DEPARTMENT OF ENERGY TECHNOLOGY

AALBORG UNIVERSITY

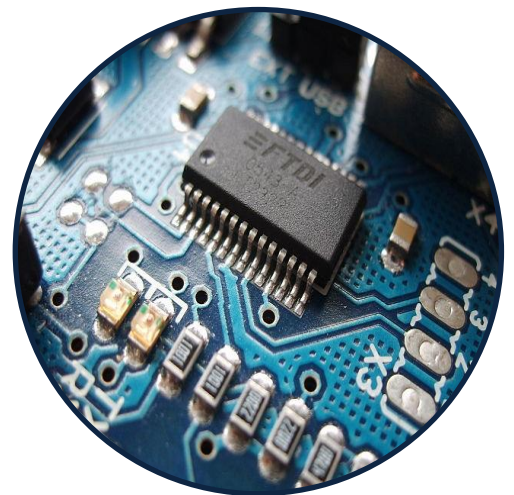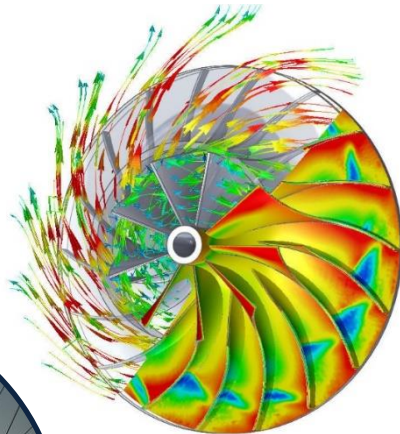# CONFERENCE FOR ENERGY STUDENTS

CES 2017

Conference Programme

19 December 2017

Pontoppidanstræde 111

Rooms 1.177 and 1.031

The Energy
Sponsor Programme

ECS

Oral Session

10 minutes for presentation; 5 minutes for discussion

Pontoppidanstræde 111
Rooms 1.177

Conference Chair: Thomas Condra

8:30 – 9:00	*Coffee – hall outside rooms 1.177 & 1.031*
9:00 – 9:30	*Conference Opening & Keynote Speech*
	• *Philip Carne Kjær, Vestas Wind Power*
	• *Lotte Sørensen, Alfa Laval*

Session 1A. Fluid Dynamics and Thermal Energy
Session Chairman: Samuel Simon Araya

9:30 – 9:45
Investigation of Heat Transfer in Mini Channels
Andreas Overgaard Agesen, Kasper Gram Bilde, Line Dyhr Damsgaard Blæsbjerg and Martin Rubæk

9:45 – 10:00
Visualization and Image Processing of Two-Phase Flow in PEM Water Electrolysis Cell
Mathias Kjær Christensen, Niels Gaardboe Rasmussen

10:00 – 10:15
Infrared Spectroscopy Driven Model for Estimating Hansen Solubility Parameters and Other Important Bio-crude Properties
Michalski Karol Michal

10:15 – 10:30	*Break: Coffee – hall outside rooms 1.177 & 1.031*

Session 1B. Fluid Dynamics and Thermal Energy
Session Chairman: Xiyan Li

10:30 – 10:45
CFD and PIV Investigation of Flow in a 2D Representation of a Reed Valve
Jonas Blom Ottosen, Florian Marcus Fries, Hans Peter Bak, and Palle Lang Nielsen

10:45 – 11:00
Water Hammer Modelling
Kasper Lindgren Lassen, Rune Kjerrumgaard Jensen and Jesper Kær Larsen

11:00 – 11:15
Parameters Affecting the Performance of Liquid-vapor Separator
Kasper Holst Fornitz, Agar Haji, Rasmus Frost Hansen

11:15 – 11:30
Drag Reduction of a Simple Geometry Scaled Model Car and Trailer
Per Mosegaard Jørgensen, Emil Tornel Jørgensen and Nicolaj Iversen

11:30 – 12:30	*Poster Session and Lunch Break - hall outside rooms 1.177 & 1.031*

Session 1C. Mechatronics and Control Systems
Session Chairman: Christian Nørgaard

12:30 – 12:45   The Use of Kalman Filtering for Stochastic Processes in ROV control
Emil Már Einarsson

12:45 – 13:00   Model and Control of a Waste Water Aeration System
Mathias Lyngsø, Kenneth Jensen, Benjamin Opstrup Hansen

13:00 – 13:15   Stabilization and Movement of a Quadcopter
Allan Gjerlevsen, Andrius Kulšinskas

13:15 – 13:30   Adaptive and Backstepping Control of Hydraulically Actuated Robot Manipulator
Ioannis Manganas

13:30 – 13:45   Novel Distributed Coordination Control for DC Microgrid: Modeling, Analysis, Optimization and Experimental Test
Ioannis Mexis, Hun Heo

13:45 – 14:15   ***Break: Gløgg and Æbleskiver – hall outside rooms 1.177 & 1.031***

Session 1D. Mechatronics and Control Systems
Session Chairman: Michael Møller Bech

