vladimir Mamontov (Russian Timiryazev State Agrarian University); Kiril Stefanov (University of Forestry )

**V6.7 Development of a Technological Process for the Use of Lavender Waste Biomass for Energy Purposes**

Yuriy Enakiev (Institute of Soil Science, Agro-technology and Plant Protection "Nikola Pushkarov"); Dobromir Arabadzhiev (Bimeta - Bulgaria); Ivan Mortevev (Institute of Soil Science, Agro-technology and Plant Protection "Nikola Pushkarov")

**V6.8 Determination of the Electrical Field Intensity Affecting a Person Situated Under the Phase Conductor of a High Voltage Power Line**

Peter Petrov (TU Gabrovo); Krasimir Ivanov (TU Gabrovo); Gergi Velevev (TU Gabrovo); Tsvyatko Varbovev (TU Gabrovo)

**V6.9 Influence of an Integrated Battery System Over the Annual Grid Consumption for a Hybrid Decentralized System**

Krasimir Ivanov (TU Gabrovo); Yavor Stefanov (TU Gabrovo)

**V6.10 Modelling and Optimizing the Tool Life of Zirconia Toughened Alumina Ceramic Cutting Tools During Turning**

Irina Aleksandrova (Technical University - Gabrovo); Trayan Hristov (Technical University of Gabrovo)

**V6.11 Hall Elements Study with a Microprocessor System**

Anatoliy Aleksandrov(TU-Gabrovo); Gergana Mironova (TU-Gabrovo); Goran Goranov (TU-Gabrovo)

**Saturday, November 14<sup>th</sup> 2020**

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**V6.12 Determination of Core Losses and Optimal Values of Rotation Rate of an Induction Motor Driving a Compact Electric Vehicle Under Different Parameters and Conditions**

Svilen Rachev (Technical University - Gabrovo); Lyubomir Dimitrov (Technical University - Gabrovo)

**V6.13 Studies and Researches Regarding the Influence of the Size Of Solid Particles Forming a Heterogenous Mix on the Aerodynamic Separation Process**

Emilian Mosnegutu ("Vasile Alecsandri" University of Bacau)

**Saturday, November 14<sup>th</sup> 2020**

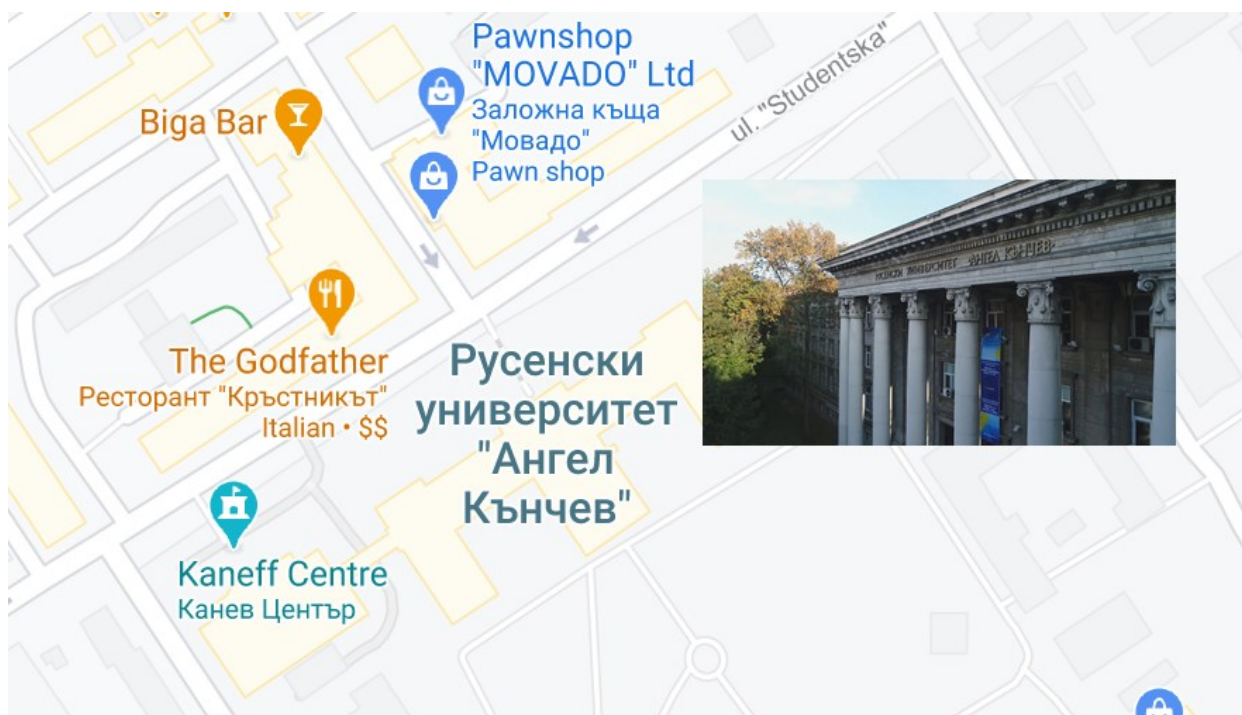
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11:45-12:00

**End of Conference (ONLINE)**

## VENUE

The EE&AE 2020 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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## SIGHTS FROM THE TOWN OF RUSE

