

5th Annual IEEE International Conference on Smart Grid Communications



IEEE  
**SmartGridComm™**  
— 3-6 November 2014 • Venice, Italy —

**FINAL PROGRAM**

[www.ieee-smartgridcomm.org](http://www.ieee-smartgridcomm.org)



# PATRONS

## GOLD PATRONS



Enel is Italy's largest power company and Europe's second listed utility by installed capacity. It is a leading integrated player in the power and gas markets of Europe and Latin America, operating in 32 countries across 4 continents overseeing power generation from over 95 GW of net installed capacity and distributing electricity and gas through a network spanning around 1.9 million km to serve approximately 61 million customers.

Enel Group subsidiary Enel Distribuzione SpA is the second largest distribution system operator (DSO) in Europe, with over 32 million customers and more than 1.1 million km lines. With 32 million smart meters installed at its customer premises, all remotely operated, Enel Distribuzione is at the forefront in the development and roll-out of smart grid technologies.

**Enel:** <https://www.enel.com/en-GB/>



SIMEST's mission is the promotion of the internationalization of Italian businesses through: Equity participations up to 49% of the equity capital of foreign firms, both directly and through a Venture Capital Fund (Governmental Fund managed by SIMEST) to support foreign investment in countries outside the European Union. Since 2011 SIMEST can acquire stakes of up to 49% in Italian companies and/or their EU subsidiaries that develop investments in production and in innovation and research at market terms without support; Assistance and advisory services on investment projects for the optimization of their economic, financial (funding activities) and legal aspects; Partners and investment opportunities search activities for the research of both investment opportunities and new industrial and commercial partners; Management of governmental facilities for internationalization.

**Simest:** <http://www.simest.it/index-en.php>



The Department of Information Engineering of the University of Padova (DEI) was established in 1985 as a continuation of the Institute of Electrical Engineering founded in 1920. With about 100 faculty, 40 staff and 130+ PhDs and post-doc members, DEI is one of the largest national academic research centers in Bioengineering, Control, Computer Science, Electronics, Laser and Quantum Physics, and Telecommunications.

**Dep. Inf. Eng. Padova:** <http://www.dei.unipd.it/>



METERS AND MORE is an International non-profit association that operates and promotes the new generation communication protocol METERS AND MORE. Over 40 companies have already joined the Association. The METERS AND MORE initiative is a concrete step to provide standard pan-European Smart Metering solutions.

**Meters and More:** <http://www.metersandmore.com/>



PRIME (PowerLine Intelligent Metering Evolution) defines an open, royalty free and non-proprietary standard for the only commercially available, mass-deployed OFDM PLC technology that ensures true interoperability among equipment and systems enabling the building of the electricity networks of the future, or smart grids.

The PRIME Alliance today boasts a worldwide membership of 65+ cross sector companies including utilities, research institutes, chipset and software companies, smart meter and data concentrator vendors, integrators and consultants.

**Prime:** <http://www.prime-alliance.org/>



Selta is a medium-size Italian company leader in Automation, Telecommunications, Information & Communication Technology and Security sectors. Founded in 1972, today it operates with 330 employees. The headquarters are in Cadeo (Piacenza) along with the Business Unit related to Energy Automation & Transport. Other main offices are in Tortoreto (Teramo), for Enterprise Communication & Network market, and in Rome for Defence & CyberSec. Selta has also branches in Madrid and in Moscow. The 2013 turnover was around 58 million of Euro, 13% of which re-invested in R&D activities.

**Selta:** <http://www.selta.com/>



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**Opal rt:** <http://www.opal-rt.com/>



SMART GRIDS ITALIA: the Italian Industrial System for Smart Grids  
Italian Excellences Networked - Smartgridsitalia fosters Italian Smart Grids industrial operators by directing them to consider offering integrated standardized and interoperable products and solutions, capable to fit to modular applications in Italy and abroad.

**SmartGrid Italia:** <http://www.smartgridsitalia.it>



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## SILVER PATRONS

## DEMOS

## TECHNICAL CO-SPONSORS



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## PROGRAM AT A GLANCE

MONDAY 3 NOVEMBER	TUESDAY 4 NOVEMBER	WEDNESDAY 5 NOVEMBER	THURSDAY 6 NOVEMBER
08:00 – 08:50	08:00 – 08:30	08:00 – 08:50	08:00 – 08:50
Registration (Room: F1)	Registration (Room: F1)	Registration (Room: F1)	Registration (Room: F1)
08:50 – 09:00	08:30 – 08:50		
Workshop Day Opening (Room: C)	Conference Opening (Room: C)		
09:00 – 10:30	08:50 – 09:50	08:50 – 09:50	08:50 – 09:50
WS1 (Room: A+B)	Keynote 1 (Room: C)	Keynote 2 (Room: C)	Keynote 3 (Room: C)
WS2 (Room: C)			
10:30 – 11:00	09:50 – 10:20	09:50 – 10:20	09:50 – 10:20
Coffee Break (Room: F1)	Coffee Break (Room: F1)	Coffee Break (Room: F1)	Coffee Break Room: (Room: F1)
11:00 – 12:30	10:20 – 12:00	10:20 – 12:00	10:20 – 12:00
WS1 (Room: A+B)	S1-1 (Room: C)	S1-4 (Room: C)	S1-7 (Room: C)
WS2 (Room: C)	S2-1 (Room: A)	S2-3 (Room: A)	S2-5 (Room: A)
	S3-1 (Room: B)	S3-4 (Room: B)	S3-6 (Room: B)
	S4-1 (Room: D)	S4-3 (Room: D)	S4-6 (Room: D)
12:30 – 14:00	12:00 – 13:30	12:00 – 13:30	12:00 – 13:30
Lunch (Room: Molino+Stucky)	Lunch (Room: Molino+Stucky)	Lunch (Room: Molino+Stucky)	Lunch (Room: Molino+Stucky)
14:00 – 15:30	13:30 – 15:10	13:30 – 15:10	13:30 – 15:10
WS3 (Room: C)	S1-2 (Room: C)	S1-5 (Room: C)	S1-8 (Room: C)
WS4 (Room: A+B)	S2-2 (Room: A)	S3-5 (Room: B)	S2-6 (Room: A)
	S3-2 (Room: B)	S4-4 (Room: D)	S3-7 (Room: B)
	S5-1 (Room: D)	S5-2 (Room: A)	S5-3 (Room: D)
15:30 – 16:00	15:10 – 15:40	15:10 – 15:40	15:10 – 15:40
Coffee Break (Room: F1)	Coffee Break (Room: F1)	Coffee Break (Room: F1)	Coffee Break (Room: F1)
16:00 – 17:30	15:40 – 17:40	15:40 – 17:40	15:40 – 17:20
WS3 (Room: C)	S1-3 (Room: A)	S1-6 (Room: B)	S1-9 (Room: C)
WS4 (Room: A+B)	S3-3 (Room: B)	S2-4 (Room: A)	S3-8 (Room: B)
	S4-2 (Room: D)	S4-5 (Room: D)	S4-7 (Room: D)
	PS-1 (Room: C)	PS-2 (Room: C)	17:20 – 17:30
			Closing Remarks (Room: C)
17:30 – 18:30	19:30 – 21:00	19:30 – 22:00	
Demo and Exhibits (Room: F2)	Welcome Reception (Room: F1)	Gala Dinner (Room: F1)	



**Andrea M.  
Tonello**



**Michele  
De Nigris**



**Vincent  
Wong**



**John  
McDonald**



**Lars  
Nordström**



**Paolo  
Tenti**

## **It is our great honor and pleasure to welcome you to the 5th IEEE International Conference on Smart Grid Communications (SmartGridComm 2014).**

IEEE SmartGridComm 2014 will take place in Venice, a fascinating and marvelous Italian city, from 3-6 November 2014 at Hilton Molino Stucky Hotel. The Hilton Molino Stucky is a modern venetian masterpiece that once was a flourishing flourmill, now beautifully restored. The hotel, unlike any other, offers a different, breathtaking view of the city and it is only five-minute boat ride away from San Marco square, the hearth of Venice.

