Newsletter n° 3

March 2023

NEWSLETTER

EPE'23 ECCE Europe

Index

EPE Association: Join EPE or renew your membership

- ✓ Be part of a network of recognized experts
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EPE'23 ECCE Europe: ULTIMATE DEADLINE

The DEADLINE to submit Provisinal FULL PAPERS was extended to Friday, the 31st of March 2023.

This will be the only extension and therefore be the LAST, FINAL and ULTIMATE DEADLINE to submit your contribution for the EPE'23 ECCE Europe conference.

Authors are requested to submit a double-column, single-spaced anonymous 6-8 page provisional full paper, summarizing the proposed final full paper. The provisional full paper should include an abstract with no more than 50 words, the topic number(s) and your indication of preference for lecture or dialogue (poster) presentation. Key diagrams as well as a references list should be included as well. The originality and the main technical improvements proposed in your future paper must be clearly indicated as well. The papers presented at EPE'23 ECCE Europe will be included in IEEE *Xplore*®.

The guidelines to submit a provisional full paper can be found here:

https://epe2023.com/guidelines-to-submit-a-provisional-paper/

The submission website is:

https://wd.cborg.info/EPE2023/

The conference will specifically focus on the following challenging topics:

Tuesday, September 5th: Energy Islands
(Renewable Energy Systems and Power-to-X, Energy Islands)
Wednesday, September 6th: Energy Storage
(Energy-Storage Technologies, Electric Vehicles)
Thursday, September 7th: Digital World in Energy
(Cyber Security in Power Electronics, Reliability and Artificial Intelligence in Power Electronics)

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. Power-to-X
- 6.g. 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. Energy Harvesting, Energy Storage Systems and Renewable
- 7.g. Smart and Energy Efficient Buildings
- 7.h. 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
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. Wireless Power Transfer Systems
9.b. Applications for Electrolyzers and Fuel Cells
9.c. Applications in Hydrogen Storage and Transmission
9.d. Low Voltage DC Power Supplies
9.e. High Voltage DC Power Supplies
9.f. Distributed Power Supplies
9.g. Uninterruptible Power Supplies (UPS)
9.h. Lighting: Solid-State Lighting and Electronic Ballasts
9.i. Industry-Specific Applications (Cement, Steel, Paper, Textile, Mining, etc…)
9.j. 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 of Power Electronics Systems
10.e. Diagnostics of Power Electronics Systems
10.f. Digital Twin of Power Electronic Converters and Systems
10.g. Big Data and Artificial Intelligence in Energy Conversion

Topic 11: FOCUS TOPICS

11.a. Renewable Energy Systems and Power-to-X
11.b. Energy Islands
11.c. Energy-Storage Technologies
11.d. Electric Vehicles
11.e. Cyber Security in Power Electronics
11.f. Reliability and Artificial Intelligence in Power Electronics

Tutorials

The stunning number of 26 proposals for tutorials was received and in the meantime, the evaluation process is about to be terminated. The tutorial programme will be published on www.epe2023.com and www.epe2023-aalborg.com soon. The tutorials will take place on Monday, 4 September 2023 and on Friday 8 September 2023, most probably in the AKKC in Aalborg.

Keynotes

The programme of EPE'23 ECCE Europe is getting shape. The first keynote speaker is confirmed:

Hanne Storm Edlefsen, the Vice President of the Energy Islands with Energinet. She will speak about Energy Islands – the key to harvest huge amounts of wind power

The Energy Islands will change the way we talk about harvesting wind energy. They will allow us to go much further out at sea and harvest far more power than previously known. However, the Energy Islands are a complicated matter, especially on the technological front. We have never quite done something like this in this type of scale, which means we need innovation in order to succeed. There are many questions to be answered. I will try to give my best estimate on what type of technological challenges we need to overcome to enable the success of the Energy Islands, but also what the future Energy Islands may look like.

Hanne Storm Edlefsen is Vice President of the energy islands at the Danish electricity and gas operator Energinet. As head of developing the transmission infrastructure for the largest building projects in Danish history, the energy islands, Hanne is driven by 'green energy for a better world'. Since 2012 Hanne has worked in different areas within the energy sector, where she has gained a large network and a strong experience in both leadership, international affairs, and the future's green energy system. Hanne was born in 1978 and has a master's degree in Political Science, University of Copenhagen.

Innovative Design Challenge @ EPE'23 ECCE Europe

The EPE Innovative Design Challenge encourages students to develop innovative designs for power electronic applications and demonstrate their ideas through hardware prototyping in one or more of the following areas: passive and active components, topologies and control, gate drivers and modulation, measurement and condition monitoring, automation and machines, artificial intelligence and machine learning, energy storage, unconventional applications, and other power electronic applications. Submissions will be evaluated based on innovativeness, relevance, power density, and cost implications as judging criteria.

