CALL FOR PAPERS

EPE'25 PARIS

EPE'25

40 years of EPE conferences
1985 > 2025

cnrs GDR Groupement de recherche
SEEDS Systèmes d'énergie électrique dans leurs dimensions sociétales

CALL FOR PAPER I KEY DATES

15 August 2024
Provisional full paper submission deadline

15 November 2024
Acceptance notification

31 December 2024
Final paper submission

26TH EUROPEAN CONFERENCE ON POWER ELECTRONICS AND APPLICATIONS

Paris, France | March 31st > April 4th, 2025

Cité des sciences et de l'industrie | 30 Avenue Corentin Cariou, 75019 Paris

Email: epe2025@utc.fr

Websites: https://epe2025.com | http://epe2025-paris.com

ECPE EEJ ias KIPE THE KOREAN INSTITUTE OF POWER ELECTRONICS VUB mobi ELECTROMOBILITY RESEARCH CENTRE

Organization and Venue

The Power Electronics community will gather in Paris, France, from 31 March to 4 April 2025, to exchange views on research progress and technological developments in the various topics described hereunder. On Monday 31 March a number of tutorials will be organised, and on Friday 4 April several technical visits are planned.

The 26th European Conference on Power Electronics and Applications (and Exhibition), EPE'25, will take place at La Villette Congress Centre, which is part of the Cité des sciences et de l'industrie in Paris, France.

Aims of the Conference

The European Power Electronics and Drives conference is the largest in its field, attracting experts from numerous countries to join in the discussions. With the objective to exchange and meet fellow professionals and academics, the EPE 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 and technological revolution will be explored, the EPE conference is one of the privileged places. EPE'25 in Paris will provide the opportunity to discuss a number of subjects, not only during the lecture and poster sessions of the conference but also at the exhibition, the industrial forums, and the tutorials.

Topics

Empowering the Energy Transition and Ensure Access to Affordable, Reliable, Sustainable and Modern Energy for All

The main challenge of the major transitions in our society is massive, cleaner and more sustainable electrification. The United Nations' 7th Sustainable Development Goal (SDG) calls for commitments to enable a clean electrification future while maintaining reliability and affordability. The EPE'25 conference in Paris will focus on the energy transition as well as on the SDG 7 demonstrating how research can empower and accelerate it.

Electricity was established first as a major qualitative energy vector and then, together with power electronics, as a quasi-exclusive vector of information and communication systems whose massive digitalization is underway. Nowadays, limiting global warming involves a future sustainable decarbonized energy mix based mainly on renewable sources whose natural variability requires the implementation of new means of managing the supply/demand balance involving flexibilities and storage systems. With regard to mobility, the electrification of future aircraft, ship, and road vehicles has intensified over the past 10 to 15 years, with the "more electric transport". Furthermore, work is being carried out on batteries and in particular on new thermal management and aging prevention systems up to recycling, improving fuel cell efficiency, and the use of multi-source systems where the design of energy management becomes central. The increasing use of electricity, assuming that it is produced in a green manner, with processes with a low environmental footprint over their entire life cycle, contributes to the decarbonization of energy and therefore has a beneficial impact on the environment. Across all the domains cited, there are many scientific challenges and often at the interfaces of several sciences: electrical, mechanical, thermal-energy, fluidic, physics and chemistry, digital, automatic, computer science, etc. Research will have to focus on understanding multi-scale phenomena (spatial and/or temporal), moving from upstream concepts developed under laboratory conditions to industrial level, combining experimental, theoretical and numerical approaches, introducing multiparametric studies requiring diagnostic approaches, statistical tools and those derived from artificial intelligence. All the above challenges require rethinking the technological options available to us in order to reconcile needs, sobriety and reduction of environmental impact. With the user at the heart of these questions, the humanities and social sciences have a major role to play. Therefore, current research integrates new challenges at the crossroads of electric energy and related sectors in hard sciences but also humanities, economic sciences, and environmental sciences.

The EPE'25 conference in Paris will specifically focus on the following challenging 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.

