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Faculty of Electronic Engineering and Technologies



XXXIV INTERNATIONAL SCIENTIFIC CONFERENCE

# ELECTRONICS ET 2025

IEEE CONFERENCE RECORD # 66806

## PROGRAMME

**Sponsored by:**

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Faculty of Electronic Engineering and Technologies, TU – Sofia

IEEE Bulgaria Section

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Science Days of Technical University of Sofia

Hotel “Lazur”

September 16 - 18, 2025

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 [ONLINE](#) on the embedded link or after scanning the QR code:



**THE XXXIV INTERNATIONAL SCIENTIFIC CONFERENCE “ELECTRONICS ET 2025” IS  
ORGANIZED BY TECHNICAL UNIVERSITY OF SOFIA, FACULTY OF ELECTRONIC  
ENGINEERING AND TECHNOLOGIES, BULGARIA**

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*Yoji Fujita*, Kanazawa Institute of Technology, Japan

| <b>Tracks</b>                                                    | <b>Track chairs</b>                                                                                                             |
|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Biomedical Engineering                                           | Ivo Iliev – Bulgaria<br>Irena Jekova – Bulgaria<br>Vessela Krasteva – Bulgaria                                                  |
| Circuits and Systems                                             | Georgy Mihov – Bulgaria<br>Emil Manolov – Bulgaria<br>Ivaylo Pandiev – Bulgaria<br>Galidiya Petrova – Bulgaria                  |
| Testing, Quality and Reliability                                 | Anna Stoynova – Bulgaria<br>Anton Georgiev – Bulgaria<br>Ivan Evstatiev – Bulgaria                                              |
| Education, Learning Technologies and Human Resources Development | Rossen Radonov – Bulgaria<br>Ivelina Ruskova – Bulgaria<br>Katya Asparuhova – Bulgaria<br>Tanichka Vasileva – Bulgaria          |
| Embedded Systems                                                 | Grisha Spasov – Bulgaria<br>Jeroen Boydens – Belgium<br>Nikolay Kakanakov – Bulgaria<br>Lubomir Bogdanov – Bulgaria             |
| Instrumentation and Measurement                                  | Marin Marinov – Bulgaria<br>Stefan Hensel – Germany<br>Georgi Nikolov – Bulgaria<br>Borislav Ganev – Bulgaria                   |
| Microelectronics                                                 | George Angelov – Bulgaria<br>Stoyan Nihtianov – The Netherlands<br>Dimitar Nikolov – Bulgaria                                   |
| Nanoelectronics and Technologies in Electronics                  | Mariya Aleksandrova – Bulgaria<br>Ivaylo Zhivkov – Czechia<br>Alexander Tzanov – USA                                            |
| Power Electronics                                                | Tsvetana Grigorova – Bulgaria<br>Darius Andriukaitis – Lithuania<br>Dimitar Arnaudov – Bulgaria<br>Nikolay Madzharov – Bulgaria |

| Tuesday, September 16, 2025 |                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1:00 p.m. EET               | <b>Registration of participants</b> ( <a href="#">ONLINE</a> )                                                                                                                                                                                                                                                                                                                   |
| 4:00 p.m. EET               | <b>Official opening of the Conference</b> ( <a href="#">HALL 1</a> )<br><b>Plenary session</b><br><b>1. Ulrich Hensel.</b> AIOT (Artificial Intelligence of Things) Design Using Ultra-Low Voltage in GF 22FDX. <i>GlobalFoundries, Dresden, Germany</i><br><b>2. Alexander Tzanov.</b> Machine Learning in Simulation of Nanomaterials. <i>City University of New York, USA</i> |
| 7:30 p.m. EET               | <b>Welcome party</b>                                                                                                                                                                                                                                                                                                                                                             |