This event provides a forum to discuss all aspects that are relevant to smart grid communication and information technologies, bringing together researchers and practitioners from academia, industry, and government institutions, with backgrounds in communication, energy, control, signal processing, and information systems to exchange ideas, explore enabling technologies, discuss innovative designs, and share field trial experiences and lessons learned.

The evolution of today's electricity grids into smart grids is a key element for the sustainable economic, environmental and societal growth worldwide. The migration to smarter grids requires the integration and exploitation of information and communication technologies. However, it is not obvious which communication technologies will be integrated into electricity grids and in what way. Communication systems need to be seen as part of a larger system of systems, including in particular energy, control, and information processing systems to support two-way energy flows, the automatic management of power outages, the integration of renewable energy sources and allowing the consumers to play an active role in energy production and consumption. The overlap of disciplines is part of the specific challenge and appeal of smart grid communications research and development.

IEEE SmartGridComm 2014 features an extensive technical program extending over four days. This year an outstanding record of 399 paper submissions, from authors representing 51 different countries, have been received. All papers have received at least 3 reviews from international experts coordinated by 19 Symposia Co-Chairs and 185 TPC members. In total, 166 papers have been accepted. The accepted papers are included in technical sessions belonging to 5 thematic symposia: "Communications and Networks to Enable the Smart Grid," "Cyber Security and Privacy," "Architectures, Control and Operation for Smart Grids, Microgrids and Distributed Resources," "Demand Response and Dynamic Pricing," "Data Management and Grid Analytics."

To foster industrial participation and to increase the interaction with the research community, 4 workshops on relevant topics have been organized; these workshops take place on the first conference day. In addition, the conference program includes 3 keynote talks from distinguished leaders and renowned academics, as well as 2 panel sessions.

We are grateful to the authors that submitted their research work, the Symposia Co-Chairs, the Workshop Co-Chairs and all volunteers that have significantly contributed to the preparation of the technical program. We are also indebted with all other organization committee members whose passion and dedication allowed us to organize the conference.

**We look forward to welcoming you in Venice and we hope you will enjoy the conference!**

**General Co-Chairs**  
**Andrea M. Tonello**  
**Michele De Nigris**

**Technical Program Committee Co-Chairs**  
**Vincent Wong**  
**John McDonald**

**Lars Nordström**  
**Paolo Tenti**

# COMMITTEES

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University of Klagenfurt, Austria  
**Michele de Nigris**, Ricerca Sistema Energetico (RSE), Italy

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**Lars Nordström**, Royal Institute of Technology, Sweden  
**Paolo Tenti**, University of Padova, Italy

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**Roberta Bigliani**, IDC Energy Insights, Italy

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**Claudia Imposimato**, Ricerca Sistema Energetico (RSE), Italy

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**Jamil Khan**, University of Newcastle, Australia  
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**Jian Song**, Tsinghua University, China  
**Ilhami Çolak**, University of Gazi, Turkey  
**Hendrik Ferreira**, University of Johannesburg, South Africa

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### Travel Grants

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**Diane Williams**, IEEE ComSoc, USA

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## SYMPOSIA CO-CHAIRS

### S1: Communications and Networks to Enable the Smart Grid

**Min Dong**, University of Ontario Institute of Technology, Canada  
**Nei Kato**, Tohoku University, Japan  
**Michele Zorzi**, University of Padova, Italy  
**Romano Napolitano**, ENEL, Italy

### S2: Cyber Security and Privacy

**György Dan**, Royal Institute of Technology, Sweden  
**Sandro Etalle**, Technical University of Eindhoven, Netherlands  
**Kui Ren**, SUNY Buffalo, USA  
**Paolo Santi**, CNR-IIT, Italy

### S3: Architectures, Control and Operation for Smart Grids, Microgrids and Distributed Resources

**Hamed Mohsenian-Rad**, University of California, Riverside, USA  
**George Karinotakis**, Ecole de Mines, France  
**Antonello Monti**, University of Aachen, Germany  
**Flavio Cucchietti**, Telecom Italia, Italy

### S4: Demand Response and Dynamic Pricing

**Jianwei Huang**, Chinese University of Hong Kong, China  
**Javad Lavaei**, Columbia University, USA  
**Damien Ernst**, University of Liege, Belgium  
**Maher Chebbo**, SAP, France

### S5: Data Management and Grid Analytics

**George Kesidis**, Penn State University, USA  
**Husheng Li**, University of Tennessee, USA  
**Jianhui Wang**, Argonne National Laboratory, USA

# KEYNOTE SPEAKERS



Tuesday, 4 November 2014  
08:50 – 09:50 • Room C

**Ian Hiskens**  
University of Michigan, USA

## Enhanced Power System Responsiveness through Load Control

Responsive load control offers a particularly effective approach to compensating for the variability inherent in large-scale renewable generation, and mitigating the effects of generation and transmission outages. Furthermore, as plug-in electric vehicles grow in popularity, scheduling their charging load will become vitally important to prevent local overloads, and to ensure optimal use of generation resources. Fortunately expansive communications networks and advances in distributed control algorithms facilitate precise, non-disruptive forms of load control. The presentation will discuss a range of control strategies, from distribution-level controls that prevent localized overloads to games that arise in coordinating the charging of large numbers of electric vehicles.

**Biography:** Prof. Ian Hiskens is the Vennema Professor of Engineering in the Department of Electrical Engineering and Computer Science at the University of Michigan, Ann Arbor. He has held prior appointments in the Queensland electricity supply industry, and at various universities in Australia and the United States. His research interests lie at the intersection of power system analysis and systems theory, with recent activity focused largely on integration of renewable generation and controllable load.

Dr. Hiskens is actively involved in various IEEE societies, and is VP-Finance of the IEEE Systems Council. He is a Fellow of the IEEE, a Fellow of Engineers Australia and a Chartered Professional Engineer in Australia.



Wednesday, 5 November 2014  
08:50 – 09:50 • Room C

**Marija Ilić**  
Carnegie Mellon University, USA

## The Role of Sensing, Estimation and Communications in the Emerging Electric Energy Systems

In this talk, we briefly summarize the use of sensors, estimation and communications in today's industry. We then describe, to the best of our understanding, lessons learned from recent R&D regarding types of technologies considered and industry pilot experiments on the way. We then introduce possible paradigms of operating the emerging power grids in the developed and developing countries in terms of performance objectives, and underlying business models in support of deploying innovative technologies at value. We conclude that, by-and-large, it is very difficult to fit into today's industry business models technology deployment at scale. To overcome this roadblock, we propose a general method for valuing flexibility in a primarily capacity-oriented industry. Examples are given of several low-hanging sensing, estimation and communication opportunities, as well as of the multi-scope values they could play in the changing industry and bring value much beyond their cost. We close by recommending that in order to define the highest value of these technologies within a very complex network system, whose complexities range across spatial, temporal and contextual, it is essential for the research and education community to bridge physics-based modeling and automation design to the architecture design of communication networks. If this is not done, major tradeoffs between the complexity and value added by any technology which brings value primarily by enabling flexibility will not be understood well. Therefore, one may over-invest or under-invest into these technologies much the same way as this has been done in the past when investing in new generation and T&D physical capacity. Making the case for value brought about by flexible technologies requires rethinking uncertainties and their management by many industry participants.

