



# - FINAL PROGRAM -

## Welcome to IEEE SmartGridComm 2015!

The Organizing Committee is pleased to welcome you to the 6th IEEE International Conference on Smart Grid Communications (SmartGridComm 2015) in Miami, Florida, USA. This conference brings together researchers and practitioners around the world who are leveraging and developing Information and Communication technology for the Intelligent Grid with attendant economic, environmental, and societal benefits.

IEEE SmartGridComm 2015 is centered on four thematic symposia, namely (i) Communications and Networks to Enable the Smartgrid, (ii) Cyber Security and Privacy, Architectures, (iii) Control and Operation for Smart Grids and Microgrids and (iv) Data Management, Grid Analytics, and Dynamic Pricing. The technical program will feature several outstanding keynote presentations, four parallel sessions of technical presentations as well as two panel discussions. The first day of the conference will feature two workshops and two tutorials that will be of strong interest to the Smart Grid Communications community. There will be a welcome reception on Tuesday evening and the conference banquet will be held on Wednesday evening.

We would like to thank the ComSoc support team, our global organizing committee and the many volunteers who contributed so much to the planning and implementation of IEEE SmartGridComm 2015.

We warmly invite you to participate in the IEEE SmartGridComm 2015 program of activities, including the Smart Grid demos and the diverse social program planned. We are confident that you will find this experience to be enriching, enlightening and rewarding.



Haniph Latchman  
General Co-Chair



Michael Koch  
General Co-Chair



Janise Mcnair  
Technical Program Co-Chair



Moises Ribeiro  
Technical Program Co-Chair



Mischa Dohler  
Technical Program Co-Chair



Siew-Chong Tan  
Technical Program Co-Chair

## - PROGRAM AT A GLANCE -

Monday 2 November	Tuesday 3 November	Wednesday 4 November	Thursday 5 November
08:00 – 08:50 Registration Grand Ballroom Foyer (L3)			
09:00 – 10:30 Workshops & Tutorials	08:30 – 09:50 Keynote Session Salon E (L3)	08:50 – 09:50 Keynote Session Salon E (L3)	08:50 – 09:50 Keynote Session Salon E (L3)
10:30 – 11:00 Coffee Break Foyer (L3)	09:50 – 10:20 Coffee Break Foyer (L3)		
11:00 – 12:30 Workshops & Tutorials	10:20 – 12:00 Technical Sessions	10:20 – 12:00 Technical and Panel Sessions	10:20 – 12:00 Technical Sessions
12:30 – 14:00 Lunch Salon F (L3)	12:00 – 13:30 Lunch Salon F (L3)		
14:00 – 15:30 Workshops & Tutorials	13:30 – 15:10 Technical Sessions	13:30 – 15:10 Technical Sessions	13:30 – 15:10 Technical Sessions
15:30 – 16:00 Coffee Break Salon F (L3)	15:10 – 15:40 Coffee Break Foyer (L3)		
16:00 – 17:30 Workshops & Tutorials	15:40 – 17:40 Technical and Panel Sessions	15:40 – 17:40 Technical Sessions	15:40 – 17:20 Technical Sessions
17:30 – 18:30 Demos & Exhibits Grand Ballroom Foyer (L3)	19:30 – 21:00 Welcome Reception Bay Front Terrace South (LL)	19:30 – 22:00 Gala Dinner Salon F (L3)	17:20 – 17:30 Closing Remarks Salon E (L3)

## GENERAL INFORMATION

### BADGES and TICKETS

IEEE SmartGridComm Badges must be worn at all times and are necessary for admittance to all Sessions and Meal functions.

### LUNCHEON

Lunch will be served daily from 12:30 – 14:00 in Salon F on Level 3. You must have your badge to be admitted to lunch. Please note that Monday's lunch is for Workshop Attendees only.

### INTERNET ACCESS

Complimentary Wireless Internet Access is available throughout the conference meeting space.

### CONFERENCE PROCEEDINGS

IEEE SmartGridComm proceedings have been published electronically and are available for you to download. The URL has been sent to you by email and was given to you when you picked up your registration materials. The download link will only be active until 3 December 2015 so download your copy today.

### EVALUATION FORMS

All conference participants will receive an overall conference evaluation by email after the conference. Your feedback is important to us and helps us plan future meetings.

### COMMITTEE MEETINGS // ROOM: FISHER ISLAND (L3)

#### - SGC Steering Committee

Monday, 2 November 2015 // 17:30 – 18:30

#### - IEEE ComSoc Technical Committee on PLC

Tuesday, 3 November 2015 // 12:00 – 13:30

#### - IEEE ComSoc Emerging Technical Subcommittee on Smart Grid Communications

Wednesday, 4 November 2015 // 17:30 – 18:30

- 2015 PATRONS -



**WILEY**



PLATINUM

EXHIBITOR

## - TECHNICAL CO-SPONSORS -



Department of Electrical & Computer Engineering



College of Engineering  
UNIVERSITY of FLORIDA



UNIVERSITY of FLORIDA

**Monday, 2 November 2015**  
**09:00 – 12:30 • Watson Island (L2)**

**TU1: Using Microgrids to Enhance Energy Security and Resilience**  
**Presenter: Jianhui Wang**  
(Argonne National Laboratory, Argonne, USA)

This tutorial is to introduce the basic concept of microgrids and the associated technologies. A variety of advanced control and energy management techniques used for microgrid security, operation and planning will be discussed.

**Monday, 2 November 2015**  
**09:00 – 12:30 • Salon GHJK (L3)**

**WS1: Evaluation Tools and Testbeds for Smart Grid Systems**  
**Workshop Co-Chairs: Arif Sarwat** (FIU, USA)  
**Saroj Biswas** (Temple University, USA)  
**Walid Saad** (Virginia Tech, USA)

This workshop will identify and discuss technical challenges and recent results related to Smart Grid evaluation tools. Discussion will range from modeling and simulation for cyber-physical systems (CPS), to control and game-theoretic approaches for CPS and security, to network simulators for Smart Grid communications.

**Presenters: David Herlong**, **Gurdip Singh**, **Michael Coddington**, **Ali Tajer**, **Amin Khodayi**, **Timothy R. McJunkin**, **Jesse Gantz**

**Monday, 2 November 2015**  
**14:00 – 17:30 • Watson Island (L2)**

**TU2: Smart Grid Frontiers: Smart Sensors, Signal Processing, and Data Analysis Applications**  
**Presenters: Kartikeya Tripathi**  
(Tollgrade Communications, Reston, USA)  
**Carlos Duque**  
(Federal University of Juiz de Fora, Brazil)

This tutorial explores some new directions of asset management and monitoring that utilities are beginning to employ using Smart Sensors and data processing. Topics include spectral analyses, harmonic and sag tracking, etc.

