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 -

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- FINAL PROGRAM -

- PROGRAM AT A GLANCE -

- TECHNICAL CO-SPONSORS -
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, Gurdeep 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 FP&L’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 row 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 Emleh
(University of Johannesburg, South Africa)

Considerations on Narrowband and Broadband Power Line Communication for Smart Grids
Andrea M. Tonello
(University of Klagenfurt; WiTikkee srl, Austria)
Alberto Pittollo (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 Ankiew
(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)
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
Dongchuan Lee, Pirathayini Srikantha, Deepa Kundur (University of Toronto, Canada)

Jiale Hu, Lalitha Sankar (Arizona State University, USA)

Demand Modeling in Electricity Market with Day-Ahead Dynamic Pricing
Qian Ma, Xiao-Jun Zeng (University of Manchester, UK)

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 AML Networks
Nico Saputo, 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
Alirezha Ghasempour (Utah State University, USA)

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; Gjovik University College, Norway)

Sequential Cyber-Attack Detection in the Large-Scale Smart Grid System
Shang Li (Columbia University, USA)

Towards Cyber-Physical Intrusion Tolerance
Shamina Hossain (University of Illinois, USA)

A Co-Simulation Environment for Integrated Cyber and Power Systems
Chih-Chie Sun (Washington State University, USA)

Detecting Malicious Manipulation of Synchronophor Data
Seemla Pal (Rensselaer Polytechnic Institute, USA)

Real-time Situational Awareness for Critical Infrastructure Protection
Stefan Junken, Nick Saunders, Bakul Khanna, Timothy Collins, Steve Lusk (ViaSat Inc., USA)

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
Daud Mustafa Minhaz (University of Lahore, Pakistan)

Distributed Energy Matching and Exchange Scheme for Demand-side Optimal Operation
Shantanu Chakraborty, Toshiya Okabe (NEC Corporation, Japan)

Optimal End User Energy Storage Sharing in Demand Response
Jiyun Yao, Parv Venktasubramaniam (Lehigh University, USA)
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 Arikian, Ruoofan 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 E (L3)
S4-3: Renewable Power Generation I
Chair: Vincent Wong
(University of British Columbia, Canada)

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)
S5-1: Synchrophasor Applications in Smart Grids
Chair: Chen Chen
(Argonne National Laboratory, USA)

Scalable and Reliable Monitoring for Power Systems
Alexandru Mogă, 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, Alexandru 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 (Devolo, 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 on wireless approaches etc. Business models range from telecommunication operator models to own operation by the Distribution Network Operators (DNOs). This industry panel aims to discuss experiences, lessons learned and challenges from installations and results of pilot field trials.

Panelists: Rui Zhang (IBM Research, USA)
He Hao (Pacific Northwest National Laboratory, USA)
Alexandru Mogă (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)
S5-3: 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, Yili Liu (University of Tennessee, USA)

S3-3: Synchrophasor Applications in Smart Grids: Experiences from Installations and Pilots
Moderator: Michael Koch (Devolo, Germany)

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 Mogă (ABB Research, Sweden)
Stefan Jucken (ViaSat Inc., USA)
Daisuke Mashima (Fujitsu Laboratories of America, USA)
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, Waild Saad (Virginia Tech, USA)
Correlative Monitoring for Detection of False Data Injection Attacks in Smart Grids
Michael Kaliliatsis (University of Michigan; Merit Network, Inc., USA)
George Michalidis (University of Michigan, USA)
Samir Tout (Eastern Michigan University, USA)

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

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)
Xiaqi 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 AlSkaif, Manel Guerrero Zapata (UPC, 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 Poolla (UC, Berkeley, USA)

A Maximum A-Posteriori Based Algorithm for Dynamic Load Model Parameter Estimation
Sining Guo, Thomas Oberby (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 Cecja, Ralf Moshammer, Alfred Einfalt (Siemens AG Österreich, Austria)

Towards Application-Aware Data Concentration Schemes for Advanced Metering Infrastructures
Vishnu Cheruolsa Dev, Uddipan Das, Vinod Namboodiri, Suvagata Chakraborty, Visvakumar Aravindhan (Wichita State University, USA)
Yu Guo, Anurag Srivastava (Washington State University, USA)

Performance Comparison Framework for Energy Disaggregation Systems
Nicholas Czamek, 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)

