

# Final Schedule and Program of the 66th International Scientific Conference of Riga Technical University on Power and Electrical Engineering RTUCON2025

## At Glance

### Date

All activities of RTUCON2025 will occur on Friday (October 24, 2025) from 8:00 to 22:00.

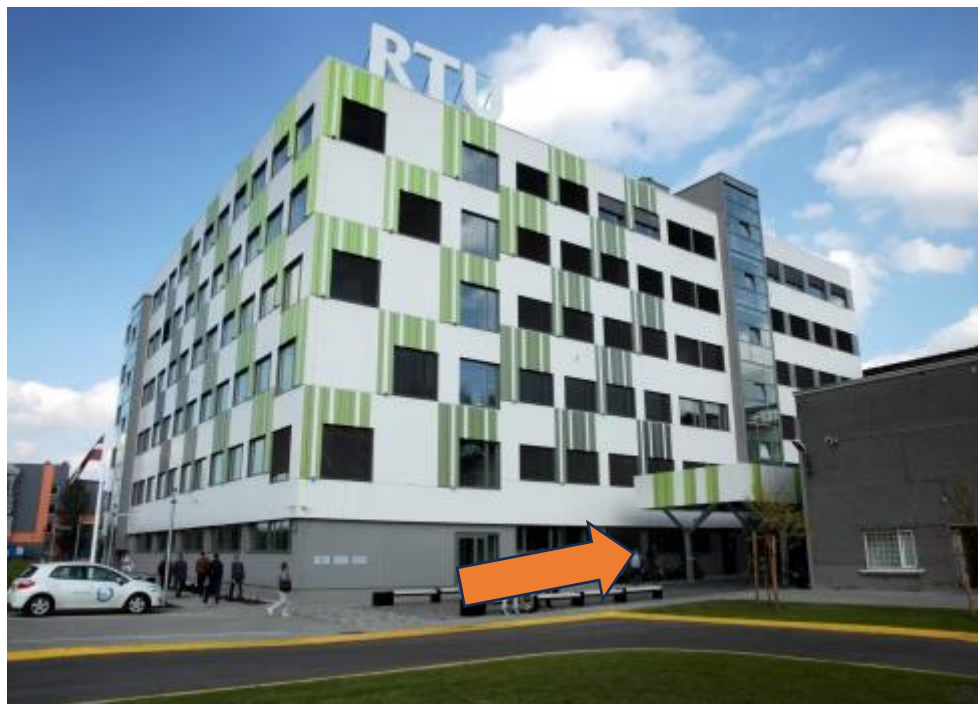
### Venue

All of the activities of RTUCON2025 will take place at Riga Technical University, Domus Auditorialis auditoria center, Zunda Embankment 8 (Zunda krastmala 8).

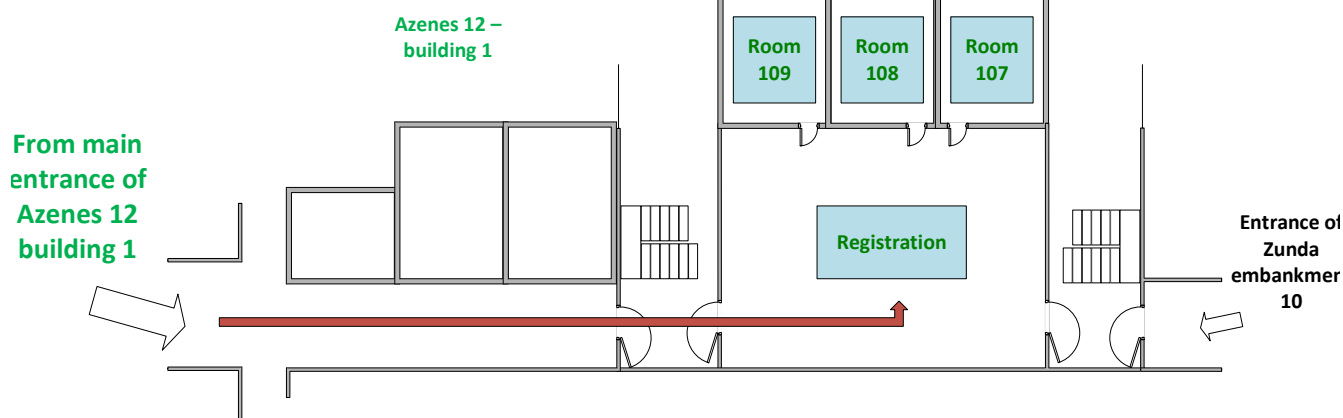


The easiest way to get to the venue of the conference – is to go through the main entrance of Azenes 12 – building 1 (Faculty of Computer Science, Information Technology and Energy).





### Zunda embankment 8 – 1st floor



### Registration

The registration for the conference will take place from 8:00 to 12:00 in the hall in front of rooms 107/108/109 at Zunda Embankment 8.

### Working program

All distant (virtual) presentations are concentrated in the morning session from 8:00 to 9:00 (which in person can be accessed in 302 auditorium at the 3<sup>rd</sup> floor of Domus Auditorialis auditorium center (Zunda Embankment 8).

Formal opening and Keynote Lecture "Partial Power Converters for High-Efficiency DC Microgrids" delivered by Dr. Andrii Chub (Tallinn University of Technology, Estonia) will take place in 302 auditorium at the 3<sup>rd</sup> floor of Domus Auditorialis auditorium center (Zunda Embankment 8) from 9:00 to 10:30. After Keynote lecture Poster session will follow, which will take place at the same location, next to the auditorium from 10:30 to 11:30. During the poster session coffee and snacks will be offered.

