



AALBORG UNIVERSITY
DENMARK

Department of
ENERGY TECHNOLOGY
Aalborg University



PhD Research Day 2013 – Energy Technology

May 7th 2013

**Department of Energy Technology, Aalborg University,
Pontoppidanstræde 101 room 21 and 23**

Time: 8.30-16.00

www.et.aau.dk/phd

Energy Technology research Day

Come and meet the talents in energy technology research. The Department of Energy Technology, Aalborg University has more than 80 Ph.D. students enrolled and on the day presentations from 41 PhD students will be carried out in two parallel sessions. Material will be handed out (USB) on all projects on the day.

For PhD students it is MANDATORY (except if you are abroad) to show up, both for presenting their research topic and to attend at least parts of the sessions. The research day is a part of fulfilling requirements for knowledge dissemination.

The Energy Technology research day presentations are subdivided into two parallel sessions:

- One containing research related to electrical engineering
- One containing research related to thermal engineering (i.e. non-electrical)

These two parallel sessions have sub-sessions, which are entitled by the titles of the research programs at ET and chaired by the research program leader. Each such sub-session contains 4 presentations selected from each individual research program activities.

All are welcome. Staff members are encouraged to come and support our PhD students and discuss and ask questions.

Lunch will be served for those who register.

Please contact Hanne Munk Madsen for registration (hmm@et.aau.dk)

Program for the day

Time	Presentations in room 23	Presentations in room 21
	Electrical research sessions	Thermal/fluid research sessions
8.30-9.30	Microgrids Chairman: Josep Guerrero	Fluid Power in Wind and Wave Energy Chairman: Henrik C. Pedersen
8.30-8.45	<i>Dan Wu:</i> Coordinated Control for Power Quality in Grid Connected and Islanded Three-Phase MicroGrids	<i>Daniel Beck Rømer:</i> Analysis, Design and Optimization of Actively Controlled, Fast Switching Valves for a High-Efficiency Digital Hydraulic Motor in the MW-Range
8.45-9.00	<i>Qobad Shafiee:</i> Centralized and Decentralized Secondary Control for MicroGrids	<i>Lasse Schmidt:</i> Development of an Automated Motion Control Design & Commissioning System for Commercial Electro-Hydraulic Systems
9.00-9.15	<i>Lexuan Meng:</i> Tertiary Control and Energy Management System in Microgrids	<i>Anders Hedegård Hansen:</i> Design and Control of Efficient Switching Manifold for Wave Energy Converters
9.15-9.30	<i>Chendan Li:</i> Quality of Energy Services for MV Clusters of Microgrids – The Quaternary Control Level of MicroGrids	<i>Per Johansen:</i> Design, Analysis and Optimization of Digital Hydraulic MW-Motor Topology
9.30-9.45	Break	
9.45-10.45	Efficient and Reliable Power Electronics Chairman: Frede Blaabjerg	Biomass Chairman: Jens Bo Holm-Nielsen
9.45-10.00	<i>Rasmus Ørndrup Nielsen:</i> Miniaturization of current power converters for particle accelerators	<i>Ane Katharina Paarup Meyer:</i> Large Scale Bioenergy Lab—Identification, Analysis, Mapping and Management of Sustainable Biomass Resources in the Region of Southern Denmark-Sleswig-K.E.R.N., Germany
10.00-10.15	<i>Nicolae-Christian Sintamarean:</i> Emerging Power Electronics Devices and Circuit Design	<i>Jessica Hoffmann:</i> Bio-oil Production - Process Optimization and Product Quality
10.15-10.30	<i>Rui Wu:</i> Multi-Physics Based Modeling of Power Electronic Components and Circuits	<i>Thomas Helmer Pedersen:</i> FlexiFuel – Optimizing Fuel Flexibility through Quality Bio-Oils
10.30-10.45	<i>Pramod Ghimire:</i> Life Time Prediction Methods for Real Time Field Operation	<i>Lars Jürgensen:</i> Large Scale Bioenergy Lab: Methanation as an option for dynamic small scale biogas upgrading in the region of Southern Denmark—Schleswig—K.E.R.N. Germany
10.45-11.00	Break	

