



TECHNICAL UNIVERSITY of SOFIA



Faculty of Electronic Engineering and Technologies



XXXII INTERNATIONAL SCIENTIFIC CONFERENCE

# ELECTRONICS ET 2023

IEEE CONFERENCE RECORD # 59121

## PROGRAMME

**Sponsored by:**

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Faculty of Electronic Engineering and Technologies, TU – Sofia

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Science Days of Technical University of Sofia

Hotel "Lazur"

September 13 - 15, 2023

Sozopol, Bulgaria

The conference will be held as a hybrid event. Both in [HALL 1](#) and [HALL 2](#) will be possible online and physical presentation. The links are embedded in the programme.

The registration of the participants is possible online and on-site. It is preferred to be [online](#).

**THE XXXII INTERNATIONAL SCIENTIFIC CONFERENCE “ELECTRONICS ET 2023” IS ORGANIZED BY TECHNICAL UNIVERSITY OF SOFIA, FACULTY OF ELECTRONIC ENGINEERING AND TECHNOLOGIES, BULGARIA IN CO-OPERATION WITH DELFT UNIVERSITY OF TECHNOLOGY, THE NETHERLANDS**

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*Gerard C.M. Meijer*, Delft University of Technology, the Netherlands
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<b>Tracks</b>	<b>Track chairs</b>
Biomedical Engineering	Ivo Iliev – Bulgaria Irena Jekova – Bulgaria Vessela Krasteva – Bulgaria
Circuits and Systems	Emil Manolov – Bulgaria Ivaylo Pandiev – Bulgaria Tsvetana Grigorova – Bulgaria
Testing, Quality and Reliability	Anna Stoynova – Bulgaria Anton Georgiev – Bulgaria Ivan Evstatiev – Bulgaria
Education, Learning Technologies and Human Resources Development	Rossen Radonov – Bulgaria Tanichka Vasileva – Bulgaria Katya Asparuhova - Bulgaria
Embedded Systems	Grisha Spasov – Bulgaria Jeroen Boydens – Belgium Nikolay Kakanakov – Bulgaria
Instrumentation and Measurement	Marin Marinov – Bulgaria Stefan Hensel – Germany Georgi Nikolov – Bulgaria
Microelectronics	George Angelov – Bulgaria Stoyan Nihtianov – The Netherlands Elitsa Gieva – Bulgaria
Nanoelectronics and Technologies in Electronics	Mariya Aleksandrova-Pandieva – Bulgaria Igor Vrublevsky – Belarus Ivaylo Zhivkov – Czech Republic
Power Electronics	Nikolay Hinov – Bulgaria Darius Andriukaitis – Lithuania Dimitar Arnaudov – Bulgaria Nikolay Madzharov – Bulgaria

Wednesday, September 13, 2023	
1:00 p.m. EET	<b>Registration of participants</b> ( <a href="#">HALL 1</a> )
4:00 p.m. EET	<b>Official opening of the Conference</b> ( <a href="#">HALL 1</a> ) <b>Plenary session</b> <b>1. Valeri Mladenov.</b> The Fourth Element (or the rediscovered memristor). <i>Technical University of Sofia, Bulgaria</i> <b>2. Evtim Peytchev.</b> Connectivity in Connected and Autonomous Vehicles. <i>Nottingham Trent University, UK</i>
7:30 p.m. EET	<b>Welcome party</b>

Thursday, September 14, 2023	
9:00 a.m. EET	<b>Oral Session A</b> ( <a href="#">HALL 1</a> )
9:00 a.m. EET	<b>Poster Session B</b> ( <a href="#">HALL 2</a> ) Education, Learning Technologies and Human Resources Development Instrumentation and Measurement
4:00 p.m. EET	<b>Social program</b>

Friday, September 15, 2023	
9:00 a.m. EET	<b>Poster Session C</b> ( <a href="#">HALL 1</a> ) Biomedical Engineering Circuits and Systems Microelectronics Embedded Systems
9:00 a.m. EET	<b>Poster Session D</b> ( <a href="#">HALL 2</a> ) Power Electronics Testing, Quality and Reliability
1:00 p.m. EET	<b>Closing of the Conference</b> ( <a href="#">HALL 1</a> )

