Power Electronics and Motion Control Conference

PEMC

22nd International Power Electronics and Motion Control Conference

23 – 25 September 2026

Hestia Hotel Europa, Tallinn, Estonia



CONFERENCE GUIDE

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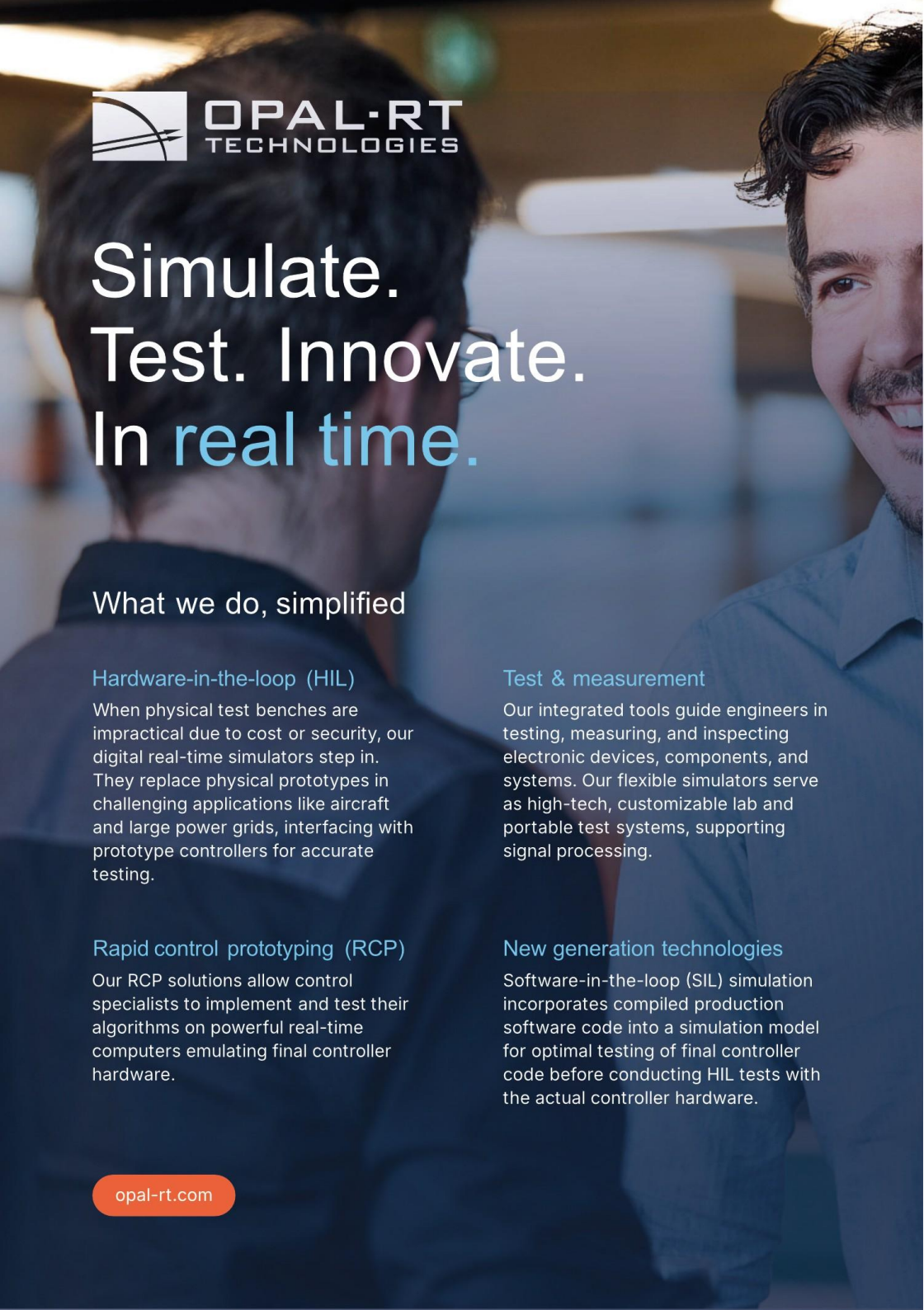


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WELCOME WORDS FROM CHAIRS

Dear colleagues and friends,

On behalf of the organizing committee, we warmly welcome you to Tallinn and to the 22nd IEEE International Power Electronics and Motion Control Conference. We are delighted to bring the PEMC community together in Estonia for three days of technical exchange, discussion and new connections.

This edition marks the 30th anniversary of the PEMC Council. It is an opportunity to celebrate the people and partnerships that have sustained the conference, and to look ahead to the technologies and challenges that will shape its future.

Power electronics and motion control are central to the transition toward more efficient, resilient and sustainable energy systems. The program reflects the breadth of our field, from semiconductor devices and converter design to electrical drives, renewable energy, storage, transport and industrial applications. It brings together 160 papers, including two invited paper presentations, as well as six keynote talks and five tutorials.

We encourage you to take an active part in the technical sessions, ask questions and share your experience. We hope that the discussions will continue during the exhibition, coffee breaks and social events, and that the conference will create opportunities for lasting collaboration.

Our sincere thanks go to the authors for sharing their work, to the reviewers and technical program committee for their careful assessment, and to the session chairs, keynote speakers and tutorial instructors for contributing their expertise. We also thank the students, volunteers and local organizing team whose work makes this meeting possible.

We are grateful to the organizing societies, the PEMC Council, Tallinn University of Technology and all our sponsors and exhibitors. We acknowledge the support of the City of Tallinn and the tourism partners Visit Tallinn and Visit Estonia, together with the European Union co-funding administered through Enterprise Estonia.

Beyond the conference rooms, we invite you to discover Tallinn: its medieval Old Town, maritime heritage, creative districts and contemporary architecture. The guided walking tour, Welcome Reception at the Energy Discovery Center and Gala

Dinner at Lillepaviljon offer opportunities to enjoy the city with colleagues. We also hope you will find time to experience Estonia’s nature, culture and digital society.

We wish you an inspiring and productive conference, rewarding conversations and a memorable stay in Tallinn.

Welcome to IEEE PEMC 2026!



Dmitri Vinnikov
General Chair



Andrii Chub
Co-Chair



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† In memoriam



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Power Electronic Converters: Components, Design and Control

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Dan Lascu, Politehnica University Timisoara, Romania

Riccardo Mandrioli, University of Bologna, Italy

Power Electronics in Power Grids and Energy Generation

Joao Martins, FCT NOVA, Portugal

Enrique Romero-Cadaval, University of Extremadura, Spain

Sertac Bayhan, Hamad Bin Khalifa University, Qatar

Power Electronics and Drives in Transportation and Industry

Babak Nahid-Mobarakeh, McMaster University, Canada

Gautham Ram, TU Delft, Netherlands

Electrical Machines and Actuators, incl. Multiphase Machines

Anouar Belahcen, Aalto University, Finland

Ants Kallaste, Tallinn University of Technology, Estonia

Motion Control, Adjustable Speed Drives and Robotics

Anton Rassõlkin, Tallinn University of Technology, Estonia

Stijn Derammelaere, University of Antwerp, Belgium

Machine Learning in Power Electronics and Drives

Wilmar Martinez, KU Leuven, Belgium

Subham Sahoo, Aalborg University, Denmark

Education and Other Related Topics

Mariusz Stepien, Silesian University of Technology, Poland

Valery Vodovozov, Tallinn University of Technology, Estonia



SUCCESSFUL SPECIAL SESSIONS

SS3 – DC-DC Power Converters: Novel Topologies, Advanced Control and Applications in E-Mobility Charging Systems

Dharavath Kishan, National Institute of Technology Karnataka, India

Samir Kouro, Luxembourg Institute of Science & Technology, Luxembourg

Maria Jenisha, Teesside University, UK

SS8 – Emerging Technologies for Sustainable and Resilient DC Electrification and Smart Integration of Systems

Niwton Gabriel Feliciani dos Santos, Tallinn University of Technology, Estonia

Riccardo Mandrioli, University of Bologna, Italy

Freddy Flores-Bahamonde, Universidad Andrés Bello, Chile

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FUN FACTS ABOUT ESTONIA



Untouched, Accessible, and Wild Nature

One might think that a country as modernized and digitally advanced as Estonia wouldn't be very green or nature-rich, but believe it or not, Estonia is actually ranked as one of the greenest countries in the world. With about half of the country covered in forests, nature lovers can explore and enjoy Estonia's untouched natural beauty.



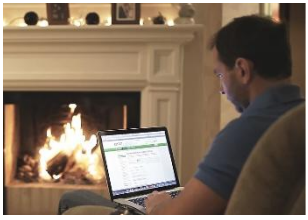
Historical Country

Estonia's occupation by the Swedes, Russians, and Germans, as well as its previous affiliation with the Soviet Union, has left the country with a distinct history, rich culture, and beautiful architecture. No matter where you go, you will find remnants of historical sights and old traditions and customs, especially in Tallinn.



Internet Everywhere

Estonia ensures that all its visitors can tweet and stream about how awesome Estonia is by having free Wi-Fi hotspots everywhere. It's a digital nomads' and travel bloggers' haven! Estonia is also the birthplace of ten unicorn companies, like Skype, BOLT, Wise, Playtech, and others.



Digital Society

Estonia takes a modern, hassle-free approach to digital life – from voting and signing documents to filing taxes online. Residents can handle nearly all tasks digitally, including medical prescriptions and business registration. As the world's first e-government, Estonia also offers global e-residency.

More information about traveling in Estonia: https://www.visitestonia.com/en/

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THINGS TO SEE AND DO IN TALLINN



St Olaf's Church is Tallinn's biggest medieval structure. It was first mentioned in 1267. According to some sources, it may have been the tallest building in the world from 1549 to 1625. Its observation platform is open for visits.



Passages were constructed alongside the **bastions** in the 17th and 18th centuries to conceal the movement of soldiers and ammunition. After removing fortifications in 1857, parks were established on the Ingrian and Swedish bastions.



Kadriorg Park is a palatial urban park covering around 70 hectares. Its construction began in 1718 on the orders of Russian tsar Peter I. Elements of park design from the 18th, 19th, and 20th centuries can be seen here.



Kumu Art Museum features a permanent exhibition that showcases Estonian art from the 18th century to 1991, as well as temporary exhibitions of international and contemporary art.



Telliskivi Creative City is home to galleries, small shops, various creative companies, start-ups, and restaurants within the former industrial complex of Tallinn. More than twenty different works of street art can be found in the creative city.



Tallinn TV Tower, built in 1980, offers a picturesque view of Tallinn. Today, it serves three functions: to facilitate nationwide communication, to offer traditional Estonian flavors in a modern café-restaurant setting, and to provide unique experiences.



Estonian Open Air Museum showcases the Estonian rural architecture and way of life. The 14 farms in the museum offer an overview of how families from different social strata lived in the 18th–20th centuries.



Rotermann Quarter was founded in the 19th century. This industrial site has evolved into an oasis of modern architecture, skillfully blending the old with the new. It offers a variety of shops, cafes, restaurants, and the Estonian Museum of Architecture.



Seaplane Harbour displays about 200 genuine items: a real submarine called Lembit, a century-old icebreaker called Suur Tõll, a Short 184 seaplane, the remains of the oldest ship found in Estonia, etc. in the historical seaplane hangars.

Attractions, events, food and travel tips: https://visittallinn.ee/eng

Visit Tallinn

Tallinn

Supported by the City of Tallinn.

VENUE – HESTIA HOTEL EUROPA



Hestia Hotel Europa is a four-star hotel in central Tallinn, situated beside the passenger port and close to the Rotermann Quarter and the medieval Old Town, a UNESCO World Heritage Site. Its location makes it a convenient base for attending the conference and exploring the city's historic streets, waterfront, shops and restaurants.

The hotel offers 185 spacious guest rooms and a conference centre with nine multifunctional meeting rooms. Conference rooms benefit from natural daylight, while audiovisual equipment and complimentary Wi-Fi support presentations, discussions and professional networking.

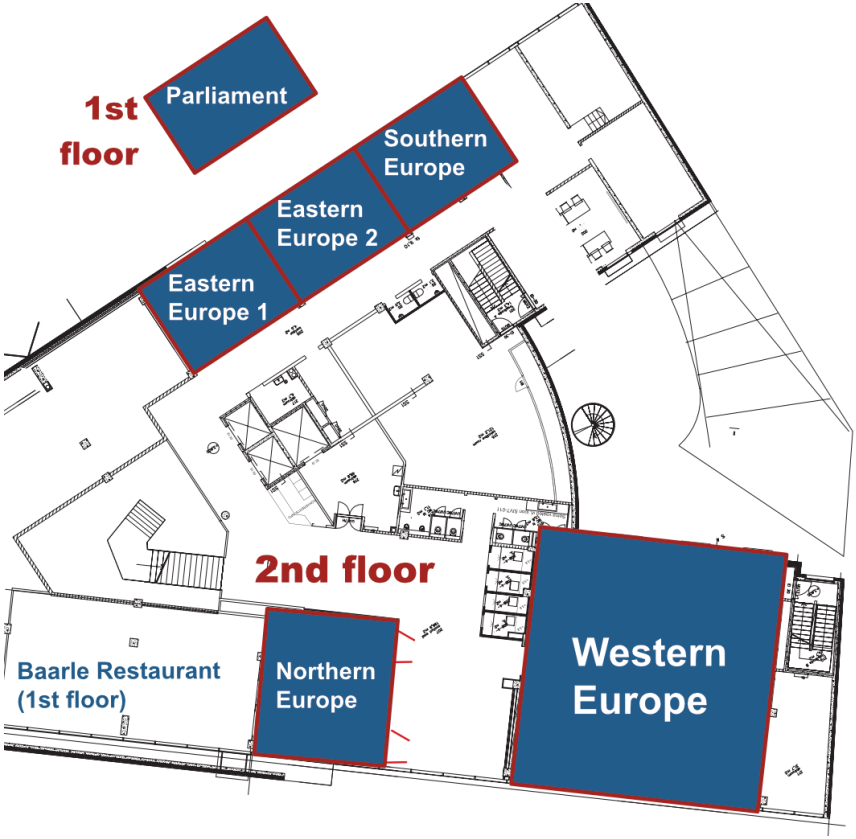
Hotel facilities include Baarle Resto (conference lunches), a lobby bar, a gym and saunas, providing opportunities to dine and relax after the conference sessions. Tallinn's Old Town is approximately 700 metres away, making independent sightseeing easy to combine with the technical and social program.

