



## PE:Region Newsletter - October 2017

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### Upcoming Events 2017



**Danish-German PE:Region seminar:**

Tuesday 28 November 2017, 11.30 - 15.00

**SDU Odense - The Maersk Mc-Kinney Moller Institute**

**Demonstrator Development for Intelligent Grid Integration, High Speed Drives, and Battery Charging**

[For further information and registration](#)

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**Center for Industrial Electronics at Alsiion - Sønderborg**

[Lighthouse for Education, R&D and Testing](#)



## Battery Seminar at Fraunhofer ISIT

On 21 September, Interreg project PE:Region together with Fraunhofer ISIT organized the Danish-German seminar "Battery technologies for electro mobility and smart grid purposes". Batteries are important in developing energy systems of the future in regard to electro mobility and smart grid applications. In regard to modern materials and methodologies in battery cell production, Jannes Opey from Fraunhofer ISIT presented the latest research activities and prospects for the future accompanied by interesting presentations by Frederik Flemming (Haldor Topsøe A/S), Dr. Daniela Werlich (Custom Cells Itzehoe) and Dr. Peter Bleith (Liacon GmbH) as well known experts from industry.



Under the important topic of battery management systems (BMS), we had the chance to listen to Prof. Dr.-Ing. Weber from FH Kiel who presented his activities in impedance spectroscopy for BMS as valuable contribution for diagnostic tasks, and Claus Friis Pedersen (Lithium Balance A/S) shared his experience in the development of efficient and modern BMS.

After lunch, the topic was how to apply all technologies, and Dieter Haack (SH Netz) presented on grid integration of large energy storage systems on the island of Pellworm, Rasmus Banke (Banke Electrotrans) explained us how to apply batteries in heavy duty garbage trucks, Uwe de Nardi (Kriatronics GmbH) presented available battery systems of voltages between 12V and 870V, and Cecilie Larsen (Ærø Kommune) informed us about the status of "Ellen", Ærø's first E-Ferry, which should go into operation in 2018.

The seminar had an exceptional participation of 75 persons coming from industry and academia from both Denmark and Germany, fostering networking, and strengthening the local battery community. For further information or interest in coming seminars, please contact Jan Cornils, Innovation Consultant at WTSH, e-mail: [cornils@wtsh.de](mailto:cornils@wtsh.de) or phone +49-461 806 353.

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## Staff News



### Markus Andresen

As of 1 July, Markus Andresen has joined the PE:Region project and takes over a postdoc position at Kiel University (CAU). He is substituting Giampaolo Buticchi who will become a professor at University of Nottingham in Ningbo, China. Markus received his Dr.-Ing. degree from CAU in 2010, 2013 and 2017, respectively. In 2017 he was a visiting scholar at University of Wisconsin-Madison, USA.



Markus will continue to do research on the grid integration of renewable energy. His research interests include reliability and control of grid-connected power electronic converters. He has a background in modular converters for high power applications.

### Xiang Gao

Since April 2016, Xiang Gao has been employed as a scientific staff member at Chair of Power Electronics at CAU. In August he joined the PE:Region project.

In 2012, he obtained a MSc degree in Electric Power Engineering at Royal Institute of Technology (KTH) in Stockholm, Sweden. After a few years working in industry, Xiang Gao joined the team at Chair of Power Electronics at CAU. His main field is analysis of influence of power electronics devices in power grid, with a speciality in medium voltage distribution network.



In the PE:Region project, he will carry out research on smart grids with power electronics devices. His target is to increase the penetration of renewable energy by means of power electronics.

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## Publications



### Lifetime-based Power Routing in Parallel Converters for Smart Transformer Application

by Andresen, M., Raveendran, V., Butticchi, G., & Liserre, M.

CAU has published a manuscript about reliability and maintenance considerations in parallel power converters for the grid-integration of renewable energy sources. The Article has been accepted in *Transactions on Industrial Electronics*.

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## Conference Participation



PE:Region was represented at the [European Power Electronics Conference 2017 \(EPE'17\)](#) in Warsaw, Poland, in September. EPE is considered the largest European conference in the field of power electronics and this year the number of participants coming from academia and industry was around 930. Among the 500 papers presented at the conference were two PE:Region papers prepared in collaboration with the Green PET Lab project:

- Hybrid Magnetics and Power Converter Applications
- Optimal Inductor Winding Geometries for Minimizing Winding Loss in Gapped Inductor Designs

Both papers received broad attention from both academia and industry and several applications were discussed. Flyers describing the PE:Region project were handed out during the presentations.



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