[HALL 1](#),

**Thursday,**

**September 14, 2023**

**9:00 a.m. EET**

## Session A

### Chairman – Stoyan Nihtyanov

- A.1. A. M. Zaki, Y. Du, S. Nihtianov.** Design and Qualification of a High-Speed Low-Power Comparator in 40 nm CMOS Technology. *Delft University of Technology, the Netherlands* - **20 min**
- A.2. S. Pleshkova, A. Bekiarski.** Data Transmission between IoT Modules using Audio Steganography. *Technical University of Sofia, Bulgaria* - **20 min**
- A.3. N. Koundal, N. Bencheva, M. Saad, I. Elamvazuthi, M. S. Al-Quraishi, A. Abdalhadi.** Investigating the Effect of Nested Interruptions and Levels of Cognitive Demand on Mental States. *Universiti Teknologi PETRONAS, Seri Iskandar, Perak Darul Ridzuan, Malaysia, University of Ruse “Angel Kanchev”, Bulgaria* - **20 min**
- A.4. A. Rustemi, V. Atanasovski, A. Risteski.** Design of the Blockchain System for the Generation and Verification of Diplomas. *Ss. Cyril and Methodius University in Skopje, University of Tetovo, N. Macedonia* - **20 min**
- A.5. K. Nosirov, S. Tzanova.** New Study Program in Space Systems and Communications Engineering. *Toshkent Axborot Texnologiyalari Universitetit, Tashkent, Uzbekistan, Technical University of Sofia, Bulgaria* - **20 min**
- A.6. A. Chikurteva.** ICT for Integrating the Project-Based Learning Method in Bulgarian Education. *Bulgarian Academy of Sciences, Bulgaria* - **20 min**
- A.7. K. Stoilova, T. Stoilov.** Business Management by Portfolio Optimization Model. *Bulgarian Academy of Sciences, Bulgaria* - **20 min**
- A.8. T. Stoilov, K. Stoilova.** Inventory and Safety Stock Optimization. *Bulgarian Academy of Sciences, Bulgaria* - **20 min**

[HALL 2](#),

**Thursday,**

**September 14, 2023**

**9:00 a.m. EET**

## Session B

### Education, Learning Technologies and Human Resources Development

### Chairman – Rossen Radonov

- B.P1. I. Pandiev, D. Badarov.** Development of a Laboratory System for the Study of Discrete-Circuit Basic LC Oscillators. *Technical University of Sofia, Bulgaria* - **5 min**
- B.P2. A. Borodzhieva, S. Zaharieva.** A Methodology for Designing Amplitude-Correction Sections Using an Active Implementation with an Operational Amplifier. *University of Ruse “Angel Kanchev”, Bulgaria* - **5 min**