All PhD and Master's students are invited to submit a proposal in maximum 2 pages that includes team member(s), supervisor(s), affiliation, abstract with clearly stated innovation value supported by quantitative justifications, and relevant waveforms demonstrating competitiveness, as well as a photo of the prototype. The deadline for submission is June 30th, 2023. Please email proposals to Saeed Peyghami at sap@energy.aau.dk with the subject line "EPE23 Innovative Design Challenge". Acceptance notifications will be sent on July 15th, 2023.

Technical Visits

On Friday, the 8th of September 2023, several technical visits are planned. The first technical visit that is confirmed, are tour(s) at the Energy Department of Aalborg University. The Energy Department of Aalborg University is one of the largest academic departments in Europe active in power electronics, electrical drives and related applications. More info on the technical tours will be published soon on www.epe2023.com and on www.epe2023-aalborg.com.

Sponsorship and Exhibition

The EPE'23 ECCE Europe conference will take place in the AKKC – The Aalborg Congress and Culture Center, in Aalborg, Denmark from 4 to 8 September 2023. The exhibition area can host up to 36 booths and has place for standing lunches and breaks to up to 1000 participants. The exhibition will take place on the Ground Floor and in the "Fundamentet" area of the Conference Center.

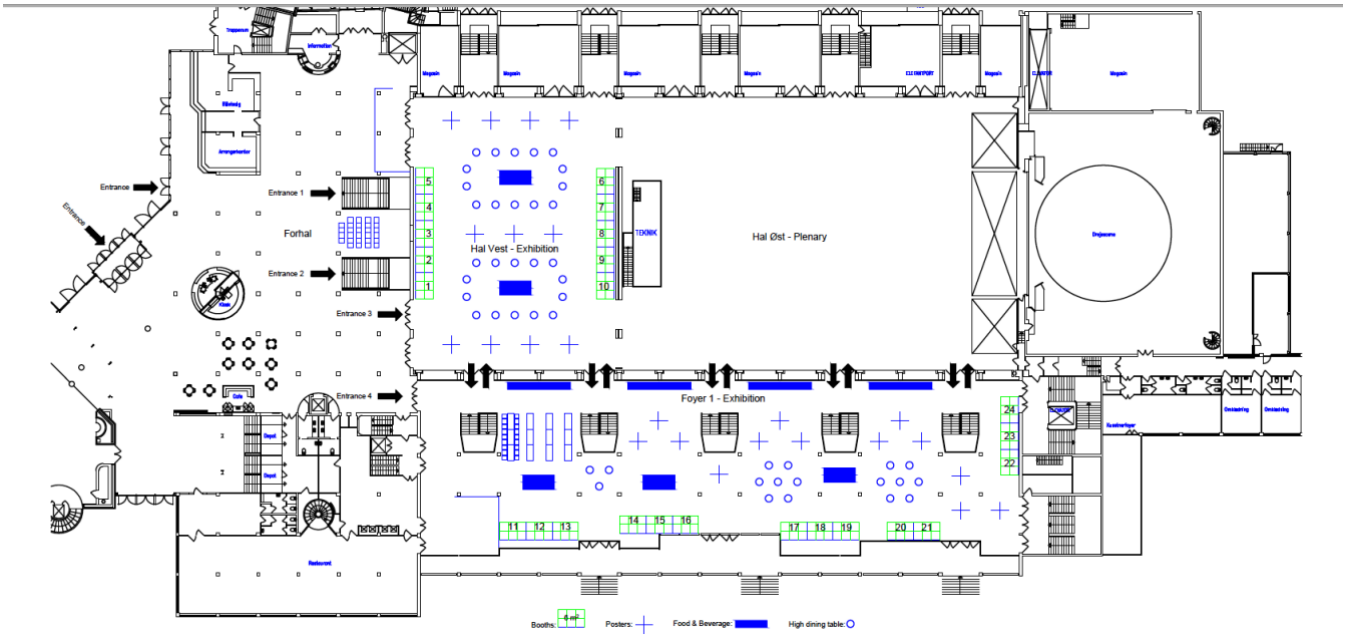
For the General Information & Tariffs & Packages, please click HERE