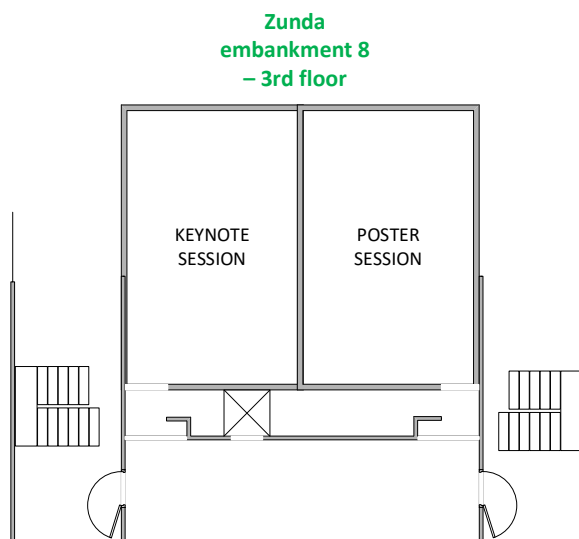
Working sessions will continue from 13:15 in rooms 107, 108 and 109 from 11:30 to 17:30.

**The time, dedicated to each in-person delivered presentation is 15 minutes. It is assumed that the presentation itself takes 10...12 minutes, but the following discussion – 3...5 minutes. For Virtual Session – presentation time is limited to 10 minutes per person (i.e. 7...8 minutes for presentation + 2...3 minutes – discussion).** Should the discussion be fruitful it can be prolonged by the chairperson of the corresponding session (postponing the break, following after the session).

For poster session – each presenter should prepare short presentation (5 min) about the topic of the paper. Each presenter should be on time and should be waiting near the poster for the chairperson to evaluate the presentation

and quality of the poster. During poster session every participant is welcome to open a discussion on the topic of poster, so presenters should be ready to answer questions and share insights of proposed topics.

The plan of 302 auditorium on the 3<sup>rd</sup> floor of Zunda Embankment 8 is shown below.



The auditorium is accessible either on foot (by using stairs) or by using the elevator.

### Coffee Breaks and Lunch

Coffee with snacks will be served before the Keynote Lecture (from 8:00 to 9:00, in front of rooms 107/108/109), during Poster Session and coffee with some special snacks will be offered in the dedicated time from 15:30 to 16:00 in front of rooms 107/108/109.

**Lunch** will be available from **12:45 to 13:30** in bistro “**Expo Café**” (Exhibition Hall Kipsala – outside of the campus) at **Kipsalas street 8**. **The organizers of the conference will guide its participants to this location.** During registration, participants will receive a red voucher from “Expo Café”, which is required to attend lunch. Conference organizers will lead the group to the location.



### Gala Dinner and Award Ceremony

The **Gala Dinner and Award Ceremony** will take place in the Domus Auditorialis auditorium center (auditorium 302, 3<sup>rd</sup> floor), Zunda Embankment 8 from 19:00 to 22:00.

# Schedule of the 66th International Scientific Conference of Riga Technical University on Power and Electrical Engineering RTUCON2025

2025, October 24 (Friday)

|       | 107                                                                                                                                                               | 108                                                                           | 109                                                                       |       |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------|-------|
| 8:00  | Registration (Hall in front of Rooms 107, 108 and 109)<br>+ Virtual Session [Reports 1083, 2898, 3802, 5615, 5634, 3919 → 6p]                                     |                                                                               |                                                                           | 8:00  |
| 9:00  | Keynote Session<br>Dr. Andrii Chub (Tallinn University of Technology, Estonia)                                                                                    |                                                                               |                                                                           | 9:00  |
| 10:00 | Poster Session [Reports 0292, 0454, 0465, 0718, 1615, 2144, 3842, 4264, 4274, 4557, 5662, 5716, 6414, 6793, 6839, 8203, 8625, 8827, 9393, 9410, 9966, 5485 → 22p] |                                                                               |                                                                           | 10:00 |
| 11:00 | Control Electronics and<br>ICT [Reports 7089, 6943, 0641, 5845, 0870, 5412 → 6p]                                                                                  |                                                                               |                                                                           | 11:00 |
| 12:00 | Power Electronics I<br>[Reports 8942, 9209, 0592, 4485, 6076, 8712 → 6p]                                                                                          | Power Energy I [Reports 4463, 0087, 9064, 1938, 1670, 6945 → 6p]              |                                                                           | 12:00 |
| 13:00 | Break for Lunch                                                                                                                                                   |                                                                               |                                                                           | 13:00 |
| 14:00 | Electrical Engineering and<br>Electrical Machines<br>[Reports 5499, 7483, 8125, 1300, 8393, 4333 → 6p]                                                            | Education in Engineering<br>[Reports 8878, 8719, 8602, 3136, 8890, 8880 → 6p] | Power and Energy II<br>[Reports 8088, 1241, 6431, 9076, 7436, 2822 → 6p]  | 14:00 |
| 15:00 | Coffee Break                                                                                                                                                      |                                                                               |                                                                           | 15:00 |
| 16:00 | Smart Grids<br>[Reports 7190, 0326, 3618, 5933, 1613, 0261 → 6p]                                                                                                  | Power Electronics II<br>[Reports 3146, 4585, 3475, 8054, 7631, 8152 → 6p]     | Power and Energy III<br>[Reports 5110, 2321, 0546, 1806, 2397, 4642 → 6p] | 16:00 |
| 17:00 |                                                                                                                                                                   |                                                                               |                                                                           | 17:00 |
| 18:00 |                                                                                                                                                                   |                                                                               |                                                                           | 18:00 |
| 19:00 | Gala Dinner – Domus Auditorialis auditorium center                                                                                                                |                                                                               |                                                                           | 19:00 |
| 20:00 |                                                                                                                                                                   |                                                                               |                                                                           | 20:00 |