**Monday, 2 November 2015**  
**14:00 – 17:30 • Salon GHJK (L3)**

**WS2: Smart Cities: Challenges and Opportunities from a Grid Modernization Perspective**  
**Workshop Co-Chairs: Hao Liang**  
(University of Alberta, Canada)  
**Junho Hong**  
(ABB US Corporate Research Center, USA)

This workshop covers various associated topics, from renewables and distributed generation, to assimilation and impact of electric vehicles, to cyber-security aspects of grid management.

**Presenters: Wei Sun**, **A. Selcuk Uluagac**, **Kevin Corcoran**

**Monday, 2 November 2015**  
**17:30 – 18:30 • Grand Ballroom Foyer (L3)**

**Exhibitor & Demo Hour**

**Exhibitors:**  
- Wiley  
- Florida Power & Light (FP&L)  
- University of Florida  
**Demos:**  
- Florida Power & Light (FP&L) Mobile Command Center Demo  
- The Smart Grid Testbed at FIU (4 Tours per day)

**Tuesday, 3 November 2015**  
**08:30 – 09:50 • Salon E (L3)**

**Opening & Keynote Session**



**David L. Herlong**  
Director, Smart Grid and Innovation  
Florida Power and Light Company, USA

**Improving Customer Value by Driving Smart Grid Performance**

This talk will present the journey of Florida Power & Light (FP&L) to become one of the most resilient and intelligent electrical power utilities in the nation. The presentation will describe the fascinating transformation of FP&L from the early days of smart meters, to FPL's massive Energy Smart Florida program, to distribution automation and the self-healing grid, to smart street lights and sensors, to mobile solutions, and to predictive data analytics, all driven by innovation, technology, and flawless execution. The talk will focus on the vision and action plan for FP&L, to grow its smart grid infrastructure with the needs of the State of Florida for highly reliable, low cost electricity. By expanding FP&L's digital footprint, enabling the work force of the future and transforming data into actionable information are key anchor points for successfully attaining this vision, with a relentless emphasis on continuous process and customer experience improvement.

**Tuesday, 3 November 2015**  
**10:20 – 12:00 • Salon ABCD (L3)**

**S1-1: PLC for Smart Grid I**  
**Chair: Marzieh Parandehgheibi** (MIT, USA)

**Efficient Diversity Technique for Hybrid Narrowband-Powerline/Wireless Smart Grid Communications**  
Mostafa Sayed, Ghadi Sebaali, Brian L. Evans, Naofal Al-Dhahir (University of Texas, USA)  
**Noise Generated By Modern Lamps and the Influence on the Smart-Grid Communication Network**  
Allan Emler  
(University of Johannesburg, South Africa)

**Considerations on Narrowband and Broadband Power Line Communication for Smart Grids**

Andrea M. Tonello  
(University of Klagenfurt; WiTiKee srl, Austria)  
Alberto Pittolo (University of Udine, Italy)  
**Multi-armed Bandit Channel Selection for Power Line Communication**  
Babak Nikfar  
(University of Duisburg-Essen, Germany)  
Setareh Maghsudi (TU Berlin, Germany)  
Han Vinck  
(University of Duisburg-Essen, Germany)

**Tuesday, 3 November 2015**  
**10:20 – 12:00 • Salon E (L3)**

**S2-1: Privacy I**  
**Chair: A. Selcuk Uluagac** (FIU, USA)

**Worried About Privacy? Let Your PV Converter Cover Your Electricity Consumption Fingerprints**  
Andreas Reinhardt (TU Clausthal, Germany)  
Georgios Konstantinou  
(UNSW Australia, Australia)  
Dominik Egarter  
(University of Klagenfurt, Austria)  
Delphine Christin  
(University of Bonn and Fraunhofer FKIE, Germany)  
**How the Quantity and Quality of Training Data Impacts Re-identification of Smart Meter Users?**

Mustafa Faisal, Alvaro A. Cárdenas  
(UT, Dallas, USA)  
Daisuke Mashima  
(Fujitsu Laboratories of America, USA)  
**Privacy-Preserving and Secure Communication Scheme for Power Injection in Smart Grid**  
Prem Kumar Akula, Mohamed M E A Mahmoud  
(Tennessee Technological University, USA)  
Kemal Akkaya  
(Florida International University, USA)  
Min Song  
(Michigan Technological University, USA)  
**Privacy-preserving Spectral Estimation in Smart Grid**  
Yue Tong, Jinyuan (Stella) Sun, Kai Sun  
(University of Tennessee, USA)

**Tuesday, 3 November 2015**  
**10:20 – 12:00 • Salon GHJK (L3)**

**S3-1: Microgrid Control and Simulation I**  
**Chair: He Hao**  
(Pacific Northwest National Laboratory, USA)

**Heuristic Algorithm for Coordinating Smart Houses in MicroGrid**  
Mohamed Arikiez  
(University of Liverpool; University of Tripoli, UK)  
Floriana Grasso, Michele Zito  
(University of Liverpool, UK)  
**Market-based Microgrid Optimal Scheduling**  
Sina Parhizi, Amin Khodaei  
(University of Denver, USA)

**A Framework for Computing Power Consumption Scheduling Functions under Uncertainty**

Olivier Beaude

(Laboratory of Signals and Systems, France)

Achal Agrawal (University Paris 11, France)

Samson E. Lasaulce (CNRS, Supelec, France)

**Generalized Aggregation and Coordination of Residential Loads in a Smart Community**

He Hao, Abhishek Somani, Jianming Lian,

Thomas E. Carroll

(Pacific Northwest National Laboratory, USA)

**MDSM: Generalized Multiagent Coordination for Demand Side Management**

Andreas Veit (Cornell University, USA)

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Tuesday, 3 November 2015

10:20 – 12:00 • Watson Island (L2)

**S4-1: Power Grid Analytics**

**Chair: Lalitha Sankar**

(Arizona State University, USA)

**Secure Operating Region Simplification in Dynamic Security Assessment**

Dongchan Lee, Pirathayini Srikantha, Deepa

Kundur (University of Toronto, Canada)

**Cluster-and-Connect: A More Realistic Model for the Electric Power Network Topology**

Jiale Hu, Lalitha Sankar

(Arizona State University, USA)

Darakhshan Mir

(Wellesley College; Bucknell University, USA)

**Machine Learning for Inferring Phase Connectivity in Distribution Networks**

Sambaran Bandyopadhyay, Ramachandra Kota,

Rajendu Mitra, Vijay Arya (IBM Research, India)

Brian Sullivan, Heather Storey, Richard Mueller,

Gerard Labut (DTE Energy, USA)

**Demand Modeling in Electricity Market with Day-Ahead Dynamic Pricing**

Qian Ma, Xiao-Jun Zeng

(University of Manchester, UK)

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Tuesday, 3 November 2015

13:30 – 15:10 • Salon ABCD (L3)

**S1-2: PLC for Smart Grid II**

**Chair: Gregorio López**

(Universidad Carlos III de Madrid, Spain)

**Powerline-PNC: Boosting Throughput of Powerline Networks with Physical-Layer Network Coding**

Qing Yang, Hao Wang, Taotao Wang,

Lizhao You, Lu Lu, Soung Chang Liew

(Chinese University of Hong Kong, Hong Kong)