| Wednesday, September 17, 2025 |                                                                                                                                                                                        |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9:00 a.m. EET                 | Oral Session A ( <a href="#">HALL 1</a> )                                                                                                                                              |
| 9:00 a.m. EET                 | Poster Session B ( <a href="#">HALL 2</a> )<br>Education, Learning Technologies and Human Resources Development<br>Microelectronics<br>Nanoelectronics and Technologies in Electronics |
| 2:00 p.m. EET                 | Oral Session C ( <a href="#">HALL 1</a> )                                                                                                                                              |
| 2:00 p.m. EET                 | Poster Session D ( <a href="#">HALL 2</a> )<br>Power Electronics<br>Testing, Quality and Reliability                                                                                   |
| 5:00 p.m. EET                 | <b>Five o'clock tea party</b>                                                                                                                                                          |
| 7:30 p.m. EET                 | <b>Official dinner</b>                                                                                                                                                                 |

| Thursday, September 18, 2025 |                                                                                                    |
|------------------------------|----------------------------------------------------------------------------------------------------|
| 9:00 a.m. EET                | Poster Session E ( <a href="#">HALL 1</a> )<br>Circuits and Systems<br>Biomedical Engineering      |
| 9:00 a.m. EET                | Poster Session F ( <a href="#">HALL 2</a> )<br>Embedded Systems<br>Instrumentation and Measurement |
| 12:00 a.m. EET               | <b>Closing of the Conference</b> ( <a href="#">HALL 1</a> )                                        |

**Session A****Chairman – Pasquale Daponte**

- A.1. Kai-Da Xu.** A High-Selectivity Frequency Selective Surface with Bandpass Response. *University of Alcalá, Spain* - **20 min**
- A.2. F. Halili, E. Abduramani, M. Halili, S. Ilazi.** Microservice Harmony: Orchestrating SOA Workflows with Kubernetes and Temporal. *University of Tetova, Tetovo, North Macedonia* - **20 min**
- A.3. Y. Fujita, C. Toyoda, A. Kono, H. Nishiguchi, K. Ogasawara, S. Hirai.** Analysis of the Response of Lithium-Ion Batteries to a Sinusoidal Signal Exceeding the Upper Charging Voltage Limit. *Kanazawa Institute of Technology, Mitsubishi Electric Corporation, Japan* - **20 min**
- A.4. T. Stoilov, K. Stoilova.** Analytical Design of a Battery for a Photovoltaic System. *Bulgarian Academy of Sciences, Bulgaria* - **20 min**
- A.5. K. Stoilova, T. Stoilov.** Forecasting Battery Energy in a Photovoltaic System. *Bulgarian Academy of Sciences, Bulgaria* - **20 min**
- A.6. P. Daponte, L. De Vito, S. Rapuano.** A Lightweight Architecture of Remote Experiment Access Provider for Measurement Science Education. *University of Sannio, Benevento, Italy* - **20 min**
- A.7. L. Aljihmani, R. Ammuri, K. Qaraqe.** Influence of Fatigue on the Physiological Tremor in Non-diabetic and Diabetic Persons: Preliminary Study. *Hamad Bin Khalifa University, Texas A&M University at Qatar, Doha, Qatar, Professionals for Smart Technology, Amman, Jordan* - **20 min**

**Session B****Education, Learning Technologies and Human Resources Development****Chairman – Rossen Radonov**

- B.P1. M. Daneva.** Application of Artificial Intelligence in E-Learning as a Tool for Inclusive Education. *Technical University of Sofia, Bulgaria* - **5 min**
- B.P2. N. Yanev, I. Getova, E. Mihailova.** Impact of Artificial Intelligence on the Educational Process. *University of Library Studies and Information Technologies, Sofia, Bulgaria* - **5 min**
- B.P3. K. Kostova.** AI-Driven PCB Design: A Comparative Review of EDA Platforms and ChatGPT's Practical Integration. *Technical University of Sofia, Bulgaria* - **5 min**

