Organisational Information

Sign up at: www.ecpe.org/events

Registration Deadline:

27 March 2025

Participation Fee:

€ 720,– * for industry

€ 525,– * for universities/institutes

€ 180,– * for students/PhD students (limited spaces; copy of students ID Required; dinner € 50,-* extra)

* plus VAT

- The regular participation fee includes dinner, lunches, coffee/soft drinks and digital presentations. The reduced (PhD) students fee includes all the above except for dinner (can be booked for an extra fee of € 50,-*)
- Upon receipt of registration confirmation via email you are signed-up for the event. The invoice will be sent via email.
- Three participants from each ECPE member company free of charge. Allocation in sequence of registration.
- 10% discount on university/institute fee for participants from ECPE competence centres.
- Further information (hotel list and maps) will be provided after registration and can be found on the ECPE web page.
- Cancellation policy: Full amount will be refunded in case of cancellation upon to 2 weeks prior to the event. After this date 50 % of the fee is non-refundable (replacement is possible).

01/04/25

Organisational Information

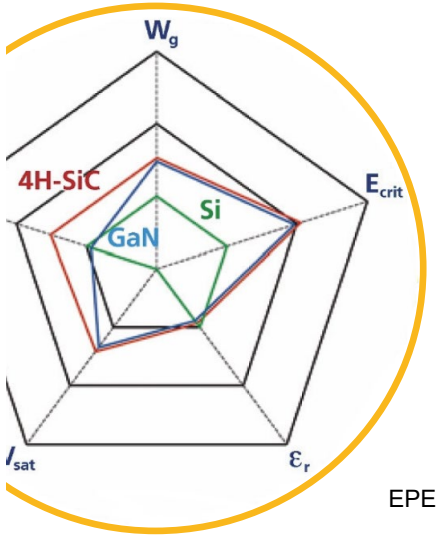
Organiser	ECPE e.V. Ostendstrasse 181 90482 Nuremberg, Germany www.ecpe.org
Technical Chair	Prof. Andreas Lindemann, Otto-von-Guericke-University, Magdeburg Dr. Peter Friedrichs, Infineon Technologies Prof. Leo Lorenz, ECPE
Technical Contact	Dipl.-Phys. Thomas Harder
Organisation	Marietta Di Dio, ECPE e.V. +49 911 81 02 88 – 13 marietta.didio@ecpe.org
Venue	Cité des sciences et de l'industrie 30, avenue Corentin Cariou 75930 Paris cedex France

Source photo : Cité des sciences et de l'industrie
Source graph front page: J.W. Kolar; ETH Zurich

European Center for Power Electronics e.V.

ECPE SiC & GaN User Forum

Potential of Wide Bandgap Semiconductors in Power Electronic Applications



3 - 4 April 2025
Paris, France

in co-location with
EPE 2025 Paris Conference

ECPE SiC & GaN User Forum

Potential of Wide Bandgap Semiconductors in Power Electronic Applications

3 - 4 April 2025
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Since more than 18 years the biannual ECPE Wide Bandgap User Forum has explained the background and given advise and support to design-in SiC and GaN semiconductor devices in power electronic systems. Major progress has been achieved in this period, with today a multitude of SiC diodes and MOSFET transistors and as well GaN HEMTS being available and used in series products. For those, special aspects gain importance, such as robustness or qualification when exposed to demanding mission profiles. On the other hand still more basic research and development work is dedicated to special devices made by SiC, GaN and other wide bandgap materials including their potential applications. These actual topics will be addressed during the upcoming 11th ECPE Wide Bandgap User Forum:

The programme will address SiC & GaN device concepts as well as trends and technologies in packaging and advanced cooling. Interesting applications e.g. in data centres, battery-electric heavy vehicles, PV and avionics will showcase the potential of WBG power electronics. A special session is dedicated to the increasingly important topics of robustness, qualification and reliability. Finally, R&D directions and emerging technologies will be discussed incl. the potential of UWBG power devices.

International renowned experts are being invited to give an overview and to in depth explain their research and development work in technical presentations. Besides, the ECPE Wide Bandgap User Forum offers a platform for all participants to share experience and ideas.