Address: Paadi 5, 10151 Tallinn, Estonia.

VENUE MAP

Most conference activities take place on the **second floor**. **Western Europe** hosts the opening and closing ceremonies, keynotes, invited paper presentations and technical sessions. **Eastern Europe 1, Eastern Europe 2 and Southern Europe** accommodate parallel technical sessions and tutorials. **Northern Europe** hosts the exhibition, coffee breaks and Friday's farewell brunch. **Parliament is on the first floor** and hosts parallel technical sessions and a tutorial. **Baarle Restaurant**, also on the first floor, serves conference lunches on Wednesday and Thursday. Please check the program for your session's room and starting time.

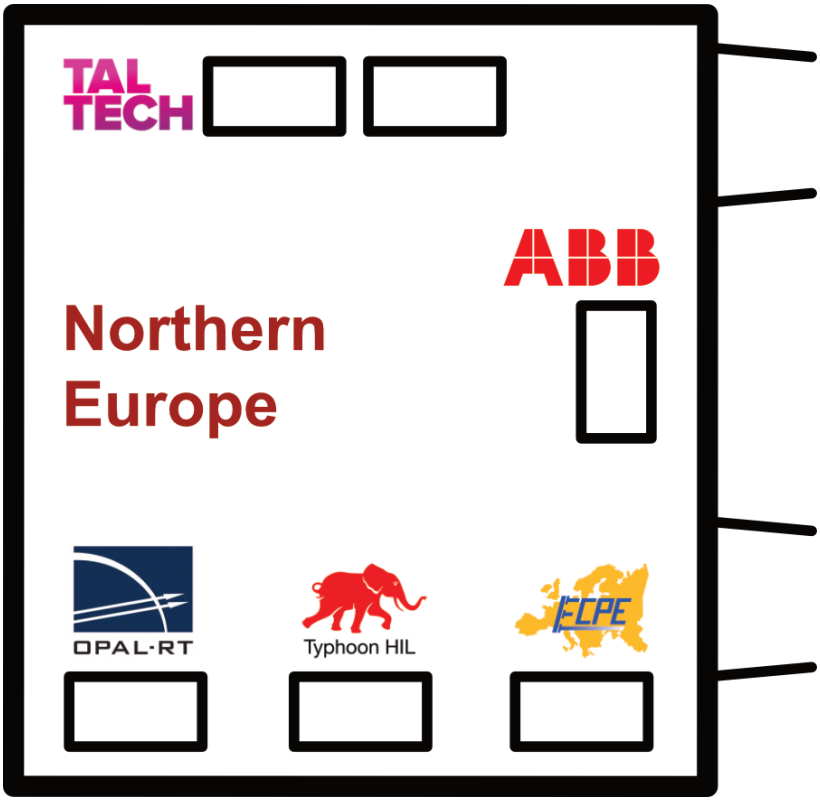
The badge pick-up and information desk is in the second-floor foyer.



EXPO

The **IEEE PEMC 2026 exhibition** is located in **Northern Europe on the second floor**, alongside the conference coffee-break area. Exhibitors include **ABB, Typhoon HIL, OPAL-RT Technologies, ECPE and Tallinn University of Technology (TalTech)**. Their stand locations are shown on the map.

Visit the stands to meet industry and research representatives, discuss technical challenges and explore opportunities for cooperation. Exhibitor presentations are scheduled during selected coffee breaks; please consult the daily program for details.





PROGRAM AT A GLANCE

The technical program features **35 oral sessions, 6 keynote lectures, 2 invited presentations and 5 tutorials**, with sessions running in five parallel tracks.

Badge collection begins on Tuesday, 22 September, from 15:00 to 20:00 at the information desk in the second-floor conference foyer. ***Participants are strongly encouraged to collect their badges and conference packages on Tuesday to avoid Wednesday morning queues.*** On Wednesday, the desk opens at 07:30 and closes from 09:00 to 11:00 during the opening ceremony and keynote session, reopening until 17:00. ***No on-site registration is possible. The desk provides badge collection and participant information only.***

Each technical paper is allocated a **15-minute slot**, with a maximum of **12 minutes for the presentation**, leaving time for questions and the transition to the next speaker. Presenters should upload their slides in the assigned room at least 10 minutes before their session begins and introduce themselves to the chairs. Session chairs are asked to **keep sessions on schedule**.

Keynote lectures take place on all three mornings. The five parallel **tutorials** run on Wednesday from 15:30 to 17:30 and are included for conference participants. Friday begins with the **IEEE IES Students and Young Professionals Forum**, followed by the IEEE IAS Women in Engineering and KIPE keynote lectures.

The **exhibition, coffee breaks and farewell brunch** take place in Northern Europe, with vendor presentations during selected breaks. Conference lunches are served on Wednesday and Thursday at Baarle Restaurant; participants must wear their badges for admission.

Social events begin with Wednesday's **walking tour**, departing from the hotel at 18:00 and ending at the Energy Discovery Center for the **Welcome Reception**, from 19:30 to 22:00. Thursday's **Gala Dinner** takes place at Lillepaviljon, with welcome drinks at 19:30 and dinner at 20:00. The first conference bus departs from the hotel at 19:15. **Separate event tickets are required for admission to both the Welcome Reception and Gala Dinner.**

Friday afternoon offers visits to **ABB Estonia and TalTech**, with limited capacity; participants may select one tour. Registration is in Expo Zone.

The program at a glance is presented below, with **color-coded conference rooms**. All times are local Tallinn time (**EEST, UTC+3**).

22 SEPTEMBER 2026 | TUESDAY					
15:00-20:00	BADGE COLLECTION AND INFORMATION DESK OPEN				
17:00-18:00	PEMC Council Meeting (by invitation only, room: Northern Europe)				
23 SEPTEMBER 2026 | WEDNESDAY					
07:30-09:00 11:00-17:00	BADGE COLLECTION AND INFORMATION DESK OPEN				
09:00-09:30	OPENING CEREMONY				
09:30-11:00	KEYNOTE SESSION: Johann W. Kolar (ETHZ/TU Wien, CH/AT) and Frede Blaabjerg (AAU, DK)				
11:00-11:30	COFFEE & Vendor Presentation of ABB | EXPO in Northern Europe				
11:30-13:00 Sessions	Multilevel Converters I	SS8A • Resilient DC Electrification	Renewable Energy Gener. Systems	SS3A • DC-DC Power Converters	Elelectr. Machines Diagnost. & Estim.
13:00-14:00	LUNCH | Baarle Restaurant, 1st floor				
14:00-15:00 Sessions	Advanced AC-DC & DC-AC Conversion	Reluctance Machines & Drives	EV Charging: Industr. & Wireless	Power Quality in PV Systems	Sensorless Control of Electric Drives
15:00-15:30	COFFEE & Vendor Presentation of Typhoon HIL | EXPO in Northern Europe				
15:30-17:30 Tutorials	GaN AC Switches	Solid-State Transformers	Advanced DC Power Technologies	Wireless Charging of EVs	AI in Fault-Tolerant Drives
18:00-19:30	FREE WALKING SIGHTSEEING TOUR				
19:30-22:00	WELCOME RECEPTION | Energy Discovery Centre (bring ticket)				
24 SEPTEMBER 2026 | THURSDAY					
08:00-17:00	BADGE COLLECTION AND INFORMATION DESK OPEN				
09:00-10:30	KEYNOTE SESSION: Mariusz Malinowski (Warsaw UoT, PL) and Akshay Rathore (NUS, SG)				
10:30-11:00	INVITED PAPER (EPFL)				
11:00-11:30	COFFEE & Vendor Presentation of TalTech | EXPO in Northern Europe				
11:30-13:00 Sessions	Converter Topology: Design & Optimiz.	SS8B • Resilient DC Electrification	Thermal Design of Electrical Machines	Machine Learning & Kalman Filters	SS3B • DC-DC Power Converters
13:00-14:00	LUNCH | Baarle Restaurant, 1st floor				
14:00-14:30	INVITED PAPER (TUWIEN)				
14:30-15:30 Sessions	Power Semicond. Reliability	Advanced Control & Modulat. for Drives	Special-Purpose Power Electronics	SS10 • Wireless & In-Motion EV Charging	SS5 • Magnetic Levitation
15:30-16:00	COFFEE & Vendor Presentation of OPAL-RT Technologies | EXPO in Northern Europe				
16:00-17:00 Sessions	Drive Modelling & Parameter Identific.	SS8C • Resilient DC Electrification	Energy & El.-mech. System Modelling	SS1+7 • Storage & Megawatt Charging	Eng. Learning Platforms & Tools
20:00-23:30	GALA DINNER | Lillepaviljon | Conference bus at 19:15, welcome drinks from 19:30 (bring ticket)				
25 SEPTEMBER 2026 | FRIDAY					
08:00-11:00	BADGE COLLECTION AND INFORMATION DESK OPEN				
08:00-09:30	IEEE IES STUDENTS & YOUNG PROFESSIONALS FORUM (coffee served at 9:10)				
09:30-10:00	IEEE IAS WIE KEYNOTE: Dulsha Kularatna- Abeywardana (University of Auckland, NZ)				
10:00-10:45	KIPE KEYNOTE: Kyo-Beum Lee (Ajou University, KR)				
10:45-11:45 Sessions	Phase-Shifted Isolated DC-DC	Aerospace & Marine Applications	SS2 • Future Electric Mobility Drives	Special-Purpose El.-mech. Systems	Engineering Education
11:45-12:45 Sessions	Multilevel Converters II	Grid Protection & Support Interfaces	SS8D • Resilient DC Electrification	Industrial Robotics & Advanced Control	SS9 • AI for Hybrid AC/DC µGs & EVs
12:45-13:30	FAREWELL BRUNCH | foyer, 2nd floor				
13:30-14:00	CLOSING CEREMONY				
	POST-CONFERENCE TOURS (by preliminary registration)				

ROOM COLOUR KEY \| HESTIA HOTEL EUROPA

WESTERN EUROPE Lääne-Euroopa	PARLIAMENT Parlament	EASTERN EUROPE 1 Ida-Euroopa 1	EASTERN EUROPE 2 Ida-Euroopa 2	SOUTHERN EUROPE Lõuna-Euroopa
FOYER, 2ND FLOOR	NORTHERN EUROPE (EXPO) Põhja-Euroopa	BAARLE RESTAURANT, 1ST FLOOR	OUTSIDE HOTEL	

SOCIAL EVENTS

Welcome Reception



Address:
Põhja pst 29

The Welcome Reception will take place at the **Energy Discovery Center on Wednesday, September 23, from 19:30 to 22:00**. TalTech supports this event.

Housed in a century-old power plant, the center combines Tallinn's industrial heritage with hands-on science. Interactive exhibits explore electricity, sound and light.

A **free walking tour departs from Hestia Hotel Europa at 18:00**, passing through Tallinn's Old Town and finishing at the reception venue.

Gala Dinner & Awards Ceremony



Address:
Pirita tee 26/2

The Gala Dinner will take place at **Lillepaviljon on Thursday, September 24**, with **welcome drinks at 19:30 and dinner at 20:00**. ABB supports this event as a Platinum sponsor.

Lillepaviljon is a distinctive example of Nordic modernist architecture. In front of the Pirita seaside promenade, its glass façades and open interior provide a welcoming setting for a nice evening.

Conference buses will operate between the hotel and Lillepaviljon, with the first departure from Hestia Hotel Europa at **19:15**. Please arrive a few minutes early.

You MUST present the corresponding ticket from your conference package to gain entry to a social event.



DAY 0 – SEPTEMBER 22 – TUESDAY

15:00–20:00 **2nd floor foyer**	**Badge collection and information desk open**
17:00–18:00 **Northern Europe**	**PEMC Council Meeting** By invitation only.
18:30 **Outside the hotel**	**PEMC Council Dinner** By invitation only.



