EPE 2023
ECCE Europe

September 4th – 8th, 2023
Aalborg, Denmark

The 25th European Conference on Power Electronics and Applications

www.epe2023.com

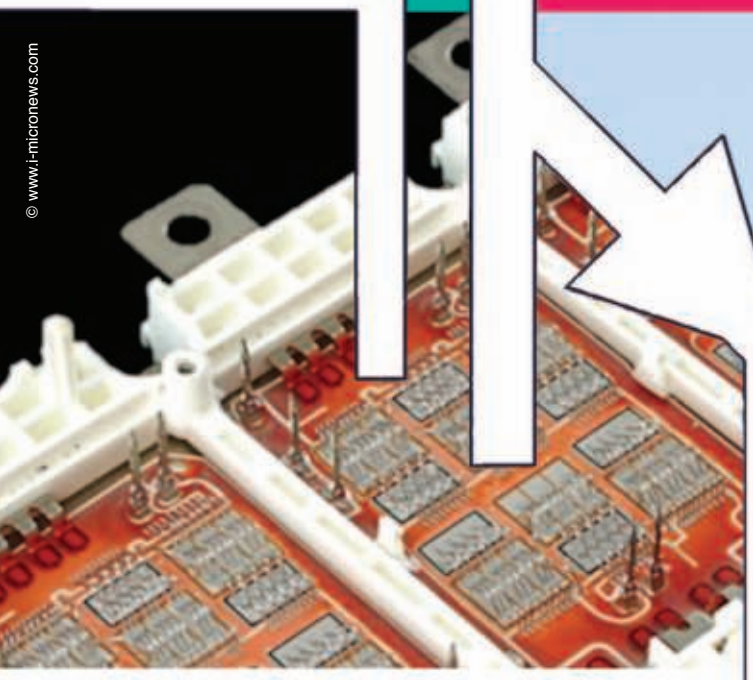
CALL FOR PAPERS

Important dates

March 2nd, 2023
Full-paper submission deadline

April 26th, 2023
Acceptance notification

June 1st, 2023
Final paper submission



pels
IEEE POWER ELECTRONICS SOCIETY

ECCE
IEEE ENERGY CONVERSION CONGRESS & EXPO

IEEE

Organization and Venue

Welcome back to the land of wind and green energy! After a successful EPE ECCE Europe conference in 2007, the Power Electronics community will gather again in Aalborg, Denmark, from September 4 to 8, 2023, to exchange views on research progress and technological developments in the various topics described hereunder. On Monday, September 4th, several tutorials will be organized, and some exciting technical visits are planned for Friday, September 8th.
The 25th Conference on Power Electronics and Applications (and Exhibition), EPE '23 ECCE Europe (Energy Conversion Congress and Expo Europe) is co-sponsored by the EPE Association and the IEEE Power Electronics Society (PELS).

The conference will take place at the AKKC – The Aalborg Congress and Culture Center, in Aalborg, Denmark. (Info at http://akkc.dk)

Aims of the Conference

The EPE ECCE Europe conference is one of the largest in the world, attracting around eight hundred experts from numerous countries every year. Aiming at exchanging experience among fellow professionals and academics, and bearing in mind the present and future role of power electronics in the big energy transition the world is looking forward to, the EPE ECCE Europe conference is the privileged place to achieve this goal. EPE'23 ECCE Europe in Aalborg will provide the opportunity to discuss hot topics through the lecture- and poster sessions, the exhibition, the industrial forums and the tutorials.

Topics

Electrification of society is progressing fast, also pushed by the recent demands at the environmental level, both in terms of reduction of CO_2 emissions and energy-production sustainability. Novel battery systems are being developed not only for drones, passenger cars and heavy-duty vehicle applications, but also for stationary storage applications. For vehicle applications, high-power charging stations are being developed to reduce charging time. Bi-directional V2X charging systems allow for better grid management and, when combined with smart charging, for an increased share of renewables in the electricity mix. Power electronics interfaces, with their emerging wide bandgap (WBG) technologies, such as SiC and GaN, are a key element in these developments towards high energy-efficiency systems. The reliability aspect has become more and more crucial in these and many other applications. Alternatives to fossil fuels are being planned in Power-to-X plants where 100's of MW power electronic systems are needed for running the plants. All the above challenges lead to a complex scenario, where expertise at different levels, from materials to management and optimization, are heavily demanded.

