IEEE PES German Chapter

Workshop

Challenges and Opportunities of Power Electronics integration in the Electric Grid

Wednesday, 25th of September 2019 in Kiel

Beyond the possibility to connect regenerative sources to the electric grid even enabling hybrid grids (ac and dc), Power Electronics can offer much more, unlocking the hidden capacity of the electric grid.

The combined use of well-established Voltage Stiff Converters, Pulse Width Modulation and advanced control techniques, allowing grid-following and grid-forming operation are the enabling technology of this revolution.

At the same time, a large employment of power electronics-based devices introduces new challenges in the grid management, for example: lower rotational inertia; lower short circuit current availability, due to the semiconductor's limited ampacity; high occurrence of resonance phenomena, caused by converter's filters.

We would like to invite Power Electronics and Power System experts for discussing these new challenges opportunities. In the workshop, contributions from grid operators, energy agencies, power converters manufacturers and academic institutions involved in leading German and EU projects will be shared with all the attendees.

Cost:	There is no conference fee.
Registration:	Please register under mlan@tf.uni-kiel.de with your signature so that we can inform you of any changes at short notice.
Venue:	Technische Fakultät, Christian-Albrechts-Universität zu Kiel, Kaiserstrasse 2, Kiel, Building C (see separate directions sketch).

Agenda

IEEE PES German Chapter Workshop

Challenges and Opportunities of Power Electronics integration in the Electric Grid

Wednesday, 25th of September 2019 in Kiel

09:00 – 09:10	Welcome and Introduction to the workshop	Prof. Dr.-Ing. Marco Liserre (Christian-Albrechts-Universität zu Kiel)
09:10 – 09:30	25 Years PES German Chapter	Anne-Katrin Marten (50Hertz Transmission GmbH)
Introduction		
9:30 – 09:50	Herausforderungen und Chancen der Leistungselektronik aus Sicht eines Verteilnetzbetreibers	Dr. Tobias Pletzer (SH-Netz AG)
09:50 – 10:10	Unlocking the Hidden Capacity of the Electrical Grid through Power Electronics	Prof. Dr.-Ing. Marco Liserre (Christian-Albrechts-Universität zu Kiel)
10:10 – 10:30	Discussion	
10:30 – 11:00	Coffee	
Challenges and Opportunities: Project Experience		
11:00 – 11:20	North Sea Wind Power Hub - Results from project multi-DC	Dr. Tilman Weckesser (Danish Energy Agency)
11:20 – 11:40	Results from Horizon 2020 project MIGRATE	Dr. Frédéric Colas (Université de Lille)
11:40 – 12:00	Discussion	
12:00 – 13:00	Lunch	
Best Master Thesis Award		
13:00 – 13:10	Parallele Optimierung für Demand Response Architekturen - Herausforderungen, Anforderungen, Anwendungen	Sebastian Schwarz (RWTH Aachen)
Advanced Converter Control: Benefits for the Electrical Grid		
13:10 – 13:30	Evaluation of Grid Forming Inverter Control Schemes: Extended Current Control and Virtual Synchronous Machine	Dr. Daniel Duckwitz (Fraunhofer IEE, Kassel)
13:30 – 13:50	Grid supporting control with PE converters – applications, state-of-art, new concepts	Mario Schweizer (ABB Corporate Research Center, Zürich)
13:50 – 14:10	Discussion	
14:10 – 14:40	Coffee	
Panel discussion		
14:40 – 15:40	• 100% PE-based Grids: Possibilities, Challenges and Benefits • Low inertia grids: How to keep the system safe? • Offshore Wind Power Parks: Connection through PE • New PE technologies in the Grid: Smart Transformer and HVDC • Power Electronics as “Business as Usual”	
15:40 – 16:30	Get-together	
16:30 – 18:30	Laboratory visit at the Chair of Power Electronics of Kiel University	