For the Application Files, please click HERE

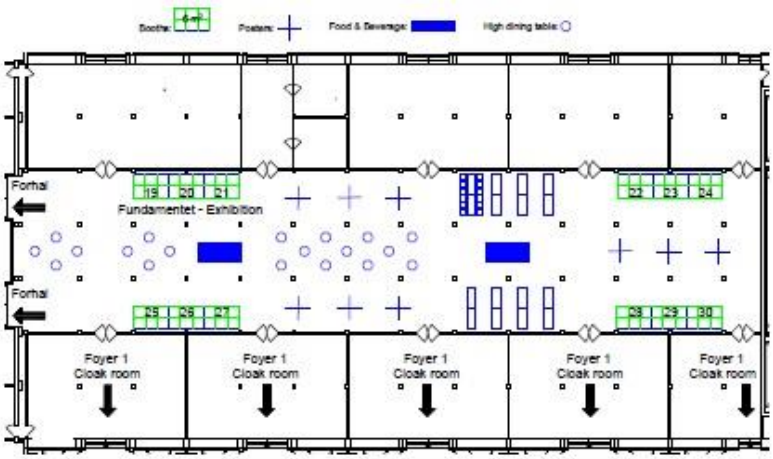
Sponsorship & Exhibition contact: Nancy.Langsberg@vub.be

Exhibition map with indication of booked and available booths : https://epe2023.com/exhibition/

Ground floor :



Fundamentet :



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4E Power Electronic Conversion Technology Annex PECTA

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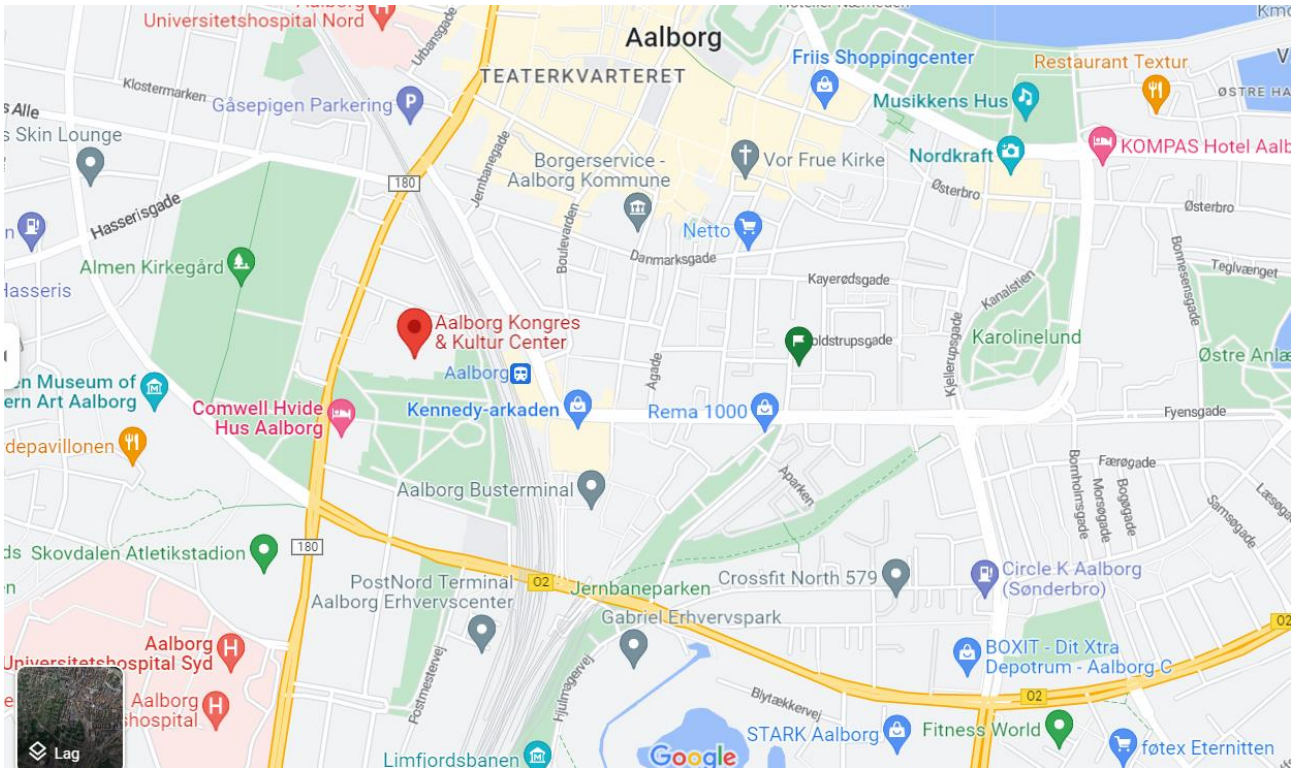
EPE'23 ECCE Europe: How to get to Aalborg?

Aalborg is located in northwestern Denmark, in North Jutland to be precise, at the banks of the Limfjord. Aalborg can be reached by plane, train, bus and car.