## Work Program (Domus Auditorialis, Zunda Embankment 8, 3<sup>rd</sup> floor)

### Domus Auditorialis, Zunda Embankment 8, 3<sup>rd</sup> floor auditorium 8:00-8:50, Virtual Session

| Chairpersons: |      | Prof. Ilya A. Galkin (Riga Technical University, Latvia)<br>Dr. Tatjana Lomane (Riga Technical University, Latvia)<br>Prof. Mikhail Gorobetz (Riga Technical University, Latvia)<br>Prof. Dmitri Vinnikov (Tallinn University of Technology, Estonia)                                                             |
|---------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| From          | To   | <u>Presenting Author (Affiliation),</u><br><u>Paper Authors</u><br><b>"Paper Title" (Paper ID)</b>                                                                                                                                                                                                                |
| 8:00          | 8:10 | <u>Ievgen Verbytskyi (National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Ukraine),</u><br><u>Ievgen Verbytskyi, Anna Kyselova, Jarek Kurnitski, Dmitri Vinnikov and Ilya Galkin</u><br><b>"Assesment of Power-to-X Technologies for the Estonian Residential Sector" (1083)</b> |
| 8:10          | 8:20 | <u>Illia Diahovchenko (Sumy State University, Ukraine),</u><br><u>Illia Diahovchenko, Mykhailo Petrovskyi, Bohdan Nesterenko, Lubov Pertichenko and Anna Mutule</u><br><b>"Controlled Electric Vehicle Charging for Optimized Operation of Power Distribution Systems" (2898)</b>                                 |
| 8:20          | 8:30 | <u>Eno Toti (Easy Network Solutions, LLC, and Polytechnic University of Tirana, Albania),</u><br><u>Luciana Toti and Eno Toti</u><br><b>"Analyzing in-depth the present issues preventing TurtleBot3's higher efficiency for research, education and industrial applications in the field of robotics" (3802)</b> |
| 8:30          | 8:40 | <u>Eman Saleh (Tallinn University of Technology, Estonia),</u><br><u>Eman Saleh, Hayretdin Bahsi and Andrii Chub</u><br><b>"Lightweight Machine learning-based Intrusion Detection Under Class Imbalance in Smart Grids" (5615)</b>                                                                               |
| 8:40          | 8:50 | <u>Aganiyaz Jumayev (State Energy Institute of Turkmenistan, Turkmenistan),</u><br><u>Aganiyaz Jumayev and Atageldi Kakabayev</u><br><b>"Technical and Economic Analysis of a Solar-Hydrogen System for Energy Supply of Remote Settlements" (5634)</b>                                                           |
| 8:50          | 9:00 | <u>Meltem Lordoglu (Istanbul Technical University, Türkiye),</u><br><u>Meltem Lordoglu, Abdulsamed Lordoglu and Mehmet Onur Gulbahce</u><br><b>"Sustainability-Oriented Multi-Objective Design of an LLC Onboard Charger Considering Semiconductor Carbon Footprint" (3919)</b>                                   |

### Domus Auditorialis, Zunda Embankment 8, 3<sup>rd</sup> floor, 302 auditorium, 9:00-10:30, Keynote Session

| Chairpersons: |       | Prof. Ilya A. Galkin (Riga Technical University, Latvia)                                                                              |
|---------------|-------|---------------------------------------------------------------------------------------------------------------------------------------|
| From          | To    | <u>Presenting Author (Affiliation),</u><br><u>Paper Authors</u><br><b>"Paper Title" (Paper ID)</b>                                    |
| 9:00          | 10:30 | <u>Andrii Chub (Tallinn University of Technology, Estonia)</u><br><b>"Partial Power Converters for High-Efficiency DC Microgrids"</b> |

Chairpersons: Prof. Ilya A. Galkin (Riga Technical University, Latvia)  
 Dr. Tatjana Lomane (Riga Technical University, Latvia)  
 Prof. Mikhail Gorobetz (Riga Technical University, Latvia)  
 Prof. Dmitri Vinnikov (Tallinn University of Technology, Estonia)  
 Dr. Artjoms Obushevs (Zurich University of Applied Science, Switzerland)  
 Prof. Nadezhda Kunicina (Riga Technical University, Latvia)

**(Paper ID)**      Presenting Author (Affiliation),  
                          Paper Authors  
                          **"Paper Title"**

0292      Aleksandrs Borisovs (Riga Technical University, Latvia)  
                  Aleksandrs Borisovs and Aleksandrs Dolgicers  
                  **"Production of Synthetic Gas from High-Capacity Renewable Energy Sources"**

0454      Abdul Majid Bhat (Tallinn University of Technology, Estonia)  
                  Abdul Majid Bhat, Andrii Chub and Stefano Michelis  
                  **"High Step-Down Non-Isolated Hybrid Resonant DC-DC Converter for Point-of-Load Applications"**

0465      Nadezhda Kunicina (Riga Technical University, Latvia)  
                  Jelena Chaiko, Nadezhda Kunicina, Anastasija Zhiravecka and  
                  Vladimir Beliaev  
                  **"Autonomous Systems – Digitalization, Education and Innovation in the engineering education"**

0718      Ansis Avotins (Riga Technical University, Latvia)  
                  Ansis Avotins, Peteris Apse-Apsitis and Martins Marcinkevics  
                  **"Lighting System Design Challenges for Vertical Farming Containers, Part 2."**

1615      Aleksandrs Sahnovskis (Riga Technical University, Latvia)  
                  Inga Zicmane, Sergejs Kovalenko, Tatjana Lomane and  
                  Aleksandrs Sahnovskis  
                  **"Impact of Renewable Energy Integration on the Reliability of Protection System Operation"**

2144      Girts Stana (Riga Technical University, Latvia)  
                  Girts Stana and Kaspars Kroics  
                  **"Modelling of PV-Fed DC Microgrid with Hybrid Energy Storage to Simulate Long-Term Operations"**

3842      Jelena Caiko (Riga Technical University, Latvia)  
                  Akerke Dildabek, Jelena Caiko and Madina Yermaganbetova  
                  **"Practice-Oriented Teaching of Smart Technologies: Development and Implementation of the Smartnexus Platform with LLM-Based Code and Circuit Verification"**

4264      Saqib Ali (Tallinn University of Technology, Estonia)  
                  Saqib Ali, Andrii Chub, Hayretudin Bahsi and Shaymaa Mamdouh Khalil  
                  **"Extending Cyber Threat Modeling with Physical Dependency Analysis in DC Microgrids"**