On top of the tutorials, lecture and dialogue sessions and technical visits, the organising committees will propose several discussion sessions within the industrial forums as well as special sessions of power electronics related trends. The conference will specifically focus on the following challenging topics:

Tuesday, September 5th: **Battery Systems**
(BMS, Balancing Circuits, Control Units,…)

Wednesday, September 6th: **Transportation Electrification**
(Charging Systems, V2X, Energy Management,…)

Thursday, September 7th:
Reliability of Power Electronic Systems and Components
(Failure Mechanisms, Predictive Algorithms,…)

I POWER ELECTRONICS COMPONENTS AND CONVERTERS

Topic 1: DEVICES, COMPONENTS, PACKAGING AND SYSTEM INTEGRATION

1.a. Passive Components
1.b. Active Devices and Components (Si)
1.c. Active Devices and Components (Wide Bandgap and other new materials)
1.d. Components and Devices for Specific Applications, including for Pulsed Power
1.e. System Integration, Packaging & Thermal Management
1.f. Reliability & Life-Time

Topic 2: POWER CONVERTERS TOPOLOGIES

2.a. Modular Multilevel Converters
2.b. Solid State Transformers
2.c. Grid Connected Converters
2.d. Resonant Converters
2.e. HF Power Converters
2.f. Wide-Band Gap Power Electronics

Topic 3: CONVERTER MODELLING, DESIGN AND LOW-LEVEL CONTROL

3.a. Converter Design and Optimisation
3.b. Converter Modelling and Low-level Control, including Gate-Drives
3.c. EMI/EMC in Power Electronics including HF Phenomena

Topic 4: MEASUREMENT, SUPERVISION AND CONTROL FOR POWER CONVERTERS

4.a. Standard and Advanced Modulation Techniques
4.b. Standard and Advanced Current / Voltage / Synchronization Control Techniques
4.c. Estimation, Identification and Optimisation Methods
4.d. Measurement Techniques, Sensors and State Observers
4.e. Condition Monitoring and Life-Time Prediction

II POWER ELECTRONICS APPLICATIONS

Topic 5: ELECTRICAL MACHINES AND DRIVE SYSTEMS

5.a. Electrical Machines and Actuators
5.b. Adjustable-Speed Drives and Converter-Machine Interactions
5.c. Design, Optimisation and Control of Electric Drives
5.d. Condition Monitoring and Life-Time Prediction

Topic 6: RENEWABLE ENERGY POWER SYSTEMS

6.a. Wind-Energy Systems
6.b. Solar-Energy Systems
6.c. Energy Storage Systems for Renewable Energy
6.d. Energy Management Systems
6.e. Energy Harvesting
6.f. Other Renewable-Energy Systems

Topic 7: POWER ELECTRONICS IN TRANSMISSION AND DISTRIBUTION SYSTEMS

7.a. HVDC, FACTS, Solid State Transformers and Hybrid Circuit Breakers
7.b. Smart Grids
7.c. AC and DC Distribution and Micro Grids, including Fault Coordination and Protection
7.d. Power Quality Issues and Power Factor Correction Techniques
7.e. Charging Power Stations, Bidirectional V2G
7.f. Big Data and Artificial Intelligence in Energy Conversion
7.g. Energy Harvesting, Energy Storage Systems and Renewable Diurnal and Seasonality Issues
7.h. Smart and Energy Efficient Buildings
7.i. Real-Time Simulation and Hardware in the Loop