**MIMO-OFDM NB-PLC Transmission through Distribution Transformers: Modeling and Achievable Data Rates**

Andreas Chrysochos

(Democritus University of Thrace, Greece)

Ahmed ElSamadouny (UT, Dallas, USA)

Theofilos A. Papadopoulos,

Grigoris K. Papagiannis

(Aristotle University of Thessaloniki, Greece)

Naofal Al-Dhahir (UT, Dallas, USA)

**Shortened Frame Design for Narrowband Powerline Communication Systems**

Mehul Soman, Il Han Kim

(Texas Instruments, USA)

**Electric Current Based Power Line Communication for Plug-Load Device Auto Identification**

Hiroyuki Ikegami, Manabu Tsukada,

Hideya Ochiai (University of Tokyo, Japan)

Hideaki Nii (IIJ Innovation Institute, Japan)

Hiroshi Esaki (University of Tokyo, Japan)

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Tuesday, 3 November 2015

13:30 – 15:10 • Salon E (L3)

**S2-2: Cyber-Physical Security**

**Chair: Stephen D. Wolthusen**

(Royal Holloway, University of London, UK;

Gjøvik University College, Norway)

**Sequential Cyber-Attack Detection in the Large-Scale Smart Grid System**

Shang Li (Columbia University, USA)

Yasin Yilmaz (University of Michigan, USA)

Xiaodong Wang (Columbia University, USA)

**A Co-Simulation Environment for Integrated Cyber and Power Systems**

Chih-Che Sun

(Washington State University, USA)

Junho Hong (ABB USCRC, USA)

Chen-Ching Liu

(Washington State University, USA)

**Towards Cyber-Physical Intrusion Tolerance**

Shamina Hossain (University of Illinois, USA)

Sriharsha Etigowni (Rutgers University, USA)

Katherine Davis

(PowerWorld Corporation, USA)

Saman Zonouz (Rutgers University, USA)

**Detecting Malicious Manipulation of Synchrophasor Data**

Seemita Pal

(Rensselaer Polytechnic Institute, USA)

Biplab Sikdar

(National University of Singapore, Singapore)

Joe H. Chow

(Rensselaer Polytechnic Institute, USA)

**Real-time Situational Awareness for Critical Infrastructure Protection**

Stefan Jucken, Nick Saunders, Bakul Khanna,

Timothy Collins, Steve Lusk (ViaSat Inc., USA)

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Tuesday, 3 November 2015

13:30 – 15:10 • Salon GHJK (L3)

**S3-2: Efficient Load Operation**

**Chair: Hamed Mohsenian-Rad**

(UC, Riverside, USA)

**Load Balancing in Smart DC Micro-grid Using Delay Tolerant User Demands**

Daud Mustafa Minhas

(University of Lahore, Pakistan)

**Distributed Energy Matching and Exchange Scheme for Demand-side Optimal Operation**

Shantanu Chakraborty, Toshiya Okabe

(NEC Corporation, Japan)

**Multi-Agent Device-Level Modeling Framework for Demand Scheduling**

Andreas Veit (Cornell University, USA)

Hans-Arno Jacobsen

(TU Munich, Germany)

**Optimal End User Energy Storage Sharing in Demand Response**

Jiyun Yao, Parv Venkatasubramaniam

(Lehigh University, USA)

**A Control System Framework for Privacy Preserving Demand Response of Thermal Inertial Loads**

Abhishek Halder, Xinbo Geng, Gaurav Sharma,

Le Xie, P R Kumar (Texas A&M University, USA)

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Tuesday, 3 November 2015

13:30 – 15:10 • Watson Island (L2)

**S4-2: Game-Theoretic Analysis in Smart Grid**

**Chair: Hao Liang**

(University of Alberta, Canada)

**A Game Theoretic Approach for Load-Shifting in the Smart Grid**

Murat Erkok, Eeyad El-Ahmadi, Nurcin Celik

(University of Miami, USA)

Walid Saad (Virginia Tech, USA)

**A Firm-Union Bargaining Game Approach for PHEV Charging Access Control**

Yuan Liu, Hao Liang

(University of Alberta, Canada)

**Optimal Time of Use of Renewable Electricity Pricing: Three-Player Games Model**

Siham Khoussi, Hasnae Bilil, Ghassane Aniba

(Mohammed V University of Rabat,

Morocco)

**An Autonomous Demand Response Program in Smart Grid with Foresighted Users**

Shahab Bahrami, Vincent W.S. Wong

(University of British Columbia, Canada)

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Tuesday, 3 November 2015

15:40 – 17:40 • Salon ABCD (L3)

**S1-3: Smart Metering Networks**

**Chair: Mehul Soman** (Texas Instruments, USA)

**Path Error-Aware RTO Design for Smart Meter Data Traffic in IEEE 802.11s-based AMI Networks**

Nico Saputro, Kemal Akkaya, Ali Ihsan Yurekli

(FIU, USA)

**Joint Optimization of Power Allocation and Relay Selection for Smart Grid**

**Neighborhood Area Networks**

Dehua Li, Xiaoli Chu, Jie Zhang

(University of Sheffield, UK)

**Optimized Scalable Decentralized Hybrid Advanced Metering Infrastructure for Smart Grid**

Alireza Ghasempour

(Utah State University, USA)

**Envisioning Cloud of Energy**

Leila Sharifi

(Instituto Superior Técnico, Portugal)

Felix Freitag

(Technical University of Catalonia, Spain)

Luís Veiga

(INESC-ID Lisboa; Instituto Superior Técnico,

Universidade de Lisboa, Portugal)

**Tuesday, 3 November 2015**  
**15:40 – 17:40 • Salon E (L3)**

**S3-3: Renewable Power Generation I**  
**Chair: Vincent Wong**  
(University of British Columbia, Canada)

***Robust Dispatch with Power Flow Routing and Renewables***

Junhao Lin, Victor O. K. Li, Ka-Cheong Leung  
(University of Hong Kong, Hong Kong)  
***Smart Grid Energy Management for a Shared Facility Controller with Renewables***  
Wayes Tushar (SUTD, Singapore)  
Jian A. Zhang (CSIRO, Australia)  
Chau Yuen (SUTD, Singapore)  
David B. Smith (NICTA, Australia)  
H. Vincent Poor (Princeton University, USA)  
***Optimal Centralized Renewable Energy Transfer Scheduling for Electrical Vehicles***  
Abdurrahman Arikan, Ruofan Jin, Bing Wang, Song Han (University of Connecticut, USA)  
Kyoungwon Suh (Illinois State University, USA)  
Peng Zhang  
(University of Connecticut, USA)

***DC Fault Analysis of Multi-terminal HVDC for Wind Power Transmission***

Xia Chen  
(University of Hong Kong, Hong Kong)  
***Environment-Aware Power Generation Scheduling in Smart Grids***  
Zhiheng Xu, Quanyan Zhu (NYU, USA)