DAY 1 – SEPTEMBER 23 – WEDNESDAY

23 September **07:30–09:00** **11:00–17:00** **2nd floor foyer**	**Badge collection and information desk open**
23 September **09:00–09:30** **Western Europe**	**Opening Ceremony**
23 September **09:30–11:00** **Western Europe**	**KEYNOTE SESSION** **Engineering a Planetary UHVDC Grid – Energy Superabundance or Mission Impossible** ***Johann W. Kolar**, ETH Zurich / TU Wien, Switzerland/Austria* **Power Electronics Technology – Trends and Applications** ***Frede Blaabjerg**, Aalborg University, Denmark*
23 September **11:00–11:30** **Northern Europe**	**Coffee Break and Vendor Presentation of ABB**

23 September 11:30–13:00 **Western Europe**	**Multilevel Converters I** ***Session chairs: Luigi Pio Di Noia; Nimrod Vazquez*** **PEMC26-000013 – Inverse Model Predictive Control for Ten-Switch Three-Phase Three-Level Inverter** *Abdullah Berkay Bayindir, Ali Sharida, Sertac Bayhan, Haitham Abu-Rub* **PEMC26-000206 – Towards Design Guidelines for DC-Link Parameter Estimation in NPC Converters Using Modulation-Based Signal Injection** *Diana Lopez-Caiza, Ariya Sangwongwanich, Frede Blaabjerg* **PEMC26-000203 – The Phase Angle of Injected Circulating Current and Common-Mode Voltage Components and Its Impact on Submodule Capacitor Voltage in the Modular Multilevel Converter** *Erdogan Dinc, Alper Emre Ozden, Halise Kilicoglu, Hakime Hanife Goren, Paul Weston, Pietro Tricoli* **PEMC26-000123 – Differentiated Dead-Time Compensation for a Three-Level Neutral-Point-Clamped Inverter** *Arno Claes, Johan Gyselinck* **PEMC26-000043 – Leakage Current Mitigation in Photovoltaic Grid-Connected Cascade Multilevel Inverter Using Predictive Control** *Cesar Limones, Nimrod Vázquez, Ricardo Femat, Jaime Arau, Angel de Castro, Claudia Hernández, Leonel Estrada* **PEMC26-000095 – Modeling and Control of Three-Phase Modular Push-Pull Converter for Grid Integration of Battery Storage Systems** *Emanuele Fedele, Luigi Pio Di Noia, Pietro Tricoli*

23 September **11:30–13:00** **Parliament** **1st floor**	**SS8A Emerging Technologies for Sustainable and Resilient DC Electrification and Smart Integration of Systems** ***Session chairs: Riccardo Mandrioli; Oleksandr Matiushkin*** **PEMC26-000056 – Current Measurement and Synchronous Rectification at MHz+ Switching Frequency** *Mohammad Mehdi Kashani, Oleksandr Husev, Daniel Sánchez, Jacek Rąbkowski, Bohdan Pakhaliuk* **PEMC26-000069 – A Bidirectional Transformerless DC–DC Converter with Capacitive Coupling for Battery Charging** *Ademir Toebe, Niwton Gabriel Feliciani dos Santos, Cassiano Rech, Guirguis Zaki Guirguis Abdelmessih* **PEMC26-000118 – Single-Phase Onboard Charger Operated with Constant and Sinusoidal Charging Currents: Preliminary Lifetime Assessment** *Diego Anchieri, Lohith Kumar Pittala, Riccardo Mandrioli, Oleksandr Matiushkin, Oleksandr Husev, Vitor Monteiro, Francesca Grazian, Mattia Ricco* **PEMC26-000194 – Comparative Design and Experimental Validation of Planar Transformers with Integrated Leakage Inductance for High-Frequency Converters** *Salman Khan, Andrii Chub, Dmitri Vinnikov, Ali Shan, Mehmet Timur Aydemir, Joshua R. Neusser* **PEMC26-000197 – Comparison of Modular Dual Active Bridge Converters for Series-Connected Input Applications** *Marina Vitali, Riccardo Mandrioli, Wilmar Martinez* **PEMC26-000228 – Novel PCB-Embedded Toroidal Air-Core Coupled Inductors/Transformers for MHz Power Converters** *Abdul Majid Bhat, Andrii Chub, Stefano Michelis*

23 September 11:30–13:00 **Eastern Europe 1**	**Renewable Energy Generation Systems** ***Session chairs: Alvaro Carreno; Lucas Frizera Encarnação*** **PEMC26-000084 – Photovoltaic Green Hydrogen Generator Based Production via Shunt Active Filter** *Kenneth Chike Chijioke, Mohamad Alaa Eddin Alali, Stefano Di Gennaro, Philippe Mandin, Mauro Cappelli* **PEMC26-000179 – Partial-Power PV–PEM Coupling With an LLC Auxiliary Port: Experimental Validation** *Ricardo Flores, Antonio Sánchez, Felipe Morales, Felipe González* **PEMC26-000105 – Waveform Slicing-Based Adaptive Control for Supercapacitor Charging in Wave Energy Converters: Performance Assessment** *Supun Ranasinghe, Dulsha Kularatna–Abeywardana* **PEMC26-000077 – Grid-Connected PV System with Finite Control Set Model Predictive Control** *Carlos Alberto Chaparro, Estevão Modolo de Souza, Walbermark M. dos Santos, Lucas Frizera Encarnação* **PEMC26-000232 – Steady-State Framework for Hybrid Distribution Transformers with PV and BESS Integration** *Jan Danisiewicz, Alvaro Carreno, Dave Figueroa, Mariusz Malinowski, Marcelo A. Perez* **PEMC26-000040 – Benchmarking Circular Governance Maturity in PV, Wind, Batteries, and Power Electronics for Energy Transition** *Gowthamraj Rajendran, Darius Andriukaitis, Gabriel-Miro Muntean, Sobia Jangsher, Algimantas Valinevicius, Mindaugas Zilys, Dangirutis Navikas, Vytautas Markevicius, Roman Sotner*

23 September 11:30–13:00 **Eastern Europe 2**	**SS3A DC-DC Power Converters: Novel Topologies, Advanced Control and Applications in E-Mobility Charging Systems** ***Session chairs: Samir Kouro; Tomi Roinila*** **PEMC26-000064 – Development and Field Validation of a Modular Bidirectional SSCB for Mission-Critical Radar Power Systems** *Nandakumar S, Satish Naik Banavath, Vengadarajan A* **PEMC26-000117 – Control-Oriented Modeling of a Full-Bridge Phase-Shifted LC-LC Series Resonant Converter for Wireless Power Transfer** *Alexandre Gomes, Ahmed Hussein, Pedro Pascoal, Lourenço Moreira, Justino Rodrigues* **PEMC26-000159 – Interoperability Analysis of a Novel Orbirect–Bipolar Coil Topologies for Electric Vehicle Wireless Charging** *Lalitha Pai B, Dharavath Kishan, Kalpana R, Samir Kouro* **PEMC26-000199 – Feasibility Analysis and Multiport Converter Design for Vehicle-Integrated Photovoltaics** *Outhman Abahussain, Olutayo Omotoso, Pietro Tricoli* **PEMC26-000218 – Exact Control-to-Output Transfer Function Calculation for the Phase-Shift Modulated Dual Active Bridge** *Delia-Anca Botila, Dan Lascu* **PEMC26-000200 – Impact of Fuel-Cell Impedance on Control Design of Current-Fed Dual Active Bridge Converters** *Nishan Withana, Bishwas Basnet, Prasad Jayathurathnage, Tero Halkosaari, Paavo Rasilo, Tomi Roinila*

23 September 11:30–13:00 **Southern Europe**	**Electrical Machines Diagnostics and Parameter Estimation** ***Session chairs: Babak Nahid-Mobarakeh; Jan Bauer*** **PEMC26-000004 – Model-Based Detection of Localized Bearing Faults in Three-Phase Induction Motors** *Raya A. K. Aswad, Laszlo Szamel, Bassim M.H. Jassim* **PEMC26-000119 – Broken Rotor Bar Diagnosis Under Unseen Load Conditions Using Fourier-Domain Load Extrapolation of Three-Phase Current Signals** *Jeremi Jan Jarosz, Krzysztof Szabat* **PEMC26-000211 – Impact of Conductive Airgap Sleeve on Parasitic Capacitances and Bearing Current Risk in a High-Specific-Power Hairpin-Winding Traction Machine** *Konstantin Vostrov, Ilya Petrov, Juha Pyrhönen* **PEMC26-000113 – PMSM Parameter Estimation Based on Half-Wave Signal Injection and RLS** *Arta Mohammad-Alikhani, Prashant Surana, Ehsan Jamshidpour, Babak Nahid-Mobarakeh* **PEMC26-000106 – Stator Resistance and Permanent Magnet Flux Linkage Identifiability Analysis for Nonsalient-Pole PMSM** *Krisztián Horváth, Karol Kyslan, Karol Wróbel, Grzegorz Tarchała* **PEMC26-000008 – Influence of Excitation Signal Parameters on Battery Module Diagnostics Using EIS** *Michal Puš, Kateřina Nováková, Filip Baum, Jakub Kučera, Jan Bauer*
23 September 13:00–14:00 **Baarle Restaurant 1st floor**	**Lunch and Networking** Please wear your conference badge for admission.

23 September 14:00–15:00 **Western Europe**	**Advanced AC–DC and DC–AC Converter Technologies** ***Session chairs: Mariusz Zdanowski; Moshe Sitbon*** **PEMC26-000142 – PFC Rectifiers with Improved Transient Response for Operation with 50Hz and 60Hz Mains under Stability and THD Constraints** *Yoav Aminov, Pavel Strajnikov, Moria Sassonker, Moshe Sitbon, Mor M. Peretz, Alon Kuperman* **PEMC26-000168 – Current Source Rectifier with Three-State Triangular Control and Extremely Small Output Inductor** *Jacek Rabkowski, Mariusz Zdanowski, Przemysław Trochimiuk* **PEMC26-000091 – Model-Based Online Adaptive Space Vector Modulation** *Ignacio A. Acosta, Chengmin Li, Petros Karamanakos, Georgios Papafotiou* **PEMC26-000124 – Closed-Form Modelling of Peak Circulating Current in Parallel-Interleaved Two- and Three-Level VSIs** *Muhammad Mohsin Naveed, Thijmen Hoeksma, Thiago Batista Soeiro*
23 September 14:00–15:00 **Parliament 1st floor**	**Reluctance Machines and Drives** ***Session chairs: Armando Pires; Hüseyin Tayyer Canseven*** **PEMC26-000060 – Synchronous Reluctance Machines as a Magnet-Free Alternative for Heavy-Duty Traction** *Arash Allahyari, Pia Lindh, Andrea Credo, Lassi Aarniovuori, Juha J. Pyrhönen* **PEMC26-000065 – MTPA and Field-Weakening Control of SynRM with Single Controller in Six-Step Operation** *Petr Zakopal, Ondrej Lipcak, Jan Bauer*

	PEMC26-000006 – Reduced-Switch Fault-Tolerant 8/6 Switched Reluctance Motor Drive Based on a Dual-Y Configuration *Vitor Fernão Pires, Daniel Foito, Armando Cordeiro, João Martins, A. J. Pires* **PEMC26-000140 – Powertrain Level Optimization of Synchronous Reluctance Motors for Heavy-Duty Traction Based on Driving Cycle** *Arash Allahyari, Saeid Deliri, Ilya Petrov, Lassi Aarniovuori, Pasi Peltoniemi, Juha J. Pyrhönen*
23 September 14:00–15:00 **Eastern Europe 1**	**EV Charging: Industrial and Wireless Solutions** ***Session chairs: Moein Ghadrdan; Kaspars Kroics*** **PEMC26-000045 – A High-Power Three-Phase Orbirect Inductive Coil Topology for Electric Vehicle Wireless Battery Charging** *Dharavath Kishan, Shubhang Chauhan, Shubhankar Ghosh, Moein Ghadrdan, Giovanni De Carne* **PEMC26-000212 – Capacitive Wireless Power Transfer for Supercapacitor Assisted Battery Charging of Asphalt-Embedded Temperature Sensors** *Kaspars Kroičs, Jānis Voitkāns* **PEMC26-000017 – Bidirectional Power Conversion Topologies for EV Fast Charging: Bridging the Gap Between Academic Research and Commercial Deployment** *Duarte Esguedelhado, João Martins, Vitor Fernão Pires, João Rosa Dias* **PEMC26-000132 – Design and Experimental Validation of a Low-Inductance 4-Leg SiC Power Converter for Drive Applications** *Pavel Drabek, Jakub Novotny, Lukas Sobotka, Ondrej Suchy, Miroslav Tyrpekl*

23 September 14:00–15:00 **Eastern Europe 2**	**Power Quality in PV Systems** ***Session chairs: Goga Cvetkovski; Giovanni Petrone*** **PEMC26-000034 – Smart Inverters and Optimisation Algorithm in Function of Dynamic Voltage Control in Power Networks** *Goga Cvetkovski, Darko Vidinikj* **PEMC26-000085 – Modeling the Impact of an Unbalanced and Distorted AC Grid on DC Grid Power Quality** *Guillermo Huerta, Maurice Roes, Georgios Papafotiou* **PEMC26-000075 – Impact of Photovoltaic String Dynamic Modeling on Boost Converter Transient Interaction** *Carlos Pavon-Vargas, Giovanni Petrone* **PEMC26-000116 – The Impact of the MPPT Technique on Power Quality in Double Stage Grid-Connected PV Systems** *Marco Balato, Martina Botti, Luigi Costanzo, Carlos Andres Ramos Paja, Massimo Vitelli*
23 September 14:00–15:00 **Southern Europe**	**Sensorless Control of Electric Drives** ***Session chairs: Rodrigo Padilha Vieira; Anton Rassõlkin*** **PEMC26-000162 – A Weightless Sensorless Predictive Direct Speed Control Approach for IPMSM Drives** *Emmanuel Adamski de Moura, Lucas Rossato Rocha, Paulo Henrique Alves da Silva e Silva, Marco Rivera, Rodrigo Padilha Vieira* **PEMC26-000109 – Low-Speed Sensorless Control of SynRM Drives Using Adaptive High-Frequency Injection** *Paulo H. A. S. e Silva, Emmanuel A. Moura, Lucas Rossato Rocha, William K. Moreira, Gabriel C. Freo, Davide Ferreli, Riccardo Mandrioli, Cassiano Rech, Rodrigo Padilha Vieira*

	PEMC26-000136 – Model-Based Online Current Optimization for Sensorless Field-Oriented Control of Synchronous Reluctance Machine Drives *Shahal Ibn Islam Joy, Lelisa Wogi, Marcin Morawiec, Deepak Vyas, Krzysztof Blecharz, Tausifur Rahman* **PEMC26-000222 – Independent Sensorless Control of Dual Three-Phase IPMSM Using Extended Electromotive Force Sliding Mode Observer** *John Gelpud, Sami Ouazine, Ramkrishan Maheshwari*
23 September 15:00–15:30 **Northern Europe**	**Coffee Break and Vendor Presentation of Typhoon HIL**
23 September 15:30–17:30 **Western Europe**	**Tutorial – Grid Interfaces and Electric Drive Systems in the Era of Monolithic GaN AC-Switches** **Instructors:** Spasoje Mirić; Johann W. Kolar Free admission.
23 September 15:30–17:30 **Parliament 1st floor**	**Tutorial – Solid-State Transformer Technology** **Instructors:** Drazen Dujic; Zhenchao Li; Amin Darvishzadeh Free admission.
23 September 15:30–17:30 **Eastern Europe 1**	**Tutorial – Advanced DC Power Technologies for Mission-Critical Infrastructure Applications** **Instructors:** Niwton Gabriel Feliciani dos Santos; Vinod Kumar Yadav; Andrei Blinov; Kenan Askan Free admission.
23 September 15:30–17:30 **Eastern Europe 2**	**Tutorial – Wireless Charging of Electric Vehicles: Design for Battery Interoperability and Reliable Dynamic Charging** **Instructors:** Francesca Grazian; Jianning Dong Free admission.