- B.P4. B. Danov.** Methodologies and Applications of Advanced Analytics, NLP and Computer Vision in Business Process Automation and Optimization via AI and ML. *Technical University of Sofia, Bulgaria - 5 min*
- B.P5. M. Daneva.** Methodology of Computer Modelling in Primary Education – ICT Specialists or Primary Teachers? *Technical University of Sofia, Bulgaria - 5 min*
- B.P6. S. Asenov, M. Bundeve, A. Chekichev.** Research on the use of ChatGPT in Programming of ICT Secondary Education. *University of Plovdiv “Paisii Hilendarski”, Bulgaria - 5 min*
- B.P7. B. Ujkani, S. Mustafa, D. Minkovska.** Performance Comparison of Supervised Machine Learning Algorithms for Credit Card Fraud Detection. *University “Isa Boletini”, Mitrovica, Republic of Kosovo, Technical University of Sofia, Bulgaria - 5 min*
- B.P8. M. Simeonova-Ingilizova.** Active Learning in Engineering Education through Flipped Classroom Integration and Google Classroom. *Technical University of Sofia, Bulgaria - 5 min*
- B.P9. R. Petkov.** Digitization of Education, Training and Prior Learning and Exchanging the Learning and Assessment Approaches. *Technical University of Sofia, Bulgaria - 5 min*
- B.P10. V. Ivanov.** E-learning Essentials and Comparison of LMS, LCMS and CMS Platforms. *Technical University of Sofia, Bulgaria - 5 min*
- B.P11. A. Borodzhieva, S. Zaharieva.** An Approach for Synthesis of Two-Error Detecting and Correcting BCH Codes Applied in the Educational Process. *University of Ruse “Angel Kanchev”, Bulgaria - 5 min*
- B.P12. E. Antonova, D. Minkovska.** Beyond Correct & Incorrect: Identifying Error Types to Personalise Learning Paths in Computer Science Education. *Technical University of Sofia, Bulgaria - 5 min*
- B.P13. D. Nikolaeva.** Exploring the Basic Principles of Functional and Object-Oriented Programming. *Technical University of Varna, Bulgaria - 5 min*
- B.P14. P. Minev, I. Varbov, V. Kukenska, M. Dinev.** Using an AVR Processor Core RTL Model for Computer Architecture Education. *Technical University of Gabrovo, Bulgaria - 5 min*
- B.P15. A. Borodzhieva, S. Zaharieva.** Z-Transform in the Learning Process: Interactive Approaches for More Effective Digital Signal Processing Training. *University of Ruse “Angel Kanchev”, Bulgaria - 5 min*
- B.P16. L. Docheva, I. Dochev, S. Manev, I. Nachev.** Study of Nonlinear Circuits by Means of Computer Programs. *Technical University of Sofia, Bulgaria - 5 min*
- B.P17. I. Pandiev, N. Kurtev.** Analysis and Design of a Wien-bridge Oscillator with a Limiter for Amplitude Stabilization. *Technical University of Sofia, Bulgaria - 5 min*
- B.P18. H. Kanevski, S. Asenov.** Integrating Open-Hardware ECUs into Engineering Education. *University of Plovdiv “Paisii Hilendarski”, Bulgaria - 5 min*
- B.P19. B. Bonev, P. Yakimov.** Open-source Software Application in Education of Resistive Sensors Signal Conditioning. *Technical University of Sofia, Bulgaria - 5 min*
- B.P20. A. Borodzhieva.** Active Learning Methods when Studying the Tseytin Transformation: A Key to the Effective Implementation of Digital Circuits. *University of Ruse “Angel Kanchev”, Bulgaria - 5 min*

