CIEES
HYBRID CONFERENCE

International Scientific Conference of Communications, Information, Electronic and Energy Systems

Conference programme

25-27 November, 2021
Ruse, Bulgaria

CIEES 2021

International Scientific Conference of
Communications, Information, Electronic and Energy Systems

November 25-27, 2021,
Ruse, Bulgaria

Conference Programme

Welcome to CIEES 2021

Dear participants,

It is our great pleasure to welcome you to the CIEES 2021, Bulgaria. The CIEES 2021 Conference is the premier international venue focused on understanding the current state and the evolution of the science through the lens of computer science, telecommunications, electronics, signal processing and applications, information technologies, energy systems, and many other disciplines. It is a place where researchers, academics, people in industry, students and the alike to present and discuss progress in research, development, standards, and applications related to the electrical engineering.

The technical program of this year's edition of the conference consists of three distinguished keynotes by world renowned experts: Prof. Stefan Ditchev, DSc of Bulgaria, Assist. Prof. Dr. Frank Gräbner of Germany and Prof. Dr. Felipe L. Peñaranda-Foix of Spain, 3 special session and 7 tracks for research papers. The CIEES 2021 conference is in collaboration with IOP Publishing and AIP Publishing.

We are thankful to all the people who helped us organizing the conference and that are listed in the next section. In particular, special thanks to Prof. Dr. Renato Filjar of University of Rijeka, and Krapina University of Applied Sciences, Croatia, the Conference Chairs, Program Committee members, and reviewers for their wonderful efforts in making a successful and rigorous technical program. Without them, this event would have never happened. Finally, we thank the members of the International Scientific Committee, for providing insightful guidelines and support in preparing and organizing the conference, the organizing committee for their tireless efforts, and for the highly professional work done on all aspects of the local organization of the CIEES 2021 Conference. We are confident that this conference will be a stimulating and rewarding experience, and we hope that you will also have an enjoyable and memorable time during the conference.

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General Conference Chair

Ivaylo STOYANOV
General Conference Chair

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CIEES 2021 CONFERENCE – SESSION SCHEDULE

Thursday, November 25

Time	Session name	Virtual room
15:00 - 15:15	Opening ceremony	VR_P
15:15 - 16:30	Plenary Keynote Lectures	VR_P
17:00 - 18:15	Special session 1: Spatial Information Fusion	VR_S1

Friday, November 26

Time	Session name	Virtual room
09:00 - 10:30	Information Technologies 1	VR_IT
10:45 - 12:15	Information Technologies 2	VR_IT
12:30 - 14:15	Telecommunications	VR_T
12:30 - 14:00	Electronics	VR_E
09:00 - 10:30	Energy and Renewable Sources 1	VR_ERS
10:45 - 12:15	Energy and Renewable Sources 2	VR_ERS
12:30 - 14:15	Smart Grid System	VR_SGS
14:30 - 16:30	Special session 2: Advanced Transport Systems and Vehicle Engineering	VR_S2
14:30 - 16:15	Special session 3: Digital Transformation within Big Data Environment	VR_S3

IMPORTANT:

1. Please note that at least one author per paper is requested to attend their session.
2. All times are presented in Eastern European Time (EET), so be careful in the recalculation to your national time zone. (**EET**= CET+1=GMT +2)
3. The details for joining the scheduled conference sessions on Zoom platform will be available on the official website.

Saturday, November 27

Time	Session name	Virtual room
08:00 - 9:00	Thermodynamic, Sensors and Measurement	VR_TSM
09:15 - 10:30	Smart Farming	VR_SF
09:15 - 10:30	Industrial Design	VR_ID
10:45 - 11:45	Project Dissemination	VR_D
12:00 - 12:15	End of Conference	VR_P

IMPORTANT:

4. Please note that at least one author per paper is requested to attend their session.
5. All times are presented in Eastern European Time (EET), so be careful in the recalculation to your national time zone. (**EET**= CET+1=GMT +2)
6. The details for joining the scheduled conference sessions on Zoom platform will be available on the official website.

PLENARY KEYNOTE LECTURES

Thursday, November 25, 2021

Session:	Plenary	Time:	15:15 - 16:30
Chair:	**Elena IVANOVA, Bulgaria**	**Virtual room:**	**VR_P**

Presentation: The Heat Pump Systems – an Option for Energy Efficiency and Innovation of Technologies

PROF. STEFAN DITCHEV, DSc.
(University of Food Technology (UFT), Plovdiv and a manager of SPD Cert Ltd Bulgaria)

Short biography: Professor Ditchev holds MSc (1963), PhD (1973) and DSc (1984) respectively, from Technical University, Sofia, Higher Institute of Food and Flavour Industries, Plovdiv and Technical University, Sofia. His research interests include refrigeration technique and technology, food engineering equipment, safety and quality management and assurance (GHP, GMP, GLP, HACCP, ISO 9000, FSMS, TQM) and energy effectiveness.
Professor Ditchev is a member of the General Assembly of European Federation of Food Science and Technology (EFFST), Wageningen, NL, International Institute of Refrigeration (IIR), Paris, International Academy of Refrigeration, St. Peterburg, Russia, World Technological University (UNESCO-Moscow), The Ukrainian Academy of Technological Cybernetics, New York Academy of Sciences and Association of the Energy Engineers, USA.
He was awarded with: A Golden Badge and Honoured Inventor in Bulgaria, Registered in the Golden Book of the discoverers and inventors in Bulgaria, Engineer of the year in Bulgaria, 1991, A Golden medal and diploma for inventions of the INPEX, Pittsburg, PA, USA and Doctor Honoris Causa of UFT, Plovdiv, Bulgaria, 2009.