Topic 8: E-MOBILITY

8.a. Electric Drive Trains for passenger and light duty Vehicles
8.b. Electric Drive Trains for heavy duty Vehicles and buses
8.c. Electric Drive Trains for Rail Vehicles
8.d. Electric Drive Trains for Aerospace Applications (Aircrafts, Drones)
8.e. Electric Drive Trains for Marine Applications (Offshore, Subsea and Ships)
8.f. On-Board Power Converters, WBG technology as well as on-board DC-voltage networks
8.g. Vehicle Battery Chargers: On-Board (Wired and Inductive) and Stationary (Ultra) Fast Chargers
8.h. Smart Charging and Vehicle to Grid Interaction
8.i. Batteries: Management Systems (BMS), Monitoring and Life-Time Prediction
8.j. Fuel Cells: Converters, Control, Diagnostics and System Integration

Topic 9: POWER SUPPLIES AND INDUSTRY-SPECIFIC APPLICATIONS

9.a. Low Voltage DC Power Supplies
9.b. High Voltage DC Power Supplies
9.c. Distributed Power Supplies
9.d. Uninterruptible Power Supplies (UPS)
9.e. Lighting: Solid-State Lighting and Electronic ballasts
9.f. Contactless (Wireless) Power Supply
9.g. Industry-Specific Applications (Cement, Steel, Paper, Textile, Mining, etc…)
9.h. Applications in Physics Research and Related Areas
9.i. Applications in Green Hydrogen Synthesis and Storage

Topic 10: DATA ANALYSIS, ARTIFICIAL INTELLIGENCE AND COMMUNICATION

10.a. Data Analysis applied to Power Electronics and Drive Systems
10.b. Application of Artificial Intelligence to Power Electronics and Drive Systems
10.c. Communication for Power Electronics and Drive Systems
10.d. Wireless Control of Power Electronics Systems
10.e. Diagnostics of Power Electronics Systems
10.f. Digital Twin of Power Electronic Converters and Systems

Presentation of Papers

The accepted contributions to EPE'23 ECCE Europe will be presented either as a lecture presentation or as a dialogue presentation. A manuscript must be submitted in English in both cases for inclusion in the Conference Proceedings (electronic version only). Papers for lecture sessions will be strictly limited and selected on the basis of wide audience appeal, ease of understanding and potential stimulation of broad ranging discussion. No lecture session will be organized during the dialogue session timeslots.

Contents of Provisional Full Papers

The provisional full papers should consist of a 6 to 8 page anonymous summary, including an abstract with no more than 50 words; topic number and indication of the preference for dialogue or lecture presentation (to be clearly mentioned), key diagrams and a references list. The provisional full papers must be submitted through the conference official website. A link to the site will be available from http://www.epe2023.com/, as well as from http://www.epe-association.org. Detailed information and guidelines can be downloaded from the conference website to help you prepare the needed material for submitting a provisional full paper. The site will open for upload in the autumn. Authors of papers provisionally selected for presentation will receive a notification and can download the instructions for preparing the dialogue papers and/or the lecture papers from the website. Final selection will be based on the full paper. The paper will only be included in the Conference Proceedings after receipt of one full registration fee per paper in due terms. Student registration fee is only valid for student participants, not for authors. One single author may not present more than two (2) papers. The publication date of the accepted conference papers will be two weeks before the conference. The conference proceedings will be included into the IEEE Xplore® digital library.

Tutorials – Call for Proposals

Several tutorials will be held prior to the conference. Scholars and experts willing to propose a tutorial at EPE´23 ECCE Europe are invited to send a proposal to the scientific secretariat (EPE Association, c/o VUB-IrW-ETEC, Pleinlaan 2, B-1050 Brussels, Belgium, e-mail: epe-association@vub.be) before **January 11th, 2023**. The proposal consists of a three-page summary including tutorial title, name and affiliation of the lecturer(s), tutorial objectives and audience, topical outline and provisional schedule of the tutorial. The tutorials will be organized on **Monday 4 September 2023**.
Tutorial proposals related to all conference topics are welcome.

Deadlines

Intending authors should note the following deadlines:

Provisional Full Paper submission deadline:	**2 March 2023**
Acceptance notification:	**26 April 2023**
Final paper submission deadline:	**1 June 2023**

Working Language

The working language of the conference is English, which will be used for all printed material, presentations and discussions.

