

AAU ENERGY

23 APRIL
AALBORG

RESEARCH DAY

PROGRAMME



REpower DK 2024

A SECURE AND RESILIENT
ENERGY SYSTEM



AAU
ENERGY

AALBORG
UNIVERSITY

 energy
CLUSTER
DENMARK



08.30 - 09.30	Registration
08.30 - 09.30	Coffee and breakfast rolls
09.30 - 09.40	Welcome <i>by Per Michael Johansen, Rector, Aalborg University</i>
09.40 - 10.05	Flexibility and Balancing in the Energy Grid <i>by Kia Marie Jerichau, Director, Energinet</i>
10.05 - 10.30	Design factors for hybrid power plants <i>by Hans Abildgaard, Director, Better Energy A/S</i>
10.30 - 10.55	REpowering in Denmark – with solar and wind as the backbone of our energy system <i>by Per H. Lauritsen, Offshore Research Manager, Siemens Gamesa Renewable Energy</i>
10.55 - 11.10	Address by the Dean <i>by Thomas Bak, Dean, The Technical Faculty of IT and Design, AAU (appointed Dean ad interim, The Faculty of Engineering and Science, AAU)</i>
11.10 - 11.30	Break

11:30 - 13:00
Choose between our three sessions

SESSION 1 System intergration and balancing	SESSION 2 Resilient components and systems	SESSION 3 Energy systems security
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SESSION 1 - System intergration and balancing

AAU INNOVATE, Thomas Manns Vej 25, café area, organised by Mads Pagh Nielsen and Filipe Faria da Silva

- 11:30 - 11:45 **Balancing Power Challenges in a 100% Renewable Energy System**
by Florin Iov
- 11:45 - 12:00 **Microgrids for System Integration and Balancing**
by Sanjay Chaudhary
- 12:00 - 12:15 **Process integration requirements and possibilities of carbon capture and power-2-x systems**
by Mads Pagh Nielsen
- 12:15 - 12:20 **Break to relocate to other sessions if desired**
- 12:20 - 12:35 **PV systems combined with storage**
by Tamas Kerekes
- 12:35 - 12:50 **Challenges for Battery Systems in a 100% Renewable Energy System**
by Daniel-Ioan Stroe
- 12:50 - 13:00 **Poster pitches by PhD-students whose posters relate to this theme**

SESSION 2 - Resilient components and systems

Pontoppidanstraede 111, room 1.177 (Auditorium), organised by Frede Blaabjerg and Huai Wang

- 11:30 - 11:45 **Smart Battery**
by Remus Teodorescu
- 11:45 - 12:00 **Integration of fuel cell systems in the future energy system,**
by Vincenzo Liso
- 12:00 - 12:15 **Power Supply Resilience Enhancement via Ad-hoc Mobile Microgrids and Community Microgrids**
by Yajuan Guan

SESSION 2 – Resilient components and systems

Pontoppidanstraede 111, room 1.177 (Auditorium), organised by Frede Blaabjerg and Huai Wang

- 12:15 – 12:20 **Break to relocate to other sessions if desired**
- 12:20 – 12:35 **Cognitive and Resilient Grid: The “Plastic” Vision**
by Subham Sahoo
- 12:35 – 12:50 **RelyPES: A software tool for reliability and risk assessment in modern power systems**
by Saeed Peyghami
- 12:50 – 13:00 **Poster pitches by PhD-students whose posters relate to this theme**

SESSION 3 – Energy systems security

Pontoppidanstraede 101, room 1.001, organised by Henrik C. Petersen and Zhenyu Yang

- 11:30 – 11:45 **Digital Security of Energy Systems – A Monolithic Paradigm**
by Subham Sahoo
- 11:45 – 12:00 **Augmented Reality Environments for Robotics**
by Petar Durdevic
- 12:00 – 12:15 **Cyber warfare in energy systems**
by Rasmus Løvenstein Olsen
- 12:15 – 12:20 **Break to relocate to other sessions if desired**
- 12:20 – 12:35 **Subsea surveillance and protection of critical infrastructure**
by Jesper Liniger
- 12:35 – 12:50 **Local Cooperative Strategies for Energy Resilience in Eco-Industrial Clusters**
by Sreelatha Aihloor Subramanyam
- 12:50 – 13:00 **Poster pitches by PhD-students whose posters relate to this theme**