Presentation: New EMC Effects with Multi-Layered Type of EM Shield

Assist. Prof. DR. Frank GRÄBNER
(Head of EMC Research at IMG Electronic & Power Systems GmbH, Nordhausen, Germany)

Short biography: Frank Gräbner is a Head of EMC Research at IMG Electronic & Power Systems GmbH, Nordhausen, Germany
He holds Dipl.-Ing. of Theoretical Electrotechnic (1992) and Dr.-Ing. (2006) degree from Faculty of Electrical Engineering and Information Technology, Technical University of Ilmenau, Germany.
His research interests include EMC materials for absorption and shielding, bulk and nano EMC materials like films, ferrites, metal plates in the frequency range to 20 GHz, on rubber material to 100 GHz, EMC design of devices.
Dr. Gräbner works at a KBA associated IMG Laboratory in Nordhausen with EMC measurements for Car electrical/ electronical devices.
He was awarded with innovation company award of the country Bremen for new materials at 2008.

Presentation: Material Electromagnetic Characterization

PROF. DR. FELIPE L. PEÑARANDA-FOIX
(Universidad Politécnica de Valencia (UPV), Valencia, Spain)

Short biography: Felipe L. Peñaranda-Foix was born in Benicarló, Spain, in 1967. He received the M.S. degree in electrical engineering from the Universidad Politécnica de Madrid (UPM), Madrid, Spain, in 1992, and the Ph.D. degree in electrical engineering from the Universidad Politécnica de Valencia (UPV), Valencia, Spain, in 2001.

In 1992, he joined the Departamento de Comunicaciones, UPV, where he is currently a Full Professor. Prof. Peñaranda-Foix is also a Researcher in the "Instituto de Tecnologías de la Información y las Comunicaciones" (ITACA) at UPV, co-leading the Division of Microwaves (DiMas group).

He has coauthored more than 100 articles in referred journals and conference proceedings and more than 50 engineering reports for companies.

His research interests include electromagnetic scattering, microwave circuits and cavities, sensors, and microwave heating applications.

Prof. Peñaranda-Foix is a member of the Association of Microwave Power in Europe for Research and Education (AMPERE), senior member of the IEEE and he is a reviewer of several international journals.

CIEES 2021 Conference – Session List

Thursday, November 25, 2021

Session:	Special session 1: Spatial Information Fusion	Time:	17:00 - 18:15
Chair:	**Renato FILJAR, Croatia**	**Virtual room:**	**VR_S1**

№	Paper	Speaker	Country
ID134	**Analysis of the Efficiency of the Ziegler-Nichols Optimization Method for Closed Circuit in the Management of a Robotic System at Different Trajectories** A Anchev[1], T Georgieva[1], A Ivanov[1] [1]*University of Ruse, Bulgaria*	Anton Anchev	Bulgaria
ID14	**Dynamic Stabilization-based Trajectory Planning For Drones** A Ajami[1], J Sawma[1], J El Maalouf[1] [1]*Université Saint Joseph de Beyrouth, Lebanon*	Alain Ajami	Lebanon
ID126	**Multi-sensor Configurations in Data Fusion Systems** P Nikovski[1] [1]*University of food technologies – Plovdiv, Bulgaria*	Plamen Nikovski	Bulgaria
ID130	**Quantitative measures for classification of human upper body posture in video signal to improve online learning** M Horvat[1], D Doljanin[1], T Jagušt[1] [1]*University of Zagreb, Croatia*	Dora Doljanin	Croatia
ID103	**Mobility patterns as contributors to Covid-19 spread in Croatia** H Kalaminec[1], I Popović[1], R Spudić[1], R Filjar[2] [1]*Krapina University of Applied Sciences, Croatia* [2]*Faculty of Engineering, University of Rijeka, Croatia*	Renato Filjar	Croatia

Friday, November 26, 2021

Session:	Information Technologies 1	Time:	09:00 - 10:30
Chair:	Veneta ALEKSIEVA, Bulgaria	Virtual room:	VR_1