- B.P21. S. Zaharieva, A. Borodzhieva, A. Manukova.** Integrated Methodology for the Study of Single-Phase Rectifiers in the Context of Active Engineering Education. *University of Ruse “Angel Kanchev”, Bulgaria - 5 min*
- B.P22. S. Shotarova, S. Stoyanova-Petrova, S. Asenov, S. Lyubomirov, S. Staicov.** Development of an Educational Web-based Platform for Photovoltaic Systems. *University of Plovdiv “Paisii Hilendarski”, Bulgaria - 5 min*
- B.P23. S. Staicov, S. Shotarova, S. Lyubomirov.** Educational IoT Platform for Automation and Energy Efficiency: Design, Implementation and Integration with ThingsBoard. *University of Plovdiv “Paisii Hilendarski”, Bulgaria - 5 min*
- B.P24. R. Dimitrova.** Training of AI Models and Copyright: Analysis of the Relevant EU and Bulgarian Law Provisions. *Technical University of Sofia, Bulgaria - 5 min*
- B.P25. K. Koparanov.** Influence of the Duration of the Incoming Financial Time Series When Determining Their Future Values Using an Automated Forecasting Tool. *Technical University of Sofia, Bulgaria - 5 min*
- B.P26. R. Radonov.** Secure Online Payments for Students at the Technical University of Sofia. *Technical University of Sofia, Bulgaria - 5 min*
- B.P27. R. Dimitrova.** Legal Framework for CAVs Cybersecurity: UN, EU and Bulgarian Regulations. *Technical University of Sofia, Bulgaria - 5 min*

### Microelectronics

#### Chairman – Ivaylo Zhivkov

- B.P28. R. Stoyanova, D. Kolev, V. Todorova.** Mathematical Modeling of the Pedestrian Influence over a Compression Energy Harvester. *Technical University of Gabrovo, Bulgaria - 5 min*

### Nanoelectronics and Technologies in Electronics

#### Chairman – Ivaylo Zhivkov

- B.P29. R. Rusev, I. Ruskova, B. Tzaneva, G. Angelov, D. Nikolov.** Piezo-photosensor from Rochelle Salt and Bromophenol Blue Layer. *Technical University of Sofia, Bulgaria - 5 min*
- B.P30. M. Aleksandrova, T. Tsanev, G. Kolev, H. Pathan, A. Kumar Singh.** Effect of the Spray-Coated Inorganic Charge Transport Layer on the Perovskite Thin-Film Solar Cell Performance. *Technical University of Sofia, Bulgaria, Savitribai Phule Pune University, Pune, Autonomous College Durg, Chhattisgarh, India - 5 min*
- B.P31. B. Hoxha, K. Asparuhova.** Design and Comparison of CMOS and MTCMOS-Based Digital Circuits Using 45nm PTM Technology. *Technical University of Sofia, Bulgaria - 5 min*

**Session C****Chairman – Stoyan Nihtyanov**

- C.1. D. Rangelov, R. Miltchev, J. Knotter.** Challenges and Benefits of Using Advanced Sensing Techniques in Crime Scene Investigations. *University of Twente, Enschede, The Netherlands, Technical University of Sofia and Sofia Tech Park, Bulgaria, Police Academy of The Netherlands and Saxion University of Applied Sciences, The Netherlands - 20 min*
- C.2. R. Taherkhani, A. Torres Di Zeo, S. Nihtyanov.** Energy-Efficient Wireless Accelerometer Using Hybrid Edge–Central AI for High-Tech Machine Condition Monitoring, a Feasibility Study. *TU Delft, The Netherlands - 20 min*
- C.3. N. Raj, U. Hensel, G. Georgiev.** Ensuring Consistency in Digital Design: Tackling Unboundedness. *GlobalFoundries, Design Platform Services organization - 20 min*
- C.4. D. Marquez-Viloria, N. Guerrero-Gonzalez, M. Marinov.** FPGA-Based DSP Emulation for Optical Communications Using Host-Controlled Data Injection via HP Interfaces. *Instituto Tecnológico Metropolitano, Medellín, Universidad Nacional de Colombia, Colombia, Technical University of Sofia, Bulgaria - 20 min*
- C.5. A. Salcedo, N. Guerrero-Gonzalez, J. Jaramillo-Villegas, M. Marinov.** Optical Simulation of the Propagation and Interaction of a Dissipative Kerr Soliton with TiO<sub>2</sub> Nanoparticles. *Universidad Tecnológica de Pereira, Universidad Nacional de Colombia, Colombia, Technical University of Sofia, Bulgaria - 20 min*