The Aalborg Kongres & Kultur Center (AKKC) is located in the city center, very near to the Railway and Bus Station. (Aalborg Kongres & Kultur Center, Europa Plads 4, DK-9000 Aalborg, DK). There are plenty of hotels around in all price classes.

How to get to Aalborg?

By Plane:

Aalborg Airport is located 6,5 km northwest of the city. There are direct flights from/to New York (seasonal), Copenhagen, Amsterdam, London, Oslo, and more!

To get from Aalborg airport to the city center (i.e. the AKKC), you can:

1) Take a taxi. It should cost approximately around 300 DKK / 40 EUR and take about 12 mins.
2) Take bus no. 70 or no. 200 to Prinsensgade (Aalborg), then walk 600 meters to AKKC.
3) Take bus no. 12 to Budolfi Plads, then walk 800 meters to AKKC.

By Train:

Aalborg Railway Station is located in the City Center of Aalborg. It serves as a connecting hub between North Jutland and the rest of Denmark. It offers many daily connections to and from Copenhagen. (Attention: the train trip is between 4 to 5 hours. The price is approximately 482 DKK / 63,77 EUR. Train tickets should be bought at the train station, or booked online via https://www.dsb.dk/).

By Bus:

Aalborg Bus Station is also located in the City Center of Aalborg, at the John F. Kennedy Plads. It is a busstation served by among others Flixbus. There are several daily Flixbus connections to and from for example Copenhagen Kastrup Airport. Such a trip takes 5:30 to 6:30 hours and costs approximately 180 DKK/ 24,00 EUR to 300 DKK / 40,00 EUR.

By Car:

The European Route E45, coming from the German-Danish border, passes through Aalborg.

ECPE: Calendar of Events 2022-2023

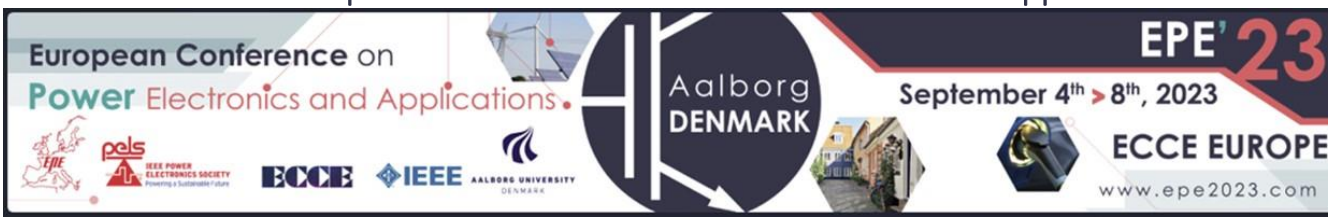
What?	Where?	When?
Hybrid Event | ECPE SiC & GaN User Forum: Potential of Wide Bandgap Semiconductors in Power Electronic Applications	Erding/Munich, Germany	28/03/2023 – 29/03/2023
ECPE Tutorial: EMC in Power Electronics	Cambridge, UK	19/04/2023 – 20/04/2023
ECPE Tutorial: High-Precision Power Electronics	Eindhoven, Netherlands	25/04/2023 – 26/04/2023
Registration PhD students | European PhD School on 22 – 26 May 2023 in Gaeta, Italy	Gaeta, Italy	22/05/2023 – 26/05/2023
ECPE Tutorial: Packaging in Power Electronics	Münich, Germany	23/05/2023 – 24/05/2023
ECPE Lab Course: EMC Optimised Design (Parasitics in Power Electronics)	Berlin, Germany	22/06/2023 – 23/06/2023
ECPE Tutorial: Thermal Engineering of Power Electronic Systems Part I: Thermal Design and Verification	Nuremberg, Germany	11/07/2023 – 12/07/2023
ECPE Tutorial: Thermal Engineering of Power Electronic Systems Part II: Thermal Management and Reliability	Nuremburg, Germany	25/10/2023 – 26/10/2023

Future & Technically Sponsored Conferences

ICPE 2023
The 11th International Conference on power Electronics – ECCE Asia

22 to 25 May 2023
Jeju, Korea
Website: www.icpe-conf.org

EPE'23 ECCE Europe
The 25th European Conference on Power Electronics and Applications



4 to 8 September 2023
Aalborg, Denmark
Website: www.epe2023.com

ECCE 2023
The 15th Annual Energy Conversion Congress and Esposition

IEEE ENERGY CONVERSION CONGRESS & EXPO Nashville, TN | OCT.29-Nov.2

29 Octobre to 2 November 2023
Nashville, TN, USA
Website: https://www.ieee-ecce.org/2023/