

Newsletter n° 4

June 2023

NEWSLETTER

EPE' **23** ECCE Europe



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EPE Association: Join EPE or renew your membership



- ✓ Be part of a network of recognized experts
- ✓ Online access to EPE (ECCE) Conference Proceedings
- ✓ Online access to EPE-PEMC Conference Proceedings
- ✓ Reduced registration fees for EPE Conferences
- ✓ Online access to EPE Journal articles
- ✓ EPE Secretariat service
- ✓ And much more ...

[Join EPE Association](#)

EPE'23 ECCE Europe: REGISTRATION WEBSITE IS OPEN

We have the great pleasure to inform you about that the registration website is open:

- Please find the (updated) registration conditions [HERE](#) and [HERE](#).

[Registration website](#)

Nexperia is going
EPE 2023
Meet us at booth 22

SiC

GaN

nexperia

Tutorials

The tutorials will take place on Monday, 4 September 2023 and on Friday 8 September 2023, in the AKKC in Aalborg.

Full tutorial programme:

- ***Tutorial 1 - Second-Life EV Batteries for Renewable and Smart Grid Storage Applications (Monday afternoon)***
- ***Tutorial 2 - Recent Advancements on High-Power DC/DC Converters for DC Transmission and Distribution (Monday afternoon)***
- ***Tutorial 3 - SiC MOSFET Gate Drivers for High-Power Applications (Friday morning)***
- ***Tutorial 4 - Solid State Transformers: Topologies, Use Cases, Design Considerations, and Challenges (Monday morning)***
- ***Tutorial 5 - Multi-objective and highly precise optimization of high performance SiC and GaN multilevel power converters with severe constraints (Friday full day)***
- ***Tutorial 6 - Switching Loss Measurements in Power Semiconductors (Monday afternoon)***
- ***Tutorial 7 - Fundamentals and Advancements of Modern High-frequency Magnetic Components (Monday morning)***
- ***Tutorial 8 - Advanced control of industrial medium-voltage multi-phase wind power conversion systems (Monday full day)***
- ***Tutorial 9 - Understanding Lithium-Ion Batteries as a Partner of Power Electronics (Monday full day)***
- ***Tutorial 10 - Grid-Forming Converters: Principles and Practices (Monday full day)***
- ***Tutorial 13 - Multi-sampling control of power electronic converters (Friday afternoon)***
- ***Tutorial 14 - Intelligent BMS (Monday full day)***

- **Tutorial 16 - New Advances and Trends on Model Predictive Control for Power Electronics and Electrical Drives** (Friday morning)
- **Tutorial 17 - Challenges and Perspectives of Medium Voltage SiC MOSFETs (>6kV) in Power Electronic Converters** (Monday morning)
- **Tutorial 18 - Reflective Wave Mitigation for SiC Motor Drive** (Friday afternoon)
- **Tutorial 19 - EV Charging: Power Conversion, Quality, and Digitalization** (Monday morning)
- **Tutorial 20 - Reliability and Prognostics Towards Lifetime Improvement of Automotive Power Electronics** (Monday afternoon)
- **Tutorial 24 - Planar Magnetics for On Board Chargers and others** (Monday afternoon)
- **Tutorial 25 - Design of High-Performance Power Electronic Motor Drives using State-of-the-Art Wide Bandgap Devices** (Monday afternoon)
- **Tutorial 26 - Electrified Hydrogen Systems – Challenges and Opportunities** (Monday morning)
- **Tutorial 27 - The Essence of Solid-State Transformers: Fundamentals, Design Challenges, R&D Overview, Comparative Evaluation, Outlook** (Friday full day)



Schneider Electric participates at EPE'23

Meet our experts on Stand 24 on 4.-8. of September. Hear about how we combine world-leading energy technologies, real-time automation, software and services into integrated solutions for Infrastructure, Grids, Renewable and Power To X architectures.