4274      Tatjana Lomane (Riga Technical University, Latvia)  
                  Anatolijs Mahnitko, Boris Papkov, Tatjana Lomane and Inga  
                  Zicmane  
                  **"Probabilistic Evaluation of Solar and Wind Power Plants Joint Operation for AES on Data of Weather Conditions Forecast"**

4557      Hetal Sharma (Tallinn University of Technology, Estonia)  
                  Hetal Sharma, Andrii Chub, Lauri Kütt and Neelesh Yadav  
                  **"Modelling and Comparison of Common Mode Conducted Emissions of Current-Fed Partial Power Converter for Different Modulation Schemes"**

|      |                                                                                                                                                                                                                                                                                                                                                                   |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5662 | <u>Roberts Grants (Riga Technical University, Latvia)</u><br>Roberts Grants, Kārlis Baltputnis, Gatis Junghāns, Santa Zāgere-Tihova, Beāte Bruksle and Edgars Groza<br><b>"Forecasting Accuracy and Portfolio Effect Impact on Renewable Power Plant Imbalance Costs"</b>                                                                                         |
| 5716 | <u>Alexander Bubovich (Riga Technical University, Latvia)</u><br>Ilya A. Galkin and Alexander Bubovich<br><b>"Overview of Fuel Cell Technologies for Combined Heat and Power Generation"</b>                                                                                                                                                                      |
| 6414 | <u>Tofopefun Nifise Olayiwola (Tallinn University of Technology, Estonia)</u><br>Tofopefun Nifise Olayiwola, Andrei Blinov, Martin Thalfeldt and Dmitri Vinnikov<br><b>"Assessment of the PV/Battery System Feasibility for Estonian Residential Buildings"</b>                                                                                                   |
| 6793 | <u>Evaldas Benosenko (Riga Technical University, Latvia)</u><br>Evaldas Benosenko, Kristaps Vitols and Ansis Avotins<br><b>"Simulation of PV Side DC Coupled Energy Storage for PV Park"</b>                                                                                                                                                                      |
| 6839 | <u>Germans Popovs (Riga Technical University, Latvia)</u><br>Germans Popovs and Arturs Bogdanovs<br><b>"Technique for Reconstruction of Phase Currents and Detection of Faults of Three-Phase Inverter using One DC Link Current Sensor"</b>                                                                                                                      |
| 8203 | <u>Tuhin Mitra (Tallinn University of Technology, Estonia)</u><br>Tuhin Mitra, Neelesh Yadav and Andrii Chub<br><b>"A Bidirectional Partial Power Converter Based on Active Clamped Current-Fed DC-DC Topology"</b>                                                                                                                                               |
| 8625 | <u>Yurii Veremiichuk (National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Ukraine)</u><br>Yurii Veremiichuk, Olena Yarmoliuk, Ivan Prytyskach, Vitalii Opryshko, Yaroslav Onyshchenko and Andrii Pustovyi<br><b>"Comprehensive optimization of electricity supply in energy communities under emergency shutdown conditions"</b> |
| 8827 | <u>Milan Belik (University of West Bohemia in Pilsen, Czechia)</u><br>Olena Rubanenko, Milan Belik and Phaneendra Babu Bobba<br><b>"Development of energy communities in Ukraine: case studies"</b>                                                                                                                                                               |
| 9393 | <u>Dmitrijs Rusovs (Riga Technical University, Latvia)</u><br>Dmitrijs Rusovs, Aleksandrs Sorocins and Sandis Gromovs<br><b>"Co-incineration of RDF (Refuse-Derived Fuel) with Wood chips in the Moving Grate Furnace"</b>                                                                                                                                        |
| 9410 | <u>Roman Petrichenko (Riga Technical University, Latvia)</u><br>Amir Abdel Menaem, Mohamed Elgamal, Vladislav Oboskalov, Anatolijs Mahnitko and Roman Petrichenko<br><b>"A probability -based Generation Capacity Expansion Model for planning Electric Power Systems"</b>                                                                                        |
| 9966 | <u>Andris Backurs (Riga Technical University, Latvia)</u><br>Laila Zemite, Leo Jansons, Andris Backurs, Davids Kronkalns and Sanda Lapuke<br><b>"Solar Trigenation System Optimisation of Residential Use in Latvia"</b>                                                                                                                                          |
| 5485 | <u>Vinod Kumar Yadav (Tallinn University of Technology, Estonia)</u><br>Vinod Kumar Yadav, Manuel Colmenero Moratalla, Andrii Chub, Davide Aguglia and Martti Raidal<br><b>"Low Cost Trimming Converter for Two-Stage Three-Terminals Multibeam Klystron"</b>                                                                                                     |