11.00-12.00	Modern Power Transmission Systems Chairman: Claus Leth Bak	Fuel Cell and Battery Systems Chairman: Søren Knudsen Kær
11.00-11.15	<i>Christian Flytkjær Jensen:</i> Online fault location on AC cables in underground transmission systems	<i>Kristian Kjær Justesen:</i> Modeling and Control of a Reformed Methanol Fuel Cell System to be used in Electric Hybrid Systems
11.15-11.30	<i>Jakob Bærholm Glasdam:</i> Harmonics in Large Offshore Wind Farms Employing Power Electronics in the Transmission System	<i>Daniel-Ioan Stroe:</i> Life-Time Models for Li-Ion Batteries in Grid Support Applications
11.30-11.45	<i>Chengxi Liu:</i> Intelligent Protection Method for Modern Power Systems	<i>Simon Lennart Sahlin:</i> Modeling and Characterization of a 5kW Methanol Reformer Fuel Cell System
11.45-12.00	<i>Zakir Hussain Rather:</i> Real time Intelligent Operation and Control of Modern Power System	<i>Fan Zhou:</i> Degradation Mechanisms and Durability Test Methods of high Temperature PEM Fuel Cell with PBI Membrane
12.00-12.30	Lunch	
12.30-13.30	Smart Grids and active networks Chairman: Birgitte Bak-Jensen	Thermoelectrics Chairman: Erik Schaltz
12.30-12.45	<i>Iker Diaz de Cerio Mendaza:</i> An Interactive Energy System with Grid, Heating and Transportation	<i>Elena Anamaria Man:</i> Power electronics for oxide-based high temperature thermoelectric generators
12.45-13.00	<i>S. Mostafa F. Astaneh:</i> Optimization of Electricity Markets with Wind Power and DG Units for good Economics and Grid Security	<i>Waruna P. Wijesekara Dissanayaka:</i> Oxide-based high temperature thermoelectric generators - Development of integrated design technique and construction of a thermoelectric module
13.00-13.15	<i>Pietro Raboni:</i> Development of automation and control strategies for generation units at distribution level, in order to achieve a reliable supply for thermal and electrical loads and to increase the stability and security of the grid	<i>Alireza Rezania Kolaei:</i> Design, Modeling and Optimisation of Thermoelectrical Power Generation Devices
13.15-13.30	<i>Reza Ahmadi Kordkheili:</i> Presenting a New Model for Loads, Distribution Network, and Generation Units in Renewable Energy Systems with Respect to Load-Supply Balance	<i>Xin Gao:</i> HTPEMFC System with TEG Integrated
13.30-13.45	Break	
13.45-14.45	Wind Power systems (8) Chairman: Zhe Chen	Green buildings Chairman: Carsten Bojesen
13.45-14.00	<i>Michał Szttykiel:</i> High Voltage Power Converter for Large Wind Turbine Speed Drives	<i>Soma Mohammadi:</i> Conversion of existing district heating grids to low-temperature operation and extension to new areas of buildings
14.00-14.15	<i>Kiwoo Park:</i> Research on DC Network Connection with	<i>Christian Milan:</i> Integration and optimization of renewable

	a Novel Wind Power Generator System	energy systems for housing
14.15-14.30	<i>Jie Tian:</i> Advanced Coordinative Control of Wind Power Conversion System	
14.30-14.45	<i>Philipp Braun:</i> Intelligent Energy Management System for a Virtual Power Plant	
14.45-15.00	Break	
15.00-16.00	Automotive and industrial drives Chairman: Kaiyuan Lu	No session
15.00-15.15	<i>Mehmet Sertug Basar:</i> State Monitoring and Online Control Optimisation of Electrical Drive Systems	
15.15-15.30	<i>Ge Xie:</i> Design of Parameter Independent, High Performance Sensorless Controllers for Permanent Magnet Synchronous Machines	
15.30-15.45	<i>Tushar Batra:</i> Magnetic Coupling for Wireless Charging of Electric Vehicles	
15.45-16.00	<i>Dong Wang:</i> Variable-speed, robust synchronous reluctance machine drive systems	
16.00	End of PhD Research Day	

Absent PhD's on May 7th (not registered):

Organized by Head of Energy Technology PhD program, Professor Claus Leth Bak
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