- B.P3.** **D. Tokmakov, A. Bekyarova-Tokmakova, D. Kashokova.** Teaching Analogue Electronics through Simulations Using Performance-Centered Approach in Vocational Education and Training. *Plovdiv University "Paisii Hilendarski", Bulgaria - 5 min*
- B.P4.** **S. Zaharieva, A. Borodzhieva, I. Stoev.** Simulation and Laboratory Study of Voltage Multipliers in the Course Power Supply. *University of Ruse "Angel Kanchev", Bulgaria - 5 min*
- B.P5.** **A. Kostadinov.** Use of Software Simulators in Digital Logic Design Education. *Technical University of Sofia, Branch Plovdiv, Bulgaria - 5 min*
- B.P6.** **A. Borodzhieva, A. Pandzhar, M. Nedelchev, N. Genov.** Synthesis, Analysis and Implementation of Partial Counters Using Integrated Circuits. *University of Ruse "Angel Kanchev", Bulgaria - 5 min*
- B.P7.** **B. Bonev, P. Yakimov.** Application of Open-Source Software in Digital Electronics Education. *Technical University of Sofia, Bulgaria - 5 min*
- B.P8.** **P. Minev, V. Kukenska, I. Varbov, M. Dinev.** A Practical Computer Architecture Education with RISC-V and TL-Verilog. *Technical University of Gabrovo, Bulgaria - 5 min*
- B.P9.** **P. Stoynov.** Switch-Time neurons. Definitions and types. *Technical University of Sofia, Bulgaria - 5 min*
- B.P10.** **D. Ginchev, S. Stavrev.** Advancements in Main Battle Tank Simulations: Integrating Microcontrollers and Unreal Engine for Realistic Interior Panel Recreation. *Technical University of Sofia, Plovdiv University "Paisii Hilendarski", Bulgaria - 5 min*
- B.P11.** **R. Popov, A. Parushev, S. Lyubomirov.** Methodology for Determining the Thermal Properties of the Heat Insulation Panels Using a Gray Box Model. *Plovdiv University "Paisii Hilendarski", Bulgaria - 5 min*
- B.P12.** **A. Parushev, R. Popov, S. Lyubomirov, C. Cristian, G. Ionut, R. Laurentiu.** Laboratory Setup for Studying Heat Transfer through Thermal Insulation Panels. *Plovdiv University "Paisii Hilendarski", Bulgaria, University of Craiova, Romania - 5 min*
- B.P13.** **K. Kurteva, S. Tzanova, N. Kurtev.** The Impact of E-learning Techniques on Education Process. Platform Selection and Comparison. *Technical University of Sofia, Bulgaria - 5 min*
- B.P14.** **R. Petkov.** Two approaches in designing the learning content and measurement of achievements – European credit system for vocational education and training and Micro-credentials. *Technical University of Sofia, Bulgaria - 5 min*
- B.P15.** **N. Kurtev, K. Kurteva, N. Bogdanova, S. Bogdanov, S. Tzanova.** Moodle Based Learning Management System (LMS) Platform for Microelectronics Education. *Technical University of Sofia, Bulgaria - 5 min*
- B.P16.** **K. Kurteva, S. Tzanova.** Electronic Document Management Systems in the Context of Scientific and Educational Project Management. Comparative Study and Discussion. *Technical University of Sofia, Bulgaria - 5 min*
- B.P17.** **K. Kurteva, S. Bogdanov, N. Bogdanova, S. Tzanova, N. Kurtev.** Implementing ownCloud for Scientific Project Coordination as Document Management System. *Technical University of Sofia, Bulgaria - 5 min*
- B.P18.** **K. Kurteva.** Compliance and Data Security in Document Management Systems. *Technical University of Sofia, Bulgaria - 5 min*

**B.P19.** **S. Raicevic, I. Garvanov, N. Raicevic.** Improvements and Shortcomings in The First Stage of Scrum Implementation in Medium-Sized IT Companies. *Post of Serbia, The University of Library Studies and Information Technologies – ULSIT, Sofia, Bulgaria, University of Nis, Serbia* - **5 min**

**B.P20.** **R. Dimitrova.** Liability Associated with AI Systems under the Bulgarian Criminal Code: Requirements, Approaches and Proposals. *Technical University of Sofia, Bulgaria* - **5 min**

### **Instrumentation and Measurement**

#### **Chairman – Marin Marinov**

**B.P21.** **S. Hensel, M. Marinov, A. Dreher, D. Trendafilov.** Monocular Depth Estimation for Autonomous UAVs Navigation Based on Deep Learning. *University of Applied Sciences Offenburg, Germany, Technical University of Sofia, Bulgaria* - **5 min**

**B.P22.** **H. Hristov, K. Dimitrov.** Use of Infrared Radiometry for Livestock Temperature Measurements. *Technical University of Sofia, Bulgaria* - **5 min**

**B.P23.** **H. Hristov, T. Penev, L. Laskov, B. Ganev, V. Galabov.** Monitoring of Living Conditions in Cow Farm through a Multisensory System. *Technical University of Sofia, Trakia University, Stara Zagora, Bulgaria* - **5 min**

**B.P24.** **K. Dimitrov, L. Laskov.** Infrared Temperature Measurement of Wall Areas with Automatic Distance Correction. *Technical University of Sofia, Bulgaria* - **5 min**