**Session D****Power Electronics****Chairman – Tsvetana Grigorova**

- D.P1. G. Balev, B. Borisov, V. Dimitrov, D. Arnaudov.** HIL Experiments of a Current-Fed Converter. *Technical University of Sofia, Bulgaria - 5 min*
- D.P2. I. Maradzhiev, T. Grigorova, D. Arnaudov.** A Study of the Control Strategy on the Current Source Converter Operation for Fuel Cell Applications. *Technical University of Sofia, Bulgaria - 5 min*
- D.P3. A. Kinov, D. Arnaudov, K. Kishkin, T. Grigorova.** Modeling and Simulation Analysis of PEM Fuel Cell Stack for Stationary Applications. *Technical University of Sofia, Bulgaria - 5 min*
- D.P4. A. Atanasov, P. Stanchev, G. Vacheva, N. Hinov.** Tolerance Analysis of a Voltage Source Inverter. *Technical University of Sofia, Bulgaria - 5 min*

- D.P5. A. Atanasov, G. Vacheva, N. Hinov.** Innovative Control Methods for Power Electronic Welding Systems: A Review. *Technical University of Sofia, Bulgaria* - **5 min**
- D.P6. G. Vacheva, P. Stanchev, N. Hinov.** Assessing the Reliability of a PV Inverter Using Machine Learning and Probabilistic Methods. *Technical University of Sofia, Bulgaria* - **5 min**
- D.P7. K. Kishkin, D. Aranudov, B. Borisov.** Different C-rate Comparison of Sodium-Ion Batteries. *Technical University of Sofia, Bulgaria* - **5 min**
- D.P8. D. Yankov.** Investigation of Converter Fed Switched Reluctance Motor in Bi – directional Operation Mode. *Technical University of Sofia, Plovdiv Branch, Bulgaria* - **5 min**
- D.P9. G. Bodurov, T. Grigorova.** An Evaluation of Losses in the Three-Phase 12/8 Switched Reluctance Motor. *Technical University of Sofia, Plovdiv Branch, Bulgaria* - **5 min**
- D.P10. Y. Bratoeva, T. Todorova.** Automated DPT System and Approach for Characterizing MOSFET Switching Dynamics. *Technical University of Sofia, Bulgaria* - **5 min**
- D.P11. J. Shikoski, T. Eftimov.** Use of Low Cost Photovoltaic Systems for Simultaneous Transmission of Photonic Energy and Data Along a Single Fiber. *Technical University of Sofia, Bulgaria, Université du Québec en Outaouais, Canada* - **5 min**

### **Testing, Quality and Reliability**

#### **Anna Stoyanova**

- D.P12. V. Stefanova-Stoyanova, P. Danov.** Compliance with ISO/IEC 42001, 22989, 27001 Standards and Integration of Human-Machine Teaming in AI Lifecycle Management. *Technical University of Sofia, Bulgaria* - **5 min**
- D.P13. N. Mitov.** Digital Twins in Functional Safety: Classification, Applicability, Tool Qualification, Model Architecture, and Validation Methodology. *University of Plovdiv “Paisii Hilendarski”, Bulgaria* - **5 min**
- D.P14. A. Stoyanova, B. Bonev, S. Rizanov.** Making Informed Decisions in Infrared Thermography Testing of Batteries. *Technical University of Sofia, Bulgaria* - **5 min**
- D.P15. S. Rizanov, D. Nikolov, B. Ganev, M. Marinov, G. Angelov, V. Garistov, R. Vitanov.** Predictive Modeling of Variation of Electrical Parameters Induced by Thermal Stress. *Technical University of Sofia, Bulgaria* - **5 min**
- D.P16. M. Slavchev, V. Tsenev.** Methodology for Optimization and Validation of Electronic Products for a Smart Home Project. *Technical University of Sofia, Bulgaria* - **5 min**
- D.P17. T. Draganov, V. Tsenev, M. Slavchev.** Examination and Optimization of the Sandblasting Process in the Production of Sensor Items. *Technical University of Sofia, Bulgaria* - **5 min**
- D.P18. P. Prodanov, Z. Velez.** Research of Reliability of a Power Semiconductor Module Used in a Variable Frequency Drive for Industrial Elevator in Dependence of Thermal Resistance of the Heat System. *Technical University of Gabrovo, Bulgaria* - **5 min**
- D.P19. Z. Velez, P. Prodanov.** Research of Reliability of a GSM Communication Module in an Industrial Elevator. *Technical University of Gabrovo, Bulgaria* - **5 min**