**Tuesday, 3 November 2015**  
**15:40 – 17:40 • Salon GHJK (L3)**

**S4-3: Synchrophasor Applications in Smart Grid**  
**Chair: Chen Chen**  
(Argonne National Laboratory, USA)

***Scalable and Reliable Monitoring for Power Systems***

Alexandru Moga, Thomas Locher  
(ABB Corporate Research, Switzerland)  
***Real-Time Event Detection and Feature Extraction Using PMU Measurement Data***  
Ti Xu, Thomas Overbye  
(University of Illinois, Urbana-Champaign, USA)  
***DISTIL: Design and Implementation of a Scalable Synchrophasor Data Processing System***  
Michael Andersen, Sam Kumar, Connor Brooks, Alexandra von Meier, David Culler  
(University of California, Berkeley)  
***On-line Oscillations Monitoring Under High Penetration of Non-Synchronous Generation***  
Harold Chamorro (KTH, Sweden)

**Tuesday, 3 November 2015**  
**15:40 – 17:40 • Watson Island (L2)**

**Panel 1: Communication Technologies for Smart Grids: Experiences from Installations and Pilots**  
**Moderator: Michael Koch** (Develo, Germany)

Communications between the elements of energy systems are at the heart of Smart Grids. There are many technological approaches to achieve this. Some communication technologies are based on powerline communications, others

and wireless approaches etc. Business models range from telecommunication operator models to own operation by the Distribution Network Operators (DNO)s. This industry panel aims to discuss experiences, lessons learned and challenges from installations and results of pilot field trials.

**Panelists: Joel Silverman** (Megachips, USA)  
**Holger Hirsch**  
(University of Duisburg-Essen, Germany)  
**Rasmus Krigslund** (Kamstrup A/S, Denmark)  
**Jörg Benze**  
(T-Systems Multimedia Solutions GmbH, Germany)

**Tuesday, 3 November 2015**  
**19:30 – 21:00**  
**Bay Front Terrace South (LL)**

**Welcome Reception**

**Wednesday, 4 November 2015**  
**08:50 – 09:50 • Salon E (L3)**

**Keynote Session**



**Pramod P. Khargonekar**  
Assistant Director, Directorate of Engineering NSF

***Enabling Research for Future Electric Energy Grid: A Perspective from NSF***

Electric power systems are expected to undergo major changes in the coming decades. These changes are made possible by advances in cyber-physical systems, communications, computation and controls. On the other hand, renewable electricity, distributed generation, flexible loads, demand response, and cybersecurity are some of the key drivers for the ongoing changes. This talk will present a perspective on the research opportunities from the perspective speaker in his role at the National Science Foundation. The talk will begin by describing the NSF engineering directorate and give an overview of the energy research enabled by NSF. The remainder of the talk will then focus on specific directions in electric grid research supported by the NSF, concluding with a discussion of the challenges that lie ahead and where promising opportunities may lie.

**Wednesday, 4 November 2015**  
**10:20 – 12:00 • Salon ABCD (L3)**

**Panel 2: Communications, Data Fusion, and Big Data Analytics in Smart Grids**  
**Moderator: Hamed Mohsenian-Rad**  
(University of California, Riverside, USA)  
This industry panel aims to discuss the new and emerging applications, functionalities, and algorithms of communications, data fusion,

and big data analytics in power systems and smart grids. Different application areas will be discussed, ranging from power system automation to and fault and attack detection, demand response, renewable power integration, and market operation.

**Panelists: Rui Zhang** (IBM Research, USA)  
**He Hao**  
(Pacific Northwest National Laboratory, USA)  
**Alexandru Moga** (ABB Research, Sweden)  
**Stefan Jucken** (ViaSat Inc., USA)  
**Daisuke Mashima**  
(Fujitsu Laboratories of America, USA)

**Wednesday, 4 November 2015**  
**10:20 – 12:00 • Salon E (L3)**

**S2-3: Fault Tolerance and Dependability**  
**Chair: Kartikeya Tripathi**  
(Tollgrade Communications, USA)

***Impact of Firmware Modification Attacks on Power Systems***

Charalambos Konstantinou (NYU, USA)  
Michail Maniatakos (NYU, UAE)  
***Formal Synthesis of Dependable Configurations for Advanced Metering Infrastructures***  
Mohammad Ashiqur Rahman  
(Tennessee Tech University, USA)  
Ehab Al-Shaer  
(University of North Carolina, Charlotte, USA)

***On Performance and Robustness of Internet-Based Smart Grid Communication: A Case Study for Germany***

Sebastian Meiling, Thomas C. Schmidt, Till Steinbach (Hamburg University of Applied Sciences, Germany)

***Multiple Event Analysis for Large-scale Power Systems through Cluster-based Sparse Coding***

Yang Song, Wei Wang, Zhifei Zhang, Hairong Qi, Yilu Liu  
(University of Tennessee, USA)

**Wednesday, 4 November 2015**  
**10:20 – 12:00 • Salon GHJK (L3)**

**S3-4: Electric Vehicles**  
**Chair: Zhenhua Liu**  
(Stony Brook University, USA)

***An Electric-Vehicle-based Supplementary Power Delivery System***

Albert Y.S. Lam  
(Hong Kong Baptist University, Hong Kong)  
Ka-Cheong Leung, Victor O. K. Li  
(University of Hong Kong, Hong Kong)  
***Event-based Electric Vehicle Scheduling Considering Random User Behaviors***  
Bin Wang, Yubo Wang, Charlie Qiu, Chi-Cheng Chu, Rajit Gadhi  
(UCLA, USA)

***Optimal Scheduling for Coordination Renewable Energy and Electric Vehicles Consumption***

Long HA (CEA, France)  
Hervé Guillou (LSEI, France)  
Nicolas Martin (CEA, France)  
Mireille Jacomino, Van-Dat Cung  
(G-SCOP, France)

**Reusing Electric Vehicle Battery for Demand Side Management Integrating Dynamic Pricing**

Shijie Tong, Tsz Fung, Jae Wan Park (UC, Davis, USA)

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**Wednesday, 4 November 2015**  
**10:20 – 12:00 • Watson Island (L2)**

**S4-4: Demand Response**  
**Chair: Holger Hirsch**  
(Universität Duisburg-Essen, Germany)

**An Economic Analysis of Pervasive, Incentive-Based Demand Response**

Tri Kurniawan Wijaya, Matteo Vasirani (EPFL, Switzerland)  
Jonas Christoffer Villumsen (IBM Research, Ireland)

Karl Aberer (EPFL, Switzerland)

**Prediction Models for Dynamic Demand Response: Requirements, Challenges, and Insights**

Saima Aman (USC, USA)  
Marc E. Frincu (USC; West University of Timisoara, USA)  
Charalampos Chelmiss, Muhammad Noor (USC, USA)

Yogesh Simmhan (IISc, India)  
Viktor K. Prasanna (USC, USA)