**Biography:** Prof. Marija Ilić received her Doctor of Science Degree in Systems Science and Mathematics at Washington University in St. Louis, MO in 1980, and all other degrees in Electrical Engineering at the University of Belgrade, Serbia. She is currently a Professor at Carnegie Mellon University, Pittsburgh, PA, with a joint appointment in the Electrical and Computer Engineering and Engineering and Public Policy Departments. She is the Director of the Electric Energy Systems Group (EESG), <http://www.eesg.ece.cmu.edu/>. She has co-authored several books in her field of interest. Most recently, she has co-edited the book entitled Engineering IT-Enabled Sustainable Electricity Service: The Tale of Two Low-Cost Green Azores Islands." The book is the first real power system repository of smart grid data and data is publicly available. Prof. Ilić is an IEEE Fellow.



Thursday, 6 November 2014  
08:50 – 09:50 • Room C

## **Patricia Arsene**

**EC Directorate General Communications Networks, Content and Technology, Belgium**

### **A European Perspective on Smart Grids**

Europe is aiming to develop a resilient Energy Union with diversified energy sources and a world-leading position in renewable energies. EU policy makers are gathering their efforts for ensuring that the deployment of a smart and intelligent energy system will happen. In this process, particular attention is to be given to integrated solutions based on existing ICT technologies, cyber security and strategic data analytics making use of shared ICT infrastructures and analytics capabilities for multiple use cases with the final aim to moving to real-time energy system awareness.

**Biography:** Dr. Patricia Arsene is a European Commission official working in the Information and Communication Technologies Programme. She is contributing to policy development in the area of smart grids and smart cities in parallel with monitoring research projects in the area of smart grids, energy efficiency and energy efficient buildings. She is also member of the Reference Group of the EC Smart Grids Task Force working on the smart grids standardisation under Mandate 490.

Prior to working in the European Commission, Patricia was associate professor and researcher in the Faculty of Control and Computers, Technical University of Bucharest, Romania and head of the Science Policy Department at the Romanian National Research Council. In-between, she held a project officer position in the European Science Foundation, Strasbourg, France. She holds an MSc in Power Engineering and a PhD in Automated Systems.



Tuesday, 4 November 2014 • 10:20 – 12:00 • Room C

## **S1-1: Smart Grid Network Resilience**

**Chair: Hans-Peter Schwefel** (Forschungszentrum Telekommunikation Wien; Aalborg University, Austria)

### **Mitigating Cascading Failures in Interdependent Power Grids and Communication Networks**

Marzieh Parandehgheibi, Eytan Modiano (MIT, USA)  
David Hay (Hebrew University of Jerusalem, Israel)

### **Recipes for Faster Failure Recovery in Smart Grid Communication Networks**

Oana Balmau (EPFL, Switzerland)  
Dacfez Dzung, Yvonne-Anne Pignolet (ABB Corporate Research, Switzerland)

### **Recovery from Link Failures in a Smart Grid Communication Network using OpenFlow**

Daniel Gyllstrom, Nicholas Braga, Jim Kurose  
(University of Massachusetts, Amherst, USA)

### **Application of Economical 920-MHz Band Wireless Communication to Power Routing in HVDC Networks**

Yuichi Kado (Kyoto Institute of Technology, Japan)  
Yasutaka Kawamoto (Oki Electric Industry Co., Ltd. & Japan, Japan)  
Akihiro Kobayashi, Makoto Kubomi, Yuma Nogami  
(Kyoto Institute of Technology, Japan)

### **Narrowband Power Line Communications Evaluation in Complex Distribution Networks**

Alfredo Sanz (University of Zaragoza; Atmel Spain SAU, Spain)  
Pedro Jose Piñero, José Miguel Idiago, Santiago Esteban Zorita  
(Atmel Corporation, Spain)  
Jose-Ignacio Garcia-Nicolas  
(University of Zaragoza, Atmel Spain SAU, Spain)

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Tuesday, 4 November 2014 • 10:20 – 12:00 • Room A

## **S2-1: False Data Injection Attacks**

**Chair: György Dán** (Royal Institute of Technology, Sweden)

### **Cyber Security Analysis of Power Networks by Hypergraph Cut Algorithms**

Yutaro Yamaguchi (University of Tokyo, Japan)  
Anna Ogawa (Keio University, Japan)  
Akiko Takeda, Satoru Iwata (University of Tokyo, Japan)

### **Identification of "Unobservable" Cyber Data Attacks on Power Grids**

Meng Wang, Pengzhi Gao, Scott G. Ghiocel, Joe H. Chow  
(Rensselaer Polytechnic Institute, USA)  
Bruce Fardanesh, George Stefopoulos (New York Power Authority, USA)  
Michael Razanousky  
(New York State Energy Research and Development Authority, USA)

### **Optimal Malicious Attack Construction and Robust Detection in Smart Grid Cyber Security Analysis**

Jinping Hao, Robert J. Piechocki, Dritan Kaleshi (University of Bristol, UK)  
Woon Hau Chin, Zhong Fan (Toshiba Research Europe, UK)

### **On Detection of Cyber Attacks Against Voltage Control in Distribution Power Grids**

Y. Isozaki (Tokyo Institute of Technology, Japan)  
Shinya Yoshizawa, Yu Fujimoto (Waseda University, Japan)  
Hideaki Ishii, Isao Ono (Tokyo Institute of Technology, Japan)  
Takashi Onoda (Central Research Institute of Electric Power Industry, Japan)  
Yasuhiro Hayashi (Waseda University, Japan)

### **Controller-Aware False Data Injection against Programmable Logic Controllers**

Stephen McLaughlin (Narus Inc, USA)  
Saman Zonouz (Rutgers University, USA)

Tuesday, 4 November 2014 • 10:20 – 12:00 • Room B

## **S3-1: Electric Vehicles**

**Chair: Tomaso Erseghe** (University of Padova, Italy)

### **Queueing Network Models for Electric Vehicle Charging Station with Battery Swapping**

Xiaoqi Tan, Bo Sun, Danny H. K. Tsang  
(Hong Kong University of Science and Technology, Hong Kong)

### **Online Reservation and Deferral of EV Charging Tasks to Reduce Energy Use Variability in Smart Grids**

Muhammad Abdullah Adnan (University of California, San Diego, USA)  
Balakrishnan Narayanaswamy (IBM Research, India)  
Rajesh Gupta (University of California, San Diego, USA)

### **Reducing Communication Requirements for Electric Vehicle Charging using Vehicle Originating-Signals**

Victor del Razo, Christoph Goebel, Hans-Arno Jacobsen  
(Technical University Munich, Germany)

### **Optimal Charging Operation of Battery Swapping Stations with QoS Guarantee**

Bo Sun, Xiaoqi Tan, Danny H. K. Tsang  
(Hong Kong University of Science and Technology, Hong Kong)

### **Critical Slowing-down as Indicator of Approach to the Loss of Stability**

Dmitry Podolsky, Konstantin Turitsyn (MIT, USA)

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Tuesday, 4 November 2014 • 10:20 – 12:00 • Room D

## **S4-1: Renewable Energy**

**Chair: Nikolaos Gatsis** (University of Texas, San Antonio, USA)

### **Electric Vehicle Charging Scheduling Under Local Renewable Energy and Stochastic Grid Power Price**

Tian Zhang (Tsinghua University; Shandong University, China)  
Wei Chen (Tsinghua University, China)  
Zhu Han (University of Houston, USA)  
Zhigang Cao (Tsinghua University, China)

### **Hybrid Renewable Energy Investment in Microgrid**

Hao Wang, Jianwei Huang (Chinese University of Hong Kong, Hong Kong)

### **Optimal Payment Sharing Mechanism for Renewable Energy Aggregation**

Farshad Harirchi, Tyrone Vincent, Dejun Yang  
(Colorado School of Mines, USA)

### **Growth in Renewable Generation and its Effect on Demand-Side Management**

Jay Taneja (University of California, Berkeley, USA)