- D.P20. E. Nikolaev, D. Nikolaeva.** Improving the Life Cycle and Reliability of Ship Machinery through a Maintenance Planning System. *Technical University of Varna, Bulgaria* - 5 min
- D.P21. K. Georgiev.** Application of MSA Analysis to Details Manufactured Using Additive Printing with PLA. *Technical University of Sofia, Plovdiv Branch, Bulgaria* - 5 min

[HALL 1,](#)

**Thursday,**

**September 18, 2025**

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

## **Session E**

### **Biomedical Engineering**

#### **Chairman – Ivo Iliev**

- E.P1. G. Mihov, S. Rizanov.** FPGA Implementation of an Adaptive to the Mains Interference Combined High-pass and Notch Filter. *Technical University of Sofia, Bulgaria* - 5 min
- E.P2. T. Neycheva, D. Dobrev.** Intuitive Approach to Active Digital Filter Design. Part V: Principle of Active All-pass Filters. *Bulgarian Academy of Sciences, Bulgaria* - 5 min
- E.P3. D. Dobrev, T. Neycheva.** Intuitive Approach to Active Digital Filter Design. Part VI: The Art and Magic of Active DSP. *Bulgarian Academy of Sciences, Bulgaria* - 5 min
- E.P4. S. Rizanov, G. Mihov.** Genetic Filtering of Power-line Interference in Electrocardiograms. *Technical University of Sofia, Bulgaria* - 5 min
- E.P5. N. Kadiev, I. Iliev.** Design of a Data Acquisition System Applicable in the Development Process of Cuff-less Blood Pressure Measurement Devices. *Technical University of Sofia, Bulgaria* - 5 min
- E.P6. Y. Velchev, L. Laskov.** A Wireless WebSocket-based PPG and ECG Acquisition System. *Technical University of Sofia, Bulgaria* - 5 min
- E.P7. S. Georgiev, S. Andonov, G. Tsenov.** Wearable System for Multimodal Biosignal Acquisition in Neuromarketing Applications. *Technical University of Sofia, Bulgaria* - 5 min
- E.P8. S. Georgiev, S. Andonov, G. Tsenov, A. Markov.** Grouping of Multidimensional Biosignal Attributes from a Dataset of Car Driving Experiences. *Technical University of Sofia, Bulgaria* - 5 min
- E.P9. S. Dimitrov, I. Vardeva, K. Gabrovska, S. Simeonov.** Classification and Optimization of Hospital Readmission Risk in Diabetic Patients Using XGBoost with Class Balancing and Cross-validation Techniques. *Burgas State University “Prof. Dr. Assen Zlatarov”, Burgas, Bulgaria* - 5 min
- E.P10. S. Dimitrov, I. Vardeva, K. Gabrovska, S. Simeonov.** Explainable Machine Learning for Diabetic Readmission Prediction Using SHAP and XGBoost. *Burgas State University “Prof. Dr. Assen Zlatarov”, Burgas, Bulgaria* - 5 min