Topic 1: Electromobility – the powerful factor in reducing CO_2
Topic 2: Smart grids and renewable energy
Topic 3: Energy storage systems
Topic 4: Digitalization: the powerful fusion of AI and IoT for sustainability
Topic 5: Sustainable and affordable power electronics
Topic 6: Energy transition and societal change

The conference topics are as follows:

I FOCUS TOPICS:

Topic 1: ELECTROMOBILITY – THE POWERFUL FACTOR IN REDUCING CO2

1.a) Electric Road Vehicles (Light- and Heavy-Duty and their Drivetrain Components)
1.b) Electric Rail Vehicles (incl. Battery and Hydrogen Green Traction)
1.c) Electric Aircraft, Aerospace and Drones (incl. Drivetrain Components)
1.d) Electric Ships (Inland, Sea, Ferries)
1.e) Electric Off-Road and Non-Conventional Vehicles
1.f) Power-Electronic Devices and Integration for Electromobility

Topic 2: SMART GRIDS AND RENEWABLE ENERGY

2.a) Smart Grids, DC Networks and Components, Hybrid AC/DC Networks
2.b) Renewable and New Energy Sources
2.c) Power Electronics and Devices for Grid Applications
2.d) Railway Network Systems
2.e) Green Hydrogen and "X": Electrolyzers and Plants
2.f) Multi-Vector Power Grids: Electricity, Gas, Heat, etc.

Topic 3: ENERGY STORAGE SYSTEMS

3.a) Energy Storage and Management Systems
3.b) Battery Aging, Reliability, and Safety
3.c) Smart Charging, V2G, V2H, Charging Infrastructure and Grid Integration for Electromobility
3.d) Energy Storage for Grid Applications including Industrial Solutions
3.e) Fuel Cells and Stacks, Electrolyzer Cells and Stacks and Associated Power Electronics
3.f) Hybridization of Energy-Storage Units for Energy-Transition Applications

Topic 4: DIGITALIZATION: THE POWERFUL FUSION OF AI AND IoT FOR SUSTAINABILITY

4.a) Digital Twins and Real-Time Simulation
4.b) Use of AI in Power-Electronics Applications
4.c) Cyber-Physical Security
4.d) Data-Driven and Physics-Based Techniques
4.e) Machine Learning
4.f) Evolution of Power Electronics with the Introduction of AI

Topic 5: SUSTAINABLE AND AFFORDABLE POWER ELECTRONICS

5.a) Design of Sustainable and/or Frugal Power Converters
5.b) Dynamic Life Cycle Analysis and Assessment
5.c) Recycling: Challenges and Methodologies
5.d) Circular Economy
5.e) State of Health: Online Monitoring, Failure Diagnosis and Prognosis, Remaining Useful Life Prediction

Topic 6: ENERGY TRANSITION AND SOCIETAL CHANGE

6.a) Smart Electromobility and Sustainable Development (Government Policies and Incentives related to E-Mobility Adoption)
6.b) Energy Efficiency, Environmental Impact and Acceptability of Energy Sobriety
6.c) Policy Instruments and Institutional Regimes for the Complete Decarbonization of Energy Systems
6.d) Energy Transition Economy and Social Sustainability of the

Energy Transition
6.e) New Paradigms in the Use of Electrical Energy (New Consumers)
6.f) Sustainable Power Electronics Engineering Education

II POWER ELECTRONICS COMPONENTS AND CONVERTERS

Topic 7: SEMICONDUCTOR DEVICES AND PACKAGING
7.a) Active Devices and Components
7.b) Integration and Packaging
7.c) Cooling Circuits and Thermal Management
7.d) Reliability and Life-Cycle Assessment

Topic 8: COMPONENTS LINKED TO POWER ELECTRONICS
8.a) Magnetic Components – Inductors and Transformers
8.b) Dielectric and Interconnecting Components – Capacitors, Insulators, Cables, PCBs, Bus Bars
8.c) Electrochemical Components – Batteries
8.d) To- and from X Components – Fuel Cells/Stacks, Electrolyzer Cells/Stacks and Solar Cells
8.e) Shielding Components
8.f) Other Components – Resistors, Fuses, Contactors

Topic 9: POWER CONVERTER TOPOLOGIES
9.a) AC/DC and DC/AC Converter Topologies
9.b) AC/AC Converter Topologies
9.c) DC/DC Converter Topologies
9.d) AC-Grid Connected Converter Topologies

