

EPE '22 ECCE EUROPE

September 5-9, 2022
Hannover, Germany



Call for Papers

24th European Conference on Power
Electronics and Applications

EPE - Energy Conversion Congress & Expo

September 5-9, 2022
Hannover, Germany



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Old Town Hannover • © HMTG

Highlighted Technical Topics

- Integration and Adverse Effects of WBG Devices
- Electricity and Hydrogen based Energy Systems
- Electrification of On- and Off-Road Vehicles
- New Power Electronic Devices
- Batteries in Power Electronics
- Electrification of Aircraft



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Deadlines

- 17.11.21 Receipt of synopses
- 02.03.22 Notification of provisional acceptance
- 01.06.22 Receipt of full typescript for final review

epe2022.com

Organisation and Venue

The Power Electronics community will gather in Hannover, Germany, from 5 to 9 September 2022, to exchange views on research progress and technological developments in the various topics described hereunder. Tutorials will be organised on Monday and on Friday, 5/9 September. Several technical visits are planned for Friday, 9 September.

The 24th European Conference on Power Electronics and Applications EPE'22 ECCE Europe (Energy Conversion Congress and Expo) is co-sponsored by the EPE Association and IEEE PELS. It will take place at the Hannover Congress Centrum (HCC), Germany.

Aims of the Conference

EPE ECCE Europe is the largest scientific conference in its field in Europe, attracting experts from numerous countries every year to join in the discussions. With the objective to exchange and meet with fellow professionals and academics, EPE ECCE Europe brings together researchers, engineers, etc. working at the forefront of power electronics technologies.

Highlighted Technical Topics

In addition to the topics for paper submission, EPE'22 ECCE Europe at Hannover will highlight the following Focus Topics, not only in dedicated lecture and dialogue sessions of the conference but also in keynotes, the exhibition, panel discussions, tutorials and technical visits. Paper submissions in line with these Focus Topics are highly encouraged.

Technology Focus Topics:

- New Power Electronic Devices
- Integration and Adverse Effects of WBG Devices
- Batteries in Power Electronics

Application Focus Topics:

- Electrification of On- and Off-Road Vehicles
- Electrification of Aircraft
- Electricity and Hydrogen based Energy Systems

Topics for Paper Submission

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 / Synchronisation 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 AND POWER-TO-X

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

Topic 7: GRIDS, SMART GRIDS, AC & DC

- 7.a. Power Electronics in Transmission and Distribution Systems
- 7.b. HVDC & FACTS
- 7.c. Micro Grids
- 7.d. Smart Grids
- 7.e. Mobile Power Stations
- 7.f. Power Quality Issues and Power Factor Correction Techniques
- 7.g. DC Grids including Fault Coordination and Protection
- 7.h. Hybrid Circuit Breakers
- 7.i. Real-Time Simulation and Hardware in the Loop

Topic 8: E-MOBILITY

- 8.a. Electric Drive Trains for On-and Off-Road Vehicles
- 8.b. Electric Drive Trains for Rail Vehicles
- 8.c. Electric Drive Trains for Aerospace and Space Applications
- 8.d. Electric Drive Trains for Marine Applications (Offshore, Subsea and Ships)
- 8.e. On-Board Power Converters
- 8.f. Batteries: Management Systems (BMS), Monitoring and Life-Time Prediction
- 8.g. Vehicle Battery Chargers: Contact and Contactless
- 8.h. Fuel Cells: Converters, Control, Diagnostics and System Integration
- 8.i. Smart Charging and Vehicle to Grid Interaction

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

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

10.e. Diagnostics

Presentation of Papers

Contributions to EPE'22 ECCE Europe must 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). The number of papers presented in lecture sessions is limited by the amount of available time slots. They are selected on the basis of wide audience appeal and suitability for lecture presentation. Papers presented in dialogue sessions are selected for their suitability to provoke in-depth discussions between authors and other conference participants. Dialogue and lecture sessions will be organised in separate time slots, both during mornings and afternoons

Content of Synopses

The synopses should consist of a three to five 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 list of references.

The synopses will be submitted using the host of the conference on the Internet. A link to the site will be available at www.epe2022.com, as well as from 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 synopsis. The site will soon be open for upload.

Authors of papers provisionally selected for presentation will receive a notification and can download the instructions for preparing the final 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 papers. The publication date of the accepted conference papers will be two weeks before the conference.

Instructions for preparing and submitting the lecture presentation as well as for preparing the poster will also be made available to the authors. A selection of outstanding conference papers will be published afterwards in the EPE Journal, which is an ISI registered journal.

The conference proceedings will be submitted to the IEEE Xplore® digital library.

All presented papers will be listed in the Web of Science (formerly Web of Knowledge), INSPEC database for Engineering. Selected papers published in the EPE Journal will be automatically included in the Web of Science – Core Collection and get a WOS-Accession number. The Organising Committee works toward ensuring that all conference papers are listed in the Core Collection as well. It is already the case since the 2014 edition.

Tutorials – Call for Proposals

Several tutorials will be held as part of the conference. Authors willing to propose a tutorial at EPE'22 ECCE Europe are invited to send a proposal to the EPE Secretariat (see below) before 11 January, 2022. The proposal shall consist 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 as well as relevant references. The tutorials will be organized on Monday 5 September and Friday 9 September 2022. Tutorial proposals related to all conference topics are welcome.

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 website early summer 2022.

Additional information will be available on: www.epe2022.com

Venue

The conference will take place at the Hannover Congress Centrum (HCC), Germany. The conference venue is located 2 km from the city centre and from the main railway station, which is reached in about 20 minutes by rapid transit from the Hannover Airport. Public transportation in Hannover is excellent, and there is a tram station in front of the HCC. The conference venue offers facilities and services of international quality meeting standards. Wi-Fi access will be free 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 on: www.epe2022.com

You can also contact us via e-mail to: Carol.Appelmans@vub.be

Conference Organisation

General Chairman

Axel Mertens, Leibniz University Hannover

Co-Chair

Bernd Ponick, Leibniz University Hannover

Local Scientific Committee

Martin Doppelbauer, Amir Ebrahimi, Hans-Günter Eckel, Jens Friebe, Klaus Hoffmann, Nando Kaminski, Andreas Lindemann, Marco Liserre, Regine Mallwitz, Bernhard Wicht

Local Secretariat

Leibniz University Hannover
Institute for Drive Systems and Power Electronics
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The overall management of the Congress is conducted by the Coordination, Organising and International Scientific Committees to ensure consistency in strategy, scope and content of the Conferences from year to year.

Programme Chairman

Sjoerd Bosga, ABB Corporate Research, Sweden

EPE/IEEE-PELS Coordination Committee

Martin Doppelbauer, Philip Carne Kjaer, Elena Lomonova, Leo Lorenz, Yves Perriard, Jean-Luc Thomas, Rik De Doncker, Ralph Kennel, Mario Pacas, Jian Sun, Pat Wheeler
For more information visit: www.ieee-pels.org

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All contributors and committees, like the Coordination Committee and the International Scientific Committee (ISC), are listed on the EPE association website: www.epe-association.org