## Circuits and Systems

### Chairman – Georgy Mihov

- E.P11. B. Petrov.** Nonlinear and Fuzzy Data Processing in Input and Output Blocks of Universal Digital System Based on Intelligent Neurons. *Technical University of Sofia, Plovdiv Branch, Bulgaria - 5 min*
- E.P12. M. Dinev, V. Kukenska, P. Minev.** Application of Decomposition Algorithm in Structural Design. *Technical University of Gabrovo, Bulgaria - 5 min*
- E.P13. B. Pachedjieva, I. Atanasov, D. Petrova, P. Pavlova.** Comparative Analysis of Numerical Data from Meteorological Objects in Video Sequences. *Technical University of Sofia, Plovdiv Branch, Bulgaria - 5 min*
- E.P14. P. Apostolov.** Two-Dimensional Differentiator Using Sigmoidal Function for Edge Detection. *Union of Electronics, Electrical Engineering and Telecommunications (CEECE), Bulgaria - 5 min*
- E.P15. T. Marinov.** Performance Comparison and Analysis of DSR and MTP Routing Protocols in VANET for Urban Scenario. *Technical University of Sofia, Bulgaria - 5 min*
- E.P16. N. Kurtev.** Design and Experimental Validation of LED Driver with Custom Low Profile Magnetics. *Technical University of Sofia, Bulgaria - 5 min*
- E.P17. A. Busarov, E. Mihaylova, P. Nakov.** Explainable and Federated Intelligence for Real-Time Control of Smart Microgrids. *Technical University of Sofia, Bulgaria, University of Library Studies and Information Technologies, Sofia, Bulgaria - 5 min*
- E.P18. P. Stanchev, G. Vacheva, N. Hinov.** Innovative Methods for Controlling DC-AC Converters in Micro and Nano Grids. *Technical University of Sofia, Bulgaria - 5 min*
- E.P19. N. Kurtev.** Design and Implementation of a Compact DALI Slave Module with Integrated AC–DC Supply for Dimmable LED Drivers. *Technical University of Sofia, Bulgaria - 5 min*

[HALL 2,](#)

Thursday,

September 18, 2025

9:00 a.m. EET

### Session F

## Embedded Systems

### Chairman – Grisha Spasov

- F.P1. L. Bogdanov, N. Iliev.** Low Power Pulse Counter with SPI Interface. *Technical University of Sofia, Nextlab Ltd, Sofia, Bulgaria - 5 min*
- F.P2. M. Kutseva, G. Spasov, G. Petrova.** Machine Learning Approaches for Energy Consumption Forecasting and Cost Optimization in Smart Grids. *Technical University of Sofia, Plovdiv Branch, Bulgaria - 5 min*

- F.P3. A. Perçuku, D. Minkovska.** The Data from Internet of Things and LSTM Algorithm to Forecast Power Flows. *University of Pristina, Pristina, Republic of Kosovo, Technical University of Sofia, Bulgaria - 5 min*
- F.P4. L. Bogdanov, P. Yordanov, R. Ivanov, N. Iliev.** Soil Sensor Non-linearity Compensation Technique. *Technical University of Sofia, Nextlab Ltd, Sofia, Bulgaria - 5 min*
- F.P5. I. Dochev, M. Dochev, L. Docheva, P. Raykov.** An Intelligent Control and Management System for Precision Agriculture. *Technical University of Sofia, Bulgaria - 5 min*
- F.P6. M. Andreev, G. Angelov.** A Review and Design of a Temperature Control System Based on a Microcontroller. *Technical University of Sofia, Bulgaria - 5 min*
- F.P7. I. Bojilov, M. Todorov, B. Nikolova.** Narrow-Band Data Streaming over Wi-Fi Using Dual ESP32 Microcontrollers. *Technical University of Sofia, Bulgaria - 5 min*
- F.P8. S. Sotirov, N. Kafadarova, T. Lovchaliev.** Development of a Working System for Studying Antenna Radiation Pattern Model. *University of Plovdiv "Paisii Hilendarski", Bulgaria - 5 min*
- F.P9. S. Sotirov, N. Kafadarova, T. Lovchaliev.** Study of Antenna Radiation Patterns Using a Specially Developed Author's System: Methodology and Results. *University of Plovdiv "Paisii Hilendarski", Bulgaria - 5 min*
- F.P10. G. Stoilova, R. Ilieva.** AI-Enhanced Cybersecurity Models for E-commerce: Strategic Defense through Intelligent Systems. *Technical University of Sofia, Bulgaria - 5 min*

