

Organisational Information

For registration please use the registration form which is available on the ECPE web page: www.ecpe.org
> ECPE Events > ECPE Workshops: Condition & Health Monitoring in Power Electronics > Registration Form

www.ecpe.org/ecpe-events

Deadline for registration:

- **25 Juni 2017**

Participation fee:

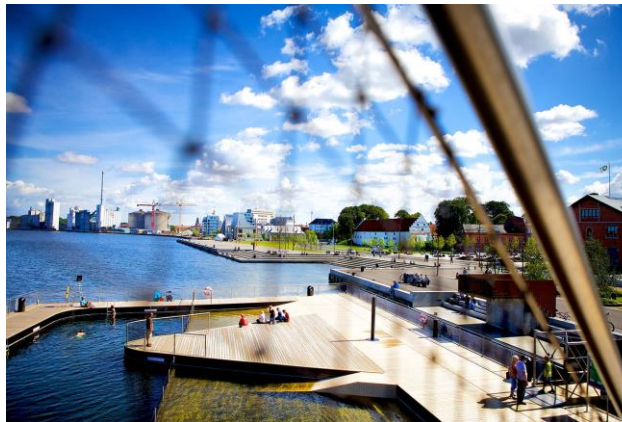
- **€ 595,-** * for industry
- **€ 445,-** * for universities/institutes
- **€ 150,-** * for students/PhD students
(copy of student ID requested)
(limited number only)
(optional dinner: € 50,-* extra fee)

*plus 19 % German VAT

- The participation fee includes dinner, lunch, coffee/soft drinks and an USB 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 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
Chairmen	Prof. Frede Blaabjerg, Aalborg University (DK) Dr. Stefan V. Mollov, Mitsubishi Electric R&D Centre EUROPE (FR) Dr. Andreja Rojko, ECPE e.V. (DE)
Organisation	Lena Somschor, ECPE e.V. +49 (0)911 / 81 02 88 – 18 lana.somschor@ecpe.org
Venue	Aalborg University Department of Energy Technology Pontoppidanstraede 111 Room 1.177 (Aud.) DK-9220 Aalborg Denmark



Programme

ECPE Workshop

Condition and Health Monitoring in Power Electronics

4 – 5 July 2017
Aalborg University
Aalborg
Denmark



in cooperation with

ECPE Workshop

Condition and Health Monitoring in Power Electronics

4 – 5 July 2017, Aalborg, Denmark

Condition and health monitoring (C&HM) is an effective means of improving the availability and controlling the life-time cost of power electronic components, converters and systems. Many solutions have been developed, but their adoption in industrial applications is still scarce. The Workshop intends to shed light on the reasons for this by favouring Industrially-motivated research and speakers.

Advanced C&HM techniques that open new possibilities for industrialisation will be presented and discussed. Their potential, limitations and implementation will be outlined and critically reviewed with the goal to benefit both industry applications and research.

A significant part of the workshop is dedicated to C&HM concerning power devices and modules, responding to the general perception that they are the least reliable with topics such as prognostics-based qualification for power electronics to predict the future reliability of the products and remaining useful lifetime methods. In-situ methods for estimation of junction temperature and use of temperature sensitive electrical parameters, crucial elements for C&HM, will be reviewed. The C&HM of other notoriously unreliable components, such as capacitors and batteries will be addressed. The needs and some results of C&HM for offshore wind parks are addressed in a dedicated section.

The workshop is chaired by

Prof. Frede Blaabjerg, Aalborg University / Center of Reliable Power Electronics - CORPE (DK)
Dr. Stefan V. Mollov, Mitsubishi Electric R&D Centre EUROPE (FR)
Dr. Andreja Rojko, ECPE e.V. (DE)

All presentations and discussions will be in English language.

Programme

Tuesday, 4 July 2017

9:00	Start of Registration
9:30	Welcome and Opening A. Rojko; ECPE (D) Introduction to Workshop S. V. Mollov; Mitsubishi Electric R&D Centre EUROPE (FR)
Introduction	
9:50	Prognostics-Based Qualification for Power Electronics M. Pecht; University of Maryland / Centre for Advanced Life Cycle Engineering - CALCE (USA)
10:40	Design for Reliability in Power Electronic Systems F. Blaabjerg; Aalborg University / Center of Reliable Power Electronics - CORPE (DK)
11:20	Discussion
11:30	Coffee Break
Condition & Health Monitoring of Power Modules	
11:45	A Review of Remaining Useful Life Estimation Technologies for Power Semiconductor Modules N. Degrenne, S. V. Mollov; Mitsubishi Electric R&D Centre EUROPE (FR)
12:30	Discussion
12:45	Lunch
Condition & Health Monitoring of Power Modules (cont.)	
14:00	Condition Monitoring and Junction Temperature Estimation – Challenges of Industrialisation A. Bryant; Amantys (UK)
14:45	Condition Monitoring of Power Semiconductors - A Critical View P. Beckedahl; Semikron (DE)
15:15	Discussion
15:30	Coffee Break
Condition & Health Monitoring of Power Modules (cont.)	
16:00	Real-time Health Monitoring of Power Electronics using IOT S. Perinpanayagam; Cranfield University (UK)
16:30	In-Service Diagnostics for Wire-Bond Lift-Off and Solder Fatigue of Power Semiconductor Packages A. Eleffendi; University of Oxford (UK)
17:00	Discussion
17:15	End of 1st Workshop Day
19:30	Dinner at restaurant 'Flammen' Aalborg, Denmark

Programme

Wednesday, 5 July 2017

Condition Monitoring of Capacitors

- 8:30 **Review of Condition Monitoring for Capacitors in Power Electronics Applications**
H. Wang; Aalborg University /Center of Reliable Power Electronics - CORPE (DK)
- 9:15 **Observer-based Condition Monitoring of Electrolytic Capacitors**
S. V. Mollov; Mitsubishi Electric R&D Centre EUROPE (FR)
- 9:45 **Towards More Reliable Metallized Polymer Film Capacitors**
M. Makdessi, G. Aubard, J. Duwattez; Exxelia Group (FR)
- 10:15 **Discussion**

10:30 Coffee Break

Condition & Health Monitoring in Wind Turbines

- 10:45 **Monitoring electrical Equipment in Wind Turbines**
M. Hygum, Vestas Wind Systems (DK)
- 11:15 **Platform and Algorithms for Model Based Monitoring of Wind Turbine Components**
C. Damgaard; KK Wind Solutions(DK)
- 11:45 **Discussion**

12:00 Lunch

Condition & Health Monitoring of Batteries

- 13:00 **Condition Monitoring of Lithium-Ion Batteries**
D. A. Howey; University of Oxford (UK)
- 13:30 **Model-driven Software Development for Li-Ion Batteries**
C. G. Fleischer; Volvo Cars (SWE)
- 14:00 **Discussion**

Special Topics in Condition & Health Monitoring

- 14:15 **Thermal Effects in Power Devices**
O. Alatise; University of Warwick (UK)
- 14:45 **Unconventional techniques to determine the health of power semiconductor modules**
V. Pickert; Newcastle University (UK)
- 15:15 **Final Discussion**

15:30 End of Workshop

Additional Programme

- 15:30 Visit to CORPE Test Facilities
- 16:15 (Pre-registration necessary)