Programme and Registration

The provisional programme and registration form will be available from the Internet site early summer 2023.
Additional information will be available on: **http://www.epe2023.com**

Venue

The conference will take place at the AKKC – The Aalborg Congress and Culture Center. The conference venue is at walking distance from the main railway station and the city center of Aalborg and at about a 20-minute drive from Aalborg airport. The conference venue offers facilities and services of international quality meeting standards. Hi-speed Wi-Fi access will be freely available for attendees, everywhere in the congress center.

Exhibition

As with previous editions, an industrial (and scientific) exhibition will be part of the event.

Detailed information will be available at **www.epe2023.com**
You can also contact us via e-mail to **epe-association@vub.be**

Local Organizing Committee

Conference Chairperson

Francesco Iannuzzo	Aalborg University

Conference Co-Chairs

Frede Blaabjerg	Aalborg University
Stig Munk-Nielsen	Aalborg University

Local Committee Members

Amjad Anvari-Moghaddam	Aalborg University
Amir Sajjad Bahman	Aalborg University
Szymon Bęczkowski	Aalborg University
Pooya Davari	Aalborg University
Peter Omand Rasmussen	Aalborg University
Saeed Peyghami	Aalborg University
Subham Sahoo	Aalborg University
Ariya Sangwongwanich	Aalborg University
Huai Wang	Aalborg University
Xiongfei Wang	Aalborg University
Hongbo Zhao	Aalborg University
Dao Zhou	Aalborg University

Programme Chairman

Sjoerd Bosga	ABB Corporate Research, Sweden

Conference Organizing Committee

Jero Ahola	Lappeenranta University of Technology
Bruno Allard	Université de Lyon
Seddik Bacha	University of Grenoble - G2ELAB
Mark Bakran	Universität Bayreuth
Pavol Bauer	Delft University of Technology
Abdelkrim Benchaib	SuperGrid Institute/Associate Professor at le Cnam
Jürgen Biela	ETH Zürich
Frede Blaabjerg	Aalborg University
Frédérick Bordry	C.E.R.N.
Dushan Boroyevich	Virginia Tech
Sjoerd Bosga	ABB Corporate Research / KTH Royal Institute of Technology
Alain Bouscayrol	L2EP, Université de Lille 1
Mario Cacciato	University of Catania
Rik De Doncker	RWTH Aachen ISEA
Sibylle Dieckerhoff	Technische Universität Berlin
Martin Doppelbauer	Karlsruher Institut für Technologie (KIT)
Francesco Iannuzzo	Aalborg University
Vladimir Katic	University of Novi Sad
Ralph Kennel	Technische Universität München
Oskars Krievs	Riga Technical University
Françoise Lamnabhi-Lagarrigue	LSS Supelec
Philippe Lataire	Vrije Universiteit Brussel
Elena Lomonova	Eindhoven University of Technology
Leo Lorenz	ECPE E.V.
Mariusz Malinowski	Warsaw University of Technology
Mario Marchesoni	Università di Genova
Philip Mawby	University of Warwick
Michel Mermet-Guyennet	Supergrid Institute

Axel Mertens	Leibniz Universität Hannover
Stig Munk-Nielsen	Aalborg University
Hans-Peter Nee	Royal Institute of Technology
Yves Perriard	Ecole Polytechnique Fédérale de Lausanne (EPFL)
Jacek Rabkowski	Warsaw University of Technology
Leonids Ribickis	Riga Technical University
Benoît Robyns	Ecole des Hautes Etudes d'Ingénieur
Alfred Rufer	Ecole Polytechnique Fédérale de Lausanne (EPFL)
Betty Semail-Lemaire	University Lille 1
Antoni Sudria	UPC - CITCEA
Jean-Luc Thomas	Le CNAM
Alex Van Den Bossche	Universiteit Gent
Joeri Van Mierlo	Vrije Universiteit Brussel
Patrick Wheeler	University of Nottingham
Pericle Zanchetta	University of Nottingham