Topic 10: CONVERTER MODELLING, DESIGN AND LOW-LEVEL CONTROL
10.a) Converter Design and Optimisation
10.b) Converter Modelling and Low-level Control, including Gate-Drives
10.c) EMI/EMC in Power Electronics including HF Phenomena
10.d) Thermal Optimization and Reliability Considerations

Topic 11: MEASUREMENT, SUPERVISION AND CONTROL FOR POWER CONVERTERS
11.a) Modulation and Control Methods
11.b) Estimation, Identification and Optimisation Methods
11.c) Measurement Techniques, Sensors and State Observers
11.d) Algorithms and Methods for Condition Monitoring and Life-Time Prediction

III POWER ELECTRONICS APPLICATIONS

Topic 12: ELECTRICAL MACHINES AND DRIVE SYSTEMS
12.a) Electrical Machines and Actuators
12.b) System Design and Optimization of Adjustable-Speed Drives
12.c) Control of Electric Drives
12.d) Algorithms and Methods for Condition Monitoring and Life-Time Prediction

Topic 13: POWER SUPPLIES AND INDUSTRY-SPECIFIC POWER ELECTRONICS
13.a) Power Supplies and UPS
13.b) Lighting: Solid-State Lighting and Electronic Ballasts
13.c) Contactless (Wireless) Power Supply
13.d) Industry-Specific Applications (Cement, Steel, Paper, Textile, Mining, etc.)
13.e) Applications in Physics Research and Related Areas

Presentation of Papers

Contributions for EPE'25 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.

No lecture session will be organized during the dialogue session timeslots.

Contents of Provisional Full Papers

The provisional full paper should consist of a 5 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 paper will be submitted using the host of the conference on the Internet. A link to the site will be available from https://epe2025.com/, as well as from http://epe2025-paris.com/ and 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 website is open for upload.

Authors of papers provisionally selected for presentation will receive a notification and can download the instructions for preparing the final dialogue and/or 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.

IEEE PELS Technical Co-sponsorship has been applied for.

Tutorials – Call for Proposals

Several tutorials will be held prior to the conference. Authors willing to propose a tutorial at EPE'25 are invited to send a proposal to Philippe HAMACHER at the scientific secretariat (EPE Association, c/o VUB-IrW-ETEC, Pleinlaan 2, B-1050 Brussels, Belgium, e-mail: Philippe.Hamacher@vub.be) before the 1st of September 2024. 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 the 31st of March 2025.

Tutorial proposals related to all conference topics are welcome.

Deadlines

Intending authors should note the following deadlines:

- Receipt of provisional full paper: **15 August 2024**
- Notification of provisional acceptance: **15 November 2024**
- Receipt of full typescript for final review: **31 December 2024**

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 websites late 2024. Additional information will be available on https://epe2025.com/ and on http://epe2025-paris.com/

Venue

The conference will take place at La Villette Congress Centre, part of the Cité des sciences et de l'industrie in Paris, France. The conference venue is near both Railway Stations "Gare de l'Est" and "Gare du Nord" in Paris. "Porte de la Vilette" is the nearest subway station. 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

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

Detailed information will be available at https://epe2025.com/ and on http://epe2025-paris.com/

You can also contact us via e-mail: Nancy.Langsberg@vub.be

Conference Organizing Committees

Conference Chairwoman

Manuela Sechilariu	Université de Technologie de Compiègne, Alliance Sorbonne Université

Conference Co-Chairs

Rik De Doncker	RWTH Aachen – ISEA
Maria Pietrzak-David	LAPLACE Institut National Polytechnique de Toulouse (Toulouse INPT)
Jean-Luc Thomas	SATIE Le CNAM

National Organising Committee Members

Bruno Allard	AMPERE INSA Lyon
Seddik Bacha	G2ELab Université Grenoble Alpes
Mohamed Benbouzid	IRDL Université de Bretagne Occidentale
Abdelkrim Benchaïb	SuperGrid Institute & Le CNAM
Alain Bouscayrol	L2EP Université Lille
Jing Dai	GeePS CentraleSupelec
Demba Diallo	GeePS Université Paris-Saclay
Piotr Dworakowski	SuperGrid Institute
Stéphane Lefèbvre	SATIE Le CNAM
Betty Lemaire-Semail	L2EP Université Lille
Xavier Roboam	LAPLACE CNRS Université de Toulouse
Benoît Robyns	L2EP JUNIA (HEI, ISEN, ISA)