23 September **15:30–17:30** **Southern Europe**	**Tutorial – Practical Aspects of Artificial Intelligence Applications in Fault-Tolerant Electric Drive Systems** **Instructor:** Maciej Skowron Free admission.
23 September **18:00–19:30** **Hotel entrance** **↓** **Old Town** **↓** **Energy Discovery Center**	**Free walking tour** Departs from Hestia Hotel Europa at 18:00 and ends at the Welcome Reception venue.
23 September **19:30–22:00** **Energy Discovery Center**	**Welcome Reception** Põhja pst 29, 10415 Tallinn. Admission requires the Welcome Reception ticket from your conference package.



DAY 2 – SEPTEMBER 24 – THURSDAY

24 September 08:00–17:00 **2nd floor foyer**	**Badge collection and information desk open**
24 September 09:00–10:30 **Western Europe**	**KEYNOTE SESSION** **Advancing Grid Flexibility with Hybrid Distribution Transformers** ***Mariusz Malinowski**, Warsaw University of Technology, Poland* **Wide Band Gap Power Electronics for Electrification and Industrial Energy Systems** ***Akshay Rathore**, National University of Singapore, Singapore*
24 September 10:30–11:00 **Western Europe**	**Invited paper presentation** ***PEMC26-000086 – IGCT Clamp Circuit Impacts on Resonant Operating Principles in Direct Current Transformer*** *Amin Darvishzadeh, Drazen Dujic*
24 September 11:00–11:30 **Northern Europe**	**Coffee Break and Vendor Presentation of TalTech**

24 September 11:30–13:00 **Western Europe**	**Design, Modelling and Optimization of Converter Topologies** ***Session chairs: Ilya Galkin; Vitor Pires*** **PEMC26-000005 – A Single-Switch Non-Isolated Boost DC-DC Converter with Minimal Controlled Switches and Enhanced Voltage Gain** *Vitor Fernão Pires, Daniel Foito, Armando Cordeiro, Georgios I. Orfanoudakis, Joaquim Monteiro* **PEMC26-000057 – Weighted Figure of Merit for Power Semiconductor Selection in High–Power, Fast–Switching Applications** *Daniel Sánchez, Oleksandr Husev, Jacek Rąbkowski, Mohammad Mehdi Kashani, Oleksandr Matiushkin* **PEMC26-000143 – Residual Output Current Ripple in Buck Converters Equipped with Active Ripple Elimination Branch** *Ron Harush, Vladimir Yuhimenko, Alex Belenky, Mor Mordechai Peretz, Alon Kuperman, Riccardo Mandrioli* **PEMC26-000154 – Simplified Ripple-Elimination Branch for DC/DC Converters Operating with Variable Duty-Cycle** *Vladimir Yuhimenko, Ron Harush, Riccardo Mandrioli, Alon Kuperman, Mor Mordechai Peretz, Vitaly Gitis* **PEMC26-000224 – Evaluation of Impact of Current-Forming Inductor Placement in Grid-Tied Unfolding Converters** *Alexander Bubovich, Ilya A. Galkin* **PEMC26-000226 – Two-Stage Power Delivery Architecture Based on Partial Power Processing for Particle Accelerator Applications** *Zeeshan Haider, Andrii Chub, Manuel Colmenero*

24 September 11:30–13:00 **Parliament 1st floor**	**SS8B Emerging Technologies for Sustainable and Resilient DC Electrification and Smart Integration of Systems** ***Session chairs: Freddy Flores-Bahamonde; Tanel Jalakas*** **PEMC26-000049 – Impact of Bipolar DC Grids on the Reliability and Availability of Shipboard Power Systems** *Robin van der Sande, Aditya Shekhar, Sachin Yadav, Pavol Bauer* **PEMC26-000100 – Feedforward-Enhanced Model Predictive Control for DC Bus Voltage Regulation in a Wind–Battery DC Microgrid Supplying a Surface Water Heat Pump** *Joyce Assaf, Mamadou-Baïlo Camara, Damien Guilbert, Brayima Dakyo* **PEMC26-000156 – Typical Residential DC Microgrid Parameter Estimation for Solid-State Circuit Breaker Design** *Tanel Jalakas, Siim Erik Viiding, Dmitri Vinnikov* **PEMC26-000195 – Analysis of Piecewise-Linear Load Droop Control Strategies in Residential DC Nanogrids** *Indrek Roasto, Andrei Blinov, Dmitri Vinnikov, Jarek Kurnitski, Enrique Romero-Cadaval* **PEMC26-000198 – Appliance-Level Adaptive Droop Control for Residential DC Microgrids** *Sayeed Hasan, Andrii Chub, Dmitri Vinnikov, Andrei Blinov, Arqum Shahid, Jarek Kurnitski* **PEMC26-000157 – Multi-Hypothesis Cyber Attack and Physical Fault Diagnostics in Converter-Dominated DC Microgrids** *Saqib Ali, Andrii Chub, Hayretdin Bahsi*

24 September 11:30–13:00 **Eastern Europe 1**	**Thermal Design and Modelling of Electrical Machines** ***Session chairs: Lassi Aarniovuori; Martin Sarap*** **PEMC26-000059 – Design Optimization of an Interior Permanent Magnet Motor with Directly Liquid Cooled Tooth Coil Windings for Traction Application** *Arash Allahyari, Ilya Petrov, Juha J. Pyrhönen* **PEMC26-000155 – Thermally Aware Rotor Design Methodology for an Axial Flux Switched Reluctance Motor** *Martin Sarap, Ants Kallaste, Toomas Vaimann* **PEMC26-000146 – Design and Analysis of a PMSM with Direct Oil-Cooled Hollow Hairpin Windings** *Huseyin Tayyer Canseven, Ilya Petrov, Pratik Bisale, Lassi Aarniovuori, Juho Montonen, Juha Pyrhönen* **PEMC26-000148 – Design of High-Power-Density IPMSM for Drone Applications Considering Stator Slot Count and Thermal Properties** *Haruki Kumamoto, Ren Tsunata, Jun Imai, Masatsugu Takemoto, Satoru Ota* **PEMC26-000186 – Design and Analysis of a High-Specific-Power PMSM with Direct Liquid Cooling** *Hüseyin Tayyer Canseven, Arash Allahyari, Ilya Petrov, Juha Pyrhönen* **PEMC26-000110 – Identification of Harmonic Loss Distribution in a Converter-Fed Induction Motor via Steady-State Lumped Parameter Thermal Network Modeling** *Abuzar Akhtar, Miroslav Lípa, Janne Nerg, Lassi Aarniovuori, Dong Liu, Martin Skalicky*

24 September 11:30–13:00 **Eastern Europe 2**	**Applications of Machine Learning and Kalman Filters** ***Session chairs: Harald Aschemann; Prasanth Venugopal*** **PEMC26-000144 – Physics-Guided Machine Learning Models for Real-Time Digital Twin Modeling of Water Electrolyzer Systems** *Dan Yu, Vicente Olguín Godoy, Vincenzo Liso, Frede Blaabjerg* **PEMC26-000233 – Machine Learning-Based Fault Detection of Partial Shading in PV Systems** *Hilal Al-Kuwari, Salem Al-Salem, Abdullah Tahir, Omair Hasnah, Shady S. Refaat, Mohammad AlShaikh Saleh* **PEMC26-000234 – Machine Learning–Based Condition Monitoring and Thermal Health Assessment of DC-Link Capacitors in Three-Phase Motor Drives** *Ali Rasul, Rishad Ahmed, Minglei You, Zhengyu Zhao* **PEMC26-000138 – Kalman Filter–Based Disturbance Observer Assisted Model Predictive Control for Dual Three-Phase PMSM Drives** *Malik Qamar Abbas, Shoaib Ahmed, Lassi Aarniovuori, Pasi Peltoniemi* **PEMC26-000047 – Flatness-Based Tracking Control of a Boost-Converter Supplied DC Motor with UKF** *Felix van Rossum, Harald Aschemann, Paolo Mercorelli* **PEMC26-000020 – State of Charge Estimation for Silicon-Anode Lithium-Ion Batteries in Solar Electric Vehicles** *Jorian N. Zwerver, Cora Salm, Prasanth Venugopal*

24 September 11:30–13:00 **Southern Europe**	**SS3B DC-DC Power Converters: Novel Topologies, Advanced Control and Applications in E-Mobility Charging Systems** ***Session chairs: Samir Kouro; Carlos Baier*** **PEMC26-000035 – Approximate Continuous-Control-Set MPC via Incremental Discretization for a Boost DC–DC Converter** *Carlos R. Baier, Rodrigo Paredes, Oscar Danilo Montoya, Pedro E. Melin, Federico Serra, Jonathan M. Palma* **PEMC26-000048 – Novel Modulation Technique for Zero-Current Soft-Switching Current-Fed Push-Pull DC/DC Converter** *Nil Patel, Luiz A. C. Lopes, Akshay K. Rathore, Jose Rodriguez* **PEMC26-000213 – A New High Step-Up Converter** *Andreea-Gabriela Lupaşcu, Ioana-Monica Pop-Călimanu* **PEMC26-000214 – Analysis and Implementation of a New Fourth-Order Step-Up Converter with Coupled Inductors** *Manuela-Ruxandra Jula, Ioana-Monica Pop-Călimanu, Dan-Florentin Lascu* **PEMC26-000216 – A High-Gain Step Up/Down Type DC-DC Converter** *Denis Fechete, Dan Lascu* **PEMC26-000217 – A New Buck Converter with Ripple-Free Input Current** *Cristian Ionici /presenter: Dan Lascu/*
24 September 13:00–14:00 **Baarle Restaurant 1st floor**	**Lunch and Networking** Please wear your conference badge for admission.

24 September 14:00–14:30 **Western Europe**	**Invited paper presentation** ***PEMC26-000185 – Current Derivative Estimation for Speed Sensorless Control of AC Machines Using Sigma-Delta Converters*** *Peter Gangel, Eduardo Rodriguez Montero, Markus Vogelsberger, Thomas Wolbank*
24 September 14:30–15:30 **Western Europe**	**Reliability of Power Semiconductors** ***Session chairs: Aditya Shekhar; Satish Naik Banavath*** **PEMC26-000027 – A Review of Condition Monitoring and Lifetime Prediction for Power Semiconductor Devices** *Margo Molenaar, Aditya Shekhar, Pavol Bauer* **PEMC26-000150 – Data-Driven Decomposition of On-State Resistance of SiC MOSFETs for Health Monitoring** *Filip Simjanoski, Aditya Shekhar, GuoQi Zhang, Willem van Driel* **PEMC26-000180 – A Markov-State Interpretation of Interface State Evolution and Threshold Voltage Shift During TDDB in SiC MOS Capacitors** *Jinglin Li, Aditya Shekhar, Sten Vollebregt, Willem D. van Driel, Guoqi Zhang* **PEMC26-000054 – Comparison of Continuous and Discontinuous Pulse Width Modulation Strategies on the Lifetime of IGBT Inverter** *Szymon Szafraniec, Miroslav Lípa, Saeed Peyghami, Lassi Aarniovuori*

24 September 14:30–15:30 **Parliament 1st floor**	**Advanced Control and Modulation for Electric Drives** ***Session chairs: Kyo-Beum Lee; Karol Kyslan*** **PEMC26-000092 – Eliminating the DC-Link Inductor in CSI Drives via Field Winding Integration and Coordinated Field Current Control** *Ufukcan Urcan, Burak Akmanoğlu, Mert Altıntaş, Hilmi Gürleyen, Murat Ayaz, Emrah Zerdali, Hüseyin Tayyer Canseven, Ali Bakbak* **PEMC26-000127 – Sequential Direct Speed Predictive Control of PMSM with Two-Vector Duty Ratio Optimization** *Lukáš Pancurák, Peter Šofranko, Karol Kyslan* **PEMC26-000102 – MLDPWM Scheme in Single Inverter Dual Parallel IPMSM Drives** *Won-Woo Park, Kyo-Beum Lee* **PEMC26-000223 – Constrained Full State-Feedback Control with Multi-Resonant Terms for Harmonic Current Suppression in SynRM Drives** *Łukasz J. Niewiara, Tomasz Tarczewski*
24 September 14:30–15:30 **Eastern Europe 1**	**Special Purpose Power Electronics Systems** ***Session chairs: Ansis Avotins; Georgios Orfanoudakis*** **PEMC26-000190 – Modified Maximum Power Point Reaching for Clamped-Type Passive Magnetic Energy Harvesters** *Yael Ditkovich, Asaf Levhar, Moshe Shvartsas, Georgios I. Orfanoudakis, Evangelos Pompodakis, Alon Kuperman* **PEMC26-000236 – Subtractive Synchronous Buck Converter for Electrosurgical Tissue Welding: Topology Evaluation and Adaptive Control Perspectives** *Tetiana Koroliuk, Ievgenii Dziuba, Andrii Dubko, Noel Rodriguez, Diego P. Morales, Oleksandr Bondarenko*