International Scientific Committee

Jero Ahola	Lappeenranta University of Technology
Hirofumi Akagi	Tokyo Institute of Technology
Bruno Allard	Université de Lyon
Stéphane Azzopardi	Safran
Seddik Bacha	University of Grenoble - G2ELAB
Mark Bakran	Universität Bayreuth
Roger Bassett	EPE Association
Pavol Bauer	Delft University of Technology
Abdelkrim Benchaib	SuperGrid Institute / Associate Professor at le Cnam
Frede Blaabjerg	Aalborg University
Joachim Böcker	University of Paderborn
Frédérick Bordry	C.E.R.N.
Dushan Boroyevich	Virginia Tech
Sjoerd Bosga	ABB Corporate Research / KTH Royal Institute of Technology
Alain Bouscayrol	L2EP, Université de Lille 1
Pablo Briff	GE Renewable Energy
Stefan Brock	Poznan University of Technology
Thomas Brückner	Bundeswehr University Munich
Mario Cacciato	University of Catania
Mauro Carpita	University of Applied Sciences of Western Switzerland
Silvio Colombi	ABB Switzerland
Julien Cordier	Technische Universität München
Pooya Davari	Aalborg University
Frederik De Belie	UGent
Rik De Doncker	RWTH Aachen ISEA
Enrique Dede	
Sibylle Dieckerhoff	Technische Universität Berlin
Frans Dijkhuizen	Hitachi ABB Power Grids Sweden
Martin Doppelbauer	Karlsruher Institut für Technologie (KIT)
Drazen Dujic	Ecole Polytchnique Fédérale de Lausanne - EPFL
Piotr Dworakowski	Supergrid Institute
Hans-Günter Eckel	University of Rostock
Jens Friebe	Leibniz Universität Hannover
Jean-Paul Gaubert	Université de Poitiers - LIAS - ENSIP
Francesco Gennaro	STMicroelectronics
Johan Gyselinck	Université Libre de Bruxelles
Ingo Hahn	Friedrich-Alexander Universität Erlangen-Nürnberg
Omar Hegazy	Vrije Universiteit Brussel
Marcel Hendrix	Eindhoven University of Technology
Marc Hiller	Karlsruher Institute of Technology (KIT)
Matthias Hofer	Technische Universität Wien
Klaus F. Hoffmann	Helmut-Schmidt-University Hamburg
Wilfried Hofmann	Technische Universität Dresden
Michael Jennings	Swansea University
Marco Jung	Hochschule Bonn-Rhein-Sieg
Per Karlsson	CG Drives & Automation
Vladimir Katic	University of Novi Sad
Marian P. Kazmierkowski	Warsaw University of Technology
Ralph Kennel	Technische Universität München
Philip Carne Kjaer	Vestas Wind Systems A/S
Oskars Krievs	Riga Technical University
Jorma Kyyra	Aalto University
Françoise Lamnabhi-Lagarrigue	LSS Supelec
Philippe Lataire	Vrije Universiteit Brussel
Yongdong Li	Tsinghua University
Andreas Lindemann	Otto-von-Guericke-University Magdeburg
Marco Liserre	Christian-Albrechts-Universität Kiel
Elena Lomonova	Eindhoven University of Technology
Leo Lorenz	ECPE E.V.
Josef Lutz	TU Chemnitz
Mariusz Malinowski	Warsaw University of Technology
Regine Mallwitz	Technische Universität Braunschweig
Mario Marchesoni	Università di Genova
Wilmar Martinez	KU Leuven & Energyville
Philip Mawby	University of Warwick
Michel Mermet-Guyennet	Supergrid Institute
Axel Mertens	Leibniz Universität Hannover
Regis Meuret	Hispano-Suiza
Eric Monmasson	Université de Cergy-Pontoise
Daniel Montesinos	CITCEA-UPC
Frederic Morancho	LAAS - CNRS
Stig Munk-Nielsen	Aalborg University
Salvatore Musumeci	Politecnico di Torino
Alireza Nami	ABB AB Corporate Research
Hans-Peter Nee	Royal Institute of Technology
Bernd Orlik	Universität Bremen
Dimosthenis Peftitsis	Norwegian University of Science and Technology
Yves Perriard	Ecole Polytechnique Fédérale de Lausanne (EPFL)
Maria Pietrzak-David	Université Toulouse Midi Pyrénées - Laboratoire PLA
Edris Pouresmaeil	Aalto University
Jacek Rabkowski	Warsaw University of Technology
Per Ranstad	KTH Royal Institute of Technology
Leonids Ribickis	Riga Technical University
Frédéric Richardeau	LAPLACE - University of Toulouse
Benoît Robyns	Ecole des Hautes Etudes d'Ingénieur
Miran Rodic	Piktronik
Alfred Rufer	Ecole Polytechnique Fédérale de Lausanne (EPFL)
Jean-Luc Schanen	G2ELAB
Uwe Scheuermann	Semikron Elektronik GmbH
Hubert Schierling	Siemens AG
Günter Schröder	University of Siegen
Betty Semail-Lemaire	University Lille 1
Sami Siala	GE Energy Power Conversion
Daniel Siemaszko	Power Electronics and Systems Consultancy
Ralf Siemieniec	Infineon Technologies Austria AG
Antoni Sudria	UPC - CITCEA
Mark Sumner	University of Nottingham
Sandro Tenconi	
Jean-Luc Thomas	Le CNAM
Faical Turki	Compleo Charging Solutions GmbH. Dortmund
Bartlomiej Ufnalski	Warsaw University of Technology
Alex Van Den Bossche	Universiteit Gent
Joeri Van Mierlo	Vrije Universiteit Brussel
Umamaheswara Reddy Vemulapati	ABB Corporate Research
Andrea Vezzini	Berne University of Applied Sciences
Matthias Victor	SMA Solar Technology AG
Tero Viitanen	ABB Power Conversion
Patrick Wheeler	University of Nottingham
Korneel Wijnands	Eindhoven University of Technology
Zhihong Wu	Tongji University
Xibo Yuan	University of Bristol
Pericle Zanchetta	University of Nottingham
Krzysztof Zawirski	Technical University of Poznan
Ahmed Zobaa	Brunel University London