### **Quantifying the Benefits of Extending Electric Vehicle Charging Deadlines with Solar Generation**

Omid Ardakanian, Catherine Rosenberg, Srinivasan Keshav  
(University of Waterloo, Canada)

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Tuesday, 4 November 2014 • 13:30 – 15:10 • Room C

## **S1-2: Microgrid Management**

**Chair: Giorgio M. Vitetta** (University of Modena and Reggio Emilia, Italy)

### **Evaluating Microgrid Management and Control with an Implementable Energy Management System**

Wenbo Shi, Eun-Kyu Lee, Daoyuan Yao, Rui Huang, Chi-Cheng Chu, Rajit Gadh (University of California, Los Angeles, USA)

### **A Distributed Load Scheduling Mechanism for Micro Grids**

Jânio Monteiro, Jorge Eduardo, Pedro Cardoso, Jorge Semião  
(ISE, University of Algarve, Portugal)

### **REST Assured, We Manage your Microgrid**

Alessandro Montanari, Yvonne-Anne Pignolet, Ettore Ferranti  
(ABB Corporate Research, Switzerland)



**A Novel Distributed Algorithm for Power Loss Minimizing in Smart Grid**  
Chao Wei, Zubair Fadlullah (Tohoku University, Japan)  
Ivan Stojmenovic (University of Ottawa, Canada)  
Nei Kato (Tohoku University, Japan)

**Real-Time Energy Management for Cooperative Microgrids with Renewable Energy Integration**

Katayoun Rahbar (National University of Singapore, Singapore)  
Chin Choy Chai (Institute for Infocomm Research, Singapore)  
Rui Zhang (National University of Singapore, Singapore)

Tuesday, 4 November 2014 • 13:30 – 15:10 • Room A

**S2-2: Privacy-preserving data collection**

**Chair: Sandro Etalle** (Technical University of Eindhoven, Netherlands)

**Load Hiding of Household's Power Demand**

Dominik Egarter (University of Klagenfurt, Austria)  
Christoph Prokop (Graz University of Technology;  
Lakeside Labs GmbH, Austria)  
Wilfried Elmenreich (University of Klagenfurt, Austria)

**A Privacy-Friendly Game-Theoretic Distributed Scheduling System for Domestic Appliances**

Cristina E.M. Rottondi, Antimo Barbato, Giacomo Verticale  
(Politecnico di Milano, Italy)

**Privacy Preserving Disclosure of Authenticated Energy Usage Data**

Daisuke Mashima, Arnab Roy (Fujitsu Laboratories of America, USA)

**Privacy-Enhanced Bi-Directional Communication in the Smart Grid using Trusted Computing**

Andrew J. Paverd, Andrew Martin, Ian Brown (University of Oxford, UK)

**Privacy-preserving Data Sharing in Smart Grid Systems**

Lei Yang, Hao Xue, Fengjun Li (University of Kansas, USA)

Tuesday, 4 November 2014 • 13:30 – 15:10 • Room B

**S3-2: Power Flow Analysis**

**Chair: Taha Selim Ustun** (Carnegie-Mellon University, USA)

**A Distributed Algorithm for Fast Optimal Power Flow Regulation in Smart Grids**

Tomaso Erseghe (University of Padova, Italy)

**Architectural Design and Load Flow Study of Power Flow Routers**

Junhao Lin, Victor O. K. Li, Ka-Cheong Leung  
(University of Hong Kong, Hong Kong)  
Albert Y.S. Lam (Hong Kong Baptist University, Hong Kong)

**Role of Communication on the Convergence Rate of Fully Distributed DC Optimal Power Flow**

Javad Mohammadi, Gabriela Hug, Soumya Kar  
(Carnegie Mellon University, USA)

**Optimal Power Flow for AC-DC Networks**

Shahab Bahrami, Vincent W.S. Wong, Juri Jatskevich  
(University of British Columbia, Canada)

**Comparison of a Primal and a Dual Decomposition for distributed MPC in Smart Districts**

Peter Pflaum (GIPSA-Lab; Schneider Electric, France)  
Mazen Alamir (GIPSA-Lab, France)  
Mohamed Yacine Lamoudi (Schneider Electric, France)

Tuesday, 4 November 2014 • 13:30 – 15:10 • Room D

**S5-1: Frequency Monitoring and Data Collection**

**Chair: Jianhui Wang** (Argonne National Laboratory, USA)

**Power Grid Frequency Monitoring over Mobile Platforms**

Haoyang Lu, Lingwei Zhan, Yilu Liu, Wei Gao (University of Tennessee, USA)

**GREEND: An Energy Consumption Dataset of Households in Italy and Austria**

Andrea Monacchi, Dominik Egarter, Wilfried Elmenreich  
(University of Klagenfurt, Austria)  
Salvatore D'Alessandro, Andrea M. Tonello  
(University of Udine; WiTiKee srl, Italy)

**Reconsidering the Smart Metering Data Collection Frequency for Distribution State Estimation**

Qipeng Chen, Dritan Kaleshi (University of Bristol, UK)  
Zhong Fan (Toshiba Research Europe, UK)  
Simon Armour (University of Bristol, UK)

**Power Grid Disturbance Analysis Using Frequency Information at the Distribution Level**

Liu Liu, Jidong Chai, Hairong Qi, Yilu Liu (University of Tennessee, USA)

**A Methodology to Analyze Conservation Voltage Reduction Performance Using Field Test Data**

Hao Jan Liu, Richard Macwan, Nicholas Alexander, Hao Zhu  
(University of Illinois, USA)

Tuesday, 4 November 2014 • 15:40 – 17:40 • Room C

**PS-1: Panel Session: Wireless and Wireline: Marriage or divorce for the grid?**

The commodization of communication technology over the past decade has mainly occurred in the consumer market. From a consumer perspective we see DSL lines and cable networks connecting homes and wireless cellular and local area networks providing high-speed connectivity to non-stationary users. It is tempting to adopt these consumer technologies for smart grid communication. But communication for the grid is different. We are not dealing with mostly price-conscious consumers, but with performance-conscious industry customers. The user is not content with exploiting what a communication technology offers, but the technology has to meet hard performance requirements. The communication tasks are closer to automation and control than to personal communications. The expected time of operation of technology and equipment is longer and investments are larger for the grid. So what communications solution(s) should it be for enabling smart grids? Wireline, wireless or power line technologies? Or is a conscious technology mix the only way forward? If so, how should this mix look like?

We have invited wireless and wireline communications experts to address these questions and look forward to stimulating contributions from and discussions with conference participants.

**Moderator:**

**Lutz Lampe** (University of British Columbia, Canada)

**Panelists:**

**Flavio Cucchiatti** (Telecom Italia, Italy)

**Davide Della Giustina** (A2A, Italy)

**Petar Popovski** (Aalborg University, Denmark)

**Hans-Peter Schwefel** (FTW, Austria)

**Andrea Tonello** (Udine University, Italy; Klagenfurt University, Austria)

Tuesday, 4 November 2014 • 15:40 – 17:20 • Room A

**S1-3: Grid Data Collection and Reporting**

**Chair: Kui Wu** (University of Victoria, Canada)

**Deadline-aware Concentration of Synchrophasor Data: An Optimal Stopping Approach**

Miao He (Texas Tech University, USA)  
Junshan Zhang (Arizona State University, USA)

**Scheduling Data Access in Smart Grid Networks Utilizing Context Information**

Mislav Findrik, Jesper Grønbaek  
(Forschungszentrum Telekommunikation Wien, Austria)  
Rasmus Olsen (Aalborg University, Denmark)