	PEMC26-000231 – Lighting Power Supply Control System for Indoor Farming Applications *Ansis Avotins, Peteris Apse-Apsitis, Martins Marcinkevics* **PEMC26-000134 – Comparison of Open-End Winding Topology and NPC for Electric Vehicle Application** *Davide De Simone, Sarper Öztürk, Luigi Piegari, Saqlain Shafi*
24 September 14:30–15:30 **Eastern Europe 2**	**SS10 Wireless and In-Motion Charging Methods of On-board Batteries in Electric Mobility Applications** ***Session chairs: Ibrahim Diab; Mattia Ricco*** **PEMC26-000141 – IMSO: An In-Motion Supplemented Opportunity Charging Method for Reduction of Battery Size, Costs and Extending Battery Lifetime in Buses** *Ibrahim Diab, Mikołaj Bartłomiejczyk* **PEMC26-000158 – A Modified Phase-Shift Modulation Strategy for Symmetrical Loss Distribution in Inductive WPT Full-Bridge Converters** *Leonardo A. Brum Viera, Vincenzo Cirimele, Saverio Stefano Furio, Riccardo Mandrioli, Cassiano Rech* **PEMC26-000170 – The Role of Power Electronics Overload Capability in Minimizing Battery Size for In-Motion Charging Trolleybus Power Networks** *Mikolaj Bartłomiejczyk, Rudolf F. P. Paternost, Riccardo Mandrioli, Mattia Ricco, Marcelo Vinícius de Paula, Tárcio A. S. Barros* **PEMC26-000061 – Modification of Inductive Power Transfer System Operating in Load Independent Voltage Output Mode for Different Transfer Distance** *Andrey Vulfovich, Ananth Bharadwaj, Alon Kuperman*

24 September 14:30–15:30 **Southern Europe**	**SS5 Magnetic Levitation** ***Session chairs: Janardan Kundu; Joao Martins*** **PEMC26-000046 – Design and Analysis of Radial Magnetic Bearing for High-Speed Rotating Machines** *Janardan Kundu* **PEMC26-000072 – PWM-Sampling Aliasing Effects on Force Ripple in Magnetic Levitation Systems** *Yuexin Feng, Yuancheng Zhang, Zigang Deng* **PEMC26-000167 – Discrete Interval Binary Sequence for Rapid Frequency Response Identification of Axial Magnetic Bearing System** *Muhammad Numan, Jawad Tariq, Atte Putkonen, Tuomo Lindh, Niko Nevaranta* **PEMC26-000164 – Hybrid Physics-Informed Learning for Multi-Objective Surrogate Models for Nonlinear Magnetic Bearing Actuator** *Jawad Tariq, Muhammad Numan, Tuomo Lindh, Niko Nevaranta*
24 September 15:30–16:00 **Northern Europe**	**Coffee Break and Vendor Presentation of OPAL-RT Technologies**

24 September 16:00–17:00 **Western Europe**	**Modelling and Parameter Identification for Electric Drives** ***Session chairs: Hüseyin Tayyer Canseven; Anton Rassõlkin*** **PEMC26-000177 – Empirical Evaluation of Voltage Drops and End-Winding Inductances to Improve PMSM Drives Control Performances** *Jérémy Creux, Fabien Vidal-Naquet, Gianluca Barbierato* **PEMC26-000204 – Influence of Current Rise Time on Quasi-Static Inductance Measurement in Solid-Rotor SynRMs** *Ilya Petrov, Houyi Ma, Lassi Aarniovuori, Eero Scherman, Andrea Credo, Juha Pyrhönen* **PEMC26-000114 – Learning Flux Linkages with Harmonics for Virtual Torque Sensing in Synchronous Machines** *Giulio Montecchio, Sven Reimann, Benjamin Hartmann, Maximilian Manderla, Jan Achterhold, Daniel Görges*
24 September 16:00–17:00 **Parliament 1st floor**	**SS8C Emerging Technologies for Sustainable and Resilient DC Electrification and Smart Integration of Systems** ***Session chairs: Riccardo Mandrioli; Vitor Monteiro*** **PEMC26-000090 – Modeling and Control of a Power Interface for Alkaline Electrolyzers** *Leonardo Drews Montibeller, Rafael Cardoso, Emerson Giovani Carati, Carlos Marcelo de Oliveira Stein, Jean Patric da Costa, Gustavo Weber Denardin, Marcio Antônio Fiori, Edivan Laercio Carvalho* **PEMC26-000111 – Single-Phase Non-Isolated Front-End PFC Power Converters: A Comprehensive Review** *Vitor Monteiro, Riccardo Mandrioli, Mattia Ricco, Joao L. Afonso*

	PEMC26-000215 – Hybrid AC/DC Microgrid Architectures for Smart Buildings Applications and PV Integration: An Early System Simulation Platform *Javed Jamshed, Rosa Anna Mastromauro* **PEMC26-000225 – Optimal Capacitance Design for Three-Phase AC–DC Interlinking Converters Under Unbalanced Conditions** *Edivan Laercio Carvalho, Nuno Vilhena, Pedro Pereira, Diego Rojas, Freddy Flores-Bahamonde, Rafael Cardoso, João Martins*
24 September 16:00–17:00 **Eastern Europe 1**	**Advanced Modelling Methods for Energy and Electromechanical Systems** ***Session chairs: Luigi Pio Di Noia; Lukas Veg*** **PEMC26-000080 – Data-Driven Techno-Economic Assessment of Heating Demand Flexibility in a Campus Building: A Case Study** *Md Asif Abbas, Vahur Maask, Argo Rosin, Mitra Nabian Dehaghani, Furqan Amjad, Zeeshan Ali Shah* **PEMC26-000082 – A Data-Driven Framework for Off-Road Drivetrain Modeling and Optimization** *Miroslav Lípa, Szymon Szafraniec, Jan Bárta, Hannu Kärkkäinen, Janne Nerg, Lassi Aarniovuori* **PEMC26-000087 – Semi-Analytical Model of Multi-Core Multi-Windings High Current Pulse Transformer** *Luigi Pio Di Noia, Emanuele Fedele, Santolo Meo, Renato Rizzo* **PEMC26-000165 – Effect of Phase Number on Design, Voltage Utilization, and Traction Characteristics of Multiphase Induction Machines** *Jan Laksar, Tomáš Komrska, Patrik Kalaj, Lukáš Veg*

24 September 16:00–17:00 **Eastern Europe 2**	**Advanced Power Conversion for Energy Storage and EV Charging** ***Session chairs: Aditya Shekhar; Mohamed Trabelsi*** **PEMC26-000039 – Performance Evaluation of MPC and RBF Control for a Fully Active HESS in Electric Bus Applications** *Mouloud Aghilas Abdelaziz, Mostafa Farrag, Shady S.Refaat, Amira Mohammed, Vijayakumar Gali, Mohamed Trabelsi* **PEMC26-000078 – Digital Twin of a Dual Active Bridge for EV Charging with Experimental Validation** *Margo Molenaar, Sourabh Singh, Jos Schijffelen, Mike van den Heuvel, Aditya Shekhar, Pavol Bauer* **PEMC26-000196 – Comparative Analysis of Multiport Active Bridge Topologies for Renewable Energy-Integrated EV Charging** *Mohamed Osman, Ioan Serban* **PEMC26-000173 – Megawatt Charging Hubs: Architecture Comparison of MMC-Based Solid-State Transformer Topologies for Direct Medium-Voltage Grid Connection** *Ahmed Hasouna, Shahid Jaman, Thomas Geury, Omar Hegazy*
24 September 16:00–17:00 **Southern Europe**	**Engineering Learning Platforms and Tools** ***Session chairs: Tuomo Lindh; Satish Naik Banavath*** **PEMC26-000058 – Soft4PES: Software Library for Power Electronic Systems** *Arttu Ruusila, Petros Karamanakos* **PEMC26-000073 – Validation of Double Decoupled Synchronous Reference Frame in PLECS Simulator** *Matej Sladek, Jozef Sedo, Michal Frivaldsky* **PEMC26-000139 – A Two-Degree-of-Freedom Active Magnetic Bearing System as a Platform for Project-Based Learning** *Niko Nevaranta, Juho Ovaska, Atte Putkonen, Tuomo Lindh*

	PEMC26-000161 – Beckhoff TwinCAT-Based Learning Environment for Teaching Motor Control *Tuomo Lindh, Juho Ovaska, Jan-Henri Montonen, Niko Nevaranta*
24 September 19:15 **Hotel entrance**	**Conference bus to the Gala Dinner** First departure to Lillepaviljon. Please arrive a few minutes early.
24 September 19:30 **Lillepaviljon**	**Welcome drinks**
24 September 20:00–23:30 **Lillepaviljon**	**Gala Dinner** Pirita tee 26/2, 12011 Tallinn. Entrance on the sea-facing side (take right after the gate). Check the weather, you may need an umbrella with you. Admission requires the Gala Dinner ticket from your conference package. First bus back to the hotel at 23:30.



DAY 3 – SEPTEMBER 25 – FRIDAY

25 September 08:00–11:00 **2nd floor foyer**	**Badge collection and information desk open**
25 September 08:00–09:30 **Western Europe**	**IEEE IES Students and Young Professionals Forum** Coffee served at 09:10.
25 September 09:30–10:00 **Western Europe**	**IEEE IAS WOMEN IN ENGINEERING KEYNOTE** **From Technical Expert to Technical Leader: Career Curves for Women in Engineering** ***Dulsha Kularatna-Abeywardana**, University of Auckland, New Zealand*
25 September 10:00–10:45 **Western Europe**	**KIPE KEYNOTE** **Emerging Motor Drive Technologies: Advances in Single-Inverter Dual-Motor and Open-End Winding PMSM Drive Systems** ***Kyo-Beum Lee**, Ajou University, Korea*

25 September 10:45–11:45 **Western Europe**	**Phase-Shifted Isolated DC-DC Converters** ***Session chairs: Marek Pástor; Oleksandr Matiushkin*** **PEMC26-000221 – Transformer Model Effects on Optimal Operating Points in Dual Active Bridge Converters** *Carolina Beckmann, Albrecht Gensior* **PEMC26-000076 – 5-Level Packed U-Cell Dual Active Bridge Converter (PUC5DAB)** *Shreesh Bajpai, Sowntharya Pushparaj, Tayebeh Faghihi, Pavol Bauer, Hani Vahedi* **PEMC26-000051 – Extension of ZVS Range Through Planar Transformer Optimization in PSFB Converter** *Marek Pástor, Daniel Gordan, Roland Molnár* **PEMC26-000031 – Analyzing RMS Current and ZVS Count of Different DAB Modulation Schemes** *Juho Puska, Aleksi Mattsson, Pasi Peltoniemi, Juhani Stenbäck*
25 September 10:45–11:45 **Parliament 1st floor**	**Aerospace and Maritime Applications** ***Session chairs: Sajib Chakraborty; Oleksandr Husev*** **PEMC26-000029 – A Constraint-Based MOV Selection Methodology for Active MOV-Based Snubbers in Aircraft Solid-State Circuit Breakers** *Hossein Haghnazari, Wenli Shi, Pavol Bauer* **PEMC26-000050 – Mission-Profile-Based Reliability Assessment of Solid-State Circuit Breakers in DC Shipboard Power Systems** *Wesmond Lee, Robin van der Sande, Edward Sciberras, Aditya Shekhar* **PEMC26-000081 – Multi-Layer Edge Intrusion Detection for Power Electronic Systems Using CAN Bus and Wireless Traffic Monitoring in Maritime Applications** *Ettore Soldaini, Sachin Kumar Bhoi, Sajib Chakraborty, Omar Hegazy*

	PEMC26-000130 – A Mission-Based Co-Design Optimization Framework for Hybrid Battery Fuel Cell Marine Power Systems *Saeed Kazemian, Shantanu Pardhi, Thomas Geury, Omar Hegazy*
25 September 10:45–11:45 **Eastern Europe 1**	**SS2 Advanced Propulsion and Drive Technologies for Future Electric Mobility** ***Session chairs: Mahmoud Ibrahim; Mattia Ricco*** **PEMC26-000121 – Natural-Sampled PWM for High-Speed Drive Applications with Seamless Transition Between Continuous and Discontinuous Modes in Variable-Frequency VSI Operations** *Davide Ferreli, Gianluca Fichera, Mattia Ricco, Nicola Matteazzi, Jacopo Ferretti, Paulo H. da S. e Silva, Rodrigo P. Vieira, Riccardo Mandrioli* **PEMC26-000018 – Development of a Physics-Informed Machine Learning Virtual Torque Sensor for Micromobility Electric Drives** *Assem Meghawer, Martin Võip, Mahmoud Ibrahim, Anton Rassõlkin* **PEMC26-000083 – Comparative Framework for Inter-Turn Short-Circuit Fault-Tolerant Control in EV PMSM Drives** *Anand Golla, Mahmoud Ibrahim, Michael Mangels, Anton Rassõlkin, Jörg Kammermann* **PEMC26-000014 – Sensorless Rotor Position Estimation for PMSM: A Comparative Analysis for EV Traction Applications** *Martin Võip, Mahmoud Ibrahim, Anton Rassõlkin*

25 September 10:45–11:45 **Eastern Europe 2**	**Special-Purpose Electromechanical Systems** ***Session chairs: Kai Wulff; Ali Bakbak*** **PEMC26-000010 – Comparison and Analysis of Electric Hammer Impact Energy Measurement Methods** *Timo Mayer, Jyri Peltola, Jussi Sopanen, Juha Pyrhönen* **PEMC26-000115 – Robust Trajectory Tracking Control for A DC Motor with Guaranteed Overload and Recovery Intervals** *Niclas Tietze, Kai Wulff, Johann Reger* **PEMC26-000208 – Investigation of Energy Consumption and Efficiency of an Electric Breaker Hammer** *Timo Mayer, Jyri Peltola, Ilya Petrov, Jussi Sopanen, Juha Pyrhönen* **PEMC26-000235 – Disk-Margin Robustness Assessment of a PI-Controlled Brake-by-Wire Bicycle Wedge Brake** *Bence Nagy, Dénes Fodor*
25 September 10:45–11:45 **Southern Europe**	**Engineering Education** ***Session chairs: Péter Korondi; Valery Vodovozov*** **PEMC26-000002 – Insight into Engineering Students' Decision-Making Process for Improving Their Career Prospects** *Kateřina Nováková, Jan Bauer* **PEMC26-000131 – Benefits and Risks from the Adoption of AI in Engineering Education: The Example of Robotics** *Valery Vodovozov, Zoja Raud* **PEMC26-000149 – Data-Driven Modelling Education in Field of Power Electronics and Motion Control** *Róbert Mikuska, Sándor Apáti, Sándor Hajdu, Péter Korondi*