**Combined Price and Event-based Demand Response Using Two-stage Model Predictive Control**

Michael D. Knudsen, Sergi Rotger-Griful (Aarhus University, Denmark)

**Distributed Demand Curtailment via Water-Filling**

Pirathayini Srikantha, Deepa Kundur (University of Toronto, Canada)

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**Wednesday, 4 November 2015**  
**13:30 – 15:10 • Salon ABCD (L3)**

**S1-4: Traffic Monitoring and Analysis**  
**Chair: David Bakken**  
(Washington State University, USA)

**Modeling the Impact of Communication Loss on the Power Grid under Emergency Control**

Marzieh Parandehgheibi, Konstantin Turitsyn, Eytan Modiano (MIT, USA)

**Block Sparsity for Joint NBI and Impulse Noise Mitigation in Hybrid PLC Wireless Communications**

Mohamed Mokhtar (UT, Dallas, USA)  
Waheed U. Bajwa (Rutgers University, USA)  
Mahmoud Elgenedy, Naofal Al-Dhahir (UT, Dallas, USA)

**Interference Mitigation Techniques for Narrowband Powerline Smart Grid Communications**

Mahmoud Elgenedy, Mostafa Sayed, Mohamed Mokhtar (UT, Dallas, USA)  
Mohamed M. Abdallah

(Texas A&M University, Qatar)  
Naofal Al-Dhahir (UT, Dallas, USA)

**Performance Analysis of DF Cooperative Relaying Over Bursty Impulsive Noise Channel**

MD. Sahabul Alam, Fabrice Labeau (McGill University, Canada)

**Wednesday, 4 November 2015**  
**13:30 – 15:10 • Salon E (L3)**

**S2-4: Data Attacks**  
**Chair: Andreas Reinhardt**  
(TU Clausthal, Germany)

**Smart Grid Data Injection Attacks: To Defend or Not?**

Anibal Sanjab, Walid Saad (Virginia Tech, USA)

**Correlative Monitoring for Detection of False Data Injection Attacks in Smart Grids**

Michael Kallitsis (University of Michigan; Merit Network, Inc., USA)

George Michailidis (University of Michigan, USA)

Samir Tout (Eastern Michigan University, USA)

**Optimal Data Attacks on Power Grids: Leveraging Detection & Measurement Jamming**

Deepjyoti Deka, Ross Baldick, Sriram Vishwanath (UT, Austin, USA)

**Construct Data Integrity Attacks against Real-Time Electrical Market in Smart Grid**

Song Tan, Wen-Zhan Song, Michael Stewart (Georgia State University, USA)  
Lang Tong (Cornell University, USA)

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**Wednesday, 4 November 2015**  
**13:30 – 15:10 • Salon GHJK (L3)**

**S3-5: Microgrid Control and Simulation II**  
**Chair: Chee-Wooi Ten**  
(Michigan Technological University, USA)

**Multiagent-Based Decentralized Operation of Microgrids Considering Data Interoperability**

Mehmet Cintuglu, Osama Mohammed (FIU, USA)

**Energy Management of Cooperative Microgrids with P2P Energy Sharing in Distribution Networks**

Tian Liu (HKUST; Xi'an Jiaotong University, Hong Kong)

Xiaoqi Tan, Bo Sun (HKUST, Hong Kong)

Yuan Wu

(Zhejiang University of Technology, China)

Xiaohong Guan (Xi'an Jiaotong University; Tsinghua University, China)

Danny H.K. Tsang (HKUST, Hong Kong)

**A Reputation-Based Centralized Energy Allocation Mechanism for Microgrids**

Tarek AISkaif, Manel Guerrero Zapata (UPC, Spain)

Boris Bellalta (UPF, Spain)

**Combining Storage and Generation for Prepaid Electricity Service**

Jared Porter (UC, Berkeley, USA)

Michael Angelo A. Pedrasa

(University of the Philippines, Philippines)

Andrew Woo, Kameshwar Poola

(UC, Berkeley, USA)

**A Maximum A-Posteriori Based Algorithm for Dynamic Load Model Parameter Estimation**

Siming Guo, Thomas Overbye (University of Illinois, Urbana-Champaign, USA)

**Wednesday, 4 November 2015**  
**13:30 – 15:10 • Watson Island (L2)**

**S4-5: Data Management in Smart Grid**  
**Chair: Alexandru Moga**  
(ABB Corporate Research, Switzerland)  
**Java Embedded Storage for Time Series and Meta Data in Smart Grids**

Stephan Cejka, Ralf Mosshammer, Alfred Einfalt (Siemens AG Österreich, Austria)

**Towards Application-Aware Data Concentration Schemes for Advanced Metering Infrastructures**

Vishnu Cherusola Dev, Uddipan Das, Vinod Nambodiri, Suvagata Chakraborty, Visvakumar Aravinthan

(Wichita State University, USA)

Yu Guo, Anurag Srivastava (Washington State University, USA)

**Performance Comparison Framework for Energy Disaggregation Systems**

Nicholas Czarnek, Kenneth Morton, Leslie Collins, Richard Newell, Kyle J. Bradbury (Duke University, USA)

**Methodologies for Effective Demand Response Messaging**

Mohit Jain, Vikas Chandan (IBM Research India)

Marilena Minou, George Thanos (Athens University of Economics and Business, Greece)

Tri Kurniawan Wijaya (EPFL, Switzerland)

Achim Lindt (RWTH, Germany)

Arne Gylling (LTU, Sweden)

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**Wednesday, 4 November 2015**  
**15:40 – 17:40 • Salon ABCD (L3)**

**S1-5: Traffic Monitoring and Analysis**  
**Chair: David Bakken**  
(Washington State University, USA)

**Tracking Appliance Usage Information Using Harmonic Signature Sensing**

Deokwoo Jung (SK Telecom, Korea; Advanced Digital Sciences Center, Singapore)

Hoang Hai Nguyen, David Yau (Advanced Digital Sciences Center, Singapore)

**IEC 61850 Traffic Analysis in Electrical Automation Networks**

Djamel Hadj Sadok, Judith Kelner (Federal University of Pernambuco, Brazil)  
Ubiratan Carmo (Chesf, Brazil)

**Let There Be Light: Dissecting How PRIME Networks Work Based on Actual Traffic Traces**

Miguel Seijo Simó, Gregorio López (Universidad Carlos III de Madrid, Spain)

Javier Matanza

(Universidad Pontificia Comillas, Spain)

Jose Ignacio Moreno

(Universidad Carlos III de Madrid, Spain)

Fernando Martín

(Unión Fenosa Distribución, Spain)

Carlos Rodríguez-Morcillo, Sadot Alexandres

(Universidad Pontificia Comillas, Spain)

**Effects of Bursty Event Traffic on Synchronphasor Delays in IEEE C37.118, IEC61850 and IEC60870**

Yiming Wu, Lars Nordström (KTH, Sweden)

David Bakken

(Washington State University, USA)