## Secure Data Collection in Constrained Tree-Based Smart Grid Environments

Haiming Jin (University of Illinois, Urbana-Champaign, USA)  
Suleyman Uludag (University of Michigan, Flint, USA)  
King-Shan Lui (University of Hong Kong, Hong Kong)  
Klara Nahrstedt (University of Illinois, Urbana-Champaign, USA)

## Periodic Data Reporting Strategies for IEEE 802.11s-based Smart Grid AMI Networks

Nico Saputro, Kemal Akkaya (Southern Illinois University, USA)

## The Pulse Coupled Phasor Measurement Units

Lorenzo Ferrari, Reinhard Gentz, Anna Scaglione, Masood Parvania (University of California, Davis, USA)

Tuesday, 4 November 2014 • 15:40 – 17:20 • Room B

## S3-3: Power System Automation and Control

Chair: Saman Zonouz (Rutgers University, USA)

## Development of Autonomous Power Electronics Products with Communication Middleware

Fumiaki Kanayama, Yasuyuki Nishibayashi (Toshiba Corporation, Japan)  
Yuki Yonezawa (Keio University, Japan)  
Yusuke Doi (Toshiba Corporation, Japan)

## Using IEDScout Software for Managing Multivendor IEC61850 IEDs in Substation Automation Systems

Abdulrahman Hadbah (Victoria University, Australia)  
Taha Selim Ustun (Carnegie Mellon University, USA)  
Akhtar Kalam (Victoria University, Australia)

## Voltage and Frequency Control of Islanded Microgrids: A Plug-and-Play Approach

Stefano Rivero, Fabio Sarzo, Giancarlo Ferrari-Trecate (Università degli Studi di Pavia, Italy)

## Plug-and-Play Decentralized Frequency Regulation for Power Networks with FACTS Devices

Stefano Rivero, Fabio Sarzo, Giancarlo Ferrari-Trecate (Università degli Studi di Pavia, Italy)

## Dynamic Maintenance Scheduling for Power Systems Incorporating Hurricane Effects

Ali Arab, Eylem Tekin (University of Houston, USA)  
Amin Khodaei (University of Denver, USA)  
Suresh Khator, Zhu Han (University of Houston, USA)

Tuesday, 4 November 2014 • 15:40 – 17:40 • Room D

## S4-2: Demand Response

Chair: Danny H. K. Tsang

(Hong Kong University of Science and Technology, Hong Kong)

## Optimal Price Rebates for Demand Response under Power Flow Constraints

Vineet Goyal, Garud Iyengar (Columbia University, USA)  
Henry Schwarz (AutoGrid Systems, Inc., USA)  
Shuangyu Wang (Columbia University, USA)

## Demand Response for Contingency Management via Real-Time Pricing in Smart Grids

Mohammad Reza Vedady Moghadam Nanehkaran, Rui Zhang (National University of Singapore, Singapore)  
Richard T. B. Ma (National University of Singapore, USA)

## A Framework for Baseline Load Estimation in Demand Response: Data Mining Approach

Saehong Park, Seunghyoung Ryu, Yohwan Choi, Hongseok Kim (Sogang University, Korea)

## A Demand Response Game and its Robust Price of Anarchy

Pratyush Chakraborty, Pramod Khargonekar (University of Florida, USA)

## Demand Response Management for Power Throttling Air Conditioning Loads in Residential Smart Grids

Yawar Ismail Khalid (LUMS School of Science and Engineering, Lahore, Pakistan)  
Naveed Ul Hassan (Lahore University of Management Sciences, Pakistan)  
Chau Yuen, Shisheng Huang (Singapore University of Technology and Design, Singapore)

## Demand-Side Management in a Smart Micro-Grid:

## A Distributed Approach Based on Bayesian Game Theory

Matteo Sola, Giorgio M. Vretta (University of Modena and Reggio Emilia, Italy)

Wednesday, 5 November 2014 • 10:20 – 12:00 • Room C

## S1-4: Smart Metering Infrastructure Networks

Chair: Jan Markendahl (Royal Institute of Technology, Sweden)

## Real-time Smart Metering with Reduced Communication and Bounded Error

Jarmo Lundén, Stefan Werner (Aalto University, Finland)

## PRIME v1.4 Evolution: A Future Proof of Reality beyond Metering

Alberto Sendin (Iberdrola, Spain)  
Il Han Kim (Texas Instruments, USA)  
Simone Bois (Dora Spa, STMicroelectronics Group, Italy)  
Andres Munoz (ATMEL, Spain)  
Asier Llano (ZIV CG Automation, Spain)

## Reengineering GSM/GPRS towards a Dedicated Network for Massive Smart Metering

German Corrales Madueño (Aalborg University, Denmark)  
Čedomir Stefanović (Aalborg University; University of Novi Sad, Denmark)  
Petar Popovski (Aalborg University, Denmark)

## Cost-Efficient Data Aggregation Point Placement for Advanced Metering Infrastructure

Fariba Aalamifar, Ghasem Naddafzadeh Shirazi (University of British Columbia, Canada)  
Moslem Noori (University of Alberta, Canada)  
Lutz Lampe (University of British Columbia, Canada)

## Voltage and Frequency Measuring Plug as Part of Smart Grids Metering System

Pavlos Dimitriou, Thomas Leber, Nicole Nagele, Lukas Temmel, Christian Tessarek (Technical University of Vienna, Austria)

Wednesday, 5 November 2014 • 10:20 – 12:00 • Room A

## S2-3: Traffic Monitoring and Attack Detection

Chair: Abdallah K. Farraj (University of Toronto, Canada)

## A First Look at Machine-to-Machine Power Grid Network Traffic

Sang Shin Jung, David Formby, Carson Day, Raheem Beyah (Georgia Institute of Technology, USA)

## On the Practicality of Detecting Anomalies with Encrypted Traffic in AMI

Robin Berthier (University of Illinois, Urbana-Champaign, USA)  
David Urbina, Alvaro A. Cárdenas, Michael Guerrero (University of Texas, Dallas, USA)  
Ulrich Herberg, Jorjeta Jetcheva, Daisuke Mashima (Fujitsu Laboratories of America, USA)  
Jun Huh (Honeywell, USA)  
Rakesh B. Bobba (University of Illinois, Urbana-Champaign, USA)

## Real-time Detection of Packet Drop Attacks on Synchrophasor Data

Seemita Pal, Biplab Sikdar, Joe H. Chow (Rensselaer Polytechnic Institute, USA)

## Peekaboo: A Gray Hole Attack on Encrypted SCADA Communication using Traffic Analysis

Nunzio Torrisi (Universidade Federal do ABC, Brazil)  
Ognjen Vuković, György Dán (Royal Institute of Technology, Sweden)  
Stefan Hagdahl (Saab AB, Sweden)

## **A Hybrid Network IDS for Protective Digital Relays in the Power Transmission Grid**

Georgia Koutsandria, Vishak Muthukumar, Masood Parvania, Sean Peisert (University of California, Davis, USA)  
 Chuck McParland (Lawrence Berkeley National Laboratory, USA)  
 Anna Scaglione (University of California, Davis, USA)

Wednesday, 5 November 2014 • 10:20 – 12:00 • Room B

## **S3-4: Energy Storage**

**Chair: Hiroaki Kawashima** (Kyoto University, Japan)

### **An Analysis of Energy Storage and Regulation**

Dariush Fooladivanda, Catherine Rosenberg, Siddharth Garg (University of Waterloo, Canada)

### **Meeting Inelastic Demand in Systems with Storage and Renewable Sources**

Natarajan Gautam (Texas A&M University, USA)  
 Yunjian Xu (Massachusetts Institute of Technology, USA)  
 Jeremy Bradley (Imperial College London, UK)