	PEMC26-000079 – Integrated High-Speed Power Systems: Educational Design and Lessons Learned from an EU MSCA Doctoral Network Project *P. Lindh, S. Deliri, A. Allahyari, L. Aarniovuori, M. Doppelbauer, Y. Liu, F. Blaabjerg, G. Bissacco, L. Papini, P. Bolognesi*
25 September 11:45–12:45 **Western Europe**	**Multilevel Converters II** ***Session chairs: Alon Kuperman; Oleksandr Husev*** **PEMC26-000062 – 800 V / 11 kW 500 kHz IMS-Based GaN Three-Level ANPC Inverter Design for High Power Density Applications** *Iraj Mazhar Qureshi, Bas Vermulst, George Papafotiou* **PEMC26-000152 – Real-Time Hardware-in-the-Loop Validation of an Asymmetric Quasi-Nested Multilevel Power Converter for High-Resolution Voltage Synthesis** *Carlos A. Reusser, Felipe Alvarado, Ramy Georgious, Mahmoud Ibrahim, Anton Rassõlkin* **PEMC26-000174 – A Reduced-Component Hybrid Cascaded DC/DC Converter Family with Complementary Arm Operation** *Georgios I. Orfanoudakis, Ioannis G. Meramveliotakis, Alon Kuperman, Riccardo Mandrioli, Evangelos Pompodakis* **PEMC26-000176 – A Family of Hybrid Multilevel Converters with Complementary Arm Operation for DC/AC and AC/AC Conversion** *Georgios I. Orfanoudakis, Ioannis G. Meramveliotakis, Alon Kuperman, Riccardo Mandrioli, Evangelos Pompodakis*

25 September 11:45–12:45 **Parliament 1st floor**	**Grid Protection and Support Interfaces** ***Session chairs: Juri Belikov; Enrique Romero-Cadaval*** **PEMC26-000205 – Reactor Voltage-Based Control of a Bridge-Type Fault Current Limiter for DFIG-Based Wind Farms** *Slava Demin, Juri Belikov, Yoash Levron, Elinor Ginzburg-Ganz, Eli Barbie, Dmitry Baimel* **PEMC26-000220 – Real-Time Grid Impedance Measurement in E-STATCOM Using Orthogonal Optimized Pulse Patterns** *Hikmat Basnet, Leevi Lignell, Tomi Roinila* **PEMC26-000219 – Grid-Forming MMC-STATCOM for Ramp-Rate Mitigation of Large Data Center Loads** *Eshan Dharmarathna, Nishan Withana, Hikmat Basnet, Jyri Kivimäki, Tomi Roinila*
25 September 11:45–12:45 **Eastern Europe 1**	**SS8D Emerging Technologies for Sustainable and Resilient DC Electrification and Smart Integration of Systems** ***Session chairs: Niwton Feliciani; Freddy Flores-Bahamonde*** **PEMC26-000066 – Notched Switching - Fault Tolerance for Power Converters Utilising Parallel Switches** *Aditya Shirodkar, Satish Naik Banavath, Sreekanth Thamballa, Edivan Laercio Carvalho, Giovanni De Carne* **PEMC26-000107 – Sigma–Delta-Based Cycle-Skipping Modulation Applied to a Differential Power Processing DC–DC Converter for Data-Center Stacked Servers** *Niwton Gabriel Feliciani dos Santos, Edivan Laercio Carvalho, Lohith Kumar Pittala, Riccardo Mandrioli, Andrii Chub*

	PEMC26-000192 – Impact of Parasitic Inductances on Dynamic TSEPs for Reliable SiC-Based DC-DC Converters *Muhammad Muzammil Farooqi, Filippo Pellitteri, Angelo Alberto Messina, Michele Calabretta, Rosario Miceli* **PEMC26-000227 – Experimental Comparison of Controlled-Leakage Transformers for a Wide-Voltage-Range Series Resonant Converter** *Hans Anniste, Dmitri Vinnikov, Andrei Blinov*
25 September 11:45–12:45 **Eastern Europe 2**	**Industrial Robotics and Advanced Control** ***Session chairs: Seiichiro Katsura; Mariusz Stepien*** **PEMC26-000053 – Design and Implementation of Inline Current Sensing for Artificial Neural Network Based Torque Estimation in an Industrial Robot System** *Johannes Muru, Syed Muhammad Hassan, Taavi Salum, Mahmoud Ibrahim, Anton Rassõlkin* **PEMC26-000120 – Modeling and Control of a Tendon-Driven Mechanism as a Two-Mass System via Closed-Loop System Identification** *Shunichi Sakurai, Seiichiro Katsura* **PEMC26-000135 – Nonlinear Optimal Control for PMSM-Driven Robotic Manipulators** *Gerasimos Rigatos, Pierluigi Siano, Mariusz Stepien, Masoud Abbaszadeh, Jose Limaverde-Filho, Zhiwei Gao* **PEMC26-000172 – Leader-Centric Coordination and Control of Mobile Robot Swarms for Autonomous Task Execution** *Selenge Ganbat, Dahnial Syauqy, Jhon Nicolas Peña Martinez, Mousa Nader, Peter Korondi, Husam A. Neamah*

25 September 11:45–12:45 **Southern Europe**	**SS9 AI-Driven Forecasting, Control, and Optimization of Hybrid AC/DC Microgrids and EV-Integrated Energy Systems** ***Session chairs: Vinod Kumar Yadav; Alexander Bubovich*** **PEMC26-000112 – Rebound Effects of EV Charging Flexibility under Demand Response: A Comparative Study of Control Strategies** *Zeeshan Ali Shah, Freddy Plaum, Argo Rosin, Furqan Amjad, Mitra Nabian Dehaghani, Md Asif Abbas* **PEMC26-000145 – A Hybrid Distributed AI Framework for Voltage Regulation in DER-Rich Distribution Feeders** *Mitra Nabian Dehaghani, Zeeshan Ali Shah, Tarmo Korotko, Furqan Amjad, Md Asif Abbas, Argo Rosin* **PEMC26-000183 – LLM-Based Memory-Augmented Cognitive Dispatch Framework for Islanded Microgrids** *Furqan Amjad, Tarmo Korotko, Mitra Nabian Dehaghani, Zeeshan Ali Shah, Md Asif Abbas, Argo Rosin* **PEMC26-000202 – AI-Driven Multi-Agent Energy Management for Hybrid AC–DC Microgrids with EV Integration Using Transformer-Based Forecasting and Reinforcement Learning** *Swaliya Khan, Irtika Khan, Vinod Kumar Yadav, Sayeed Hasan, Pravin Kumar*
25 September 12:45–13:30 **Northern Europe**	**Farewell Brunch**
25 September 13:30–14:00 **Western Europe**	**Closing Ceremony**

25 September 14:15 **Hotel entrance**	**Tour to ABB Estonia (20 people)** Bus boarding at the hotel entrance. Based on the registration list only, which includes waiting list.
25 September 15:00 **Hotel entrance**	**Tour to TalTech (45 people)** Bus boarding at the hotel entrance. Based on the registration list only, which includes waiting list.

KEYNOTES – SEPTEMBER 23

Engineering a Planetary UHVDC Grid – Energy Superabundance or Mission Impossible



JOHANN W. KOLAR
ETH Zurich / TU Wien
Switzerland / Austria

Johann W. Kolar received his M.Sc. and Ph.D. degrees (summa cum laude – promotio sub auspiciis praesidentis rei publicae) from the University of Technology Vienna, Austria. After spending 15 years as an international consultant and independent researcher, he was appointed Associate Professor and Head of the Power Electronic Systems Laboratory at the Swiss Federal Institute of Technology (ETH) Zurich in 2001 and was promoted to Full Professor in 2004.

Over the course of his career, he has proposed numerous novel converter concepts, including the Vienna Rectifier and the Sparse Matrix Converter, spearheaded the development of x-million-rpm motors, and pioneered fully automated, multi-objective power electronics design procedures. He has personally supervised more than 90 Ph.D. students to completion, has extensively published in IEEE Transactions, is named as inventor on numerous granted patents, and has received several prestigious awards, including the 2016 IEEE William E. Newell Power Electronics Award, the 2016 IEEE PEMC Council Award, the 2025 IEEE Medal in Power Engineering, and two ETH Zurich Golden Owl Awards for excellence in teaching.

As Professor Emeritus (since August 2024), he actively continues to pursue research in ultra-compact and highly efficient wide-bandgap (WBG) converter systems, AI and machine learning applications in power electronics, solid-state transformers, and the life cycle analysis of power electronic converter systems. He

is an International Member of the U.S. National Academy of Engineering (NAE), a Fellow of the National Academy of Inventors (NAI), and an IEEE Life Fellow.

ABSTRACT:
The transition toward Net-Zero 2050 is driving an unprecedented expansion of renewable electricity generation while simultaneously increasing the need for large-scale energy storage and long-distance power transmission. This presentation explores a provocative question: could a globally interconnected ultra-high-voltage DC (UHVDC) electricity grid enable continuous utilization of solar and wind resources across continents and ultimately provide a pathway toward energy superabundance? Rather than advocating a specific roadmap, the presentation applies engineering reasoning to assess whether a planetary UHVDC grid is merely visionary science fiction or a technically plausible long-term option deserving serious scientific consideration.
The talk begins by motivating the concept through the global distribution of renewable resources, the Earth's day-night cycle, and the limitations of regional energy systems. Historical visions, from Buckminster Fuller's World Grid to Soviet-American interconnection concepts and early superconducting-grid proposals, are reviewed alongside today's ambitious projects linking Australia and Singapore, Morocco and the United Kingdom, Azerbaijan and Europe, and other emerging intercontinental transmission concepts.
Building on existing UHVDC technology, the presentation examines the practical engineering challenges of realizing a planetary transmission network, including overhead lines, long-distance subsea cables, UHVDC converter stations, protection, cable manufacturing and installation, operational stability, and optimal power-flow management. The required material resources, realization costs, and resulting levelized cost of electricity are estimated and compared with global mining capacities and current expenditures for fossil energy.
Finally, the concept is contrasted with alternative visionary energy infrastructure concepts, including space-based solar power, and evaluated from engineering, economic, and geopolitical perspectives.

Power Electronics Technology – Trends and Applications



Frede Blaabjerg
Aalborg University
Denmark

Frede Blaabjerg (S'86–M'88–SM'97–F'03) was with ABB-Scandia, Randers, Denmark, from 1987 to 1988. He received his Ph.D. degree in Electrical Engineering from Aalborg University in 1995. He became an Assistant Professor in 1992, an Associate Professor in 1996, and a Full Professor of power electronics and drives in 1998 at AAU Energy. From 2017 he became a Villum Investigator. He is honoris causa at University Politehnica Timisoara (UPT), Romania in 2017 and Tallinn University of Technology (TTÜ), Estonia in 2018.

His current research interests include power electronics and its applications such as in wind turbines, PV systems, reliability, Power-2-X, power quality and adjustable speed drives. He has published more than 800 journal papers in the fields of power electronics and its applications. He is the co-author of ten monographs and editor of twenty books in power electronics and its applications eg. the series (4 volumes) Control of Power Electronic Converters and Systems published by Academic Press/Elsevier.

He has received 46 IEEE Prize Paper Awards, the IEEE PELS Distinguished Service Award in 2009, the EPE-PEMC Council Award in 2010, the IEEE William E. Newell Power Electronics Award 2014, the Villum Kann Rasmussen Research Award 2014, the Global Energy Prize in 2019 and the 2020 IEEE Edison Medal. He was the Editor-in-Chief of the IEEE TRANSACTIONS ON POWER ELECTRONICS from 2006 to 2012. He has been Distinguished Lecturer for the IEEE Power Electronics Society from 2005 to 2007 and for the IEEE Industry Applications Society from 2010 to 2011 as well as 2017 to 2018. In 2019-2020 he served as a President of IEEE Power Electronics Society. He has been Vice-President of the Danish Academy of Technical Sciences.

He is nominated in 2014-2021 by Thomson Reuters to be among the most 250 cited researchers in Engineering in the world.

ABSTRACT:
The world is becoming more and more electrified combined as the consumption is steadily increasing – we expect doubling until 2050 - at the same time there is a large transition of power generation from fossil fuel to renewable energy which all together challenges the modern power system but also gives many new opportunities. We also see large steps being taken to electrify the transportation – where better environment, independency as well as higher efficiency are driving factors. One of the most important technologies to move this forward is the power electronics technology which has been emerging for decades and challenges are still seen in the technology usage. This presentation will be forward looking in some exciting research areas to further improve the technology and the systems it is used in. Following main topics will be discussed: the evolution of power devices, renewable generation, reliability in power electronics and use of AI power electronic based power system.

KEYNOTES – SEPTEMBER 24

Advancing Grid Flexibility with Hybrid Distribution Transformers



MARIUSZ MALINOWSKI
Warsaw University of Technology
Poland

Mariusz Malinowski is a Professor at Warsaw University of Technology, Vice-Rector (Vice-President) for Research. He was a visiting professor in the following institutions: Aalborg University (Denmark), University of Nevada (Reno, USA), Technical University of Berlin (Germany), Universidad Tecnica Federico Santa Maria (Chile), University of Cergy-Pontoise (France), ENSEEIHT - Laplace (France), and ETH Zurich (Switzerland). He has published over 200 papers and numerous books and has been granted several patents. He participated in over 30 research/industrial projects. He has been a reviewer and PhD commission member for numerous PhD theses in Germany, Spain, Denmark, Australia, India, Switzerland, the UK, and Poland. Mariusz Malinowski is a member of the Polish Academy of Science and the Polish Council of Scientific Excellence. He was awarded many national and international research awards, including the IEEE Awards. He was the IEEE IES President (2022-2023) and Chair of the IEEE Poland Section (2016-2019).

