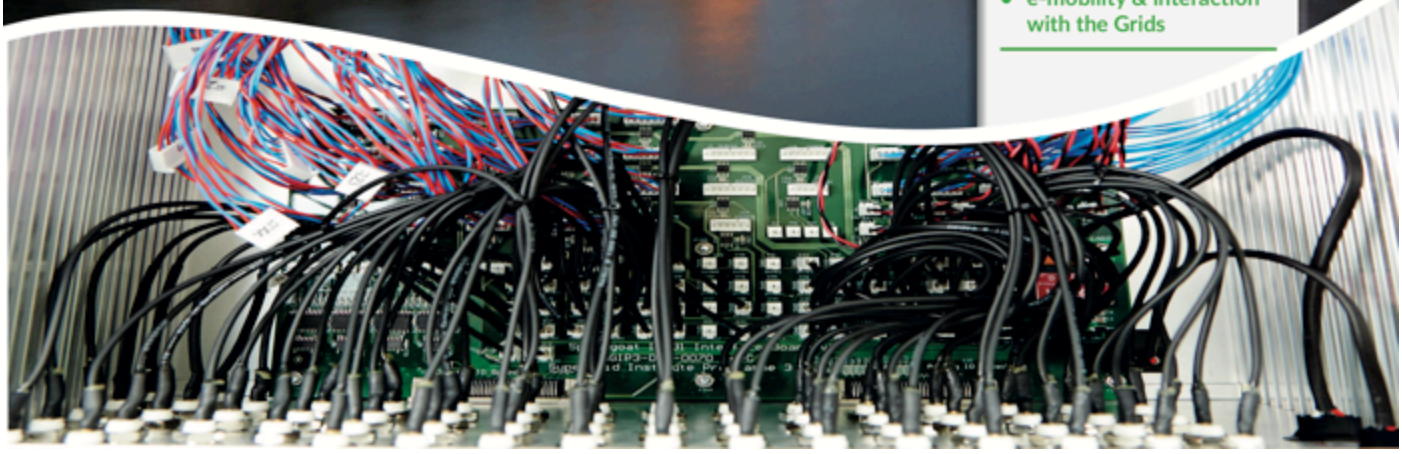

Organization and Venue

The Power Electronics community will gather in **Lyon**, France, from 7 to 11 September 2020, to exchange views on research progresses and technological developments in the various topics described hereunder. On Monday 7 September a number of tutorials will be organised and several technical visits are planned on Friday 11 September.

The 22nd Conference on Power Electronics and Applications (and Exhibition), EPE'20 ECCE (Energy Conversion Congress and Expo) Europe is co-sponsored by the EPE Association and IEEE PELS with a specific technical sponsorship of IFAC. It will take place at the LYON CONVENTION CENTER in the Cité Internationale, Lyon.

Aims of the Conference

The EPE ECCE Europe conference is the largest in its field, attracting experts from numerous different countries every year to join in the discussions. With the objective to exchange and meet fellow professionals and academics, EPE ECCE Europe conference brings together researchers, engineers, etc. working at the forefront of power electronics technologies. For this type of event, where the future role of power electronics in this ecological revolution will be explored, the EPE ECCE Europe conference is one of the privileged places. There will be the opportunity to discuss a number of subjects during EPE ECCE Europe Lyon 2020, not only during the lecture and poster sessions of the conferences but also at the exhibition, industrial forums and tutorials…

Here is France, the effort to bring about energy transition is at the heart of the country's objectives and during the 4 days of the conference, we can share our ideas on how to make this objective a reality by discussing key issues surrounding power electronics.

Topics

Power electronics is at the heart of the energy transition constituting critical elements for ecology transition which will help to drive our world towards a new economic and social model, a model of sustainable development that renews our ways of consuming, producing, working, and living together to meet the major environmental challenges. Advanced power electronics, with considerations to energy savings, reduced footprint and smart digitalization, will provide a **greater boost to renewable energy penetration, to sustainable mobility as well as to** energy efficient buildings**.**

The EPE ECCE Europe conference is the largest in its field, attracting experts from numerous different countries every year to join in the discussions. With the objective to exchange and meet fellow professionals and academics, EPE ECCE Europe conference brings together researchers, engineers, etc. working at the forefront of power electronics technologies. For this type of event, where the future role of power electronics in this ecological revolution will be explored, the EPE ECCE Europe conference is one of the privileged places. There will be the opportunity to discuss a number of subjects during EPE ECCE Europe Lyon 2020, not only during the lecture and dialogue sessions of the conferences but also at the exhibition, industrial forums and tutorials…

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

Tuesday, September 8th 2020: **DC grid**

Wednesday, September 9th 2020: **E-mobility**

Thursday, September 10th 2020: **Energy digitalization**

The conference topics are as follows:

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. System Integration, Packaging & Thermal Management
1.e. Reliability & Life-Time

Topic 2: POWER CONVERTERS TOPOLOGIES AND DESIGN

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
2.g. Modelling and Control
2.h. Converter Design and Optimization
2.i. EMI/EMC in Power Electronics Including HF Phenomena

Topic 3: MEASUREMENT, SUPERVISION AND CONTROL FOR POWER CONVERTERS

3.a. Standard and advanced PWM techniques
3.b. Standard and advanced current/voltage/synchronization control techniques
3.c. Estimation, identification and optimization methods
3.d. Measurements techniques, drivers, sensors and state observers
3.e. Condition monitoring