EPE / IEEE-PELS Coordination Committee

The overall management of the Congress is conducted by the Coordination Committee to ensure consistency in strategy, scope and content of the Conferences from year to year. The committee issues a Call for future locations of the Conferences, and forwards its recommendations to the EPE Executive Council as well as to the IEEE-PELS Administrative Committee for final approval.

EPE representative members:
Assoc. Prof. Dr. Abdelkrim BENCHAIB – SuperGrid Institute / Le Cnam – France
Prof. Dr. Ir. Mario CACCIATO – University of Catania – Italy (Chairman of the Committee)
Prof. Dr. Martin DOPPELBAUER – Karlsruher Institut für Technologie (KIT) – Germany
Prof. Dr. Ir. Philippe LATAIRE – Vrije Universiteit Brussel – Belgium
Prof. Dr. Ir. Elena LOMONOVA – Eindhoven University of Technology – The Netherlands
Prof. Dr. Ir. Jean-Luc THOMAS – Le Cnam – France

IEEE-PELS representative members:
Prof. Dr. Ir. Rik DE DONCKER – RWTH Aachen/ISEA – Germany
Prof. Dr. Ir. Ralph KENNEL – Technical University of Munich – Germany
Prof. Dr. Ir. Mario PACAS – University of Siegen – Germany (Co-Chairman of the Committee)
Prof. Dr. John SHEN – Illinois Institute of Technology – USA
Prof. Dr. Jian SUN – Rensselaer Polytechnic Institute – USA
Prof. Dr. Ir. Patrick WHEELER – University of Nottingham – United Kingdom

Secretariat

EPE Secretariat
Philippe Hamacher
EPE Association
C/o VUB-IrW-ETEC
Pleinlaan 2 - B-1050 Brussels
Tel: +32 (0)470 65 79 90
Fax: +32 (0)2 629 36 20
e-mail : phamache@vub.ac.be

Local Secretariat

Aalborg University
AAU Energy
Pontoppidanstraede 111
9220 Aalborg East
Denmark
E-mail: epe2023@energy.aau.dk