№	Paper	Speaker	Country
ID4	**Cloud computing security requirements: A Review** G Tsochev[1], R Trifonov[1] [1]*Technical University of Sofia, Bulgaria*	Georgi Tsochev	Bulgaria
ID48	**Voice Analysis for Personal Identification Using FFT, Machine Learning and AI Techniques** I Balabanova[1], G Georgiev[1], B Karapenev[1], V Rankovska[1] [1]*Technical University of Gabrovo, Bulgaria*	Georgi Georgiev	Bulgaria
ID98	**Application of Images Segmentation and Median Filter for White Brined Cheese Structure Evaluation** A Bosakova-Ardenska[1], M Kutryanska[1], P Boyanova[1], P Panayotov[1] [1]*University of Food Technologies, Bulgaria*	Magdalina Kutryanska	Bulgaria
ID49	**Synthesis of Classification and Predictive FFNN Models on the Basis of Tenzoresistive Transducer Data** I Balabanova[1], S Sadinov[1], D Daskalaki[1], G Georgiev[1] [1]*Technical University of Gabrovo, Bulgaria*	Georgi Georgiev	Bulgaria
ID6	**Smart Contracts based on Hyperledger Fabric Blockchain for the Purpose of Health and Life Insurance Services** V Aleksieva[1], H Valchanov[1] [1]*Technical University of Varna, Bulgaria*	Veneta Aleksieva	Bulgaria
ID67	**Cloud Based System for Reservation of Medical Appointments** V Aleksieva[1]*, H Valchanov[1], M Vangelova[1] [1]*Technical University of Varna, Bulgaria*	Veneta Aleksieva	Bulgaria

Friday, November 26, 2021

Session:	Information Technologies 2	Time:	10:45 - 12:15
Chair:	**Filip TSVETANOV, Bulgaria**	**Virtual room:**	**VR_IT**

№	Paper	Speaker	Country
ID10	**Comparative analysis of ZigBee, 6LoWPAN and BLE technologies for the Internet of Things** A Haka[1], D Dinev[1], V Aleksieva[1], H Valchanov[1] [1]*Technical University of Varna, Bulgaria*	Aydan Haka	Bulgaria
ID104	**Virtual Instrument for Measuring the Operational Characteristics of Hydrogen-Powered Hybrid Vehicles** S Penchev[1], P Daskalov[1], T Georgieva[1], V Pencheva[1], A Asenov[1] [1]*University of Ruse, Bulgaria*	Stanislav Penchev	Bulgaria
ID114	**NLA-Layer: A New Data Structure for Storing of Dynamic (Streaming) Data** K Ivanova[1] [1]*University of Telecommunications and Post, Bulgaria*	Krassimira Ivanova	Bulgaria
ID94	**Comparative Evaluation of Traffic Load Balancing and QoS in SDN Networks** D Todorov[1], H Valchanov[1], V Aleksieva[1] [1]*Technical University of Varna, Bulgaria*	Dimitar Todorov	Bulgaria
ID41	**Connectivity in Sensor Networks** F Tsvetanov[1] [1]*South-West University, Bulgaria*	Filip Tsvetanov	Bulgaria
ID46	**Sensor Network Hardware Security** F Tsvetanov[1] [1]*South-West University, Bulgaria*	Filip Tsvetanov	Bulgaria

Friday, November 26, 2021

Session:	Telecommunications	Time:	12:30 - 14:15
Chair:	**Grigor MIHAYLOV, Bulgaria**	**Virtual room:**	**VR_T**

№	Paper	Speaker	Country
ID23	**Flexible Access Network Design for Futuristic Mobile 5D Communications and Services** V Stoynov[1], A Ivanov[1], D Mihaylova[1] [1]*Technical University of Sofia, Bulgaria*	Viktor Stoynov	Bulgaria
ID88	**System for Remote Visualization and Control of Data from Low Voltage Power Supply Grids** K Angelov[1], S Sadinov[1] [1]*Technical University of Gabrovo, Bulgaria*	Krasen Angelov	Bulgaria
ID68	**Physical Layer Security Methods against Eavesdropping on the Far User by the Near User in NOMA Networks – a Comparison** D Mihaylova[1], I Kuzmanova[1], V Stoynov[1], A Ivanov[1], Z Valkova-Jarvis[1], G Iliev[1] [1]*Technical University of Sofia, Bulgaria*	Iliyana Kuzmanova	Bulgaria
ID44	**Analysis of the Attenuation of Electromagnetic Fields Strength Using Spectrum Analyzer in the Area of University Campus II, Kavala, Greece** M Malamatoudis[1], P Kogias[1] [1]*International Hellenic University, Greece*	Michail Malamatoudis	Greece
ID39	**Applicability Assessment of Energy Detection Spectrum Sensing in Cognitive Radio based Ultra-Dense Networks** A Ivanov[1], V Stoynov[1], D Mihaylova[1], V Poulkov[1] [1]*Technical University of Sofia, Bulgaria*	Antoni Ivanov	Bulgaria
ID90	**Influence of the Efficiency of Optical Conversion Modules on the Performance in Passive Optical Networks** K Angelov[1], S Sadinov[1], P Kogias[2] [1]*Technical University of Gabrovo, Bulgaria* [2]*International Hellenic University, Greece*	Krasen Angelov	Bulgaria
ID121	**An Approach for Point-to-Point Link within Mobile Network Coverage** G Mihaylov[1], T Iliev[2] E Ivanova[2], I Stoyanov[1] [1]*University of Telecommunications and Post, Bulgaria* [2]*University of Ruse, Bulgaria*	Grigor Mihaylov	Bulgaria