### **Collaborative Placement and Sharing of Storage Resources in the Smart Grid**

Lazaros Gkatzikis (Royal Institute of Technology, Sweden)  
 George Iosifidis (CERTH; University of Thessaly, Greece)  
 Iordanis Koutsopoulos (Athens University; CERTH, Greece)  
 Leandros Tassioulas (Yale University, USA)

### **Joint Supply, Demand, and Energy Storage Management towards Microgrid Cost Minimization**

Sun Sun (University of Toronto, Canada)  
 Min Dong (University of Ontario Institute of Technology, Canada)  
 Ben Liang (University of Toronto, Canada)

### **Real-Time Energy Storage Management: Finite-Time Horizon Approach**

Tianyi Li, Min Dong (University of Ontario Institute of Technology, Canada)

Wednesday, 5 November 2014 • 10:20 – 12:00 • Room D

## **S4-3: EV Charging I**

**Chair: Garud Iyengar** (Columbia University, USA)

### **Auxiliary Frequency and Voltage Regulation in Microgrid via Intelligent Electric Vehicle Charging**

Nan Zou, Lijun Qian (Prairie View A&M University, USA)  
 Husheng Li (University of Tennessee, USA)

### **Competitive Charging Station Pricing for Plug-in Electric Vehicles**

Wei Yuan (Huazhong University of Science and Technology, China)  
 Jianwei Huang, Ying Jun (Angela) Zhang (Chinese University of Hong Kong, Hong Kong)

### **A Layered Architecture for EV Charging Stations Based on Time Scale Decomposition**

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

### **A Pricing-based Load Shifting Framework for EV Fast Charging Stations**

I. Safak Bayram, Muhammad Ismail (Texas A&M University, Qatar)  
 Mohamed M. Abdallah (Texas A&M University, Qatar; Cairo University, Cairo, Qatar)  
 Khalid A. Qaraqe, Erchin Serpedin (Texas A&M University, USA)

### **The Fair Distribution of Power to Electric Vehicles: An Alternative to Pricing**

Yingjie Zhou (Sichuan University; Columbia University, China)  
 Nick Maxemchuk, Xiangying Qian, Chen Wang (Columbia University, USA)

Wednesday, 5 November 2014 • 13:30 – 15:10 • Room C

## **S1-5: Access Network Performance**

**Chair: Konstantinos V. Katsaros** (University College London, UK)

### **An Enhanced Random Access Mechanism for Smart Grid M2M Communications in WiMAX Networks**

Md Mashud Hyder, Reduan H. Khan, Kaushik Mahata (University of Newcastle, Australia)

### **Random Access Performance of a WiMAX Network for M2M Communications in the Smart Grid**

Reduan H. Khan, Kaushik Mahata (University of Newcastle, Australia)

### **Coverage and Capacity Analysis of Wireless M2M Technologies for Smart Distribution Grid Services**

Christian Hägerling, Christoph Ide, Christian Wietfeld (TU Dortmund University, Germany)

### **Queueing Analysis for Smart Grid Communications in Wireless Access Networks**

Obada Al Khatib, Wibowo Hardjawana, Branka Vucetic (University of Sydney, Australia)

### **Performance Evaluation of a Hybrid of Public and Private Smart Grid Wireless Access Networks**

Obada Al Khatib, Wibowo Hardjawana, Branka Vucetic (University of Sydney, Australia)

Wednesday, 5 November 2014 • 13:30 – 15:10 • Room A

## **S5-2: Non-intrusive Monitoring and Forecasting**

**Chair: Ka-Cheong Leung** (University of Hong Kong, Hong Kong)

### **Non-intrusive Appliance Load Monitoring using Low-resolution Smart Meter Data**

Jing Liao, Georgia Elafoudi, Lina Stankovic, Vladimir Stankovic (University of Strathclyde, UK)

### **Data-Driven Evaluation of Building Demand Response Capacity**

Deokwoo Jung (Advanced Digital Sciences Center; University of Illinois, Urbana-Champaign, Singapore)  
 Varun Badrinath Krishna, William Temple, David Yau (Advanced Digital Sciences Center, Singapore)

### **Non-Intrusive Load Identification for Smart Outlets**

Sean K. Barker, Mohamed Musthag, David Irwin, Prashant Shenoy (University of Massachusetts, Amherst, USA)

### **Forecasting Heat Load for Smart District Heating Systems: A Machine Learning Approach**

Samuel O. Idowu, Saguna Saguna, Christer Åhlund (Luleå University of Technology, Sweden)  
 Olov Schelén (Luleå University of Technology; Xarepo, Sweden)

### **Data-Driven Topology Estimation**

Yang Weng, Christos Faloutsos, Marija Ilić (Carnegie Mellon University, USA)

Wednesday, 5 November 2014 • 13:30 – 15:10 • Room B

## **S3-5: Integration of Renewable Power Resources**

**Chair: Nikolaos Gatsis** (University of Texas, San Antonio, USA)

### **Short Term Cloud Coverage Prediction using Ground Based All Sky Imager**

Shanhui Sun, Jan Ernst (Siemens Corporation, USA)  
 Archana Sapkota (Aware Inc, USA)  
 Eberhard Ritzhaupt-Kleissl (Siemens AG; Energy Sector, Germany)  
 Jeremy Wiles (Energy Sector, Germany)  
 Joachim Bamberger (Siemens, Germany)  
 Terrence Chen (Siemens Corporate Research, USA)



## **TESLA: Taylor Expanded Solar Analog Forecasting**

Bengu Akyurek, Alper Sinan Akyurek, Jan Kleissl,  
Tajana Simunic Rosing (UCSD, USA)

## **Optimal Energy Management for Building Microgrid with Constrained Renewable Energy Utilization**

Hieu Trung Nguyen (INRS-EMT, Canada)  
Long Bao Le (INRS, University of Quebec, Canada)

## **Coordinated Dispatch of Renewable Energy Sources and HVAC Load Using Stochastic Programming**

Duong Tung Nguyen (INRS-EMT, Canada)  
Hieu Trung Nguyen (INRS-EMT, Canada)  
Long Bao Le (INRS, University of Quebec, Canada)

## **Buying Random yet Correlated Wind Power**

Wenyuan Tang, Rahul Jain (University of Southern California, USA)

Wednesday, 5 November 2014 • 13:30 – 15:10 • Room D

## **S4-4: Electrical Vehicles**

**Chair: Dejun Yang** (Colorado School of Mines, USA)

## **Smart Charging System for PEV Based on SEP 2.0 and SAE Standards**

Takayuki Shimizu, Akihisa Yokoyama, Kazuma Sato  
(Toyota InfoTechnology Center USA, USA)  
Kunihiko Kumita (Toyota Motor Corporation, Japan)

## **A Robust Design of Electric Vehicle Frequency Regulation Service**

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

## **DCD: Distributed Charging and Discharging Scheme for EVs in Microgrids**

Tan N. Le, Bong Jun Choi (SUNY; Stony Brook University, Korea)  
Hao Liang (University of Alberta, Canada)  
Hongwei Li  
(University of Electronic Science and Technology of China, China)  
Sherman Shen (University of Waterloo, Canada)

## **Modified Pattern Sequence-based Forecasting for Electric Vehicle Charging Stations**

Mostafa Majidpour, Charlie Qiu, Peter Chu, Rajit Gadh  
(University of California, Los Angeles, USA)  
Hemanshu Pota (UNSW@adfa, Australia)

## **Efficient Optimal Scheduling of Charging Station with Multiple Electric Vehicles via V2V**

Pengcheng You, Zaiyue Yang (Zhejiang University, China)

Wednesday, 5 November 2014 • 15:40 – 17:20 • Room B

## **S1-6: Network QoS and Reliability**

**Chair: Christian Wietfeld** (TU Dortmund University, Germany)

## **Robust and Real-time Communication on Heterogeneous Networks for Smart Distribution Grid**

Kubilay Demir, Daniel Germanus, Neeraj Suri  
(Technische Universitaet Darmstadt, Germany)