Wanna know more? <https://www.se.com/ww/en/work/solutions/for-business/electric-utilities/>



Keynotes

The programme of the keynotes at EPE'23 ECCE Europe is getting shape.

Following keynotes are confirmed:

- **Keynote 1 - [Power-to-X: Optimizing X for a Sustainable Society](#) –
*Adrian Timbus, Head of Portfolio and Market Strategy at Hitachi Energy***
- **Keynote 2 - [Energy Islands – the key to harvest huge amounts of wind power](#) –
*Hanne Storm Edlefsen, Vice President of the Energy Islands, Energinet***
- **Keynote 3 - [LMNO; high-voltage spinel as Li-ion battery cathode. Status and battery properties](#)
*Søren Dahl, Topsoe***

Keynote lectures: <https://epe2023.com/keynote-speakers/>

More to be announced soon

Technical Visits

On Friday, the 8th of September 2023, several technical visits are planned.

More info on the technical tours on www.epe2023.com and on www.epe2023-aalborg.com.



Accelerating the energy transition
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PECTA Sessions

Technology Collaboration Programme
by IEA



PECTA's first conference contribution at the EPE 2023 (DK)

Date: **Sept 5th – 7th, 2023**; PECTA afternoon sessions

With 4 supporting countries and over 40 industry and academic experts the IEA - 4E¹ Power Electronic Conversion Technology Annex - PECTA² is moving forward with its ambitious work plan. PECTA aims to support policy-makers by providing evidence and information on Wide band gap (WBG) Technology, to promote the use of WBG in power electronics and thus to contribute to an increased energy efficiency in various sectors; with applications ranging from inverters for photovoltaic and wind plants, to electronic devices, uninterrupted power supplies and industry automation equipment. PECTA's workplan consists of 7 established tasks and the results of these tasks will be presented during 3 EPE conference afternoon sessions on-site at the Aalborg Kongress and Culture Center (AKKC). The experts leading the tasks will discuss their approaches and results related to the wider adoption and use of Wide Bandgap (WBG) technologies driven by SiC and GaN.

This conference is an exciting opportunity for PECTA members and non-members to learn more on how PECTA is going forward and to contribute to its success!

Background information on PECTA's work is given by the published report of phase 1 "[Wide Band Gap Technology: Efficiency Potential and Application Readiness Map](#)", as well as in the [PECTA policy brief](#) which highlights the major outcomes of phase 1 of work. Additionally, you find in the [PECTA Factsheet](#) further information on the currently active 7 tasks to be presented in more detail next September.

¹ The Energy Efficient End-Use Equipment Technology Collaboration Program of the International Energy Agency, IEA-4E:
<https://www.iea-4e.org/>

² <https://pecta.iea-4e.org/>

PECTA 2023 EPE Conference – Agenda 5. – 7.9.2023

PECTA EPE Conference Contribution 2023		
Tue, Sept 5 th 2023	Wed, Sept 6 th 2023	Th, Sept 7 th 2023
1. PECTA-Session	2. PECTA-Session	3. PECTA-Session
PECTA Overview	Looking beyond energy efficiency - Environmental aspects and impacts of WBG devices and applications over their life cycle	Policy measures to drive WBG for end use equipment
Application Readiness Map for WBG-Semiconductors: an Update	Measurement of WBG-based power supplies	Switching losses in power devices: From dynamic on resistance to output capacitance hysteresis
Reliability of WBG, results of a Pre-Scoping Study	Identifying the potential of SiC technology for PV inverters	PECTA Outlook
	Efficiency gain of different applications due to WBG-Technologies	Round Table – Governmental contribution to accelerate WBG adoption

PECTA Session 1 (Tuesday, 5.9.2023): 15:40 – 17:40)