ABSTRACT:
The rapid growth of distributed energy resources and the increasing demand for flexibility in modern power systems create new challenges for distribution networks, particularly in maintaining high power quality and ensuring reliable operation. Among the emerging technologies addressing these challenges, Hybrid Distribution Transformers (HDTs) have attracted significant attention as an

intermediate solution between conventional Distribution Transformers (DTs) and Solid-State Transformers (SSTs).

This keynote will present a comprehensive overview of the current state of HDT technology, covering their main configurations, control strategies, operational principles, and distinctive features. Particular emphasis will be placed on the concept of partial power processing, which enables HDTs to combine proven reliability, robustness, and high short-circuit capability of conventional transformers with the advanced controllability and fast dynamic response offered by power electronic converters.

The keynote will highlight the potential of HDTs to enhance distribution grid power quality through accurate regulation of load voltages and grid currents, while supporting the integration of renewable energy sources and increasing the operational flexibility of future power systems. The presentation will also address the key technical challenges associated with the large-scale deployment of HDTs, including the development of highly efficient converter-based configurations, adaptive and reconfigurable HDT structures, and operation strategies for future converter-dominated power grids.

The keynote will provide insights into how hybrid transformer technologies can contribute to the transition toward more resilient, intelligent, and flexible distribution networks.

Wide Band Gap Power Electronics for Electrification and Industrial Energy Systems



AKSHAY RATHORE
National University of Singapore
Singapore

Akshay Kumar Rathore is a Professor and Director of Power and Energy Research Area in the department of electrical and computer engineering at the National University of Singapore. His research focuses on power electronics and control of electric motor drives. He is an IEEE Fellow and a recipient of several prestigious awards, such as the IEEE IAS Andrew W Smith Outstanding Young Member Achievement Award, the Isao Takahashi Power Electronics Award, the IEEE David Irwin Early Career Award, the IEEE Bimal Bose Award for Industrial Electronics Applications in Energy Systems, the Nagamori Award, and the distinguished alumnus award (young achiever) from IIT (BHU) Varanasi, India.
Prof. Rathore has contributed to above 300 papers on soft-switching current-fed DC/DC converters, multilevel inverters, and DCM rectifiers, including about 110 IEEE Transactions. He edited a book on advanced concepts and technologies for electric transportation, published by CRC Press in 2022. He has delivered above 200 invited talks, keynotes, and tutorials in several events across the globe. Presently, he is a co-Editor-in-Chief of IEEE Transactions on Industrial Electronics, Distinguished Lecturer of the IEEE Power Electronics Society, and is serving on the committees of the IEEE Medal in Power Engineering, IEEE Nikola Tesla Award and IES Fellow Evaluation Committee. He is a member of the IEEE IAS Society Executive Board and IES Society AdCom.

ABSTRACT:
This keynote will share insights on electrification in Singapore, focusing on renewable integration and transportation electrification across all sectors. As an island city-state, Singapore has four functional microgrids and is heading towards its net-zero vision and decarbonization mission. Singapore has its energy reset and green energy plans for the next three decades. Electric mobility is an important

aspect of this effort, and Singapore is focusing on land, air, and sea electrification. By 2050, all land transportation in Singapore will be electric, as will most sea vessels. Additionally, low-carbon data centres, vehicle-to-grid (V2G), and hydrogen energy are ongoing applied research activities. Power electronics is one of the key enablers and integration technology. Its reliability and efficiency relate to the life cycle cost, energy efficiency, and energy savings. Silicon semiconductor-based power electronics have hit their technical limits and wide band gap (WBG) semiconductors are the future of power electronics. This talk will share some details about ongoing research and development activities in WBG semiconductor devices and power electronics, focusing on achieving better component utilization and energy savings along with some results. The talk will discuss the associated challenges and the further scope of work.

KEYNOTES – SEPTEMBER 25

IEEE IAS WOMEN IN ENGINEERING KEYNOTE

From Technical Expert to Technical Leader: Career Curves for Women in Engineering



DULSHA KULARATNA-ABEYWARDANA
University of Auckland
New Zealand

Dulsha Kularatna-Abeywardana is a Senior Lecturer in the Department of Electrical, Computer and Software Engineering at the University of Auckland, New Zealand. She received her B.E. and M.E. degrees with First Class Honours and her Ph.D. in Electrical and Electronic Engineering from the University of Auckland. Her research interests include power electronics, supercapacitor-based energy storage, renewable energy harvesting, wireless power transfer, electropermanent-magnet actuators, sensor electronics and microfluidic systems.

Her current research focuses on sustainable energy storage, conversion and delivery, particularly supercapacitor-integrated solutions for portable electronics, battery-less IoT systems, DC appliances and self-powered medical devices. She has authored or co-authored more than 30 peer-reviewed journal and conference papers.

Dr Kularatna-Abeywardana is a Senior Member of IEEE and an active advocate for STEM education and women in engineering. She has held leadership roles including Chair of IEEE Women in Engineering New Zealand North, Secretary of the IEEE New Zealand North Section, member of the IEEE Region 10 Women in Engineering Committee, and General Chair of the 2023 IEEE Women in Engineering International Leadership Summit in Auckland. She is also a co-founder

of Little Engineers, an initiative that introduces children to electronics through practical, hands-on learning.

Abstract:
Women have historically been a minority in engineering. In fields such as power electronics, the journey can feel even lonelier. Why is this, and what happens when women who have built strong technical careers begin to step into leadership?
This talk explores the transition from technical expert to technical leader, drawing on personal experiences of building a career in power electronics, research, education and professional engineering leadership. It examines some of the challenges women encounter as they progress through traditionally male-dominated technical environments, but also asks a different question: what strengths can women bring to engineering leadership that can amplify the impact of an entire research team?
Communication, empathy, collaboration, mentoring, relationship-building and the ability to create inclusive environments are often dismissed as “soft skills”. Yet, in research and engineering teams, these skills can be powerful enablers of innovation, creativity and collective technical performance. Through personal reflections and practical examples, the talk considers how women can retain their technical identity while expanding their influence–and how technical leaders, regardless of gender, can create environments where diverse strengths translate into stronger engineering outcomes.

KIPE KEYNOTE

Emerging Motor Drive Technologies: Advances in Single-Inverter Dual-Motor and Open-End Winding PMSM Drive Systems



KYO-BEUM LEE
Ajou University
Korea

Kyo-Beum Lee is a Professor in the Department of Electrical and Computer Engineering at Ajou University, Korea, and a leading researcher in power electronics and electric drive systems. His research covers high-performance motor drives, fault diagnosis and fault-tolerant control, multi-level and multi-inverter systems, and reliability enhancement of power electronic systems.
He has conducted extensive collaborative research with major industrial partners, including LG Electronics and LS Electric, focusing on practical challenges in inverter-fed motor drive systems, industrial power converters, and reliability-critical applications. Through these collaborations, his work has contributed to the development of advanced control, diagnosis, and fault-tolerant technologies that bridge academic research and real-world industrial systems.
Professor Lee has published widely in leading international journals such as IEEE Transactions on Power Electronics and IEEE Transactions on Industrial Electronics and has actively served the IEEE community for nearly two decades, including long-term service as an Associate Editor of major IEEE journals. He is a frequent keynote and invited speaker at international conferences.

ABSTRACT:
The increasing demand for high-efficiency, compact, and cost-effective electrified systems has accelerated the evolution of motor drive technologies beyond conventional one-inverter/one-motor architectures. Among these, Single-Inverter Dual-Motor (SIDM) and Open-End Winding Permanent Magnet Synchronous Motor

(OEW-PMSM) drive systems have attracted significant attention for applications including electric vehicles, railway traction, aerospace systems, and industrial automation.

This keynote presents recent advances in the design, control, and reliability enhancement of SIDM and OEW-PMSM drive systems. For SIDM drives, the presentation discusses the fundamental operating principles, dynamic stability issues caused by the strong coupling between parallel-connected motors, and advanced control strategies for improving synchronization stability and operating efficiency. Particular emphasis is placed on active damping control with systematic gain design, mathematically based transfer-function linearization, and predictive maximum torque per ampere (MTPA) control for copper-loss minimization.

The presentation further discusses OEW-PMSM drive systems, highlighting their superior DC-link voltage utilization, extended operating speed range, and fault-tolerant capability. Advanced control techniques for suppressing zero-sequence current, seamless mode transition between closed-end and open-end winding configurations, and real-time open-circuit fault diagnosis are presented together with experimental validation.



TUTORIALS

Grid Interfaces and Electric Drive Systems in the Era of Monolithic GaN AC-Switches

Duration: 120 minutes

Abstract. Grid interfaces and electric drive systems have traditionally been dominated by voltage-source converter (VSC) architectures, largely due to long-standing limitations of power semiconductors to unipolar voltage blocking devices. In particular, the lack of efficient, compact, and reliable bidirectional/bipolar voltage-blocking switches has restricted the practical adoption of converter topologies such as current-DC-link/source converters. Recent advances in monolithic bidirectional GaN AC switches (MBDSs) fundamentally change this situation by enabling true bipolar voltage blocking with significantly reduced chip area and lower conduction losses. This tutorial provides a comprehensive overview of grid interfaces and electric drive systems in the era of monolithic GaN AC switches. It begins with an introduction to the structure, controllability, and performance characteristics of MBDS devices, including a comparison to conventional unipolar switch solutions. Building on this foundation, converter topologies that directly benefit from bidirectional/bipolar switching capability are revisited, including new rectifier topologies, three-level T-type converters, current-source converters (CSCs), with a focus on operating principles, performance characteristics, dynamics, and reliability aspects in comparison to state-of-the-art VSC solutions. The second part of the tutorial focuses on drive applications enabled by current-source inverters (CSIs). PMSM and reluctance motor drive systems are discussed, covering modulation strategies, control concepts, wide voltage-range operation, and emerging modular CSI architectures for sector and distributed motor drives. Particular attention is given to safety and reliability aspects, including overvoltage behavior and protection concepts inherent to current-source systems. The tutorial concludes with an outlook on future research directions and application opportunities for GaN-enabled PWM rectifiers and drive systems.

INSTRUCTORS



Spasoje Mirić received his B.Sc., M.Sc., and Ph.D. degrees in Electrical Engineering from the University of Belgrade, Faculty of Electrical Engineering. In 2021, he earned a second Ph.D. at ETH Zurich in advanced mechatronic systems and subsequently worked there as a postdoctoral researcher. From 2023 to 2025, he served as an Assistant Professor for Energy and Drive Systems at the University of Innsbruck. Since January 1, 2026, he has been a Full Professor for Electromagnetic Energy Conversion and Drive Systems at TU Wien. His research focuses on novel electromagnetic energy converters, power electronics, particularly current-source inverter topologies, high-precision actuator systems, and wireless power transfer for moving systems. He has authored over 50 scientific publications, holds more than ten patents, and has received multiple IEEE Best Paper Awards.



Johann W. Kolar is Professor Emeritus of Power Electronics at ETH Zurich and former Head of its Power Electronic Systems Laboratory. He received his M.Sc. (1997) and Ph.D. (1999, summa cum laude) from the Vienna University of Technology. A pioneering figure in power electronics, he introduced breakthrough converter topologies, including the VIENNA Rectifier, Sparse Matrix Converter, and SWISS Rectifier, and advanced ultra-high-speed motor systems and automated multi-objective converter design. Since 2024, he has also been a Guest Professor at TU Wien, contributing to research and academic exchange in advanced power electronic systems. He has personally supervised 94 Ph.D. students to completion, authored over 1,000 publications, and holds more than 200 patents. His honours include the IEEE William E. Newell Power Electronics Award, the IEEE PELS R. David Middlebrook Achievement Award, the EPE Outstanding Achievement Award, and the 2025 IEEE Medal in Power Engineering. He is an IEEE Life Fellow, NAE International Member, and Fellow of the National Academy of Inventors. He has co-founded four ETH Zurich spin-offs and continues research in widebandgap converters, artificial intelligence in power electronics, and solid-state transformers.

Solid-State Transformer Technology

Duration: 120 minutes

Abstract. Solid-State Transformers (SSTs) technology continues to excite researchers in academia and industry. Despite many promises of power-dense high-performance conversion, there are significant challenges encountered in the practical design of these highly modular, galvanically isolated power electronics converters. These stem from high power and high voltage aspects of design, insulation coordination, high-voltage magnetic components, thermal aspects, and the complexity of controller hardware and control algorithms. High modularity strongly impacts the reliability and availability of the SST as a whole and has a strong impact on the scalability in terms of voltage, current, and power ratings. Redundancy is often adopted in design, further complicating the realization of power stages. The tutorial will systematically address numerous technological aspects inside the megawatt-level SST design, present commonly used technologies, as well as some first-hand experiences and solutions used or developed at the Power Electronics Laboratory at EPFL, by the instructors. When appropriate, PLECS models and simulations will be used to support the introduced concepts and methods to the audience.

INSTRUCTORS



Drazen Dujic (Fellow, IEEE) received the Dipl.Ing. and M.Sc. degrees from the University of Novi Sad, Serbia, in 2002 and 2005, respectively, and the Ph.D. degree from Liverpool John Moores University, U.K., in 2008. He is currently an Associate Professor and the Head of the Power Electronics Laboratory, École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland. His research interests are mainly in medium-voltage high-power electronics.



Zhenchao Li is currently a Ph.D. student at the Power Electronics Laboratory of EPFL in Lausanne, Switzerland. His Ph.D. research is directly related to solid-state transformer technologies.



Amin Darvishzadeh is currently a Ph.D. student at the Power Electronics Laboratory of EPFL in Lausanne, Switzerland. His Ph.D. research is directly related to solid-state transformer technologies.