## **Low Latency Communication Infrastructure for Synchrophasor Applications in Distribution Networks**

Konstantinos V. Katsaros, Binxu Yang, Wei Koong Chai, George Pavlou  
(University College London, UK)

## **Optimal Resource Allocation for Smart Grid Applications in High Traffic Wireless Networks**

Robert Webster (University of Sydney, Australia)  
Kumudu S. Munasinghe (University of Canberra, Australia)  
Abbas Jamalipour (University of Sydney, Australia)

## **Cross-Layer Network Lifetime Maximization for Hybrid Sensor Networks**

Kainan Zhu, Xu Zhu (University of Liverpool, UK)

## **Facility Networking with IP over RS485: Packet Control for Master-Slave Cascaded Networks**

Hideya Ochiai, Hiroki Nakagami (University of Tokyo, Japan)  
Yuuichi Teranishi (NICT; Osaka University, Japan)  
Hiroshi Esaki (University of Tokyo, Japan)

Wednesday, 5 November 2014 • 15:40 – 17:20 • Room A

## **S2-4: Key Management and Authentication**

**Chair: Robin Berthier** (University of Illinois, Urbana-Champaign, USA)

## **PALDA: Efficient Privacy-preserving Authentication for Lossless Data Aggregation in Smart Grids**

Shinyoung Cho (SUNY, Korea)  
Hongwei Li  
(University of Electronic Science and Technology of China, China)  
Bong Jun Choi (SUNY; Stony Brook University, Korea)

## **Portunes: Privacy-Preserving Fast Authentication for Dynamic Electric Vehicle Charging**

Hongyang Li (University of Illinois, Urbana-Champaign, USA)  
György Dán (Royal Institute of Technology, Sweden)  
Klara Nahrstedt (University of Illinois, USA)

## **Hierarchical Key Management for Multi-resolution Load Data Representation**

Christian David Peer, Dominik Engel  
(Salzburg University of Applied Sciences, Austria)  
Stephen Wicker (Cornell University, USA)

## **PUF and ID-Based Key Distribution Security Framework for Advanced Metering Infrastructures**

Vahe Seferian, Rouwaida Kanj, Ali Chehab, Ayman Kayssi  
(American University of Beirut, Lebanon)

## **Roaming Electric Vehicle Charging and Billing: An Anonymous Multi-User Protocol**

Mustafa Asan Mustafa, Ning Zhang (University of Manchester, UK)  
Georgios Kalogridis, Zhong Fan (Toshiba Research Europe, UK)

Wednesday, 5 November 2014 • 15:40 – 17:40 • Room C

## **PS-2: Panel Session: Internet of Energy**

The panel aims to discuss the potentiality and limiting factors of the Internet of Energy, i.e., the P2P exploitation of distributed energy resources, with the related technical challenges, operational characteristics, supporting services, socio-economic impact, and revolutionary innovation of the electrical market.

### **Moderators:**

**Michele Zorzi** and **Paolo Tenti** (University of Padova, Italy)

### **Panelists:**

**Maurizio Delfanti** (Politecnico di Milano, Italy)

**Chris Develder** (Ghent University, Belgium)

**Sebastian Rohjans** (OFFIS, Germany)

**Anna Scaglione** (UC Davis, USA)

Wednesday, 5 November 2014 • 15:40 – 17:20 • Room D

## **S4-5: Energy Trading and Pricing**

**Chair: Ichiro Maruta** (Kyoto University, Japan)

### **Optimal Energy Trading with Battery Energy Storage under Dynamic Pricing**

Xiaoqi Tan  
(Hong Kong University of Science and Technology, Hong Kong)  
Yuan Wu (Zhejiang University of Technology, China)  
Danny H. K. Tsang  
(Hong Kong University of Science and Technology, Hong Kong)

### **Optimal Energy Management Policy of a Mobile Cloudlet with Wireless Energy Charging**

Dusit Niyato, Ping Wang, Peter Han Joo Chong  
(Nanyang Technological University, Singapore)  
Zhu Han (University of Houston, USA)  
Dong In Kim (Sungkyunkwan University, Korea)

### **Efficient Incentive-Driven Consumption Curtailment Mechanisms in Nega-Watt Markets**

Angeliki Anastopoulou, Iordanis Koutsopoulos, George Stamoulis  
(Athens University, Greece)

### **Minimum-cost Charging of Electrical Storage Heaters**

Fabian Mueller (Swiss Federal Institute of Technology Zurich;  
IBM Research Zurich, Switzerland)  
Carl Binding, Olle Sundstroem (IBM Zurich, Switzerland)  
Michael Bengsch (E. On Metering, Switzerland)

### **Optimal Charging Strategies for Electrical Vehicles under Real Time Pricing**

Mohammad Mahdi Karbasioun, Ioannis Lambadaris,  
Gennady Shaikhet, Evangelos Kranakis (Carleton University, Canada)

Thursday, 6 November 2014 • 10:20 – 12:00 • Room C

## **S1-7: Smart Grid Infrastructure Networks**

**Chair: Jan Markendahl** (Royal Institute of Technology, Sweden)

### **Virtualized and Self-configurable Utility Communications Enabled by Software-Defined Networks**

Young Jin Kim (Bell Labs, Alcatel-Lucent, USA)  
Kegiang He (University of Wisconsin, USA)  
Marina Thottan, Jayant Deshpande (Bell-Labs, Alcatel-Lucent, USA)

### **Software-Defined Networking for Smart Grid Communications: Applications, Challenges and Advantages**

Nils Dorsch, Fabian Kurtz, Hanno Georg, Christian Hägerling,  
Christian Wietfeld (TU Dortmund University, Germany)

### **Generating Realistic Smart Grid Communication Topologies Based on Real-Data**

Thomas Hartmann, Francois Fouquet, Jacques Klein, Yves Le Traon  
(University of Luxembourg, Luxembourg)  
Alexander Pelov (Institut Mines-Telecom / Telecom Bretagne, France)  
Laurent Toutain, Tanguy Ropitault (Telecom Bretagne, France)

### **Combining Smart Grid with Community Clouds: Next Generation Integrated Service Platform**

Leila Sharifi (Instituto Superior Técnico, Portugal)  
Felix Freitag (Technical University of Catalonia, Spain)  
Luis Veiga (Instituto Superior Técnico-UTL / INESC-ID Lisboa, Portugal)

### **Feasibility Study of Utilizing Mobile Communications for Smart Grid Applications in Urban Area**

Seppo Horsmanheimo, Niwas Maskey, Lotta Tuomimäki  
(VTT Technical Research Centre of Finland, Finland)

Thursday, 6 November 2014 • 10:20 – 12:00 • Room A

## **S2-5: Cyber-physical Security**

**Chair: Daisuke Mashima** (Fujitsu Laboratories of America, USA)

### **Smart Grid Security: Deriving Informed Decisions from Cyber Attack Game Analysis**

Rattikorn Hewett, Sudeeptha Rudrapattana, Phongphun Kijsanayothin  
(Texas Tech University, USA)

### **Covert Channel Communication through Physical Interdependencies in Cyber-Physical Infrastructures**

Luis Garcia, Henry Senyondo (University of Miami, USA)  
Stephen McLaughlin (Narus Inc, USA)  
Saman Zonouz (Rutgers University, USA)

### **A Game-Theoretic Control Approach to Mitigate Cyber Switching Attacks in Smart Grid Systems**

Abdallah K. Farraj, Eman M. Hammad, Ashraf Al Daoud, Deepa Kundur  
(University of Toronto, Canada)

### **Performance Evaluation of Flocking-Based Distributed Cyber-Physical Control for Smart Grid**

Abdallah K. Farraj, Eman M. Hammad, Jin Wei, Deepa Kundur  
(University of Toronto, Canada)  
Karen Butler-Purry (Texas A&M University, USA)