Chair: Markus Makoschitz

Topic: PECTA and the WBG Landscape

- 15:40** **Welcome & Get-Together**
Markus Makoschitz, Session-Chair
- 15:50** **PECTA: General Overview (35")**
Roland Brueniger, PECTA Chair, Swiss Federal Office of Energy (CH)
- Introduction on the agenda of the 3 PECTA days
 - What is PECTA, and how is it organized (including engagement of experts from Tasks, academia and advisory boards).
 - What has been done during Phase 1 and 2
 - Short review of PECTA goals and time plan
- 16:25** **Application Readiness Map for WBG-Semiconductors: an Update (40")**
Martin Pfost, TU Dortmund University
Markus Thoben, University of Applied Science and Arts Dortmund
- 17:05** **Reliability for WBG, results of a Pre-Scoping Study (35")**
Kaichen Zhang, Aalborg University
Christian Holm Christiansen, Danish Technological Institute
Francesco Iannuzzo, Aalborg University
- 17:40** **End of Day 1**



PECTA Session 2 (Wednesday, 6.9.2023): 15:40 – 17:40

Chair: Peter Bennich

Topic: Efficiency and ecological impacts of WBG appliances

- 15:40** **Welcome & Get-Together**
Peter Bennich, Session-Chair
- 15:45** **Looking beyond energy efficiency – Environmental aspects and impacts of WBG devices and applications over their life cycle (35”)**
Sebastian Glaser, Vienna University of Technology – Research Group Ecodesign
Philipp Feuchter, Vienna University of Technology – Research Group Ecodesign
Adriana Diaz, ECODESIGN company engineering & management consultancy GmbH
- 16:20** **Measurements of WBG-based power supplies (30”)**
Hongkeng Zhu, Ecole Polytechnique Federale de Lausanne
Markus Makoschitz, AIT Austrian Institute of Technology GmbH
Elison Matioli, Ecole Polytechnique Federale de Lausanne
Katharina Machtinger, AIT Austrian Institute of Technology GmbH
- 16:50** **Identifying the potential of SiC technology for PV inverters (20”)**
Troy Eskilson, AIT Austrian Institute of Technology GmbH
Andreas Jehle, ZHAW School of Engineering
Peter Schmidt, ZHAW School of Engineering
Markus Makoschitz, AIT Austrian Institute of Technology GmbH
Franz Baumgartner, ZHAW School of Engineering
- 17:10** **Efficiency gain of different applications due to WBG-Technologies (30”)**
Renato Minamisawa, Fachhochschule Nordwestschweiz
Nicola Schulz, Fachhochschule Nordwestschweiz
Lucas Spejo, Fachhochschule Nordwestschweiz
Erik Nonis, Fachhochschule Nordwestschweiz
- 17:40** **End of Day 2**
-



PECTA Session 3 (Thursday, 7.9.2023): 15:00 – 17:00

Chair: Christian Holm Christiansen

Topic: PECTA: policy issues, standards and outlook

- 15:00** **Welcome & Get-Together**
Christian Holm Christiansen, Session-Chair
- 15:05** **Policy measures to drive WBG for end use equipment (40")**
Bjarke Spliid Hansen, Tek-Info v/ Bjarke Hansen
- 15:45** **Switching losses in power devices: From dynamic on resistance to output capacitance hysteresis (40")**
Elison Matioli, Ecole Polytechnique Federale de Lausanne
Hongkeng Zhu, Ecole Polytechnique Federale de Lausanne
- 16:25** **PECTA Outlook of next term**
Roland Brueniger, PECTA Chair (CH) (10")
- **Next steps and strategic agenda**
 - **PECTA's 2nd term 2024 – 2029**
- 16:35** **Round Table – Governmental contribution to accelerate WBG adoption (25")**
Moderator: Roland Brueniger, PECTA Chair, Swiss Federal Office of Energy (CH)
- Panel Members:**
- **P. Bennich (SWE, PECTA MC)**
 - **A. Diaz (AT, PECTA Vice Chair)**
 - **L. Lorenz (ECPE)**
 - **B. Hansen (DK, Consultant)**
 - **F. Iannuzzo (DK, Prof. at Aalborg University)**
 - **C. Christiansen (DK, Teknologisk)**
- 17:00** **End of Day 3**