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 Rodriguez-Morcillo, Sadot Alexandres (Universidad Pontificia Comillas, Spain)

Effects of Bursty Event Traffic on Synchrophasor 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 Balocco, Stephen D. Wolthusen
(Royal Holloway, University of London, UK;
Gjøvik University College, Norway)
Tuning Out of Phase: Resonance Attacks
Eman M. Hammed
(University of Toronto, Canada)
Ahmed Mostafa Khalil
(University of Toronto; Cairo University, 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
Saied Amini, Fabio Pasqualetti,
Hamed Mohsenian-Rad (UC, Riverside, USA)
Secure Interoperability with Commercial Open Standards
Craig Woods (ViaSat Inc., USA)

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
(EFPL, Switzerland)
Incentives and Targeting Policies for Automated Demand Response Contracts
Marilena Minou, George Stamoulis,
George Thanos (Athens University of Economics and Business, Greece)
Vikas Chandan (IBM Research, India)
Pricing Sequential Forward Power Contracts
Wenyuan Tan (USC, USA)
Junjie Qin (Stanford University, USA)
Rahul Jain (USC, USA)
Ram Rajagopal (Stanford University, USA)

Wednesday, 4 November 2015
19:30 – 22:00
Salon F (L3)
Gala Dinner

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.

Thursday, 5 November 2015
10:20 – 12:00 ● Salon A3BCD (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 Saputo, 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, Hanipgh 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)

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)
Hyögy Dán (KTH, Sweden)
Kiara 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)
Thursday, 5 November 2015
10:20 – 12:00 • Salon GHJK (L3)
S3-7: Renewable Power Generation II
Chair: Mohammad Khodayan
(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 Kamataki, Akshay A. Deshpande, Tejas Kumar, Kavya Darshana (FluxGen Engineering Technologies Pvt. Ltd., India)
Abhishek Joshi (KLS Gogte Institute of Technology, 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)

Thursday, 5 November 2015
13:30 – 15:10 • Salon ABCD (L3)
S1-7: Advancing PHY Layer for Smart Grid Communication
Chair: Nico Saputo (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 ElSamadoueny, Naofal Al-Dhahir (UT, Dallas, USA)
Power Talk in DC Micro Grids: Constellation Design and Error Probability Performance
Marko Angelichinoski (Aalborg University, Denmark)
Čedomir Stefanović (Aalborg University; University of Novi Sad, Denmark)
Petr Popovski, Frede Blaabjerg (Aalborg University, Denmark)
Channel Occupancy - Faster, Better, Stronger
Tanguy Ropiltault (Telecom Bretagne, France)
Alexander Pelov (Institut Mines-Telecom; Telecom Bretagne, France)
Laurent Toutain (Telecom Bretagne, France)
Ramanuju Vedantham (Texas Instruments Inc., USA)
Philippe Chiumentino (ITRON, France)

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
Jaebeon Kim, Young-Bae Ko (Ajou University, Korea)
Fethi Filali (QMIC, Qatar)
**Thursday, 5 November 2015**

**15:40 – 17:20 ● Salon ABCD (L3)**

**S1-9: Modeling and Performance Analysis**

Chair: Nico Saputo (FIU, USA)

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

Nils Dorsch, Stefan Böcker, Christian Hägerling, Christian Wittfeld

(TU Dortmund University, Germany)

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

Filippo Malandra

(Politecnico di Torino; 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 Tanaka, Kauzihiro Matsuda, Morito Matsuoka

(University of Tokyo, Japan)

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

Huwei Chen (Shanghai University, China)

Zhao Su (Waseda University, Japan)

Dongfeng Fang, Hui Hui

(Shanghai University, China)

**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

(University of Texas at Austin, USA)

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

Juntao Chen, Quanyan Zhu (NYU, USA)

Liwei 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)

**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 Shari, 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, Fong Gao, Yulin Che, Zhanbo Xu

(Xi’an Jiaotong University, China)

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

Jianfa Yu, Yang Weng, Ching-Woo Tan, Ram Rajagopal (Stanford University, USA)

Thursday, 5 November 2015

**15:40 – 17:20 ● Salon ABCD (L3)**

**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 Mudiyanselega, 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, Xiaqi 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)

Tejeddie 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)

**Thursday, 5 November 2015**

**17:20 – 17:30 ● Salon E (L3)**

**Closing Remarks**