### **Instrumentation and Measurement**

#### **Chairman – Marin Marinov**

- F.P11. G. Nikolov, B. Nikolova, I. Iliev.** Impedance Characterizations of Flexible Capacitive Electrode Deposited on Mica Substrate. *Technical University of Sofia, Bulgaria - 5 min*
- F.P12. K. Hristov, B. Ganev, T. Grigorova.** Industrial Fire Detection and Classification via ML-Enhanced Semiconductor Sensor Matrices. *Technical University of Sofia, Bulgaria - 5 min*
- F.P13. L. Laskov, K. Dimitrov, I. Damyanov.** Design, Implementation, and Initial Laboratory Testing of an Infrared Thermographic System for Contactless Monitoring of Catalytic Converter Temperature. *Technical University of Sofia, Bulgaria - 5 min*
- F.P14. H. Hristov, K. Dimitrov, T. Penev.** Investigation of Surface Temperature Distribution in the Eye Region of Dairy Cows under Mild Heat Stress Using Infrared Thermography. *Bulgarian Academy of Sciences, Technical University of Sofia, Trakia University, Stara Zagora, Bulgaria - 5 min*
- F.P15. E. Anastasova, G. Kadinov, T. Djamiykov.** Remote Sensing-based Monitoring of Snow Cover Dynamics in Rila National Park. *University of Forestry, Technical University of Sofia, Bulgaria - 5 min*
- F.P16. R. Velichkova, I. Simova, M. Zelenakova, P. Purcz.** Assessment of Heavy Metal Pollution from Mine Waters. *Technical University of Sofia, Bulgaria, Technical University of Kosice, Slovakia - 5 min*

- F.P17. A. Stoyanov, E. Anastasova, T. Djamiykov.** UAV Photogrammetry as a Tool for Architectural Documentation and Condition Assessment. *New Bulgarian University, University of Forestry, Technical University of Sofia, Bulgaria - 5 min*
- F.P18. M. Deneva, M. Nenchev, V. Nikolov.** Remote 3D Laser System for Measuring Object Vibrations with Parasitic Vibration Correction. *Technical University of Sofia, Plovdiv Branch, Bulgaria - 5 min*
- F.P19. P. Kravtsov, V. Ryzhova, S. Yarishev, T. Djamiykov, M. Marinov.** Method of Spectral Stroboscopy in Hyperspectral Analysis. *ITMO University, St. Petersburg, Russia, Technical University of Sofia, Bulgaria - 5 min*
- F.P20. P. Satserdov, T. Djamiykov, M. Marinov.** Radiation Hardness Research of Position-sensible Device „Fonon-7”. *Central Scientific Research Institute “Electron”, St. Petersburg, Russia, Technical University of Sofia, Bulgaria - 5 min*
- F.P21. D. Gushchin, V. Ryzhova, R. Khlynov, S. Yarishev, T. Djamiykov, M. Marinov.** Methods of Signal Preprocessing for Identification of Hemodynamic Brain Responses to Transient Stimuli. *ITMO University, St. Petersburg, Russia, Technical University of Sofia, Bulgaria, Pavlov Institute of Physiology, Russian Academy of Sciences, Saint-Petersburg, Russia - 5 min*
- F.P22. D. Titov, V. Ryzhova, S. Yarishev, T. Djamiykov, M. Marinov.** Hyperspectral Data Preprocessing Algorithm Using Vegetation Indices for a Convolutional Neural Network. *ITMO University, St. Petersburg, Russia, Technical University of Sofia, Bulgaria - 5 min*
- F.P23. R. Vitanov, D. Nikolov.** An In-depth Measurement of the Influence of System Parameters on Accuracy of Two-way Ranging with UWB Radio. *Technical University of Sofia, Bulgaria - 5 min*
- F.P24. R. Miletiev, R. Yordanov, I. Damyanov.** Design of Data Acquisition System for Vehicle PM Pollution Analysis in Relation to Driving Scenarios. *Technical University of Sofia, Bulgaria - 5 min*
- F.P25. V. Djamiykov, V. Galabov.** Defects Sorting Criteria for Automotive Information Display. *Technical University of Sofia, 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 with the registration till **September, 14**. Presentations which do not match the template will not be accepted.