14:15 – 14:30   Position Control of a Hydraulic Servo Robot
Mitchell Uhrskov Mateos Amez, Anders Berthing, Oliver Gregory Inuk Slaughter Fleischer, Louise Groth, Marianne Rasborg Knudsen, Jesper Smidt Philipsen

14:30 – 14:45   Frequency Control with Flexible Demand and Storages to Support Large Renewable Energy Generation
Monika Sandelic, Ana Turk, Martin Trolle Arentsen

14:45 – 15:00   MIMO Control of Friction Test Bench
Andreas Larsen, Nikolaj Grønkær, Lasse Nørby Nielsen, Lina Lilleengen, Frederik Ødum Nielsen

15:00 – 15:15   On- line MTPA Controller for IPMSM and SynRM Drive Systems
Mario Mihalkov

15:15 – 15:30   Application Layer Design for Smart Battery Pack Control with Wi-Fi feedback
Jan-Ludwig Lafrenz, Philipp Scheff

16:00   ***Award Ceremony and Conference Closure***

Oral Session

10 minutes for presentation; 5 minutes for discussion

Pontoppidanstræde 111
Rooms 1.031

Conference Chair: Thomas Condra

8:30 – 9:00	***Coffee – hall outside rooms 1.177 & 1.031***
9:00 – 9:30	***Conference Opening & Keynote Speech***
	• ***Philip Carne Kjær, Vestas Wind Power***
	• ***Lotte Sørensen, Alfa Laval***

Session 2A. Power Electronics and Drives
Session Chairman: Jacob Bitsch Nørgaard

9:30 – 9:45	Measurement and Verification of Voltage Flicker and Harmonics in Wind Turbines *Noman Khan, Usman Farooq*
9:45 – 10:00	Infrastructures of AC Drive Systems *Radhika Sarda*
10:00 – 10:15	Accelerated Test Setup for Power Modules *Konstantinos Patmanidis*

10:15 – 10:30	***Break: Coffee – hall outside rooms 1.177 & 1.031***

Session 2B. Power Electronics and Drives
Session Chairman: Tamas Kerekes

10:30 – 10:45	Analysis and Control of PWM AC/DC Converters *Mads Madsen, Mikkel Hedemann, Martin Kjær and Christian Valentin*
10:45 – 11:00	Fault Detection In Converters Installed In Offshore Vessels Using Artificial Neural Networks *Ronni Lambertsen, Zahra Soltani*
11:00 – 11:15	Design and Implementation of a Proper PV Power Electronic Converter with Output Regulated Voltage in DC Microgrid *Mikkel Rindholt*
11:15 – 11:30	Fault Detection of DC-DC Converter for Charging and Discharging Batteries on Maritime Transport Vessel *Mark Mose Johannsen*

11:30 – 12:30	***Poster Session and Lunch Break - hall outside rooms 1.177 & 1.031***

Session 2C. System Identification and Optimization
Session Chairman: Thomas Condra

12:30 – 12:45   System Identification of a Floating Wind Turbine
Christian Lindquist, Rikke Pedersen, Patrick Nielsen

12:45 – 13:00   Parameter Identification of a Photovoltaic System
Jishnu Warrier Anil Kumar

13:00 – 13:15   Parameter Identification of a PMSM with an LC filter
Thomas Egsgaard Pedersen

13:15 – 13:30   Optimization of Alfa Laval Aalborg's Forced Draft Fans
Esben Ravn; Gudjon Thor Olafsson, Kasper Dalager Vestdam, Rasmus Simonsen Dueholm, Shakerullah Nazari

13:30 – 13:45   AHU Optimization
Thomas Dam Leth, Alexander Strømfeldt Lind, Henrik Møller Madsen, Anders Riishede Ehlers

13:45 – 14:15   ***Break: Gløgg and Æbleskiver – hall outside rooms 1.177 & 1.031***

14:15 – 14:30   Optimization of Heat Sink
Rasheed Fallah, Atli Már Jónsson, Line Justesen Pløger

14:30 – 14:45   Design and Optimization of Water Cooling System for Wind Power Converter
Agnes Kovacs, Edgaras Kvedaravicius

Session 2D. Grid Management and High Voltage
Session Chairman: Bakhatyr Hoseinzadeh

14:45 – 15:00   Voltage Unbalance Caused by Electrification of the Danish Railway
Jakob Harder Poulsen, Maria Stenseth, Morten Vadstrup, Richard Mushimiye and Troels Jakobsen

15:00 – 15:15   Droop Control Optimization for Multi-terminal HVDC Transmission System
Olivier Lebas, Magnus Svean, Astrid Thoen

15:15 – 15:30   Intelligent Energy Management of Electric Vehicles in Distribution Networks
Nikolaos Zoras

15:30 – 15:45   Congestion Management in Smart Distribution Networks with Flexible Loads using Demand Response
Daniel Vázquez Pombo

16:00   ***Award Ceremony and Conference Closure***