

NEIS 2019

Conference on Sustainable Energy Supply and Energy Storage Systems

Program

Hamburg, September 19th – 20th, 2019

**Helmut-Schmidt-University
University of the Bundeswehr Hamburg**

Holstenhofweg 85, 22043 Hamburg

Thursday, September 19th 2019

08:00 Registration

Welcome Greetings and Keynote Presentation

09:00 Opening Presentation (Prof. D. Schulz, Helmut Schmidt University Hamburg)

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09:45 Fault Tolerant Smart Transformer in Distributed Energy Systems
Prof. M. Malinowski, Warsaw University of Technology

Coffee break

Oral Presentation Session 1: Power System Dynamics and Monitoring (Session Chair: Dr. Brombach)

10:00 Comparison of RMS and EMT Models of Converter-Interfaced Distributed Generation Units Regarding Analysis of Short-Term Voltage Stability
L. Steinhäuser, TU Darmstadt

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11:20 Modeling of Synchronous Generator with a Fast-Response Excitation System for Studying Power Network Transients
T.A. Woldu, Otto von Guericke University Magdeburg

Online Monitoring of Power System Small Signal Stability Using Artificial Neural Networks
C. Hotz, Hamburg University of Technology

Repetitive Controller for Low Grid Current Harmonics in a Hybrid Parallel Electrolysis Rectifier
S. Bintz, University of Stuttgart

11:20 Conference-Photo

11:30 Lunch

Oral Presentation Session 2: Grid Systems and Protection (Session Chair: Prof. Dr. Zölzer)

12:30 Impacts of Grounding Concepts in IT DC-Grids on SPD Safety
F. Schork, DEHN SE + Co KG

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13:30 Analytical Cable Impedance Modeling Based on Measurement Results
M. Meyer, Helmut Schmidt University Hamburg

Power System Stability Analysis for System-split Situations with Increasing Shares of Inverter based Generation
M. Nuschke, Fraunhofer IEE

Coffee Break & Poster-Session 1

Oral Presentation Session 3: Solutions for E-Mobility Pt. 1 (Session Chair: Dr. Alpen)

14:30 Development of a Microgrid Hardware Simulation System for Distributed Energy Resources in Combination with an Aggregated Battery Electric Vehicle Fleet
K. Kröger, Bielefeld University of Applied Sciences

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15:30 Bus Depot Simulator: Steady-State Python and DigSilent Co-Simulation for Large-Scale Electric Bus Depots
A. Jahic, Helmut Schmidt University Hamburg

Grid-friendly Integration of Future Public Charging Infrastructure by Flywheel Energy Storage Systems (FESS)
B. Thormann, Montanuniversität Leoben

15:30 Excursion

18:30 Barbecue

20:00 Live Act: "Night Laser"

Poster-Session 1

13:30-14:30

Thursday, September 19th

Concept for the Use of an Automated Network-Planning in the Distribution Grid Level with Coordination of Various Grid Expansion Measures

H. Kraus, OTH Regensburg

An Investigation of Harmonic Fingerprints by using Artificial Neural Network in Distribution Grid

X. Song, TU Ilmenau

COMPISO System - A Flexible Robust and Versatile PHIL Emulation Platform

H.-M. Baum, EGSTON Power Electronics GmbH

Development of Reference Storage Profiles for Electrical Grid Applications

B. Tepe, Technical University of Munich

Industrial Big Data from Energy Measuring: Challenges and Requirements for a Universal Database

M. Hein, Aalen University of Applied Sciences

Method for the continuous analysis and forecast of the demand for charging power of electric vehicles at public charging infrastructure in Hamburg

R. Rettig, University of Applied Sciences Hamburg

Analysis of Electrical Charging Characteristics of Different Electric Vehicles Based on the Determination of Vehicle-Specific Load Profiles

H. Neue, Stromnetz Hamburg GmbH

Stability Issues with Network Impedances & its Mitigation in Islanded Microgrids

N. Beg, University of Applied Sciences Kempten

Cost optimization of Renewable Energy Usage in Iran: A case Study

M. Gholizadeh, Otto von Guericke University Magdeburg

Electrification Scenarios for Central and South Asia, Project CASA-1000

M. Halimjanova, Helmut Schmidt University Hamburg

Increasing Tightness by Introduction of Intertemporal Constraints in MILP Unit Commitment