**B.P25.** **H. Hristov, B. Ganev, L. Laskov.** Using an IoT System for Monitoring Climatic Conditions during Flowering in Fruit Plantations. *Technical University of Sofia, Bulgaria* - **5 min**

**B.P26.** **S. Rizanov, P. Yakimov.** The Technological Ecosystem of Modern Wildfire Detection: A Review. *Technical University of Sofia, Bulgaria* - **5 min**

**B.P27.** **T. Brusev, Y. Velchev, P. Petkov.** Design of Power Supply Circuit for Measurements of Geomagnetically Induced Currents in Power Networks. *Technical University of Sofia, Bulgaria* - **5 min**

**B.P28.** **G. Nikolov, B. Nikolova.** Bending Influence on the Flexible Interdigital Structures. *Technical University of Sofia, Bulgaria* - **5 min**

**B.P29.** **D. Spirov, Y. Madankov.** Sensorless Determination of the Temperature and Solar Radiation of a Photovoltaic Module. *University of Food Technologies, Plovdiv, Bulgaria* - **5 min**

**B.P30.** **M. Mitev, L. Tsankov, C. Dachev, B. Tomov, Y. Matviichuk, N. Tomchev.** Radiationless Energy Calibration of Radiation Survey Meters. *Bulgarian Academy of Sciences, Sofia University “St. Kliment Ohridski”, Technical University of Sofia, Bulgaria* - **5 min**

**B.P31.** **R. Miletiev, R. Yordanov, E. Iontchev, I. Damyanov.** Real-time Online Measurement of Automotive Pollution Emissions. *Technical University of Sofia, Higher School of Transport “T. Kableshkov”, Sofia, Bulgaria* - **5 min**

**B.P32.** **B. Shabanski.** Sensor Array Current Consumption Optimizer with Gradient Descent. *Technical University of Varna, Bulgaria* - **5 min**

- B.P33.** **Shabanski, A. Marinov.** Design of an Embedded Environment Monitoring System with Emphasis on Low Power Consumption. *Technical University of Varna, Bulgaria - 5 min*
- B.P34.** **P. Petrov.** IMU Sensor Fusion with Quaternion Interval-Based Orientation Filters Processed over Smartphone Scanned Data. *Technical University of Sofia, Bulgaria - 5 min*
- B.P35.** **D. Iliev, M. Marinov.** Embedded System for E-Waste Recognition Using Computer Vision. *Technical University of Sofia, Bulgaria - 5 min*
- B.P36.** **D. Iliev, M. Marinov.** Performance Analysis of an Embedded System for E-Waste Recognition. *Technical University of Sofia, Bulgaria - 5 min*
- B.P37.** **K. Angelov, P. Kogias, R. Pasarelski.** Application and Performance Analysis of LoRa End Devices for Monitoring of Indoor Lighting Systems. *Technical University of Gabrovo, Bulgaria, International Hellenic University, Kavala, Greece, New Bulgarian University, Sofia, Bulgaria - 5 min*
- B.P38.** **A. Todorov, K. Asparuhova.** Methods for Automated PCB Testing - Requirements, Rules and Implementation. *Technical University of Sofia, Bulgaria - 5 min*

<a href="#"><u>HALL 1,</u></a>	<a href="#"><u>Friday,</u></a>	<a href="#"><u>September 15, 2023</u></a>	<a href="#"><u>9:00 a.m. EET</u></a>
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## Session C