Local Organising Committee Members

Imen Bahri	GeePS Université Paris-Saclay
Mounira Berkani	SATIE Université Paris-Est Créteil
Bilal Beydoun	SATIE CESI École d'ingénieurs
Berk Celik	Avenues Université de Technologie de Compiègne
Christophe Forgez	Roberval Université de Technologie de Compiègne
Ali Ibrahim	SATIE Université Gustave Eiffel
Alessio Iovine	L2S CNRS
Zoubir Khatir	SATIE Université Gustave Eiffel
Vincent Lanfranchi	Roberval Université de Technologie de Compiègne
Fabrice Locment	Avenues Université de Technologie de Compiègne
Nicolas Patin	Roberval Université de Technologie de Compiègne
Tanguy Phulpin	GeePS CentraleSupelec
Loïc Queval	GeePS CentraleSupelec
Lionel Vido	SATIE CY Cergy Paris Université
Andrien Voldoire	GeePS CentraleSupelec

Programme Chairman

Sjoerd Bosga	ABB Corporate Research / KTH

Organising Committee

Ahola Jero	Lappeenranta University of Technology
Allard Bruno	Université de Lyon
Bacha Seddik	Université Grenoble Alpes
Bakran Mark	Universität Bayreuth
Bauer Pavol	Delft University of Technology
Benchaib Abdelkrim	SuperGrid Institute / Le CNAM
Biela Jürgen	ETH Zürich
Blaabjerg Frede	Aalborg University
Bordry Frédérick	C.E.R.N.
Boroyevich Dushan	Virginia Tech
Bouscayrol Alain	Université de Lille
Cacciato Mario	University of Catania
De Doncker Rik	RWTH Aachen ISEA
Dieckerhoff Sybille	Technische Universität Berlin
Doppelbauer Martin	Karlsruhe Institut für Technologie (KIT)
Iannuzzo Francesco	Aalborg University
Katic Vladimir	University of Novi Sad
Kennel Ralph	Technische Universität München
Krievs Oskars	Riga Technical University
Lataire Philippe	Vrije Universiteit Brussel
Lemaire-Semail Betty	Université de Lille
Lomonova Elena	Eindhoven University of Technology
Lorenz Leo	European Center for Power Electronics e.V. (ECPE)
Malinowski Mariusz	Warsaw University of Technology
Marchesoni Mario	Università di Genova
Mawby Philip	University of Warwick
Mermet-Guyennet Michel	SuperGrid Institute
Munk-Nielsen Stig	Aalborg University
Nee Hans-Peter	KTH Royal Institute of Technology
Perriard Yves	Ecole Polytechnique Fédérale de Lausanne (EPFL)
Pietrzak-David Maria	Institut National Polytechnique de Toulouse (Toulouse INPT)
Rabkowski Jacek	Warsaw University of Technology
Ribickis Leonids	Riga Technical University
Robyns Benoît	JUNIA (HEI, ISEN, ISA)
Rufer Alfred	Ecole Polytechnique Fédérale de Lausanne (EPFL)
Sechilariu Manuela	Université de Technologie de Compiègne
Sudria Antoni	Universitat Politècnica de Catalunya (CITCEA-UPC)
Thomas Jean-Luc	Le CNAM
Van Den Bossche Alex	Universiteit Gent
Van Mierlo Joeri	Vrije Universiteit Brussel
Wheeler Patrick	University of Nottingham
Zanchetta Pericle	University of Nottingham

Secretariat

EPE Association Secretariat

Philippe Hamacher / Nancy Langsberg
C/o Vrije Universiteit Brussel - IrW - ETEC
Pleinlaan 2, Boulevard de la Plaine
B-1050 Brussels, Belgium
Tel: +32 (0)470 65 79 90
Fax: +32 (0)2 629 36 20
E-mail : Philippe.Hamacher@vub.be

Local Secretariat

Université de Technologie de Compiègne (UTC)
Alliance Sorbonne Université
Manuela Sechilariu
Rue du docteur Schweitzer, CS 60319
60203 Compiègne
UTC – Paris 62 Boulevard de Sébastopol
75003 Paris, France
Tel : +33 (0)3 44 23 49 64
E-mail : epe2025@utc.fr