Wednesday, 4 November 2015  
15:40 – 17:40 • Salon E (L3)

**S2-5: Other Security Attacks**  
Chair: Muharrem Ayar (UF, USA)

***Delay and Jitter Attacks on Hierarchical State Estimation***

Alessio Baiocco, Stephen D. Wolthusen  
(Royal Holloway, University of London, UK;  
Gjøvik University College, Norway)

***Tuning Out of Phase: Resonance Attacks***

Eman M. Hammad  
(University of Toronto, Canada)  
Ahmed Mostafa Khalil  
(University of Toronto; Cairo University, Canada)  
Abdallah Farraj, Deepa Kundur, Reza Iravani  
(University of Toronto, Canada)

***A Detection and Mitigation Model for PTP Delay Attack in a Smart Grid Substation***

Bassam Moussa, Mourad Debbabi, Chadi Assi  
(Concordia University, Canada)

***Detecting Dynamic Load Altering Attacks: A Data-Driven Time-Frequency Analysis***

Sajjad Amini, Fabio Pasqualetti,  
Hamed Mohsenian-Rad (UC, Riverside, USA)

***Secure Interoperability with Commercial Open Standards***

Craig Woods (ViaSat Inc., USA)

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Wednesday, 4 November 2015  
15:40 – 17:40 • Salon GHJK (L3)

**S3-6: Energy Storage**

Chair: Husheng Li  
(University of Tennessee, Knoxville, USA)

***Modeling and Control Battery Aging in Energy Harvesting Systems***

Roberto Valentini (Universita' dell'Aquila, USA)  
Nga Dang, Marco Levorato, Eli Bozorgzadeh  
(UC, Irvine, USA)

***Battery Internal State Estimation Using a Mixed Kalman Cubature Filter***

Venkata Pathuri Bhuvana  
(University of Klagenfurt, Austria)  
Mario Huemer  
(Johannes Kepler University Linz, Austria)  
Andrea M. Tonello (University of Klagenfurt;  
WiTiKee srl, Austria)

***Sizing and Control of Residential Solar Panel and Battery***

Neda Edalat, Mehul Motani  
(National University of Singapore, Singapore)  
Jean Walrand (UC, Berkeley, USA)

***A Mixed-Mode Management System for Grid Scale Energy Storage Units***

Babak Asghari, Rakesh Patil, Di Shi,  
Ratnesh Sharma  
(NEC Labs America Inc, USA)

***A Method for Remote Control of EV Charging by Modifying IEC61851 Compliant EVSE Based PWM Signal***

Anders Bro Pedersen, Sergejus Martinenas,  
Peter Andersen, Thomas Sørensen,  
Henning Si Høj (DTU, Denmark)

Wednesday, 4 November 2015  
15:40 – 17:40 • Watson Island (L2)

**S4-6: Pricing and Incentive Design for Smart Grid**

Chair: Yang Weng  
(Stanford University, USA)

***A Socially Aware Incentive Strategy for Encouraging Residential Solar Uptake in Brunei***

Harshad Khadilkar  
(Tata Consultancy Services, India)  
Pratyush Kumar, Subendhu Rongali,  
Sampath Dechu (IBM Research, India)  
Iskandar Petra (University of Brunei  
Darussalam, Brunei Darussalam)

***Day-Ahead Promised Load as Alternative to Real-Time Pricing***

Araz Ashouri, Paul Stadler, Francois Marechal  
(EPFL, Switzerland)

***Incentives and Targeting Policies for Automated Demand Response Contracts***

Marilena Minou, George Stamoulis,  
George Thanos (Athens University of  
Economics and Business, Greece)

***Pricing Sequential Forward Power Contracts***

Wenyuan Tang (USC, USA)  
Junjie Qin (Stanford University, USA)  
Rahul Jain (USC, USA)  
Ram Rajagopal (Stanford University, USA)

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Wednesday, 4 November 2015  
19:30 – 22:00

Salon F (L3)

Gala Dinner

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Thursday, 5 November 2015  
08:50 – 09:50 • Salon E (L3)

Keynote Session



**Osama Mohammed**

Director, Energy Systems Research Laboratory  
Florida International University

***Design and Simulation Issues for Secure Power Networks as Resilient Smart Grid Infrastructures***

This presentation addresses the challenges encountered in integrating a wide variety of traditional and renewable energy systems with different regulations and ownership, leading to increased uncertainty in demand generation resource availability. The large number and widespread use of these resources installed on a distribution network lacking proper communication mechanisms increases the challenges of centralized control and management. The talk describes the need for deep integration between intelligent measurement nodes, communication systems, IT technology, artificial intelligence, power electronics and physical power system

components, to manage these modern smart grid resources. This type of integration can dramatically improve grid performance and efficiency, but can also introduce new types of vulnerability. The design and optimization of such complex systems requires coordination between the cyber and physical components in order to maximize performance while minimizing the risk of vulnerability. In other words, the physical power system must be designed as a security-aware system.

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Thursday, 5 November 2015  
10:20 – 12:00 • Salon ABCD (L3)

**S1-6: Communication and Networking Technologies in Smart Grid**  
Chair: Mehul Soman (Texas Instruments, USA)

***Modeling and Delay Analysis of Wireless Home Area Networks in a Smart Grid***

Abdulfattah Noorwali, Raveendra K. Rao,  
Abdallah Shami

(University of Western Ontario, Canada)

***Hybrid Wi-Fi/LTE Aggregation Architecture for Smart Meter Communications***

Farshad Koohifar, Nico Saputro, Ismail Güvenç,  
Kemal Akkaya (FIU, USA)

***Energy-aware Adaptive Restricted Access Window for IEEE 802.11ah Based Smart Grid Networks***

Yanru Wang, Yun Li, Kok Keong Chai,  
Yue Chen, John Schormans  
(Queen Mary, University of London, UK)

***An Adaptive MAC for HomePlug Green PHY PLC to Support Realistic Smart Grid Applications***

Muharrem Ayar, Haniph A. Latchman,  
Janise McNair (UF, USA)

***Open System for Energy Services (OS4ES)***

Jörg Benze and Andreas Lang (T-Systems  
Multimedia Solutions GmbH, Germany)  
Antonis Papanikolaou (Hypertech SA, Greece)  
Tim Dethlefs (Hochschule für Angewandte  
Wissenschaften Hamburg, Germany)  
Wolfgang Renz (Hamburg University of Applied  
Sciences, Germany)  
Andrea Schröder (FGH, Germany)

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Thursday, 5 November 2015  
10:20 – 12:00 • Salon E (L3)

**S2-6: Privacy II, Authentication and Detection**  
Chair: Richard Newman (UF, USA)

***Lynx: Authenticated Anonymous Real-Time Reporting of Electric Vehicle Information***

Hongyang Li  
(University of Illinois, Urbana-Champaign, USA)  
György Dán (KTH, Sweden)

Klara Nahrstedt (University of Illinois, USA)