Sponsorship and Exhibition

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

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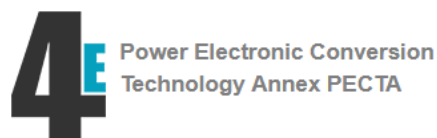




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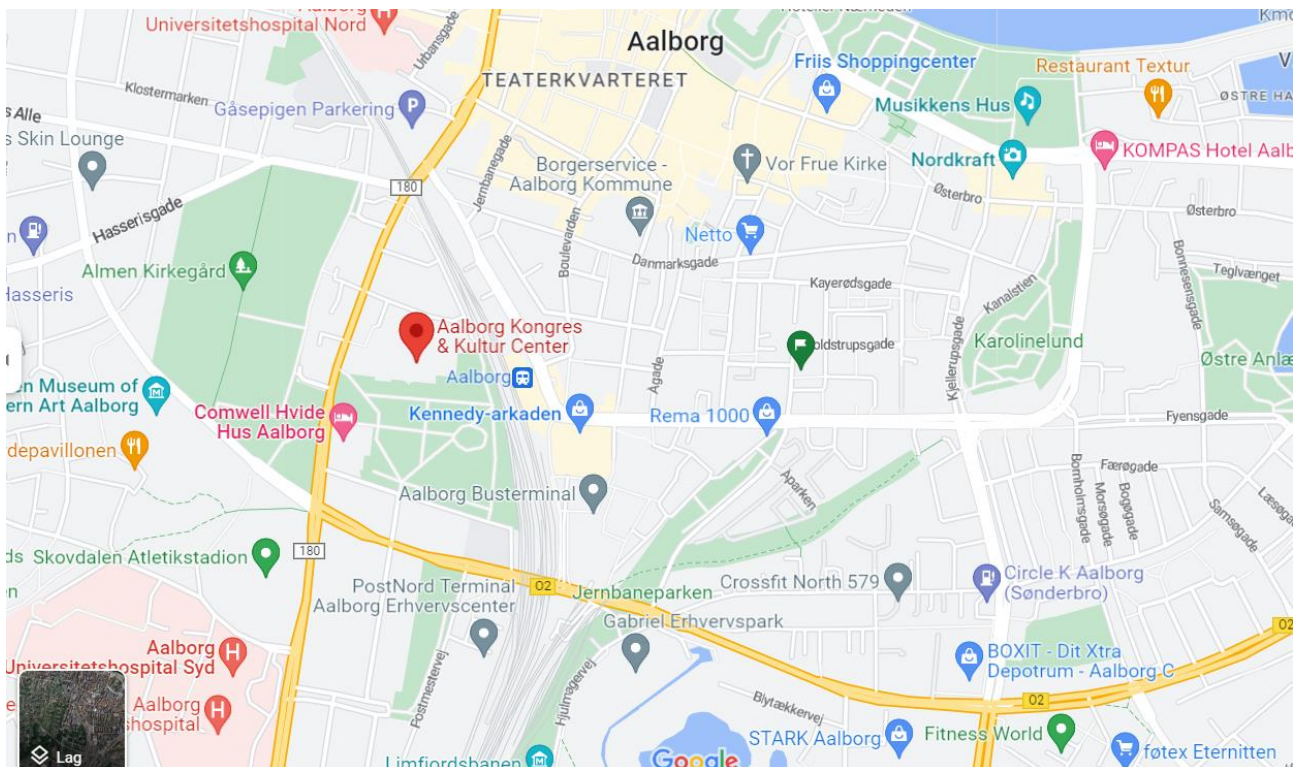
ENGINEERING
TOMORROW





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.

Hotels

You can find all information on hotels on our website: <https://epe2023.com/hotels/>