## Work Program (Room 107)

### Room 107, 11:30-13:00, ICT in Electrical and Power Engineering

|               |       |                                                                                                                                                                                                                                                                                                                |
|---------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chairpersons: |       | Prof. Mikhail Gorobetz (Riga Technical University, Latvia)<br>Dr. Andrejs Potapovs (Riga Technical University, Latvia)                                                                                                                                                                                         |
| From          | To    | <u>Presenting Author (Affiliation),</u><br><u>Paper Authors</u><br><b>"Paper Title" (Paper ID)</b>                                                                                                                                                                                                             |
| 11:30         | 11:45 | <u>Nadezhda Kunicina (Riga Technical University, Latvia)</u><br><u>Valdis Balodis, Nadezhda Kunicina, Martins Bisenieks and</u><br><u>Roberts Grants</u><br><b>"Automated Level Control System development for Harbor Tank Storage for Smart Cities" (7089)</b>                                                |
| 11:45         | 12:00 | <u>Gustavs Bruno Grodzs (Riga Technical University, Latvia),</u><br><u>Andrejs Potapovs, Mikhail Gorobetz, Jurijs Timofejevs, Gustavs Bruno Grodzs and</u><br><u>Kristaps Usiņš</u><br><b>"Foundations of a Decentralized IoT Greenhouse Control System: Problem Statement and Preliminary Results" (6943)</b> |
| 12:00         | 12:15 | <u>Nadezhda Kunicina (Riga Technical University, Latvia),</u><br><u>Ratko Ivković, Petar Spalević, Nadezhda Kunicina and Radovan Dragić</u><br><b>"Adaptive Hybrid Model for Enhanced PPG Signal Processing (HARMONY)" (0641)</b>                                                                              |
| 12:15         | 12:30 | <u>Simon Kappenstein (Karlsruhe Institute of Technology, Germany),</u><br><u>Simon Kappenstein, Lutz Gröll and Veit Hagenmeyer</u><br><b>"Invisible Periodic Energy Control of Modular Multilevel Converters" (5845)</b>                                                                                       |
| 12:30         | 12:45 | <u>Madis Lehtla (Tallinn University of Technology, Estonia),</u><br><u>Madis Lehtla</u><br><b>"A Review of Programming and Human–Robot Interaction Methods in Industrial Robotics" (0870)</b>                                                                                                                  |
| 12:45         | 13:00 | <u>Jožef Ritonja (University of Maribor, Slovenia),</u><br><u>Jožef Ritonja</u><br><b>"Adaptive Power System Stabilizer Based on Identification, Optimal Regulation and Kalman Observer" (5412)</b>                                                                                                            |

**13:00-14:00 – Lunch ("Expo Cafe" (Exhibition Hall Kipsala – outside of the campus) at Kipsalas street 8)**

## Room 107, 14:00-15:30, Electrical Engineering and Electrical Machines

| Chairpersons: |       | Prof. Ilya A. Galkin (Riga Technical University, Latvia)<br>Dr. Arturs Bogdanovs (Riga Technical University, Latvia)                                                                                                                                                                                                                     |
|---------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| From          | To    | <i>Presenting Author (Affiliation),<br/>Paper Authors<br/>"Paper Title" (Paper ID)</i>                                                                                                                                                                                                                                                   |
| 14:00         | 14:15 | <i>Vytenis Sinkevicius (Klaipeda State University of Applied Sciences, Lithuania),<br/>Vytenis Sinkevicius and Valda Sneideriene</i><br><b>"Investigation of Load Parameters of a Hybrid Stepper Motor" (5499)</b>                                                                                                                       |
| 14:15         | 14:30 | <i>Kamran Daniel (Tallinn University of Technology, Estonia),<br/>Kamran Daniel, Lauri Kütt, Matti Lehtonen, Noman Shabbir, Muhammad Naveed Iqbal and Rana Muhammad Arslan Qadar</i><br><b>"Capacitor Behavior in Rectifier Circuits in Energy-Efficient LED under Harmonic Conditions: Modeling and Experimental Validation" (7483)</b> |
| 14:30         | 14:45 | <i>Milan Belik (University of West Bohemia in Pilsen, Czechia),<br/>Oleksandr Rubanenko, Milan Belik, Phaneendra Babu Bobba, Oleksandr Pidtychenko and Olena Rubanenko</i><br><b>"Automation of cooling of power transformers at industrial enterprises" (8125)</b>                                                                      |
| 14:45         | 15:00 | <i>Jelena Dikun (Higher Education Institution, Lithuania),<br/>Jelena Dikun and Vilma Jakubauskiene</i><br><b>"The analysis of active linear electrical circuits with mixed impedance connections using the method of structural numbers" (1300)</b>                                                                                     |
| 15:00         | 15:15 | <i>Arturs Bogdanovs (Riga Technical University, Latvia),<br/>Arturs Bogdanovs, Kristaps Vītols, Armands Šenfēlds, Germans Popovs and Ansis Avotiņš</i><br><b>"Hardware-in-the-Loop Testing Environment Setup for Electric-powered Unmanned Ground Vehicle" (8393)</b>                                                                    |
| 15:15         | 15:30 | <i>Mahmut Abacı (Istanbul Technical University, Department of Electrical Engineering, Türkiye),<br/>Bati Eren Ergun, Egemen Semerci, Mahmut Abacı and Mehmet Onur Gulbahce</i><br><b>"The Effect of Slit Skew Angle on the Performance of Axially-Slitted Solid Rotor Induction Motors" (4333)</b>                                       |

**15:30-16:00, Coffee Break (Hall in front of Rooms 107, 108 and 109).**

## Room 107, 16:00-17:30, Smart Grids

| Chairpersons: |       | Dr. Artjoms Obushevs (Zurich University of Applied Science, Switzerland)<br>Prof. Anna Mutule (Riga Technical University, Latvia)                                                                                                                                                                             |
|---------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| From          | To    | <u>Presenting Author (Affiliation),</u><br><u>Paper Authors</u><br><b>"Paper Title" (Paper ID)</b>                                                                                                                                                                                                            |
| 16:00         | 16:15 | <u>Kaldybek Makhambetov (Al-Farabi Kazakh National University Almaty, Kazakhstan),</u><br>Kaldybek Makhambetov, Jelena Caiko, Baurzhan Belgibaev Belgibaev and Mārtiņš Bisenieks<br><b>"A Conceptual Model of an IoT/M2MS Interaction System For Designing A Digital Twin in a Robotized Workshop" (7190)</b> |
| 16:15         | 16:30 | <u>Jurgis Lillais (Riga Technical University, Latvia),</u><br>Jurgis Lillais and Peteris Apse-Apsitis<br><b>"Real-Time Three-Phase Power Analysis System for Non-Sinusoidal Networks in Renewable Energy Applications" (0326)</b>                                                                             |
| 16:30         | 16:45 | <u>Peteris Apse-Apsitis (Riga Technical University, Latvia),</u><br>Peteris Apse-Apsitis, Jurgis Lillais and Janis Kampars<br><b>"Smart building detailed electrical energy consumption monitoring and measurement" (3618)</b>                                                                                |
| 16:45         | 17:00 | <u>Martin Parker (Tallinn University of Technology, Estonia),</u><br>Martin Parker, Aiko Liisa Olek, Toivo Varjas and Argo Rosin<br><b>"Outdoor digital screens' luminance measurement methodologies" (5933)</b>                                                                                              |
| 17:00         | 17:15 | <u>Rana Muhammad Arslan Qadar (Tallinn University of Technology, Estonia),</u><br>Rana Muhammad Arslan Qadar, Noman Shabbir, Lauri Kütt, Kamran Daniel, Kristjan Peterson and Argo Rosin<br><b>"Forecasting Household Demand-Side Flexibility Using XGBoost for Smart Energy Management" (1613)</b>           |
| 17:15         | 17:30 | <u>Artjoms Obushevs (Zurich University of Applied Science, Switzerland),</u><br>Miguel Ramirez-Gonzalez, Artjoms Obushevs, F. Rafael Segundo and Petr Korba<br><b>"Frequency Stability Impact of Cloud-Aggregated Assets and Large Power Imbalances in CE" (0261)</b>                                         |