Friday, November 26, 2021

Session:	Electronics	Time:	12:30 - 14:00
Chair:	**Jacob FANTIDIS, Greece**	**Virtual room:**	**VR_E**

№	Paper	Speaker	Country
ID120	**Doping a Bi Atom in Silicene Nanoribbons in the Presence of an External Electric Field** H V Ngoc[1] [1]*Thu Dau Mot University, Vietnam*	Hoang Van Ngoc	Vietnam
ID15	**A Model Based on Current Harmonics for Controlling the Induction Motor of a Crusher** T Hristova[1] [1]*University of Mining and Geology "St. Ivan Rilski", Bulgaria*	Teodora Hristova	Bulgaria
ID101	**Optimization Techniques for p-GTO Thyristor Design** M Cristea[1], F Babarada[1] [1]*University Politehnica of Bucharest, Romania*	Miron Cristea	Romania
ID82	**RFID Tracking System for the Basketball Game** L A Szolga[1], J Szocs[1] [1]*Technical University of Cluj-Napoca, Romania*	Lorant Szolga	Romania
ID84	**Smart Car Parking System Developed on IoT** L A Szolga[1], S Laza[1] [1]*Technical University of Cluj-Napoca, Romania*	Lorant Szolga	Romania
ID127	**Electrical Contact Resistance of 3D Printed Conductive Elastomer Material** M Ralchev[1], V Mateev[1], I Marinova[1], R Tzeneva[1] [1]*Technical University of Sofia, Bulgaria*	Valentin Mateev	Bulgaria

Friday, November 26, 2021

Session:	Energy and Renewable Sources 1	Time:	09:00 - 10:30
Chair:	Bogdan POPA, Romania	Virtual room:	VR_ERS

№	Paper	Speaker	Country
ID18	**Impact of Selected Teleconnection Pattern on Solar Energy Potential in Different Climatic Zones of Nigeria** O F Awe[1,2], S T Ogunjo[3], A B Rabiu[1], O J Ajanaku[1,2], I D Ijila[1,2] [1]*Centre for Atmospheric Research, National Space Research & Development Agency, Nigeria* [2]*Atmospheric & Space Weather Research Laboratory, Centre for Atmospheric Research, Osun State University, Nigeria* [3]*Federal University of Technology Akure, Nigeria*	Oluwayomi Awe	Nigeria
ID31	**Development of New Fault Evaluation Procedure for Thermography in the Field** J Fantidis[1], G Tsakalos[1], K. Karakoulidis[1] [1]*International Hellenic University, Greece*	Jacob Fantidis	Greece
ID19	**Numerical modelling of thermal conduction processes in the fins of two-stage "water to air" heat exchanger** Z Kolev[1], S Kadirova[1] [1]*University of Ruse, Bulgaria*	Zhivko Kolev	Bulgaria
ID107	**Examination of rotor excavator ropes for environmental safety workers in the coalmines of Kosovo** N Baftiu[1], R Bytyqi[2], V Sofiu[3] [1]*University "Ukshin Hoti", Kosovo* [2]*Rezonance College, Kosovo* [3]*Kolegji UBT, Kosovo*	Naim Baftiu	Kosovo
ID122	**Optimization of the Operation of Dokan Hydropower Development using Cuckoo Search Algorithm** K A Rashid[1] [1]*University of Sulaimani, Iraq*	Khalid Rashid	Iraq
ID133	**Optimization of a Complex Hydropower Development Operation using HEC-ResSim** E I Tică[1], K A Rashid[2], O V Sima[1], F Popa[3], O Nedelcu[3], B Popa[1] [1]*University Politehnica of Bucharest, Romania* [2]*University of Sulaimani, Iraq* [3]*University Valahia of Târgoviște, Romania*	Bogdan Popa	Romania

Friday, November 26, 2021

Session:	Energy and Renewable Sources 2	Time:	10:45 – 12:15
Chair:	Angel TERZIEV, Bulgaria	Virtual room:	VR_ERS