***Authenticated Down-Sampling for Privacy-Preserving Energy Usage Data Sharing***

Daisuke Mashima  
(Fujitsu Laboratories of America, USA)

***Combining Electric Vehicle and Rechargeable Battery for Household Load Hiding***

Yanan Sun, Lutz Lampe, Vincent W.S. Wong  
(University of British Columbia, Canada)

**Detection of X86 Malware in AMI Data Payloads**

Vignesh Babu, David Nicol  
(University of Illinois, Champaign-Urbana, USA)

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Thursday, 5 November 2015  
10:20 – 12:00 • Salon GHJK (L3)

**S3-7: Renewable Power Generation II**  
**Chair: Mohammad Khodayar**  
(Southern Methodist University, USA)

**Effect of Aggregation for Multi-site Photovoltaic (PV) Farms**

Han Seung Jang, Kuk Yeol Bae, Hong-Shik Park, Dan Keun Sung (KAIST, Korea)

**Sizing Residential Photovoltaic Systems in the State of Georgia**

Rami J. Haddad, Adel El Shahat, Bikiran Guha, Youakim Kalaani  
(Georgia Southern University, USA)

**Baseline Measurements of an AC Solar Photo Voltaic Micro Grid System in a Reserve Forest of India**

Kaustubh Karnataki, Akshay A. Deshpande, Tejas Kumar, Kavya Darshana (FluxGen Engineering Technologies Pvt. Ltd., India)  
Abhishek Joshi (KLS Gogte Institute of Technology, India)  
Ganesh Shankar, Mitavachan Hiremath (FluxGen Engineering Technologies Pvt. Ltd., India)

**Energy Storage Management in Smart Homes Based on Resident Activity of Daily Life Recognition**

Peng Zhuang, Hao Liang  
(University of Alberta, Canada)

**Optimal Energy Management for Microgrids with Cogeneration and Renewable Energy Sources**

Zheming Liang, Yuanxiong Guo  
(Oklahoma State University, USA)

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Thursday, 5 November 2015  
10:20 – 12:00 • Watson Island (L2)

**S4-7: Smart Building and Energy Efficiency I**  
**Chair: Rui Zhang**  
(IBM T.J. Watson Research Center, USA)

**Automated Customer Segmentation Based on Smart Meter Data with Temperature and Daylight Sensitivity**

Christian Beckel, Leyna Sadamori (ETH Zurich, Switzerland)  
Silvia Santini (TU Dresden, Germany)  
Thorsten Staake  
(University of Bamberg, Germany)

**Creating Influential Nodes in a Smart Building Social Network**

Alex Cassidy, Arye Nehorai  
(Washington University, St. Louis, USA)

**Model Predictive Control of Integrated Room Automation Considering Occupants Preference**

Sareh Agheb, Xiaoqi Tan, Danny H.K. Tsang  
(HKUST, Hong Kong)

**Dynamic Building Energy Consumption Forecast Using Weather Forecast Interpolations**

Rui Zhang  
(IBM T. J. Watson Research Center, USA)  
Hongxia Yang (Tech Yahoo!, USA)

Thursday, 5 November 2015  
13:30 – 15:10 • Salon ABCD (L3)

**S1-7: Advancing PHY Layer for Smart Grid Communication**  
**Chair: Nico Saputro** (FIU, USA)

**Robust Decoding for OFDM Systems in Memory Impulse Channels**

Der-Feng Tseng, Tsung-Li Chang (National Taiwan University of Science and Technology, Taiwan)

**Sum-Rate-Optimal Dual-QoS MIMO Multicasting over Medium-Voltage NB-PLC Networks**

Ahmed ElSamadouny, Naofal Al-Dhahir  
(UT, Dallas, USA)

**Power Talk in DC Micro Grids: Constellation Design and Error Probability Performance**

Marko Angjelichinoski  
(Aalborg University, Denmark)  
Čedomir Stefanović (Aalborg University; University of Novi Sad, Denmark)

Petar Popovski, Frede Blaabjerg  
(Aalborg University, Denmark)

**Channel Occupancy - Faster, Better, Stronger**

Tanguy Ropitault (Telecom Bretagne, France)  
Alexander Pelov (Institut Mines-Telecom; Telecom Bretagne, France)  
Laurent Toutain (Telecom Bretagne, France)  
Ramanuja Vedantham  
(Texas Instruments Inc., USA)  
Philippe Chiummiento (ITRON, France)

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Thursday, 5 November 2015  
13:30 – 15:10 • Salon E (L3)

**S1-8: Cyber Physical Systems and Application Layer Technologies in Smart Grid**

**Chair: Husheng Li**  
(University of Tennessee, USA)

**Communications for Distributed State Estimation in CPSs with Application in Smart Grids**

Husheng Li (University of Tennessee, USA)  
Ju Bin Song  
(Kyung Hee University, Korea)

**Entropy Analysis of CPS with Application in Smart Grids: From Discrete Network to Continuum Limit**

Husheng Li  
(University of Tennessee, USA)

**The CoAP-based M2M Gateway for Distribution Automation System Using DNP3.0 in Smart Grid Environment**

Injae Shin, Doo-seop Eom  
(Korea University, Korea)  
Byung-Kwen Song  
(SeoKyeong University, Korea)

**A Lightweight CoAP-based Software Defined Networking for Resource Constrained AMI Devices**

Jaebeom Kim, Young-Bae Ko  
(Ajou University, Korea)  
Fethi Filali (QMIC, Qatar)

Thursday, 5 November 2015  
13:30 – 15:10 • Salon GHJK (L3)

**S3-8: Voltage and Frequency Regulation**  
**Chair: Saman Aliari Zonouz**  
(Rutgers University, USA)

**Fast Localized Voltage Regulation in Single-Phase Distribution Grids**

Vassilis Kekatos (University of Minnesota; University of Patras, USA)

Liang Zhang, Georgios B. Giannakis  
(University of Minnesota, USA)  
Ross Baldick (UT, Austin, USA)

**Local Voltage Control in Distribution Systems: An Incremental Control Algorithm**

Masoud Farivar  
(California Institute of Technology, USA)

Xinyang Zhou, Lijun Chen  
(University of Colorado, Boulder, USA)

**Algorithms for Voltage Control in Distribution Networks**

Guido Cavraro, Ruggero Carli  
(University of Padova, Italy)

**Analysis of Energy- And SoC-Neutral Contracts for Frequency Regulation with Energy Storage**

Dariusz Fooladivanda  
(University of Toronto, Canada)  
Catherine Rosenberg  
(University of Waterloo, Canada)

Siddharth Garg  
(New York University, USA)

**Risk-averse Forward Contract for Electric Vehicle Frequency Regulation Service**

Enxin Yao, Vincent W.S. Wong, Robert Schober  
(University of British Columbia, Canada)

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Thursday, 5 November 2015  
13:30 – 15:10 • Watson Island (L2)

