

## Organisational Information

For registration please use the registration form which is available on the ECPE web page: [www.ecpe.org](http://www.ecpe.org)  
> ECPE Events > ECPE Workshop: Power Electronics for Grid Integration of Wind Energy > Registration Form

[www.ecpe.org/ecpe-events](http://www.ecpe.org/ecpe-events)

### Deadline for registration:

- **12 June 2018**

### Participation fee:

- **€ 595,-\*** for industry
- **€ 445,-\*** for universities/institutes
- **€ 150,-\*** for students/PhD students  
(copy of student ID requested)  
(limited number only)  
(optional dinner: € 50,-\* extra fee)

\*plus 19 % VAT

- The participation fee includes dinner, lunches, coffee/soft drinks and a flash drive with the workshop presentations. Students/PhD students can book the dinner for an extra fee of € 50,-\*
- A printed version of the workshop handout is available on request (€ 50,-\*).
- With the confirmation of registration by email you are registered for the workshop and the invoice will be sent by post.
- Three participants from each ECPE member company are free of charge. Allocation in sequence of registration.
- Further information (hotel list and maps) will be provided after registration and is available on the ECPE web page.
- In case of cancellation later than two weeks before beginning or non-attendance 50 % of the participation fee is payable.

## Organisational Information

**Organiser** ECPE e.V.  
90443 Nuremberg, Germany  
[www.ecpe.org](http://www.ecpe.org)

**Technical Contact** Thomas Harder

**Chairmen** Prof. Marco Liserre  
CAU Kiel, Germany  
  
Prof. Frede Blaabjerg  
Aalborg University, Denmark

**Organisation** Ingrid Bollens, ECPE e.V.  
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Source: MHC/Birresborn



## Programme

### ECPE Workshop

### Power Electronics for Grid Integration of Wind Energy

**19 – 20 June 2018**  
Messe Husum  
Husum, Germany



in cooperation with



## ECPE Workshop

# Power Electronics for Grid Integration of Wind Energy

19 – 20 June 2018  
Husum, Germany

Wind Energy represents one backbone of renewable energy production and a field where power electronics is established. The modern world is seeking solutions to become more sustainable in terms of power generation and more efficient as well. One of the solutions is to implement renewable generation in the electrical power system and the wind turbine technology has been the fastest moving technology just followed tight by photovoltaic systems. The steady growth for decades of the installed wind power has reached 500 GW capacity in 2017 and together with the up-scaling of the single wind turbine power capability – e.g. 8-10 MW are announced by manufacturers, this has pushed the research and development of all aspects in terms wind power engineering.

Some trends are that the power electronic converters move towards full scale power conversion, large efforts are done towards lower cost per kW and kWh, higher power density and lower weights are needed as well as there is a constant need for a higher reliability for all system components in order to reduce operation and maintenance costs. Further substantial efforts are carried out on the wind turbine technology to comply with the more stringent grid codes, especially grid faults ride-through and reactive power injection, as well as operation in weak grid conditions, which challenges the power converter topologies and the wind turbine components during operation.

The role of power electronics in electric utilities is also changing from an enabling technology for renewable generation and energy efficiency improvement to an underpinning technology for grid modernization. Electronic power transmission and distribution grids, which can efficiently manage electricity among power electronic-based sources and loads, are being envisioned in the near future.

This workshop chaired by Prof. Frede Blaabjerg (Aalborg University, Denmark) and Prof. Marco Liserre (Christian-Albrechts-University of Kiel, Germany) will discuss many of the aspects related to power electronics and wind turbines – from basic components, to converter, and their control up to wind farm control and its realization.

All presentations and discussions will be in English language.

## Programme

Tuesday, 19 June 2018

9:30 Start of Registration / Welcome Coffee

10:00 Welcome and Opening

Thomas Harder, ECPE (D), Marco Liserre, CAU Kiel (D)

### Grid-Integration Challenges

10:15 Challenges of Integration of Wind Energy in Schleswig-Holstein

Joachim Kabs, SH-Netz (D)

10:45 Integrated Power Electronic Solutions for the Optimal Operation and Control of Offshore Wind Power Plants in Power Systems

Łukasz H. Kocewiak, Ørsted Wind Power (DK)

11:15 Power Electronics Based Grid Integration of Wind Turbines and Plants

Frede Blaabjerg, Aalborg University (DK)

11:45 System Challenges and Grid Forming Converters – a UK perspective

Christopher Smith, National Grid (UK)

12:15 Lunch

### Wind System Solutions

13:15 Interoperability Studies/Challenges in HVDC Connected Offshore Wind

Mats Larsson, ABB Corporate Research Switzerland (CH)

13:45 Unlocking the Hidden Capacity of the Electrical Grid through Power Electronics

Marco Liserre, CAU Kiel (D)

14:15 Storage Application in Complex Infrastructures

Christoph Wenge, Fraunhofer IFF (D)

### Control Solutions & Communication

14:45 Control Solutions for Ireland's DS3 Programme

Sönke Engelken, Enercon (D)

15:15 Coffee Break

15:45 EtherCAT for Wind Farm Networking and Power Monitoring

Karl-Friedrich Stapelfeldt, Beckhoff Automation (D)

16:15 Grid-Converter Interactions in Wind Power Plants

Xiongfei Wang, Aalborg University (DK)

### Power Converters Architecture

16:45 Prototype Converter e.g. MMC

Flemming Abrahamsen, PowerCon (DK)

17:15 Multilevel Converters for MV Wind Turbines

Marc Hiller, Karlsruhe Institute of Technology (D)

17:45 Discussion

18:00 End of 1st Workshop Day

19:30 Dinner at "Brauhaus – BW Hotel Theodor Storm"

## Programme

Wednesday, 20 June 2018

8:30 Start of 2nd Workshop Day

### Power Converter Devices and Stacks

8:30 Innovative Concepts and Semiconductor Devices for Power Conversion

Holger Kapels, Fraunhofer ISIT (D)

9:00 New Module Technologies for Wind Power Converters

Bernhard Eichler, Semikron (D)

9:30 Model Based Real-Time Condition Monitoring of Power Semiconductor Devices

Nando Kaminski, University of Bremen (D)

10:00 Coffee Break

10:30 Condition Monitoring Concepts Based on Temperature Sensitive Electrical Parameters

Daniel Herwig, Leibniz University of Hannover (D)

### Passive Components in Wind Turbine Systems

11:00 Passive Inductive Components in Wind Turbine Systems

Dennis Kampen, BLOCK Transformatoren-Elektronik (D)

11:30 Condition Monitoring of Capacitors

Huai Wang, Aalborg University (DK)

12:00 Impacts of Unbalanced Grid Voltages on Lifetime and Performance of DC-link Capacitors of Back-to-Back Converters in Wind Turbines with Doubly-fed Induction Generators

Thomas Ebel, FTCap (D)

12:30 Lunch

### Off-shore Wind Challenges

13:30 Electrical Drivetrain Technology for Off-shore Wind

Steffan.Hansen, Siemens Gamesa Renewable Energy (DK)

### Wind Farm System Stability Assessment

14:00 Modelling of Power Electronics Converters for Grid Integration Studies

Veronica Biagini, ABB (D), [Giovanni De Carne, CAU Kiel \(D\)](#)

14:30 System Stability Services from DC-Connected Wind Farms

Tim Green, Imperial College (UK)

### Manufactures Perspective and Emerging Technologies

15:00 Round Table Discussion  
"Manufactures Perspective & Emerging Technologies"

16:15 End of Workshop