№	Paper	Speaker	Country
ID79	**Modern Materialistic Understanding of the "Energy" Notion and the Method of its Systemic Evaluation in Chemicals** O S Sirotkin[1] and R O Sirotkin[1] [1]*Kazan State Power Engineering University, Russian Federation*	Oleg Sirotkin	Russian Federation
ID77	**Statistical Approach and Multiplicative Models for Electric Vehicles Charging Behavior Patterns** D Y Koeva[1] [1]*Technical University of Gabrovo, Bulgaria*	Dimitrina Koeva	Bulgaria
ID97	**Machine Learning Prediction of Solar Energy Potential in Nigeria** S Ogunjo[1], O Aderonke[2], B Rabiu[2] [1]*Federal University of Technology, Nigeria* [2]*National Space Research and Development Agency, Nigeria*	Samuel Ogunjo	Nigeria
ID128	**DC Electric Arc Discharge Acoustic Spectrum Analysis by Computer Measurement System** M Ralcheva[1], V Mateev[1], I Marinova[1] [1]*Technical University of Sofia, Bulgaria*	Valentin Mateev	Bulgaria
ID17	**Numerical modeling of the airflow behavior affected by the windbreak trees in semi-flat terrains** A Terziev[1], G Pitchurov[1], Y Panteleev[1] [1]*Technical University of Sofia, Bulgaria*	Angel Terziev	Bulgaria
ID135	**Evaluation of the Possibility for Analysis of Wind Current on Complex Terrain using Several Meteorological Masts** Y Panteleev[1], A Terziev[1], I Iliev[2], M Ivanov[1] [1]*Technical University of Sofia, Bulgaria* [2]*University of Ruse, Bulgaria*	Angel Terziev	Bulgaria

Friday, November 26, 2021

Session:	Smart Grid Systems	Time:	12:30 - 14:15
Chair:	**Svilen RACHEV, Bulgaria**	**Virtual room:**	**VR_SGS**

№	Paper	Speaker	Country
ID33	**Discrete Event Models for Railway Traffic Control** C Ciufudean[1], C Buzduga[1] [1] *"Stefan cel Mare" University, Romania*	Calin Ciufudean	Romania
ID37	**Types of Smart Systems and their Application in Power Grids** M Mehmed-Hamza[1], A Filipov[1], M Ivanova[2] [1]*Medical University of Varna, Bulgaria* [2]*Technical University of Varna, Bulgaria*	Mediha Mehmed-Hamza	Bulgaria
ID42	**Assessment of Energy Efficiency of a Motor Yacht Depending on Routes and Sailing Area** G Ivanova[1], V Gyurov[1] [1]*Technical University of Varna, Bulgaria*	Ginka Ivanova	Bulgaria
ID43	**Study on Technical Solutions for Shore Power Supply of Motor Yacht** V Gyurov[1], G Ivanova[1] [1]*Technical University of Varna, Bulgaria*	Ginka Ivanova	Bulgaria
ID78	**A Mathematical Model for the Virtual Simulator of the Power Unit Electrical Part** P Baran[1], Y Varetsky[1], V Kidyba[1], Y Pryshliak[1] [1]*Lviv Polytechnic National University, Ukraine*	Yuriy Varetsky	Ukraine
ID30	**Modeling Techniques of Electricity Consumption Forecasting** V Shendryk[1], Y Parfenenko[1], S Tymchuk[2], Y Kholiavka[1], Y Bielka[1] [1]*Sumy State University, Ukraine* [2]*Kharkiv Petro Vasilenko National Technical University of Agriculture, Ukraine*	Yuliia Parfenenko	Ukraine
ID74	**Evaluation of the Behavior of an Induction Motor for Fan System under Various External Factors** S Rachev[1], L Dimitrov[1] [1]*Technical University of Gabrovo, Bulgaria*	Svilen Rachev	Bulgaria

Friday, November 26, 2021

Session:	Special session 2: Advanced Transport Systems and Vehicle Engineering	Time:	14:30 - 16:30
Chair:	**Simeon ILIEV, Bulgaria**	**Virtual room:**	**VR_S2**

№	Paper	Speaker	Country
ID7	**Application of GPS-Based Information System in Studying Dynamic Properties of Vehicles** D Lyubenov[1], T Balbuzanov[1], O Dinolov[1] [1] *University of Ruse, Bulgaria*	Ognyan Dinolov	Bulgaria
ID110	**Control Analysis of a Bi-motor Electric Traction System for Energy and Performance Optimization** L Popescu[1], L Melcescu[1], L Dumitran[1], A Crăciunescu[1], A Stănescu[1] [1]*University Politehnica of Bucharest, Romania*	Liviu Popescu	Romania
ID111	**Roads for Farming Territories Optimization for Price and Smart Quality** A Nebylov[1], V Nebylov[2] [1]*State University of Aerospace Instrumentation, Russia* [2]*International Institute for Advanced Aerospace Technologies of SUAI, Russia*	Alexander Nebylov	Russia
ID12	**Analysis of the Load of Technical Equipment in Robotic Modules** I Peeva[1], C Kostadinov[2], P Vitliemov[1] [1]*University of Ruse, Bulgaria* [2]*"G. S. Rakovski" National Defence College, Bulgaria*	Chavdar Kostadinov	Bulgaria
ID59	**Assessment of the Cumulative Combustion Pressure in the IC Engine** L. Sitnik[1], R Wróbel[1], M Andrych-Zalewska[1], Z Ivanov[2], R Dimitrov[2], V Mihaylov[2] [1]*Wroclaw University of Science and Technology, Poland* [2]*Technical University of Varna, Bulgaria*	Radostin Dimitrov	Bulgaria