**S3-9: Microgrid Control and Simulation III**  
**Chair: Husheng Li**  
(University of Tennessee, Knoxville, USA)

**On Using Distributed Energy Resources to Reshape the Dynamics of Power Systems during Transients**

Abdallah Farraj, Eman M. Hammad, Deepa Kundur  
(University of Toronto, Canada)

**Multi-Threading Based Parallel Dynamic Simulator for Transient Behavior Analysis of Power Systems**

Jie Wu (University of Notre Dame, USA)  
Peter Feldmann (D. E. Shaw Research, USA)  
Jinjun Xiong  
(IBM Thomas J. Watson Research Center, USA)

Yiyu Shi (Missouri University of Science & Technology, USA)

**A Systematic Approach to Delay-Adaptive Control Design for Smart Grids**

Abdallah Farraj, Eman M. Hammad, Deepa Kundur (University of Toronto, Canada)

**Multi-Domain Modeling of Distributed Energy Systems: The MOCES Approach**

Lukas Exel, Felix Felgner, Georg Frey  
(Saarland University, Germany)

**Stochastic Control of Energy Efficient Buildings: A Semidefinite Programming Approach**

Xiao Ma, Jin Dong, Seddik M. Djouadi  
(University of Tennessee, USA)  
James Nutaro, Teja Kuruganti  
(Oak Ridge National Laboratory, USA)

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Thursday, 5 November 2015  
15:40 – 17:20 • Salon ABCD (L3)

**S1-9: Modeling and Performance Analysis**  
Chair: Nico Saputro (FIU, USA)

**Holistic Modeling Approach for Techno-Economic Evaluation of ICT Infrastructures for Smart Grids**

Nils Dorsch, Stefan Böcker, Christian Hägerling, Christian Wietfeld

(TU Dortmund University, Germany)

**PeRF-Mesh: A Performance Analysis Tool for Large Scale RF-mesh-based Smart Meter Networks with FHSS**

Filippo Malandra

(Polytechnique Montreal; Ecole Polytechnique de Montreal, Canada)

Brunilde Sansò

(Ecole Polytechnique de Montreal, Canada)

**Large-scale ASP-based HEMS Utilizing Interactive Web Technologies**

Temuulen Enkhee, Go Hasegawa, Yuya Tarutani, Kazuhiro Matsuda, Morito Matsuoka

(Osaka University, Japan)

**Real-time Pricing Strategy with Multi-Retailers Based on Network Stability**

Huwei Chen (Shanghai University, China)  
Zhou Su (Waseda University, Japan)

Dongfeng Fang, Hui Hui

(Shanghai University, China)

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Thursday, 5 November 2015  
15:40 – 17:20 • Salon E (L3)

**S3-10: Power System Resilience**  
Chair: Chee-Wooi Ten

(Michigan Technological University, USA)

**PLCloud: Comprehensive Power Grid PLC Security Monitoring with Zero Safety Disruption**

Henry Senyondo (University of Miami, USA)

Pengfei Sun (Rutgers University, USA)

Robin Berthier

(University of Illinois, Urbana-Champaign, USA)

Saman Zonouz

(Rutgers University, USA)

**Transmission Network Restoration**

**Considering AC Power Flow Constraints**

Ali Arab (University of Houston, USA)

Amin Khodaei (University of Denver, USA)

Suresh Khator, Zhu Han

(University of Houston, USA)

**Dynamic Resilience for Power Distribution System and Customers**

Chuanyi Ji, Yun Wei

(Georgia Institute of Technology, USA)

**Resilient Control Design for Wind Turbines Using Markov Jump Linear System Model with Levy Noise**

Juntao Chen, Quanyan Zhu (NYU, USA)

Liuwei Zhou (NYU; Polytechnic School of Engineering, USA)

**A Communication Framework for an Ad Hoc Microgrid for Disaster Response**

Hussain Al Suwaidan, Salman Mohagheghi,

Qi Han (Colorado School of Mines, USA)

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Thursday, 5 November 2015  
15:40 – 17:20 • Salon GHJK (L3)

**S4-8: Energy Management and Control in Smart Grid**

Chair: Yuanxiong Guo

(Oklahoma State University, USA)

**Coordinated Energy Management for Colocation Data Centers in Smart Grids**

Yuanxiong Guo

(Oklahoma State University, USA)

Miao Pan (University of Houston, USA)

**Optimal Battery Energy Storage System Control in Microgrid with Renewable Energy Generation**

Wanrong Tang, Ying Jun (Angela) Zhang

(Chinese University of Hong Kong, Hong Kong)

**Delivering Smart Load-shedding for Highly-stressed Grids**

Noman Bashir (National University of Science and Technology, Pakistan)

Zohaib Sharani, Khushboo Qayyum, Affan Syed (National University of Computer and Emerging Sciences, Pakistan)

**SHE: Smart Home Energy Management System Based on Social and Motion Behavior Cognition**

Siyun Chen, Ting Liu, Yadong Zhou,

Chao Shen, Feng Gao, Yulin Che,

Zhanbo Xu

(Xi'an Jiaotong University, China)

**Probabilistic Estimation of the Potentials of Intervention-Based Demand Side Energy Management**

Jiafan Yu, Yang Weng, Chin-Woo Tan,

Ram Rajagopal (Stanford University, USA)

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Thursday, 5 November 2015  
15:40 – 17:20 • Watson Island (L2)

**S4-9: Smart Building and Energy Efficiency II**

Chair: Kirk Spence

(University of the West Indies, Jamaica)

**A Fully Unsupervised Nonintrusive Load Monitoring Framework**

Ruoxi Jia (UC Berkeley, USA)

**Residential Appliance Monitoring Based on Low Frequency Smart Meter Measurements**

Herath Gedara Chinthaka Pathum Dinesh,

Pramuditha Perera, Gunawath Mudiyansele

Roshan Indika Godaliyadda, Mervyn Parakrama

Ekanayake

(University of Peradeniya, Sri Lanka)

Janaka Ekanayake

(Cardiff University, UK)

**Smart Home Energy Management Systems Based on Non-Intrusive Load Monitoring**

Wenjin (Jason) Li, Xiaoqi Tan, Danny H. K.

Tsang (HKUST, Hong Kong)

**Suspicious Electric Consumption Detection Based on Multi-Profiling Using Live Machine Learning**

Thomas Hartmann, Assaad Moawad, Francois Fouquet (University of Luxembourg, Luxembourg)

Yves Reckinger

(Creos Luxembourg S.A., Luxembourg)

Tejeddine Mouelhi

(iTrust Consulting, Luxembourg)

Jacques Klein, Yves Le Traon

(University of Luxembourg, Luxembourg)

**The Meter Tells you are at Home! Non-Intrusive Occupancy Detection via Load Curve Data**

Guoming Tang, Kui Wu

(University of Victoria, Canada)

Jingsheng Lei

(Shanghai University of Electric Power, China)

Weidong Xiao

(National University of Defense and Technology, China)

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Thursday, 5 November 2015  
17:20 – 17:30 • Salon E (L3)

Closing Remarks