The workshop is chaired by:

Prof. Andreas Lindemann, Magdeburg University
Dr. Peter Friedrichs, Infineon Technologies
Prof. Leo Lorenz, Thomas Harder, ECPE

All presentations and discussion will be in English.

Draft Programme

Thursday, 3 April 2025

08:45 **Registration**

09:15 **Welcome, Opening and Introduction into the Topic**
Leo Lorenz, Thomas Harder ECPE (DE)
Andreas Lindemann, University of Magdeburg (DE)

Application Aspects of SiC & GaN Device Concepts

09:30 **The Optimised SiC/Si Hybrid Switch**
Mark Bakran, University of Bayreuth (DE)

10:00 **Bi-directional GaN Switches and their Use Cases**
Gerald Deboy, Infineon Technologies (AT)

10:30 **1700V GaN -Future Implications**
Balu Balakrishnan, Power Integrations (US)

11:00 **Coffee Break**

Drivers, Packaging & Adv. Cooling (Trends & Technologies)

11:30 **Advanced Packaging for SiC/GaN**
Cyril Buttay, Insa de Lyon – ISP3D (FR)

12:00 **Full-Cu AIT for SiC Power Modules**
Ulrich Kessler, Robert Bosch (DE)
Jacek Rudzki, Semikron Danfoss (DE)
Rasched Sankari, Martin Rittner, Robert Bosch (DE)

12:30 **Discussion**

12:45 **Lunch Break**

13:45 **Advanced Cooling Strategies for High-Performance Power Devices**
Elison Matioli, EPFL (CH)

14:15 **Gate Drivers for SiC and GaN**
Martin Pfost, Technical University of Dortmund (DE)

Interesting Applications

14:45 **UHV SiC Devices vs. Multilevel Solutions** (draft title)
Petar Grbovic, University of Innsbruck (AT)

15:15 **Coffee Break**

15:45 **SiC Inverter for Heavy Duty Electric Vehicles**
Ninos Poli, Scania (SE)

16:15 **Advantages of SiC for MCS MegaWatt Charging Infrastructure**
Dirk Kranzer, Fraunhofer ISE (DE)

16:45 **The Role of Wide Bandgap Semiconductors for Photovoltaic Systems**
Jens Merten, CEA (FR)

17:15 **Discussion / End of 1st Workshop Day**

17:45 **Award Ceremony: Semikron Danfoss Innovation and Young Engineer Award 2025**

20:00 **Dinner**

Draft Programme

Friday, 4 April 2025

09:00 **Electric Aircraft Propulsion by Cryo Power Electronics**
Bernd Eckardt, Fraunhofer IISB (DE)

09:30 **SiC for Railway Green Traction: Application to Non Electrified Lines Solutions**
Michel Piton, Alstom (FR)

Robustness, Qualification and Reliability

10:00 **Dynamic Testing for SiC Modules in AQG 324**
Stefan Schmitt, Semikron Danfoss (DE)

10:30 **Coffee Break**

11:00 **Methodological Approach to Assess SiC and GaN Reliability for Transport Application**
Fabio Coccetti, IRT Saint Exupéry (FR)

11:30 **Short-Circuit and Avalanche Behaviors for SiC MOSFETs - Comparison of SiC MOSFETs and Si IGBTs**
Noriyuki Iwamuro, University of Tsukua, (JP)

Future Directions and Emerging Technolgies

12:00 **Bringing Value up to the System Level through SiC and GaN Substrate Engineering**
Eric Guiot, Soitec (FR)

12:30 **Discussion**

12:45 **Lunch Break**

13:45 **Next Generation SiC Power Device: Superjunction MOSFET and IGBTs**
Yoshiyuki Yonezawa, AIST (JP)

14:15 **Performance of New UWBG Power Devices**
Oliver Hilt, Ferdinand-Braun-Institut Berlin (DE)

14:45 **Exploring β-Ga_2O_3 Schottky Diodes**
Florian Wilhelmi, ZF (DE)

15:15 **Sum-up and final Discussion**

15:30 **End of Workshop**

The ECPE SiC & GaN User Forum is organised in co-location with the EPE 2025 Paris Conference, see https://epe2025.com