**Gala Dinner, 19:00-22:00, Domus Auditorialis auditorium center, Zunda Embankment 8 (Zunda krastmala 8).**

## Work Program (Room 108)

### Room 108, 11:30-13:00, Power Electronics (Part I)

|               |       |                                                                                                                                                                                                                                                                                                    |
|---------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chairpersons: |       | Dr. Andrii Chub (Tallinn University of Technology, Estonia)<br>Dr. Kaspars Kroics (Riga Technical University, Latvia)                                                                                                                                                                              |
| From          | To    | <u>Presenting Author (Affiliation),</u><br><u>Paper Authors</u><br><b>"Paper Title" (Paper ID)</b>                                                                                                                                                                                                 |
| 11:30         | 11:45 | <u>Indrek Roasto (Tallinn University of Technology, Estonia),</u><br>Indrek Roasto, Tofopofun Nifise Olayiwola, Andrei Blinov and Jarek Kurnitski<br><b>"Load Management and Control in Residential DC Nanogrids" (8942)</b>                                                                       |
| 11:45         | 12:00 | <u>Kaspars Kroics (Riga Technical University, Latvia),</u><br>Kaspars Kroics, Kristians Gaspersons, Dan Hulea and Dimitar Arnaudov<br><b>"Comparison of Different Approaches to Obtain High Voltage Gain with Interleaved Modular GaN Transistor based DC-DC Converter" (9209)</b>                 |
| 12:00         | 12:15 | <u>Hans Anniste (Tallinn University of Technology, Estonia),</u><br>Hans Anniste, Dmitri Vinnikov and Andrei Blinov<br><b>"Buck-Boost SRC: Design Guidelines and Experimental Results" (0592)</b>                                                                                                  |
| 12:15         | 12:30 | <u>Salamat Ali (Tallinn University of Technology, Estonia),</u><br>Salamat Ali, Edivan Laercio Carvalho and Dmitri Vinnikov<br><b>"An Overview of Smart and Essential Features in AC-DC Interlinking Converters for DC Buildings" (4485)</b>                                                       |
| 12:30         | 12:45 | <u>Yusuf Baran Subası (Istanbul Technical University, Department of Electrical Engineering, Türkiye),</u><br>Yusuf Baran Subası, Ege Uzun, Bati Eren Ergun and Mehmet Onur Gulbahce<br><b>"Database-Oriented Driver Loss Evaluation of PWM and PAM Methods for BLDC Motor Applications" (6076)</b> |
| 12:45         | 13:00 | <u>Tanel Jalakas (Tallinn University of Technology, Estonia),</u><br>Tanel Jalakas, Siim-Erik Viiding and Dmitri Vinnikov<br><b>"Low-cost Fluxgate Current Sensor for DC Solid State Circuit Breaker with Residual Current Detection" (8712)</b>                                                   |

**13:00-14:00 – Lunch ("Expo Cafe" (Exhibition Hall Kipsala – outside of the campus) at Kipsalas street 8)**

## Room 108, 14:00-15:30, Education in Engineering

| Chairpersons: |       | Prof. Valery Vodovozov (Tallinn University of Technology, Estonia)<br>Prof. Nadezhda Kunicina (Riga Technical University, Latvia)                                                                                                                                                                                 |
|---------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| From          | To    | <i>Presenting Author (Affiliation),<br/>Paper Authors<br/>"Paper Title" (Paper ID)</i>                                                                                                                                                                                                                            |
| 14:00         | 14:15 | <i>Anatolijs Zabasta (Riga Technical University, Latvia),<br/>Anatolijs Zabasta, Volodymyr Kazymyr, Nadezhda Kunicina, Andrii Hnatov,<br/>Valentina Pritcan and Liliana Ceclu<br/>"Research on the Innovative Curricula Needed to the Labour Market of<br/>Ukraine and Moldova" (8878)</i>                        |
| 14:15         | 14:30 | <i>Ojars Krumins (Riga Technical University, Latvia),<br/>Ojars Krumins, Nadezhda Kunicina, Gokul Manju Santhoshkumar and Herath<br/>Mudiyansele Hansika Devindi Wijekoon<br/>"Next-Generation Industrial Safety Challenges in Education of Industrial<br/>Engineering and Management Master Students" (8719)</i> |
| 14:30         | 14:45 | <i>Antons Patlins (Riga Technical University, Latvia),<br/>Antons Patlins<br/>"Enhancing Academic Integrity, Motivation, and Soft Skills in Electrical<br/>Engineering Education in the AI Era" (8602)</i>                                                                                                        |
| 14:45         | 15:00 | <i>Valery Vodovozov (Tallinn University of Technology, Estonia),<br/>Valery Vodovozov and Zoja Raud<br/>"Advances and Obstacles of Optional Studies: The case of EuroTeQ<br/>Engineering University" (3136)</i>                                                                                                   |
| 15:00         | 15:15 | <i>Madina Otemis (L.N. Gumilyov Eurasian National University, Kazakhstan),<br/>Madina Otemis and Jelena Caiko<br/>"Using a Custom AI Chatbot Platform to Foster Higher-order cognitive thinking<br/>in Programming Education" (8890)</i>                                                                          |
| 15:15         | 15:30 | <i>Pāvels Maksimkins (Riga Technical University, Latvia),<br/>Inese Lūsēna-Ezera, Andrejs Stupāns, Pāvels Maksimkins and Mihails Gorobece<br/>"Problem-Based Learning Practice in Higher Education in Latvia: Perspective<br/>from STEM Students" (8880)</i>                                                      |