ID136	**Kinematics of the Crank System of the Internal Combustion Engine** L Sitnik[1], R Wróbel[1], M Andrych-Zalewska[1], Z Ivanov[2], R Dimitrov[2], V Mihaylov[2] [1]*Wroclaw University of Science and Technology, Poland* [2]*Technical University of Varna, Bulgaria*	Radostin Dimitrov	Bulgaria
ID106	**Investigation of a Gasoline Engine Working with Different Compression Ratio and Fueled with Ethanol Additives** S Iliev[1] [1]*University of Ruse, Bulgaria*	Simeon Iliev	Bulgaria
ID129	**Investigation of a GDI Engine Working with Methanol Blends** S Iliev[1] [1]*University of Ruse, Bulgaria*	Simeon Iliev	Bulgaria

Friday, November 26, 2021

Session:	Special session 3: Digital Transformation within Big Data Environment	Time:	14:30 - 16:00
Chair:	**Pavel VITLIEMOV, Bulgaria**	**Virtual room:**	**VR_S3**

№	Paper	Speaker	Country
ID60	**Design of ICT Prototype for Big Data Economic Analysis** I Balabanova[1], B Karapenev[1], V Rankovska[1], G Georgiev[1] [1]*Technical University of Gabrovo, Bulgaria*	Georgi Georgiev	Bulgaria
ID102	**Analysis of Methods for Assessing the Energy Efficiency of Data Centers Using the Power Usage Effectiveness Method** R Uanov[1], A Begimbetova[2] [1]*Satbayev University, Republic of Kazakhstan* [2]*Almaty University of Energy and Communications, Republic of Kazakhstan*	Rustem Uanov	Republic of Kazakhstan
ID105	**Employee Turnover Reduction by Analyzing Textual Data with SPARK** S Yordanova[1], D Kabakchieva[1] [1]*University of National and World Economy, Bulgaria*	Stanimira Yordanova	Bulgaria
ID118	**Models and Methods of Digital Mechanisms in Anti-Corruption, their Advantages and Disadvantages, and Applications** A Nurkey[1], A Mukasheva[2], D Yedilkhan[3] [1]*Academy of the Public Administration, Republic of Kazakhstan* [2]*Almaty University of Power Engineering and Telecommunications* [3]*Astana IT University, Republic of Kazakhstan*	Aisulu Nurkey	Republic of Kazakhstan
ID119	**Predictive Pricing Models to Classify Potential Customers Using Data-driven Approaches** D Yedilkhan[1], A Mukasheva[2] [1]*Astana IT University, Republic of Kazakhstan* [2]*Almaty University of Power Engineering and Telecommunications, Republic of Kazakhstan*	Didar Yedilkhan	Republic of Kazakhstan

Saturday, November 27, 2021

Session:	Thermodynamic, Sensors and Measurements	Time:	08:00 - 09:00
Chair:	**Teodor ILIEV, Bulgaria**	**Virtual room:**	**VR_TSM**

№	Paper	Speaker	Country
ID131	**Research and Justification of Running Wheels Tire Parameters of Bridge-Type Transport Energy Vehicle** H Beloev[1], V Bulgakov[2], V Kuvachov[3], V Adamchuk[4], V Kaminskiy[5], S Ivanovs[6] [1]*University of Ruse, Bulgaria* [2]*National University of Life and Environmental Sciences of Ukraine, Ukraine* [3]*Dmytro Motornyi Tavria State Agrotechnological, Ukraine* [4]*Institute of Mechanization and Electrification of Agriculture, Ukraine* [5]*Institute of Agriculture of NAAS of Ukraine, Ukraine* [6]*Latvia University of Life Sciences and Technologies, Latvia*	Volodymyr Kuvachov	Ukraine
ID27	**Simulation, Modelling and Analysis of a Series Oscillating Circuit** V Ivanov[1] [1]*University "Prof. D-r Asen Zlatarov", Bulgaria*	Vasil Ivanov	Bulgaria
ID80	**Study Heat Exchange in Porous Structures** A Genbach[1], H Beloev[2], D Bondartsev[1], N Genbach[1] [1]*Almaty University of Energy and Communications, Republic of Kazakhstan* [2]*University of Ruse, Bulgaria*	David Bondartsev	Republic of Kazakhstan
ID81	**Heat Transfer for the Boiling Crisis in Porous Systems** A Genbach[1], H Beloev[2], D Bondartsev[1], N Genbach[1] [1]*Almaty University of Energy and Communications, Republic of Kazakhstan* [2]*University of Ruse, Bulgaria*	David Bondartsev	Republic of Kazakhstan

Saturday, November 27, 2021

Session:	Smart Farming	Time:	09:15 - 10:30
Chair:	Ivaylo STOYANOV, Bulgaria	Virtual room:	VR_SF

