

Organisational Information

Sign up at: www.ecpe.org/events

Registration Deadline:

22 March 2023

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 on site participation fee includes dinner, lunches, coffee/soft drinks and digital proceedings. The reduced (PhD) students fee includes all except for dinner (can be booked for an extra fee of € 50,-*)
- The online participation includes remote access via the meeting software Webex and digital proceedings.
- Digital proceedings will be provided by download link latest one day before start of the event. A printed handout is available on request (€ 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).

24/03/23

Organisational Information

Organiser ECPE e.V.
90443 Nuremberg, Germany
www.ecpe.org

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Dr. Peter Friedrichs,
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Venue Stadthalle Erding
Alois-Schiessl-Platz 1
85435 Erding/Munich, Germany
Or online via Webex



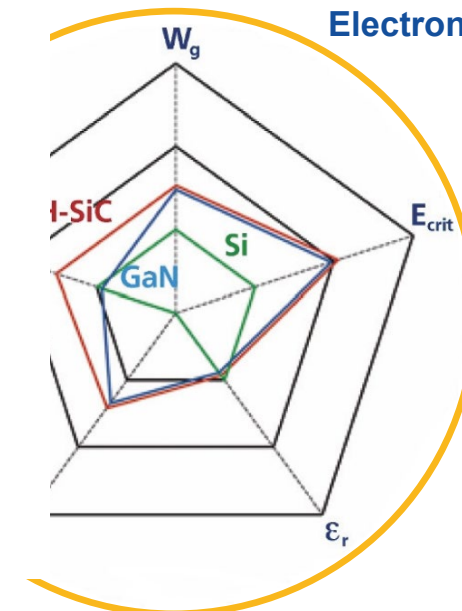
Source: Stadthalle Erding
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European Center for
Power Electronics e.V.

ECPE SiC & GaN User Forum

Potential of Wide Bandgap Semiconductors in Power Electronics Applications



28 - 29 March 2023
Erding, Germany or
online (hybrid event)

in cooperation with

Cluster
Leistungselektronik



ECPE SiC & GaN User Forum

Potential of Wide Bandgap Semiconductors in Power Electronic Applications

28 - 29 March 2023
Erding/Munich, Germany / hybrid

Since more than 16 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 MOSFETs 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 10th ECPE Wide Bandgap User Forum:

The programme will start with an overview on the status and trends in WBG Power Electronics. Then, the 1st day is dedicated to the use of GaN HEMTs in different systems and applications. Recent developments e.g. on bidirectional HEMTs, multi-channel tri-gate devices and vertical GaN devices will also be presented and discussed. The 2nd workshop day will concentrate on SiC device applications. Further, an outlook on promising ultra wide bandgap (UWBG) materials and devices will be given. The workshop will be closed with a panel discussion addressing the topics of WBG device maturity, robustness and reliability.

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 discussions will be in English.
There will be a small table top exhibition in the frame of the workshop.

Draft Programme

Tuesday, 28 March 2023

09:00 Registration / Webex started

Introduction and overview

09:30 Welcome, Opening and Introduction to the Workshop
Leo Lorenz, ECPE, Andreas Lindemann, Uni Magdeburg

09:50 Overview of the status and trends in WBG Devices for Power Electronics
Victor Veliadis, PowerAmerica (US)

GaN Power Electronic Systems

10:30 Beyond Simply Replacing Silicon – System Level Impact of GaN Power ICs in Key Applications
Alfred Hesener, Navitas Semiconductor (US)

11:00 Multilevel GaN Inverter for Industrial Applications
Raphael Hartwig, Siemens (DE)

11:30 Usage of GaN Devices in Ultra-high Power Density Adaptors
Alfredo Medina-Garcia, Manfred Schlenk, Infineon Technologies (DE)

12:00 Discussion

12:15 Lunch break

13:30 Feasibility Study of D3GaN Power Module for 2 Level 400V BEV Inverter
Dieter Liesabeths, ViSIC Technologies (ISR)

14:00 GaN-Based Converters for E-Vehicles Applications
Eduardo F. Oliveira, Huawei Technologies (DE),
Peter Zacharias, University of Kassel (DE)

Application Aspects of Recent GaN Devices

14:30 Overview and Status on GaN Devices
Sibylle Dieckerhoff, TU Berlin (DE)

15:00 Outlook: Bidirectional GaN HEMT
Kennith Leong, Gerald Deboy, Infineon Technologies Austria (AT)

15:30 Discussion

15:45 Break

16:15 Outlook: Multi-channel GaN Diode and HEMT
Yuhao Zhang, Virginia Tech/CPES (US)

16:45 Re-inventing PE with NexGen Vertical GaN® - The World's Smallest and Most Efficient Power Systems
Dinesh Ramanathan, NexGen Power Systems (US)

17:15 Vertical GaN Power Transistors for Automotive Drivetrain Applications
Jens Baringhaus, Robert Bosch (DE)

17:45 GaN Packaging and DC/DC Converter Application
Manuel Gaertner, STMicroelectronics (DE)

18:15 Award Ceremony: Semikron Innovation Award

20:00 Dinner – Restaurant „Erdinger Weissbräu“

Draft Programme

Wednesday, 29 March 2023

08:00 Webex started

SiC Power Electronic Systems

08:30 SiC in High Power DC Charging
Peter Scheubert, Alpitronic (IT)

09:00 SiC MOSFET Modules in Railway Traction: Recent Achievements and Challenges
Michel Piton, ALSTOM Transport Composants (FR)
SiCRET Contribution to Study of Dynamic Effect on the SiC MOSFET
Olivier Perrotin, IRT Saint Exupery (FR)

09:30 2-level Inverter with 10kV SiC Devices / Modules for Application in the Field of Renewable Technologies
Stig Munk-Nielsen, Aalborg University (DK)

10:00 Break

10:30 Advanced Capacitors for SiC Inverters
Thomas Ebel, Univ. of Southern Denmark (DK),
Ulf Schuemann, Univ. of Applied Science Kiel (DE)

Application Aspects of Recent SiC Devices

11:00 SiC Materials and Substrates Trends
Poshun Chiu, Yole Group (FR)

11:30 SmartSiC™ Technology: Increased Performances for SiC Power Devices
Eric Guiot, Soitec (FR)

12:00 Advanced Module Packaging for SiC
Oseob Jeon, Pietro Scalia, ON Semiconductor (US/DE)

12:30 Discussion

12:45 Lunch Break

Further interesting Wide and Ultra-Wide Bandgap (UWBG) Materials

14:00 Unleashing the Potential of α -Ga₂O₃ Gallium Oxide Power Device
Takuto Igawa, Flosfia (JP)

14:30 Status of the Materials Development of AlN - a Next Generation UWBG Semiconductor and its Potential for Power Devices
Elke Meissner, Fraunhofer IISB (DE)

Robustness & Reliability

15:00 Panel Discussion: Wide Bandgap Device Maturity, Robustness and Reliability

16:00 End of Workshop