**15:30-16:00, Coffee Break (Hall in front of Rooms 107, 108 and 109).**

## Room 108, 16:00-17:30, Power Electronics (Part II)

|               |       |                                                                                                                                                                                                                                                                          |
|---------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chairpersons: |       | Prof. Dmitri Vinnikov (Tallinn University of Technology, Estonia)<br>Prof. Ilya A. Galkin (Riga Technical University, Latvia)                                                                                                                                            |
| From          | To    | <i>Presenting Author (Affiliation),<br/>Paper Authors<br/>"Paper Title" (Paper ID)</i>                                                                                                                                                                                   |
| 16:00         | 16:15 | <i>Navid Bayati (University of Southern Denmark, Denmark),<br/>Shafquat Hussain, Massimiliano Passalacqua, Luis Vaccaro, Mohammed Ali Khan<br/>and Navid Bayati</i><br><b>"Robust IDA-PBC Control Design for Grid-Forming Converter" (3146)</b>                          |
| 16:15         | 16:30 | <i>Neelesh Yadav (Tallinn University of Technology, Estonia),<br/>Neelesh Yadav, Andrii Chub and Dmitri Vinnikov</i><br><b>"Multiport Converter Based Hybrid Storage Integration for Improved DC<br/>Power Delivery Resilience in DC Microgrids" (4585)</b>              |
| 16:30         | 16:45 | <i>Baran Kul (Istanbul Technical University, Department of Electrical Engineering,<br/>Türkiye),<br/>Baran Kul, Tugberk Ozmen, Ege Uzun and Mehmet Onur Gulbahce</i><br><b>"Modeling and Simulation of Hybrid Battery – Fuel Cell Energy System for<br/>UAVs" (3475)</b> |
| 16:45         | 17:00 | <i>Kristians Gaspersons (Riga Technical University, Latvia),<br/>Kristians Gaspersons and Kaspars Kroics</i><br><b>"Synchronised Control of Modular Interleaved DC-DC Converters for Multiple<br/>Energy Storage Integration into DC microgrid" (8054)</b>               |
| 17:00         | 17:15 | <i>Andrei Blinov (Tallinn University of Technology, Estonia),<br/>Andrei Blinov, Andrii Chub and Dmitri Vinnikov</i><br><b>"Universal Reconfigurable Circuit for Interfacing AC and DC Grids" (7631)</b>                                                                 |
| 17:15         | 17:30 | <i>Dan Hulea (Politehnica University Timisoara, Romania),<br/>Dan Hulea, Kaspars Kroičs, Florian Baboş, Octavian Cornea and Nicolae Muntean</i><br><b>"An Interleaved Double Dual Buck-Boost converter with a Low-Loss<br/>Modulation Strategy" (8152)</b>               |

**Gala Dinner, 19:00-22:00, Domus Auditorialis auditorium center, Zunda Embankment 8 (Zunda krastmala 8).**

## Work Program (Room 109)

### Room 109, 11:30-13:00, Power Engineering (Part I)

| Chairpersons: |       | Prof. Aleksandrs Dolgicers (Riga Technical University, Latvia)<br>Dr. Ivars Zalitis (Riga Technical University, Latvia)                                                                                                                                                                                                       |
|---------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| From          | To    | <u>Presenting Author (Affiliation),</u><br><u>Paper Authors</u><br><b>"Paper Title" (Paper ID)</b>                                                                                                                                                                                                                            |
| 11:30         | 11:45 | <u>Gunārs Cingels (Riga Technical University, Latvia),</u><br><u>Gunārs Cingels, Kārlis Baltputnis and Antans Sauhats</u><br><b>"Early insights from the Baltic Balancing Capacity Market operation" (4463)</b>                                                                                                               |
| 11:45         | 12:00 | <u>Hamid Samadi (University of Palermo, Italy),</u><br><u>Hamid Samadi, Guido Ala, Miguel Centeno Brito, Silvia Licciardi, Pietro Romano and Fabio Viola</u><br><b>"Energy Production and Emission Reduction Potential of VIPV Systems for Urban Trams" (0087)</b>                                                            |
| 12:00         | 12:15 | <u>Roman Petrichenko (Riga Technical University, Latvia),</u><br><u>Mohamed Elgamal, Amir Abdel Menaem, Vladislav Oboskalov, Anatolijs Mahnitko and Roman Petrichenko</u><br><b>"Energy Management System for Islanded Microgrids Considering Droop Control Settings and Uncertainty in Renewable Energy and Load" (9064)</b> |
| 12:15         | 12:30 | <u>Maninder Choudhary (Tallinn University of Technology, Estonia),</u><br><u>Maninder Choudhary, Ivar Kiitam and Ivo Palu</u><br><b>"An Integrated Approach for Pulse Detection and Classification of Partial Discharge (PD) Signals" (1938)</b>                                                                              |
| 12:30         | 12:45 | <u>Hamid Samadi (University of Palermo, Italy),</u><br><u>Hamid Samadi, Guido Ala, Miguel Centeno Brito, Marcello Marchese, Silvia Licciardi, Pietro Romano and Fabio Viola</u><br><b>"Solar Mobility for Urban Transit: Performance and Feasibility of VIPV in Bus Fleets" (1670)</b>                                        |
| 12:45         | 13:00 | <u>Ivars Zalitis (Riga Technical University, Latvia),</u><br><u>Antans Sauhats, Andrejs Utans, Diana Zalostiba, Aleksandrs Dolgicers, Ivars Zalitis and Edgars Eisons</u><br><b>"Synchronous Condenser Inertial Response-Based Load Shedding: Design of Automation Terminal and Laboratory Testing" (6945)</b>                |