13:00 - 14:00

Lunch*located in AAU Innovate café and hall area*

13:00 - 15:00

Poster
session

13:45 - 14:45

Laboratory
tour

14:00 - 15:00

Pitch
event

15:00 - 16:00

Panel
discussion

13:00 - 15:00

Poster session*AAU Innovate, Thomas Manns Vej 25, The Auditorium**Detailed programme for the PhD Poster Session on the last page*

13:45 - 14:45

Laboratory tour: 3 different tours*Meeting point: Main entrance of the Science and Innovation Hub**Information available at registration, for external guests only**The pick-up time for the lab tour is 13:45*

14:00 - 15:00

Pitch event: 3 pitches / 20 minutes each*AAU Innovate, Thomas Manns Vej 25, room C009*

14:00 - 14:20

PowerSentinel*by Subham Sahoo*

14:20 - 14:40

Hydraulic Transformers: Pioneering Green Solutions*by Anders Hedegaard Hansen*

14:40 - 15:00

PtX development platform*by Mads Valentin Bram*

15:00 - 16:00**Panel discussion***AAU Innovate, Thomas Manns Vej 25, café area. Moderator: Lars Raakilde, AAU***Kia Marie Jerichau***Director, Energinet***Hans Bildgaard***Director, Better Energy A/S***Iva Skov***Associate Professor, Department of Sustainability and Planning, AAU***Per Lauritsen***Offshore Research Manager, Siemens Gamesa Renewable Energy***Jeppe Grue***Technical Director, Cowi***Jørgen S Christensen***CTO, Green Power Denmark***Jesper Møller Larsen***Chief Operating Officer, Verdo***16:00 - 16:05****Closing remarks***by Professor Lasse Rosendahl, Head of AAU Energy***16:05 - 16:30****Refreshments**



POSTER SESSION

TITEL	AUTHOR	SESSION
Techno-economic analysis of blue ammonia production using the CCC process	Hossein Asgharian	1
Computational Fluid Dynamics Modeling of Alkaline Electrolyzer Cells	Diogo Loureiro Martinho	1
Membrane Distillation for the Production of Ultrapure Water for PtX	Wenyu Zhao	1
Syngas production via SOE cells	Federico Mattera	1
Microgrid for Remote Islanded Communities in Indonesia	Majid Ali	1
Impacts of Current Reference Generation on Phase Selection Element	Yifei Li	2
Capacitor Current Compensation for Boundary Conduction Mode Based Single-Phase PV Inverter	Chen Liu	2
A Data-Driven Condition Monitoring Method for Capacitor in Modular Multilevel Converter (MMC)	Shuyu Ou	2
Robust IGBT Open-Circuit Fault Diagnosis Method based on Deep Learning Network Under Dynamic Operation Conditions	Yongjie Liu	2
Multi-Resolution Dynamic Mode Decomposition for Oscillation Mode Identification	Rui Kong	2
A Physics informed Neural Network Method for LC Parameter Estimation in Three Phase Inverter	Jie Kong	2
ActRes: Agency for Resilience - Making People and Energy Systems Fit for Climate Change and Crises	Meng Yuan	2
10 kV SiC MOSFETs Demonstrated by 500 kVA Machine Drive System	Gao Liu	2
Reliable Modeling and Prediction of Self-ignition and Fire Risks of Biomass Storage Piles	Yonghao Wang	3
3D Biventricular Human Heart Model for Endocardial Energy Harvesting	Milad Hasani	3
Solving Hydraulic Spool Sticking in a state-of-the-art steering unit	Emil Nørregård	3
Hydraulic Drive Networks: Energy Efficiency and Low Power Installation	Mikkel van Binsbergen-Galán	3
A Transferable DQN-based Intelligent Secondary Frequency Control for Islanded Microgrids	Sijia Li	3

AAU MAP