### Biomedical Engineering

#### Chairman – Ivo Iliev

- C.P1.** **G. Mihov, D. Badarov.** Approach of Successive Suppression of Mains Interference and Base-line Drift in ECG Signals. *Technical University of Sofia, Bulgaria - 5 min*
- C.P2.** **I. Iliev, L. Bogdanov, S. Tabakov.** FPGA Algorithm for QRS Detection in Electrocardiogram. *Technical University of Sofia, Bulgaria - 5 min*
- C.P3.** **D. Dobrev, T. Neycheva.** Intuitive Approach to Active Digital Filter Design. Part I: Principle of First-order Filters. *Bulgarian Academy of Sciences, Bulgaria - 5 min*
- C.P4.** **T. Neycheva, D. Dobrev.** Intuitive Approach to Active Digital Filter Design. Part II: Principle of Higher-order Low-pass Filters. *Bulgarian Academy of Sciences, Bulgaria - 5 min*
- C.P5.** **S. Tabakov, I. Chuchulski, D. Badarov, N. Tomchev.** Multichannel Non-Contact System for Breathing Detection and Respiratory Rate Measurement Using Capacitive Electrodes. *Technical University of Sofia, Bulgaria - 5 min*
- C.P6.** **L. Banchelli, B. Ganev, T. Todorov.** Sustainability Validation of a LabVIEW Based System for Biomarkers Detection. *Technical University of Sofia, Bulgaria - 5 min*
- C.P7.** **V. Nikolov, I. Georgiev, I. Chavdarov.** Hardware and Software of a 3D Printed Humanoid Hand. *Bulgarian Academy of Sciences, Sensata Technologies, Sofia University "St. Kliment Ohridski", Bulgaria - 5 min*

**C.P8. E. Nikolova.** Overview of the Application of Laser Technologies in Medicine and Cosmetics. *Technical University of Sofia, Bulgaria - 5 min*

### Circuits and Systems

#### Chairman – Georgy Mihov

**C.P9. N. Tomchev, M. Mitev, L. Tsankov.** Novel Linear Step-up Power Supply Module for Detector Systems. *Technical University of Sofia, Bulgarian Academy of Sciences, Sofia University “St. Kliment Ohridski”, Bulgaria - 5 min*

**C.P10. A. Radev.** Overview of Methodologies for Initial Design of CMOS Integrated Circuits in Deep Submicron Processes in Different Regions of Inversion. *Technical University of Sofia, Bulgaria - 5 min*

**C.P11. A. Radev.** Design of Temperature-independent Reference Voltage Source. *Technical University of Sofia, Bulgaria - 5 min*

**C.P12. S. Stefanov, G. Georgiev.** A Fast Transient Response Capacitorless LDO Designed in 22FDX® Technology. *GlobalFoundries Sofia, Bulgaria - 5 min*

**C.P13. B. Petrov.** PIC MCU to FPGA Data Transfer Optimization Over Parallel-Master-Port. *Technical University of Sofia, Branch Plovdiv, Bulgaria - 5 min*

**C.P14. M. Dinev, V. Kukenska, P. Minev.** Research of Sequential Algorithms for Graph Model Decomposition. *Technical University of Gabrovo, Bulgaria - 5 min*

**C.P15. I. Dochev, L. Docheva, S. Manev.** Study of Digital Modulated Signals, using PSPICE. *Technical University of Sofia, Bulgaria - 5 min*

**C.P16. I. Ivanov.** Modeling, Simulation and Implementation of pi/4-DQPSK modem on SDR. *Defence Institute “Prof. Tsvetan Lazarov” – MoD, Sofia, Bulgaria - 5 min*

**C.P17. Y. Velchev, P. Petkov, T. Brusev.** A Web-based Antenna Positioning System with Application in Radio Astronomy. *Technical University of Sofia, Bulgaria, - 5 min*

**C.P18. M. Nenova, B. Stoytcheva, M. Hristov, Z. Valkova Djarvis, G. Balabanov.** A Specifics Overview of Systems for Monitoring Security Events in Different Areas. *Technical University of Sofia, Bulgaria - 5 min*

**C.P19. I. Trendafilov, V. Gancheva.** Neuromorphic Assisted Sensor Grids. *Technical University of Sofia, Bulgaria - 5 min*

**C.P20. I. Trendafilov, V. Gancheva.** Neuromorphic Neurons and Networks for Artificial Intelligence build using Temporal Space Calculations. *Technical University of Sofia, Bulgaria - 5 min*

**C.P21. P. Pavlova, B. Pachedjieva, D. Petrova.** Derivation of Numerical Criteria for the Occurrence of Natural Phenomena in Video Sequences. *Technical University of Sofia, Branch Plovdiv, Bulgaria - 5 min*