№	Paper	Speaker	Country
ID35	**Development of Three-Dimensional Models of the Spread of Pollution on Agricultural Land in Industrial Cities** N Kulenova[1], M Toguzova[1], Z Assylkhanova[1], A Mamysheva[1], M Sadenova[1], M Rakhymberdina[1] [1]*D. Serikbayev East Kazakhstan Technical University, Republic of Kazakhstan*	Zhanna Asylkhanova	Republic of Kazakhstan
ID52	**Overview of Methods and Technologies Used for Smart Management of Pastures and Meadows** K Gabrovska-Evstatieva[1], B Evstatiev[1] [1]*University of Ruse, Bulgaria*	Boris Evstatiev	Bulgaria
ID53	**The Operation Optimizing Experience for a High-intensity Closed Water Circulation Aquabiofarm Based on a Combination of Digital Twin Technologies and the Industrial Internet of Things** M Zhabitskii[1], Y Andryenko[1], A Josanov[2], V Malyshev[2] [1]*National Research Nuclear University, Russian Federation* [2]*JSC "Paninskoe", Russian Federation*	Mikhail Zhabitskii	Russian Federation
ID70	**Statistical Models Expressing Relations Between Soil Moisture, Aggregate Speed, and Tillage Depth at Plowing and Cultivation** P Veleva[1], G Hristova[1] [1]*Trakia University, Bulgaria*	Galya Hristova	Bulgaria
ID71	**Use of Optical Approaches to Improve Microscopic Imaging of Wood Samples** T Valkovski[1], N Christoff[1] [1]*Technical University of Sofia, Bulgaria*	Tsvetan Valkovski	Bulgaria

Saturday, November 27, 2021

Session:	Industrial Design	Time:	9:15 - 10:30
Chair:	**Yordan DOYCHINOV, Bulgaria**	**Virtual room:**	**VR_ID**

№	Paper	Speaker	Country
ID13	**Graphic Design of Interactive Interfaces** K Drumeva[1] [1]*St. Cyril and St. Methodius University, Bulgaria*	Krasimira Drumeva	Bulgaria
ID25	**On Change Detection and Process Diagnosis based on Information and Frequency Domain Models** D Aiordachioaie[1] [1]*Dunarea de Jos University of Galati, Romania*	Dorel Aiordachioaie	Romania
ID63	**Building Expert Maps for Ergonomic, Compositional and Colour Scheme Evaluation of Machine Control Panels** A Bankova[1] [1]*Technical University of Varna, Bulgaria*	Aleksandrina Bankova	Bulgaria
ID64	**Investigation on the Influence Large – Scale Sliding Valve Support Relative Positions Have on their Performance** A Bankova[1] [1]*Technical University of Varna, Bulgaria*	Aleksandrina Bankova	Bulgaria
ID125	**An Approach to Design a Semi-automated Assembly Line for the Automotive Industry Implementing the Lean 4.0 Concept** K Markov[1], P Vitliemov[1] [1]*University of Ruse, Bulgaria*	Krasimir Markov	Bulgaria

Saturday, November 27, 2021

Session:	Project dissemination	Time:	10:45 - 11:45
Chair:	Elena IVANOVA, Bulgaria	Virtual room:	VR_D

№	Paper	Speaker	Country
1	**Holistic approach towards problem-based ICT education based on international cooperation in pandemic conditions (ICT_EDUPAND)** *Project № 2020-1-PL01- KA226-HE-096196*	Teodor Iliev	Bulgaria
2	**Active Learning Community for Upskilling technicians and Engineers (allCUTE)** *Project № 2020-1-BG01-KA202-079042*	Panagiotis Kogias	Greece
3	**Electric Drives for Electric Vehicles and Industrial Applications, Electrical Components and Systems – Practical And Mathematical Model Studies in Terms of Energy and Economic Efficiency** *Project № 2104E*	Svilen Rachev	Bulgaria

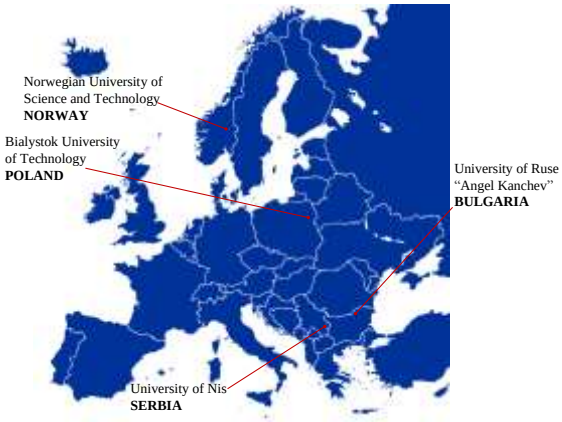
Saturday, November 27, 2021

Session:	End of Conference	Time:	12:00 - 12:15
Chair:	Teodor ILIEV, Bulgaria	Virtual room:	VR_P

Project № 2020-1-PL01- KA226-HE-096196

ICT_EDUPAND

Holistic approach towards problem-based ICT education based on international cooperation in pandemic conditions



- 24 months
- 01 June 2021 – 31 May 2023
- 4 European universities from:
  - Poland
  - Norway
  - Serbia
  - Bulgaria

The project aims to address the needs of adapting teaching and assessment methods to pandemic conditions, but also adapting the education system to the 21st century (or knowledge-society) needs and state-of-the art pedagogical research. The basic innovation lies in the holistic approach covering the set of the activities: novel teaching methodology, elaboration of new courses programmes, edition of digital materials, writing textbooks and training of academic teachers to involve them in this new teaching way.