Advanced DC Power Technologies for Mission-Critical Infrastructure Applications

Duration: 120 minutes

Abstract. DC power is increasingly attracting attention in mission-critical infrastructure, where uninterrupted operation, extremely high reliability, and fault tolerance are essential requirements. The primary motivation behind this trend is the potential for significant energy savings, achieved by eliminating losses associated with reactive power, multiple AC/DC conversion stages, and rectification processes inherent to traditional AC-based systems. As a result, DC systems can offer higher overall efficiency, simplified power architectures, improved controllability, and enhanced performance. The transition toward DC systems also closely aligns with the rapid growth of renewable energy sources and energy storage technologies. Since many distributed energy resources, such as photovoltaic (PV) systems and batteries, are inherently DC-based, DC distribution enables more direct integration, reduces the number of power conversion stages, and increases local self-consumption by allowing energy to be generated, stored, and utilized on-site. These features are particularly relevant for modern mission-critical systems that demand high flexibility, strong resilience, and sustainability, including lighting systems, IT installations such as data centers, and large-scale scientific and industrial facilities (e.g., particle accelerators). However, the widespread adoption of DC power systems also introduces new technical challenges and opportunities in power electronics and system design. These include the development of advanced DC–DC converter topologies, high-performance grid-interface converters to enable seamless interaction between AC and DC grids, and improved control, monitoring, and protection strategies. In particular, the absence of natural current zero-crossing in DC systems, combined with the requirement for fast fault detection and interruption, necessitates innovative protection solutions such as solid-state circuit breakers (SSCBs) and hybrid protection devices. This tutorial will explore the key innovations and emerging opportunities driving present and future DC power technologies for mission-critical infrastructure applications, incorporating both academic perspectives and an industrial viewpoint from Eaton Corporation, a global leader in power management solutions.

INSTRUCTORS



Niwton Gabriel Feliciani dos Santos (Member, IEEE) was born in Rosário do Sul, Rio Grande do Sul, Brazil, in 1995. He received the B.S. degree (Hons.) in electrical engineering from the Federal University of Pampa, Alegrete, Brazil, in 2018, and both the M.S. and Ph.D. degrees in electrical engineering from the Federal University of Santa Maria (UFSM), Santa Maria, Brazil, in 2020 and 2024, respectively. He is currently a Postdoctoral Researcher at the Power Electronics Group of TalTech – Tallinn University of Technology, Estonia. His research interests include active and nonactive power processing, partial power converters (PPCs), EV battery chargers, photovoltaic systems, DC microgrids, and power electronics solutions for data center applications. He currently serves as the Vice Chair of the IEEE Estonia Section Young Professionals Affinity Group and has received the prestigious IES-SYPA Award to attend IECON 2026.



Vinod Kumar Yadav (Member, IEEE) received the Bachelor of Engineering degree in Electrical Engineering from Jabalpur Engineering College, Jabalpur, India, in 2015, the Master of Technology degree in Power Electronics and Drives from National Institute of Technology Rourkela, Rourkela, India, in 2017, and the Ph.D. degree from the Department of Electrical Engineering at Malaviya National Institute of Technology, Jaipur, India, in 2023. He is currently a Postdoctoral Researcher with the Power Electronics Group at TalTech – Tallinn University of Technology, Estonia. Previously, he worked as a Project Scientist at the Indian Institute of Technology Kanpur, Kanpur, India, and served as an Assistant Professor in the Department of Electrical Engineering at Government Engineering College Bikaner, India. His research interests include AC–DC PFC converters, LED driver circuits, high-gain boost converters, EV chargers, hydrogen fuel technologies, and power converters for particle accelerators. He is the recipient of the Best Poster Award (SEFET 2023) and Best Paper Awards at UPCON 2022, EPREC 2024, and ETMCIS 2024.



Andrei Blinov (Senior Member, IEEE) received the M.Sc. and Ph.D. degrees in electrical drives and power electronics from Tallinn University of Technology, Tallinn, Estonia, in 2008 and 2012, respectively. His Ph.D. dissertation was devoted to the study of switching properties and performance improvement methods for high-voltage IGBT-based DC–DC converters. After completing his Ph.D., he spent two years at the KTH Royal Institute of Technology in Sweden as a Postdoctoral Researcher. He is currently a Senior Researcher with the Department of Electrical Power Engineering and Mechatronics, Tallinn University of Technology (TalTech). He has over 100 publications in areas related to power electronics and holds several patents and utility models. He is the Chair of the Estonian IEEE IES/PELS/IAS/PES Joint Chapter. His research interests include switch-mode power converters, new semiconductor technologies, and energy storage systems.



Kenan Askan holds a master's degree (Diplom Ingenieur) from Vienna University of Technology and a bachelor's degree in electrical engineering from Istanbul Technical University, specializing in power electronics. Since 2014, he has worked in Eaton's EMEA Electrical Sector advanced development department, focusing on the R&D of low-voltage, semiconductor-based circuit breakers for DC and AC smart grid applications, contributing to projects such as DC Industry, DC Industry 2, N470 DC Highway, IniGrid, DCI4Charge, Hyperride, Shift2DC, and D.gitaLE. He currently serves as Manager of AC & DC Power Electronics System Architecture. Kenan is an active member of the Open Direct Current Alliance (ODCA), the Current Operating System (COS) Foundation – leading protection working group, and IEC PT 60947-10 "Low-voltage switchgear and controlgear part Semiconductor Circuit Breakers". He has authored over 40 patents and more than 10 conference papers in the field of semiconductor circuit breakers.

Wireless Charging of Electric Vehicles: Design for Battery Interoperability and Reliable Dynamic Charging

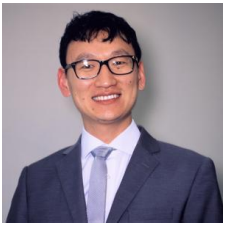
Duration: 120 minutes

Abstract. Wireless power transfer (WPT) technologies have been gaining interest as convenient charging solutions for future electric vehicles (EVs). As vehicle platforms, battery architectures, and charging infrastructures grow increasingly diverse, interoperability has emerged as a central challenge in wireless charging system design. This tutorial lecture provides a comprehensive overview of static and dynamic wireless charging for EVs, emphasizing design methodologies that enable interoperable operation across different vehicles and charging scenarios. The lecture begins by introducing the fundamental design choices for EV wireless charging systems, including coil and magnetic-coupler topologies, selection of compensation networks, and power-converter stages. These elements critically affect efficiency, power capability, tolerance to misalignment, and system robustness. The role of industrial standards is then examined, with particular attention to how standardization constraints shape both electromagnetic and power electronic design decisions. Static wireless charging is addressed as the most mature application. The tutorial focuses on the interface between the wireless power transfer stage and the EV battery, presenting a voltage/current doubler converter architecture as an effective solution for achieving battery interoperability across a wide voltage range while maintaining high efficiency and relatively low hardware complexity. Building on these foundations, the tutorial extends to dynamic wireless charging, in which power is transferred while the vehicle is in motion. This section addresses additional challenges related to segmented transmitter structures. The content will focus on power fluctuations and foreign object detection issues and will introduce the operating principles and the latest advances. By integrating fundamentals, standards, and advanced applications, this tutorial equips attendees with a coherent understanding of interoperable wireless charging technologies for current and future electric vehicle systems.

INSTRUCTORS



Francesca Grazian (Member, IEEE) received her B.Sc. degree in Electrical Engineering from the University of Bologna, Italy, in 2016, followed by her M.Sc. and Ph.D. degrees in Electrical Engineering from the Delft University of Technology, The Netherlands, in 2018 and 2023, respectively. Her Ph.D. research focused on power electronics for wireless charging of electric vehicles. From 2023 to 2024, she gained experience in the railway industry as a Lead Electrical Engineer at Laser Precision Solutions in Amsterdam, the Netherlands. Since May 2024, Francesca Grazian has been an Assistant Professor at the TU/e Power Electronics Lab (PELe), the Netherlands. Her research focuses on innovative wireless power transfer systems, industrial electrification, and the environmental impact of power electronics.



Jianning Dong (Senior Member, IEEE) received the B.Sc. and Ph.D. degrees in electrical engineering from Southeast University, Nanjing, China, in 2010 and 2015, respectively. In 2016, he worked at the McMaster Automotive Resource Center, McMaster University, Hamilton, ON, Canada, as a Postdoctoral Researcher. Since October 2016, he has been an Assistant Professor, and then from 2025 an Associate Professor with the DC Systems, Energy Conversion and Storage (DCE&S) Group, Delft University of Technology, Delft, The Netherlands. His research interests include electromechanical energy conversion and contactless power transfer, through which he applies knowledge to applications such as transportation electrification and renewable energy generation/utilization.

Practical Aspects of Artificial Intelligence Applications in Fault-Tolerant Electric Drive Systems

Duration: 120 minutes

Abstract. Modern electric drive systems increasingly rely on artificial intelligence (AI) techniques to address key challenges related to control, diagnostics, optimization, and fault-tolerant operation. In particular, the growing interest in fault-tolerant control architectures imposes strict requirements on accuracy, robustness, and fast response to incipient and developed faults, making AI-based solutions highly attractive. However, despite their undeniable potential, many AI approaches reported in the literature are developed with limited consideration of practical implementation constraints, often treating AI models as black-box solutions trained on generic datasets and evaluated using selected performance metrics only. This tutorial aims to bridge the gap between theoretical AI developments and their real-world application in drive systems. The session will focus on practical aspects of selecting, designing, training, and implementing AI techniques tailored to specific tasks within electric drives, including control, process optimization, and diagnostics. The presented solutions will consider the complete drive system structure from control algorithms and measurement systems, through power electronic converters, to the target machine. Special attention will be devoted to the implementation and comparison of shallow and deep neural networks, transfer learning strategies, and neuro-fuzzy algorithms in electric drive applications. Furthermore, methods for optimizing neural network architectures and adapting model complexity to real-time and embedded constraints will be discussed. The tutorial will be supported by experimentally validated case studies, demonstrating AI-based solutions implemented and tested in laboratory-scale electric drive systems. Selected examples will be presented live via a remote connection to an external research laboratory, allowing participants to observe real-time system behaviour under realistic operating conditions. The tutorial is intended for researchers, engineers, and practitioners interested in applying AI methods in modern electric drives, with an emphasis on transparency, interpretability, and practical deployment considerations. Supplementary materials, including presentation slides and selected implementation guidelines, will be made available to participants before or during the session.

INSTRUCTOR



Maciej Skowron (Member, IEEE) received the M.Sc. degree in electrical engineering and the Ph.D. degree in automation, electronics, and electrical engineering from Wrocław University of Science and Technology, Wrocław, Poland, in 2018 and 2021, respectively. In 2025, he received the habilitation (D.Sc.) degree in the field of automation, electrical engineering, electronics, and space technologies. He is an Associate Professor at Wrocław University of Science and Technology, where he serves as Head of the Electromobility Laboratory and Leader of the Electric Drive, Power Electronics and Electromobility Research Team. His research interests include advanced diagnostics of electrical machines and drive systems, with particular emphasis on the application of artificial intelligence techniques, including deep learning and transfer learning. He is an active member of leading international scientific organizations, notably the Institute of Electrical and Electronics Engineers (IEEE) and the IEEE Industrial Electronics Society (IES), as well as several national professional associations. His scientific excellence has been recognized by numerous prestigious awards, including the Jan Mozrzymas Scholarship, the Best Young Author Award of the Polish IEEE Section, and multiple Best Oral Presentation Awards. Furthermore, he was listed among the TOP 2% of the world's most highly cited researchers in 2024 and 2025. He serves as a reviewer for IEEE, IET, Elsevier, and MDPI journals, and as an Associate Editor of Power Electronics and Drives.



IEEE IES S&YP FORUM

The IEEE Industrial Electronics Society Students and Young Professionals Paper Assistance Program (IES-SYPA) provides competitive financial support for conference travel. Congratulations to the nine PEMC 2026 recipients listed below.

IES-SYPA RECIPIENTS

Yuexin Feng – Southwest Jiaotong University, China (paper 072)

Aditya Shirodkar – IIT Dharwad, India (paper 066)

Vincenzo Cirimele – University of Bologna, Italy (paper 158)

Supun Ranasinghe – University of Auckland, New Zealand (paper 105)

Paulo Henrique Alves da Silva e Silva – Universidade Federal de Santa Maria, Brazil (paper 109)

Diego Anchieri – University of Bologna, Italy (paper 118)

Ali Shan – Kadir Has University, Turkey (paper 194)

Diana Lopez – Aalborg University, Denmark (paper 206)

Margo Molenaar – TU Delft, Netherlands (paper 027)

All conference participants are welcome to join the **Forum on Friday, 25 September, at 08:00–09:30, in the Western Europe room**. The format includes IEEE IES SYPA program introduction and winning three-minute research videos.

SYPA recipients should bring their video files and prepare a three-minute speech. Diplomas will be presented during the Gala Dinner.

The forum is followed by the IEEE IAS Women in Engineering keynote at 09:30 and the KIPE keynote at 10:00.



IMPORTANT INFORMATION

Public Transport

Enjoy free public transport courtesy of the City of Tallinn! Save the provided QR ticket on your phone, print it, or simply use your badge. Scan it at the front-door validator every time you board, including transfers; valid for September 21-27.

Conference Badges

Please always wear your participant badge for access to lunches and sessions.

Emergency contacts

For conference-related emergencies:
Andrii Chub: +372 54592062
Andrei Blinov: +372 5566 7657
Estonian Emergency Response Centre: +372 6000 112 (for calls in roaming).

Social Events

You **MUST** present the corresponding ticket from your conference package to gain entry to the social event.

Taxi

We recommend **BOLT** app for getting a taxi at a reasonable fare.

Official taxis display their rates on a yellow sticker on the right rear window. Be sure to **check it** before you take a ride.

Weather

September weather in Tallinn can be changeable, with cool mornings and evenings and occasional rain. Bring a warm layer and a waterproof jacket or umbrella. Here is a forecast:

Tuesday 22 Sep. ⚠					15° / 13°		4 m/s
Wednesday 23 Sep.					14° / 10°	1.7 mm	7 m/s
Thursday 24 Sep.					15° / 10°	8.1 mm	6 m/s
Friday 25 Sep.					15° / 12°		5 m/s
Saturday 26 Sep.					15° / 11°		4 m/s