**C.P22. G. Popov, O. Nakov, A. Popova, K. Semova.** Application of Fuzzy Logic for Detection of Financial-Customs Violations. *Technical University of Sofia, Bulgaria - 5 min*

**C.P23. R. Rusev.** Piezo Effect of Polyvinylidene Fluoride Layer with Rochelle Salt. *Technical University of Sofia, Bulgaria - 5 min*

## Embedded Systems

### Chairman – Grisha Spasov

**C.P24. N. Nikolov, D. Gotseva.** A Secure Firmware Update over the Air of ESP32 using MQTT Protocol from Cloud. *Technical University of Sofia, Bulgaria - 5 min*

**C.P25. L. Bogdanov.** Pipeline-accurate Instruction Cycle Measurements for Microprocessor Model Extraction. *Technical University of Sofia, Bulgaria - 5 min*

**C.P26. L. Bogdanov, R. Ivanov, N. Iliev.** A Server Application for Bridging the TCP/IP and Bluetooth Protocols. *Technical University of Sofia, Bulgaria, Nextlab Ltd, Sofia, Bulgaria - 5 min*

**C.P27. S. Lishev, G. Spasov, G. Petrova, P. Pavlova.** Air Parameters Monitoring in Urban Area based on LoRaWAN: Data Collection for Environmental Assessment. *Technical University of Sofia, Branch Plovdiv, Bulgaria - 5 min*

**HALL 2, Friday, September 15, 2023 9:00 a.m. EET**

## Session D

### Testing, Quality and Reliability

### Chairman – Anna Stoynova

**D.P1. Y. Fujita, A. Kono, Y. Suzuki, H. Urushibata, N. Naoe, R. Hanaoka.** Analysis of Current, Polarization and Lithium Concentration in the Porous Electrode of a Lithium-ion Battery during High-frequency, High-current (10,000C) Flow. *Kanazawa Institute of Technology, Japan - 5 min*

**D.P2. A. Stoynova, B. Bonev, S. Rizanov, N. Kafadarova, S. Sotirov.** Utilization of Infrared Thermography for Battery Performance Inspection. *Technical University of Sofia, Plovdiv University “Paisii Hilendarski”, Bulgaria - 5 min*

**D.P3. Kafadarova, S. Sotirov, A. Stoynova, S. Rizanov, B. Bonev.** Deep Neural Network Estimation of Battery Cell Age. *Plovdiv University “Paisii Hilendarski”, Technical University of Sofia, Bulgaria - 5 min*

**D.P4. D. Stoyanova, S. Stoyanova-Petrova, N. Vakrilov, N. Mileva, V. Mengov.** State of Health Estimation of Lithium-ion Batteries: A Review of Data-driven Methods. *Plovdiv University “Paisii Hilendarski”, Bulgaria - 5 min*

**D.P5. D. Nikolaeva.** An Elementary Emulator Based on Speech-To-Text and Text-to-Speech Technologies for Educational Purposes. *Technical University of Varna, Bulgaria - 5 min*

**D.P6. N. Vakrilov, N. Kafadarova.** A Review of Industry Quality Improvement Strategies through DOE Statistical Techniques. *Plovdiv University “Paisii Hilendarski”, Bulgaria - 5 min*

**D.P7. R. Rusev, V. Tsenev, V. Videkov, K. Petkovska.** Combined Footprint of Solder Paste - influence of Bismuth Content on Solder Strength. *Technical University of Sofia, Bulgaria* - **5 min**

**D.P8. V. Mateev, I. Marinova.** Optimization of Heat Sink Design by Simulated Annealing Method. *Technical University of Sofia, Bulgaria* - **5 min**

**D.P9. N. Manchev, K. Angelov, B. Karapenev.** Provision and Assessment of Wireless Coverage and Communication Range of a LoRaWAN Network in an Urban Environment. *Technical University of Gabrovo, Bulgaria* - **5 min**

### **Power Electronics**

#### **Chairman – Dimitar Arnaudov**

**D.P10. N. Hinov, T. Hranov.** Tolerance Analysis of a Resonant DC/AC Converter with Reverse Diodes Operating at Control Frequency Below and Above Resonance. *Technical University of Sofia, Bulgaria* - **5 min**