II POWER ELECTRONICS APPLICATIONS

Topic 4: ELECTRICAL MACHINES AND DRIVE SYSTEMS

4.a. Electrical Machines
4.b. Adjustable speed drives
4.c. High performance drives
4.d. Motion control, robotics, special drives

Topic 5: RENEWABLE ENERGY POWER SYSTEMS

5.a. Wind energy systems
5.b. Solar energy systems
5.c. Other renewable energy systems
5.d. Energy harvesting
5.e. Energy storage systems for renewable energy

Topic 6: GRIDS, SMART GRIDS, AC & DC

6.a. Power electronics in transmission and distribution systems
6.b. HVDC & FACTS
6.c. Micro-grids
6.d. Smart grids
6.e. Mobile power stations
6.f. Power quality issues and power factor correction techniques
6.g. DC grids including fault coordination and protection
6.h. Hybrid DC circuit breakers (DCCBs)
6.i. Real-time simulation and Mock-ups

Topic 7: POWER SUPPLIES

7.a. Low voltage DC power supplies
7.b. High voltage DC power supplies
7.c. Distributed power supplies
7.d. Uninterruptible power supplies (UPS)
7.e. Electronic ballasts and solid state lighting
7.f. Contactless (Wireless) power supply

Topic 8: ELECTRIC VEHICLE PROPULSION SYSTEMS AND THEIR ENERGY STORAGE

8.a. Electric propulsion systems for electric vehicles
8.b. Power converters for electric vehicles
8.c. Batteries, active and passive Management Systems (BMS)
8.d. EV´s battery chargers: contact
8.e. EV´s battery chargers: contactless
8.f. Smart charging and V2x
8.f. Standards and regulations

Topic 9: INDUSTRY SPECIFIC ENERGY CONVERSION AND CONDITIONING TECHNOLOGIES (ECCT)

9.a. ECCT in the industry (cement, steel, paper, textile, mining, etc…)
9.b. ECCT in aerospace and space applications
9.c. ECCT in rail vehicles
9.d. ECCT in Marine applications (offshore, subsea and deep ocean, and ships)
9.e. ECCT in physics research and related applications
9.f. Pulse applications, including passive components and transducers for power pulses
9. g. Embedded energy systems

Topic 10: Data Analysis, Artificial Intelligence, and Communication Issues

10.a. Data analysis applied to Power Electronics and drives systems
10.b. Application of AI to Power Electronics and drives systems
10.c. Communication for Power Electronics
10.d. Wireless control
10.e. Diagnostics

Presentation of Papers

Contributions to EPE'20 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). 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.

Dialogue presentations will take place in the afternoon. No lecture session will be organized during the dialogue sessions.

Content of Synopses

The synopses should consist of a 3 to 5 pages 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 synopses will be submitted using the host of the conference on the Internet. A link to the site will be available from: www.epe2020.com, a link from www.epe-association.org will be available as well. Detailed information and

guidelines can be downloaded from the site to help you preparing the needed material for submitting a synopsis. The site will be open for upload from 15 November 2019 onwards.

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 Internet site. 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. In that case, the fee to present the two papers will be 150% of the registration fee.

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 prior to the conference. Authors willing to propose a tutorial at EPE'20 ECCE Europe are invited to send a proposal to Brigitte Sneyers at the scientific secretariat (EPE Association, c/o VUB-IrW-ETEC, Pleinlaan 2, B-1050 Brussels, Belgium, e-mail: bsneyers@vub.ac.be) before **11 January, 2020**. The proposal will 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.
The tutorials will be organized on **Monday 7 September 2020**. The tutorials will take place at the **INSA Lyon,** LyonTech-la Doua **,** 20, avenue Albert Einstein - 69621 Villeurbanne CEDEX.
Tutorial proposals are welcome in all topics related to the conference topics.

Table-Top Students Project Exhibition

Master students and PhD Students are invited to present their latest prototypes in the frame of the EPE ECCE Europe 2020 Exhibition. Each accepted project will have a position assigned, a table, two chairs and a power socket.

To register, please send to the scientific secretariat (EPE Association, c/o VUB-IrW-ETEC, Pleinlaan 2, B-1050 Brussels, Belgium, e-mail: bsneyers@vub.ac.be) a letter of intent describing the project to be exhibit before Tuesday 31 March 2020. Confirmation of acceptance will be sent around 1 June 2020. Please note that the presenter should hold a valid registration to the conference.

Set-up will take place in the morning, demonstration will be in the afternoon, during the dialogue session.

Deadlines

Intending authors should note the following deadlines:
Receipt of synopses: **15 November 2019**
Notification of provisional acceptance: **4 March 2020**
Receipt of full typescript for final review: **4 June 2020**

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 2020.
Access to the full papers will be given with password to all registered participants, 1 or 2 weeks before the conference, to allow attendees to prepare their participation.
Additional information will be available on: http://www.epe2020.com

Venue

The conference will take place at the LYON CONVENTION CENTER at the *Cité Internationale* which is situated between the River Rhône and the Tête d'Or Park. The *Cité Internationale* is 10 minutes from the city centre and the Part-Dieu Station, and just 30 minutes from the airport. The conference venue offers facilities and services of international quality meeting standards. Wi-Fi access will be free for attendees, everywhere in the congress centre.

Exhibition

There will be an exhibition integrated in the event.
If you would like to know more details please go to www.epe2020.com
You can also contact us via e-mail to bsneyers@vub.ac.be or info@epe2020.com

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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.

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