**13:00-14:00 – Lunch ("Expo Cafe" (Exhibition Hall Kipsala – outside of the campus) at Kipsalas street 8)**

## Room 109, 14:00-15:30, Power Engineering (Part II)

|               |       |                                                                                                                                                                                                                                                                                                                       |
|---------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chairpersons: |       | Dr. Tatjana Lomane (Riga Technical University, Latvia)<br>Dr. Jevgenijs Kozadajevs (Riga Technical University, Latvia)                                                                                                                                                                                                |
| From          | To    | <i>Presenting Author (Affiliation),<br/>Paper Authors<br/>"Paper Title" (Paper ID)</i>                                                                                                                                                                                                                                |
| 13:30         | 13:45 | <i>Ilkka Jokinen (Aalto University, Finland),<br/>Ilkka Jokinen and Matti Lehtonen</i><br><b>"Demand response potential of green hydrogen production in the green energy transition in Finland" (8088)</b>                                                                                                            |
| 13:45         | 14:00 | <i>Lauri Kütt (Tallinn University of Technology, Estonia),<br/>Lauri Kütt, Taavi Salum, Juhan Piilberg, Martin Parker, Hendrik Keltman and Laur Valgur</i><br><b>"Volatility of ambient electromagnetic noise in view of measurement of EMI emissions of RES installations in lower than 30 MHz bandwidth" (1241)</b> |
| 14:00         | 14:15 | <i>Mindaugas Jankauskas (Vilnius Gediminas Technical University, Lithuania),<br/>Mindaugas Jankauskas, Artūras Serackis and Martynas Kičas</i><br><b>"Forecasting Nord Pool Prices Seven Days Ahead based on Regional Meteorology, Market Memory, and Model Evidence" (6431)</b>                                      |
| 14:15         | 14:30 | <i>Ahto Päril (Tallinn University of Technology, Estonia),<br/>Ahto Päril, Ivo Palu, Heiki Jakson and Sulabh Sachan</i><br><b>"Grid-Level Energy Storage Systems: Financial Modeling Framework and Policy Recommendations for Revenue Stacking" (9076)</b>                                                            |
| 14:30         | 14:45 | <i>Navid Bayati (University of Southern Denmark, Denmark),<br/>Navid Bayati and Thomas Ebel</i><br><b>"Application of Supercapacitors to Extend the Critical Clearing Time by Time Domain Equal Area Criterion" (7436)</b>                                                                                            |
| 14:45         | 15:00 | <i>Jevgenijs Kozadajevs (Riga Technical University, Latvia),<br/>Jevgenijs Kozadajevs and Antanas Sauhats</i><br><b>"Cost-Effective and Non-Invasive Integration of Power-to-Heat Systems for Domestic Hot Water Using Renewable Electricity in Multi-Apartment Buildings" (2822)</b>                                 |

**15:30-16:00, Coffee Break (Hall in front of Rooms 107, 108 and 109).**

### Room 109, 16:00-17:30, Power Engineering (Part III)

|               |       |                                                                                                                                                                                                                                                                                                                             |
|---------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chairpersons: |       | Dr. Roman Petrichenko (Riga Technical University, Latvia)<br>Dr. Diana Zalostiba (Riga Technical University, Latvia)                                                                                                                                                                                                        |
| From          | To    | <i><u>Presenting Author (Affiliation),</u></i><br><i>Paper Authors</i><br><b>"Paper Title" (Paper ID)</b>                                                                                                                                                                                                                   |
| 16:00         | 16:15 | <i><u>Hamid Samadi (University of Palermo, Italy),</u></i><br><i>Hamid Samadi, Guido Ala, Miguel Centeno Brito, Silvia Licciardi, Pietro Romano and Fabio Viola</i><br><b>"Driving Toward Sustainability: Evaluating Solar Assisted Shuttle Buses" (5110)</b>                                                               |
| 16:15         | 16:30 | <i><u>Irina Antoskova (Institute of Electronics and Computer Science, Latvia),</u></i><br><i>Irina Antoskova, Anna Mutule and Roberts Lazdins</i><br><b>"The Role of Local Governance in Developing Value-Oriented Energy Communities in Europe: A Review" (2321)</b>                                                       |
| 16:30         | 16:45 | <i><u>Josifs Survilo (Riga Technical University, Latvia),</u></i><br><i>Josifs Survilo</i><br><b>"Some Features of Using the RES" (0546)</b>                                                                                                                                                                                |
| 16:45         | 17:00 | <i><u>Noman Shabbir (Tallinn University of Technology, Estonia),</u></i><br><i>Kristjan Peterson, Noman Shabbir, Lauri Kütt, Victor Astapov, Kamran Daniel and Argo Rosin</i><br><b>"Towards Sustainable Energy Communities: Improving Self-Consumption and Reducing Grid Reliance by Community Battery Storage" (1806)</b> |
| 17:00         | 17:15 | <i><u>Josifs Survilo (Riga Technical University, Latvia),</u></i><br><i>Josifs Survilo</i><br><b>"Determining the Parameters of AC Transmission Line According to Its Losses" (2397)</b>                                                                                                                                    |
| 17:15         | 17:30 | <i><u>Heiki Jakson (Tallinn University of Technology, Estonia),</u></i><br><i>Heiki Jakson, Ahto Päril, Vladislav Musakko and Ivo Palu</i><br><b>"A Mission-Centric Review of Tactical Energy Innovations for Distributed Military Operations" (4642)</b>                                                                   |

**Gala Dinner, 19:00-22:00, Domus Auditorialis auditorium center, Zunda Embankment 8 (Zunda krastmala 8).**