**D.P11. K. Kishkin, I. Stefanov, D. Arnaudov.** Examination of LLC based DC/DC Resonant Converter at Different Modes of Operation. *Technical University of Sofia, Bulgaria* - **5 min**

**D.P12. T. Grigorova, A. Vuchev.** Modeling and simulation of a phase-shift controlled LLC resonant converter. *Technical University of Sofia, Branch Plovdiv, University of Food Technologies, Plovdiv, Bulgaria* - **5 min**

**D.P13. A. Vuchev, T. Grigorova, S. Vuchev.** Theoretical Analysis of an LLC Resonant DC-DC Converter at Boost Mode. *University of Food Technologies, Plovdiv, Technical University of Sofia, Branch Plovdiv, V4Tech Electronics Ltd., Sofia, Bulgaria* - **5 min**

**D.P14. A. Lichev, Y. Madankov, A. Vuchev, V. Mihov.** Dual Active Bridge Resonant Converter with Variable Frequency Control. *University of Food Technologies, Plovdiv, Bulgaria* - **5 min**

**D.P15. K. Maslyaniy, T. Hranov, N. Hinov.** Validation of Buck DC/DC converter inductor influence via experimental evaluation module. *Technical University of Sofia, Bulgaria* - **5 min**

**D.P16. N. Nehovski, V. Dimitrov.** Hybrid Solar Inverters evaluation. *Technical University of Sofia, Bulgaria* - **5 min**

**D.P17. N. Kurtev.** Autonomous Street Lighting System with Batteries and PV Generators: System Modeling and Results. *Technical University of Sofia, Bulgaria* - **5 min**

**D.P18. G. Vacheva, P. Stanchev, N. Hinov.** Model-based Investigation of the Control Systems of the PMSM and Induction Motor for Application in EVs. *Technical University of Sofia, Bulgaria* - **5 min**

**D.P19. G. Vacheva, P. Stanchev, N. Hinov.** Influence of the Parasitic Components in Induction Motor. *Technical University of Sofia, Bulgaria* - **5 min**

**D.P20. D. Yankov, T. Grigorova, I. Maradzhiev.** Comparative Analysis of Control Algorithms for a Power converter - Switched Reluctance Motor System in Motoring Mode. *Technical University of Sofia, Branch Plovdiv, Bulgaria* - **5 min**

**D.P21.** **S. Simeonov, I. Maradzhiev.** Improving the Print Quality of a Budget 3D FDM Printer by Replacing the Factory-installed Stepper Motor Drivers. *Technical University of Sofia, Branch Plovdiv, Bulgaria - 5 min*

**D.P22.** **T. Todorova.** Control of N87 Mn-Zn Ferrite Permeability Using Externally Applied Static Magnetic Field. *Technical University of Sofia, Bulgaria - 5 min*

**D.P23.** **T. Todorova.** Large Signal Complex Permeability for Design and Simulation of Power Electronics Circuits. *Technical University of Sofia, Bulgaria - 5 min*

**D.P24.** **B. Bonev, A. Stoynova, S. Rizanov.** SPICE Modeling of the Li-ion Battery Pack's Charge Behavior using QUCS-S Software. *Technical University of Sofia, Bulgaria - 5 min*

**D.P25.** **P. Mashkov, H. Beloev, R. Kandilarov, P. Pavlov.** Method for Cooling Lithium-ion Batteries in Electric Bicycles. *University of Ruse "Angel Kanchev", Bulgaria - 5 min*

**D.P26.** **D. Dankov, P. Prodanov, P. Marinov.** A Research on High Efficiency InnoSwitch3-EP GaN AC/DC Integrated Circuit. *Technical University of Gabrovo, Bulgaria - 5 min*

## **Presentation preparation**

The authors have to prepare presentations following the template from the conference site. The file “Presentation Template” can be reached by clicking on the “Author's Kit” button on the conference site. The number of slides must correspond to the fixed time of the presentation – 20 minutes for oral and 5 minutes for poster presentation. The presentations have to be uploaded in the system till **September, 9**. Presentations which do not match the template will not be accepted.