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 - 09:45	**Opening Presentation** (Prof. D. Schulz, Helmut-Schmidt-University Hamburg) **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: TBA)	
10:00 - 11:20	**Comparison of RMS and EMT Models of Converter-Interfaced Distributed Generation Units Regarding Analysis of Short-Term Voltage Stability** L. Steinhäuser, TU Darmstadt **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 Lunch	
Oral Presentation Session 2: Grid Systems and Protection (Session Chair: TBA)	
12:30 - 13:30	**Impacts of Grounding Concepts in IT DC-Grids on SPD Safety** F. Schork, Dehn & Söhne **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: TBA)	
14:30 - 15:30	**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 **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, Montanuni Loeben
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

Digital Twins of Distribution Grid Using Harmonic Measurement
J. Teng, TU Ilmenau

COMPISO System - A Flexible Robust and Versatile PHIL Emulation Platform
H.-M. Baum, EGSTON Power Electronics

Development of Reference Storage Profiles for Electrical Grid Applications
B. Tepe, Technical University of Munich

Industrial Big Data (IDB) from Energy Measuring: Challenges and Requirements for a Universal IDB Database
M. Hein, Aalen University

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. Newe, Stromnetz Hamburg

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

Compensation of Reactive Power on the 500 kV AC Transmission Line with Static Var Compensators in Tajik Energy System, 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 Resiliance 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: TBA)

09:30 - 10:30	**Technical, Economic and Regulatory Aspects of Distributed Monitoring and Control of Private Chargers in Low Voltage Networks** S. Deters, Stromnetz Hamburg
	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

Coffee break & Poster-Session 2

Oral Presentation Session 5: Photovoltaic
(Session Chair: TBA)

11:30 - 12:30	**Miniature Inverter for Feeding into the Grid at Low Power with Minimum Number of Components while Complying with Grid Connection Conditions** D. Granford Ruiz, University of Kassel
	Assessment of the Use of Fixed Models in PV Penetration Studies of Power Distribution Networks I. Davidson, Durban University - RSA
	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: TBA)

13:45 - 14:45	**Preparation of a Field Test to Evaluate a Local Flexibility Market as a Smart Grid Add-On** J. Hermanns, Bergische Universität Wuppertal
	A Novel DTC-based Control Method of Flywheel System to Improve Fault-Ride Through Capability of the Microgrids A. Bagheri, Luela 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

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
J. Teng, 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

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

Proof of Concept for Electrically Controllable Fuel Cells
M. Schumann, Helmut-Schmidt-University Hamburg