T. Zimmermann, Hamburg University of Technology

Friday, September 20th 2019

Welcome Back and Keynote Presentation

09:00 **Improving the Resilience of Power System Operation - Contribution of Renewable Energies in Power System Restoration**
Prof. M. Braun, Fraunhofer IEE & University of Kassel

Oral Presentation Session 4: Solutions for E-Mobility Pt. 2
(Session Chair: Prof. Dr. Braun)

09:30 **Technical, Economic and Regulatory Aspects of Distributed Monitoring and Control of Private Chargers in Low Voltage Networks**
S. Deters, Stromnetz Hamburg GmbH

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10:30 **Influence of Electric Vehicles and their Usage on Decentralized Photovoltaic Storage Systems**
C.-F. Klinck, University of Bremen

Sensitivity Analysis for the Levelized Cost of Storage of a Li-Ion Battery System using Battery Lifetime Calculation Model
E. Lüer, Vattenfall Europe Innovation GmbH

Coffee break & Poster-Session 2

Oral Presentation Session 5: Photovoltaic
(Session Chair: Prof. Dr. Malinowski)

11:30 **Miniature Inverter for Feeding into the Grid at Low Power with Minimum Number of Components**
D. Granford Ruiz, University of Kassel

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12:30 **Assessment of the Use of Fixed Models in PV Penetration Studies of Power Distribution Networks**
I. Davidson, Durban University of Technology

Optimal Ratio of PV and Wind Power at a Single Grid Connection Point
R. Grab, Fraunhofer ISE

12:30 Lunch

Oral Presentation Session 6: Grid Flexibility and Assistance
(Session Chair: Prof. Dr. Kreischer)

13:45 **Preparation of a Field Test to Evaluate a Local Flexibility Market as a Smart Grid Add-On**
J. Hermanns, Bergische Universität Wuppertal

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14:45 **A Novel DTC-based Control Method of Flywheel System to Improve Fault-Ride Through Capability of the Microgrids**
M. Ghasemi, Shiraz University & Luella University of Technology

Sub- and Super-Synchronous Characteristic of a Transformer Connected STATCOM Using Grid-Forming Control Method
P. Winter, University of Applied Sciences Düsseldorf

14:45 **Farewell**

Poster-Session 2

10:30-11:30

Friday, September 20th

Online Monitoring System for Photovoltaic Systems Using Anomaly Detection with Machine Learning
M. Benninger, Aalen University of Applied Sciences

Batteries in Grid Assisting Charging Infrastructure for E-mobility
K. Jahn, Fraunhofer IFAM

Influence of Protection Systems on the Vertical Grid Operation in Distribution Networks
X. Song, TU Ilmenau

Development of a Bipolar Battery Design and its Comparison to Conventional Batteries
L. Wilhelm, Fraunhofer UMSICHT

Use Cases of Battery Storage for Optimized Grid Load of Different Industries
F. Zippel, Aalen University of Applied Sciences

Transforming Fluctuating Wind Power to Base Load – How about Power-to-Ammonia?
M. Hölling, University of Applied Sciences Hamburg

Large-Scale Redox Flow Batteries
J. Girschik, Fraunhofer UMSICHT

Integrated Electrical and Chemical Energy Infrastructure
F. Mahr, Friedrich Alexander University Erlangen Nürnberg

Development of a Fully Electrified Zero CO₂ Emission Boat with Automated Energy Management and Storage
G. Freitas, University of Kassel

Conference Contributions:

Preliminary versions of all conference contributions are available on the conference website.
Log in with the credentials:

User: **NEIS2019**

Password: **NEIS@HSU**

Map for orientation:

This map is for your orientation during your stay at the NEIS Conference. The dinner on Thursday will be hosted by Offiziersheimgesellschaft (**OHG**). In order to reach the OHG you have to leave the HSU campus via the main entrance. All event locations are within 1km.

