

Organisational Information

Sign up at: www.ecpe.org/events

Registration Deadline:

16 June 2022

Participation Fee:

€ 660,- * for industry

€ 490,- * for universities/institutes

€ 165,- * 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,-*).
- A printed version of the workshop 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).

Organisational Information

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

Technical Contact Thomas Harder, ECPE e.V.

Technical Chair Prof. Frede Blaabjerg,
Aalborg University (DK)
Prof. Nando Kaminski,
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Michel Piton,
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Dr. Jürgen Schuderer,
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Venue AMERON Hotel ABION Spreebogen Berlin
Alt-Moabit 99,
10559 Berlin, Germany



Source: Hotel Abion Spreebogen Waterside



European Center for
Power Electronics e.V.

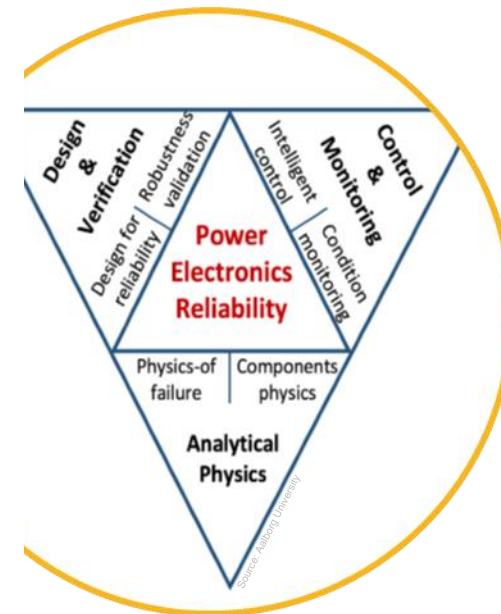
Draft Programme

ECPE Workshop

Power Electronics Reliability in Outdoor Grid-Connected Systems

22 - 23 June 2022

Berlin
Germany



in cooperation with



ALSTOM



Universität
Bremen

Hitachi Energy

ECPE Workshop

Power Electronics Reliability in Outdoor Grid-Connected Systems

22 - 23 June 2022
Berlin, Germany

Grid-Connected Power Electronics as a stationary outdoor application is exposed to harsh environmental conditions with a wider temperature range and with moisture load which even may lead to condensation. Furthermore, reactive gas species in harmful gas atmosphere may be responsible for corrosion phenomena.

The Workshop will address these topics seeking for similarities and synergies between different outdoor applications in grid connected power electronics. Furthermore, railway traction will be considered as reference application to discuss how experiences and knowledge can be transferred between the different application domains.

The Workshop will present and discuss reliability-related requirements in large wind power, in PV plants as well as in further grid connected power electronics incl. stationary energy storage, EV charging infrastructure and railway traction. Reliability behavior will be considered on system level, on converter level as well as on component level. Failure mechanisms, lifetime modelling and application-relevant testing incl. multimodal testing to reproduce the impact of multi-dimensional stressors are further focus topics of the Workshop.

Finally, a panel discussion will address needs, gaps and future actions incl. the mission for a possible new ECPE Working Group on Reliability of Grid-Connected Power Electronics.

The workshop is chaired by:

Prof. Frede Blaabjerg, Aalborg University (DK)
Prof. Nando Kaminski, University of Bremen (DE)
Michel Piton, Alstom Transport (FR)
Dr. Jürgen Schuderer, Hitachi Energy (CH)
Prof. Leo Lorenz, Thomas Harder, ECPE

All presentations and discussions will be in English.

Draft Programme

Wednesday, 22 June 2022

09:30 Registration & Welcome Coffee

10:00 Welcome and Opening, ECPE e.V.

Introduction & Requirements

10:15 **Field-Data Based Failure Analysis and Application-Specific Testing (Wind Power and PV)**
Katharina Fischer, Fraunhofer IWES (DE)
Felix Kulenkampff, Fraunhofer ISE (DE)

11:00 **Wind Power Requirements (Onshore and Offshore Wind Parks)**
Łukasz H. Kocewiak, Ørsted Wind Power (DK)

11:30 Discussion

12:00 Lunch

Introduction & Requirements

13:15 **Grid of the Future - Requirements in Grid Connected Power Electronics**
Jan R. Svensson, Hitachi Energy Research (SE)

13:45 **Railway Traction Applications: Learnings from Return of Experience and Environment Measurement Campaigns**
Oskar Schuster, Siemens Mobility (DE)
Michel Piton, Alstom Group (FR)

14:15 **Harmful Gas Measurement Campaign in Europe**
Michael Jank, Fraunhofer IISB (DE)

System, Converter and Component Level Reliability

14:45 **PV and Battery Inverter Challenges: Humidity, Long-term Operation, System Model**
Uwe Stickelmann, SMA Solar Technology (DE)

15:15 Coffee Break

15:45 **Wind Power Converter**
Lars Helle, Vestas Wind Systems (DK)

16:15 **Reliability Aspects of Battery Energy Storage Systems (BESS) and High Power EV Charging**
TBC

16:45 **Reliability, Simulation and Failure Modes of Film Capacitors**
Olalla David, TDK Electronics (DE)

17:15 **Climatic Reliability on Board Level**
Rajan Ambat, DTU Lynbgy (DK)

17:45 Discussion

18:00 End of 1st Day

19:30 Dinner

Draft Programme

Thursday, 23 June 2022

09:00 Start of 2nd Workshop Day

09:00 **Condition & Health Monitoring (CHM) of Power Electronic Components and Converters**
Shuai Zhao, Aalborg University (DK)

Lifetime Modeling, Failure Mechanisms and Testing

09:30 **Status and Limits in Modelling of Humidity-Driven Degradation in Power Electronics**
Nando Kaminski, Michael Hanf, Univ. of Bremen (DE)

10:00 **Humidity Driven Reliability Issues**
Stefan Wagner, Fraunhofer IZM (DE)

10:30 Coffee Break

11:00 **Transformation of operational and environmental requirements into ECPE guidelines and test specifications**
Bernd Laska, Siemens Mobility (DE)
Oliver Schilling, Infineon Technologies (DE)
ECPE Railway Working Group

11:30 **System-Level Lifetime Modelling**
Frede Blaabjerg, Aalborg University (DK)

12:00 Discussion

12:15 Lunch

13:30 **Multimodal Testing to Reproduce the Impact of Multi-Dimensional Stressors**
Stefan Schmitt, Semikron Elektronik (DE)

Discussion: Needs, gaps, future actions

14:00 Panel: Technical Chairmen & Speakers

15:30 End of Workshop