The following results will be achieved during the project implementation:

- The innovative problem-based methodology under pandemic conditions will be developed and will be supported by appropriate digital presentations.
- Digital resources will be created in educating teachers for acquiring new skills related to the problem-based methodology.
- Digital teaching resources will be created in selected areas of ICT applicable for a group of problem-based courses.
- At least three multimedia books will be prepared with the aim to enable students to follow online lectures and prepare exams under pandemic conditions.

More information: https://ictedupand.pb.edu.pl/project-objectives/

Project № 2020-1-BG01-KA202-079042

allCUTE

Active Learning Community for Upskilling technicians and Engineers

Industry 4.0 is completely transforming the manufacturing sector in EU imposing its principle of digitalization of industrial processes. As a result, the new cyber-physical production systems have a high impact on the labour force, especially on technicians and engineers. They require new hybrid "humans-machines" teams, where technicians and engineers should analyze big data, simulate production lines, coordinate robots, diagnose/repair complex automated systems. The Skills and Jobs Survey highlights that 43% of adult employees have recently experienced changes in technology they use at work and 47% have seen changes in their working methods. About 1 in 5 considers it very likely that several of their skills will become outdated in the next years.

Taking into account the above needs, their relevance at European level and emergency at regional level, as well as the high demand of flexible continuous TVET on behalf of companies within the partner regions, a consortium of 4 universities, 4 Chambers of Commerce and Industry and a VET provider was established so as to develop an Active Learning Community for Upskilling Technicians and Engineers in the sector of Machine Building and Mechatronics.

INTELLECTUAL OUTPUTS

Conducting a survey on the skills deficit of technical and engineering staff in the sector of Machine Building and Mechatronics and writing a Partnership Report based on the findings of the skills deficit survey.

A Teacher's ToolKit on Active Learning for VET purposes so as to boost VET teachers' competence. An Active Learning Community Platform and its mobile application as an Open educational resources database including:

- Curriculum for upskilling technicians and engineers in the sector of Machine Building and Mechatronics;
- 14 course materials as open educational resources, based on blended and active learning;
- Problem-based platform – industry-relevant problems to be used by VET teachers and learners as assignments for practicing in the Learning Factory;
- Tutor and peer-to-peer support in the form of a discussion forum;
- Assessment area for assessing the gained knowledge

More information: https://allcute.eu/en/

UNIVERSITY PROJECT 2104E

Electric Drives for Electric Vehicles and Industrial Applications, Electrical Components and Systems – Practical and Mathematical Model Studies in Terms Of Energy And Economic Efficiency

Technical University- Gabrovo, BULGARIA

Financed by the Ministry of Education and Science of the Republic of Bulgaria

Duration: March – December 2021

Project goal: The project is in the field of scientific and applied research related to energy efficiency. The topic is in line with the priority tasks of the state policy of the Republic of Bulgaria and the EU to increase energy efficiency in final energy consumption and provision of energy services, while maintaining environmental standards, quality of production and quality of life.

The focus is on an electric vehicle with energy efficient components and a complete drive system with application in urban environments and at the same time emphasis on improving the performance of electrical components and systems with a large range. The main goal of the team is appropriate sizing and subsequent practical and model research in order to optimize operating and energy performance.

An analysis of the mutual influence of parameters and factors is envisaged. In addition, the team has opportunities and ambition to obtain scientific and practical results that have a long-term effect. The presented scientific field is in accordance with the national, regional and university priorities. Scientific, applied and economic aspects of electric mobility and its implementation are covered.

Invitation to the CIEES 2022 conference!
(24 – 26th November 2022)

It is our great pleasure and honour to invite you to the next edition of the International Scientific Conference on Communications, Information, Electronic and Energy Systems (CIEES'2022), which will be held in a hybrid mode at the last week of November, 2022.

The excellence that is usually promoted by CIEES will fit well with the scientific, and academic spirit and cultural life of Veliko Tarnovo - the old capital of Bulgaria and a town with history and traditions!

We hope this conference will represent an opportunity for young researchers to meet specialists in their field and to present their research and also to discuss with industry representatives.

Please, mark your calendars and save the date to attend the CIEES'2022 conference!

Teodor ILIEV
General Conference Chair

Ivaylo STOYANOV
General Conference Chair