### **A Physical Overlay Framework for Insider Threat Mitigation of Power System Devices**

David Formby, Sang Shin Jung, Seth Walters, Raheem Beyah  
(Georgia Institute of Technology, USA)

Thursday, 6 November 2014 • 10:20 – 12:00 • Room B

## **S3-6: Building and Community Energy Management**

**Chair: Harshad Khadilkar** (IBM Research, India)

### **Lighting in the Building: A DC Smart Grid**

Steffen Thielemans (Vrije Universiteit Brussel, Belgium)  
Dario Di Zenobio (Fondazione Ugo Bordon, Italy)  
Kris Steenhaut (Vrije Universiteit Brussel, Belgium)

### **DC Picogrids as Power Backups for Office Buildings**

Harshad Khadilkar, Vikas Chandan (IBM Research, India)  
Sandeep Kalra (University of Massachusetts, Amherst, USA)  
Sunil K. Ghai, Zainul Charbiwala, Tanuja Ganu (IBM Research, India)  
Rajesh Kunnath (Radio Studio, India)  
Lim Ming (Universiti Brunei Darussalam, Brunei Darussalam)  
Deva P. Seetharam (Independent, India)

### **A Distributed Hierarchical Architecture for Community-based Power Balancing**

Rodrigo Verschae, Hiroaki Kawashima, Takekazu Kato,  
Takashi Matsuyama (Kyoto University, Japan)

### **Household Power Consumption Simulator with Compact Representation of Occupant Behaviors**

Yoshiaki Sakakura (Denso IT Laboratory, INC., Japan)

### **Risk-Aware Energy Procurement with Renewable Energy and Storage**

Subhash Lakshminarayana  
(Singapore University of Technology and Design, Singapore)  
Lei Yang (Arizona State University, USA)  
H. Vincent Poor (Princeton University, USA)  
Tony Q. S. Quek (Singapore University of Technology and Design;  
Institute for Infocomm Research, Singapore)  
Junshan Zhang (Arizona State University, USA)

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## **S4-6: EV Charging II**

**Chair: Nikolaos Gatsis** (University of Texas, San Antonio, USA)

### **Adaptive Demand Response:**

#### **Online Learning of Restless and Controlled Bandits**

Qingsi Wang, Mingyan Liu, Johanna Mathieu  
(University of Michigan, USA)

### **Consumer in-the-Loop:**

#### **Consumers as Part of Residential Smart Energy Systems**

Marco Levorato, Nadia Ahmed (University of California, Irvine, USA)  
Arthur Zhang (California Institute for Telecommunications and  
Information Technology; University of California, Irvine, USA)

### **Minimizing Commercial Building Cost in Smart Grid:**

#### **An Optimal Meeting Scheduling Approach**

Bo Chai (Zhejiang University, China)  
Alberto Costa (Singapore University of Technology and Design, Italy)  
Selin Ahipasaoglu  
(Singapore University of Technology and Design, Turkey)  
Shisheng Huang, Chau Yuen  
(Singapore University of Technology and Design, Singapore)  
Zaiyue Yang (Zhejiang University, China)

### **Peak Demand Scheduling in the Smart Grid**

Sean Yaw, Brendan Mumey, Erin McDonald  
(Montana State University, USA)  
Jennifer Lemke (Humboldt State University, USA)

### **A Novel Grid Load Management Technique Using Electric Water Heaters and Q-Learning**

Khalid Al-jabery (Missouri University of Science & Technology, USA)  
Donald Wunsch (University of Missouri, Rolla, USA)  
Jinjun Xiong (IBM T. J. Watson Research Center, USA)  
Yiyu Shi (Missouri University of Science & Technology, USA)

Thursday, 6 November 2014 • 13:30 – 15:10 • Room C

## **S1-8: Powerline Communication Technologies**

**Chair: Alexander Pelov**

(Institut Mines-Telecom / Telecom Bretagne, France)

### **Evaluation of RPL for Medium Voltage Power Line Communication**

Oana Balmau (EPFL, Switzerland)  
Dacely Dzung, Abdulkadir Karaağaç, Vukasin Nesovic, Aleksandar  
Paunovic, Yvonne-Anne Pignolet (ABB Corporate Research, Switzerland)  
Niloufar Alipour Tehrani (ETHZ, Switzerland)

### **Doing it Right – Recommendations for RPL in PLC-based Networks for the Smart Grid**

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

### **ColorCast: Deterministic Broadcast in Powerline Networks with Uncertainties**

Yvonne-Anne Pignolet (ABB Corporate Research, Switzerland)  
Stefan Schmid (T-Labs; TU Berlin, Germany)  
Gilles Tredan (LAAS-CNRS, France)

### **Network Simulation for Powerline Protocols with Direct Code Execution Applied to DLC@-3000 SFN**

Jörg Deutschmann, Andreas M. Lehmann  
(University of Erlangen-Nürnberg, Germany)  
Johannes Hampel (iAd GmbH, Germany)  
Johannes Huber (University of Erlangen-Nuremberg, Germany)

## **Narrowband Power Line Communications for Medium Voltage Smart Grids**

Giovanni Artale, Antonio Cataliotti, Valentina Cosentino  
(Università di Palermo, Italy)  
Dario Di Cara (National Research Council, IISA, Italy)  
Riccardo Fiorelli (STMicroelectronics, Italy)  
Salvatore Guaiana (Università di Palermo, Italy)  
Nicola Panzavecchia, Giovanni Tinè (National Research Council, Italy)

Thursday, 6 November 2014 • 13:30 – 15:10 • Room A

## **S2-6: AMI and Demand Response**

**Chair: Saman Zonouz** (Rutgers University, USA)

### **Trusted Neighborhood Discovery in Critical Infrastructures**

Norman Göttert, Nicolai Kuntze, Carsten Rudolph, Khan Ferdous Wahid  
(Fraunhofer SIT, Germany)

### **Efficient Generation and Distribution of CRLs for IEEE 802.11s-based Smart Grid AMI Networks**

Kemal Akkaya (Southern Illinois University, USA)  
Khaled Rabieh, Mohamed M E A Mahmoud  
(Tennessee Tech University, USA)  
Samet Tonyali (Southern Illinois University, Carbondale, USA)

### **A Risk Assessment Tool for Advanced Metering Infrastructures**

Tawfeeq Shawly, Jun Liu, Nathan Burow, Saurabh Bagchi  
(Purdue University, USA)  
Robin Berthier, Rakesh B. Bobba  
(University of Illinois, Urbana-Champaign, USA)

### **OpenADR 2.0 Deployment Architectures: Options and Implications**

Ulrich Herberg, Daisuke Mashima, Jorjeta Jetcheva,  
Sanam Mirzazad-Barijough (Fujitsu Laboratories of America, USA)

### **A Non-convex Alternating Direction Method of Multipliers Heuristic for Optimal Power Flow**

Seungil You, Qiuyu Peng (California Institute of Technology, USA)

Thursday, 6 November 2014 • 13:30 – 15:10 • Room B

## **S3-7: Special Session: Co-Simulation for Smart Grids**

**Chair: Sebastian Rohjans** (OFFIS, Germany)

### **Extensible Co-Simulation Framework for Electric Vehicle Charging Infrastructure Testing**

Mario Faschang (Vienna University of Technology, Austria)  
Martin Nöhrer, Johannes Stöck, Friederich Kupzog  
(Austrian Institute of Technology, Austria)

### **Implementation of Agent-based Power Flow Coordination in AC/DC Grids using Co-Simulation Platform**

Davood Babazadeh, Mohammad Nazari, Muhammed Hassan Fidai,  
Moustafa Chenine, Mehrdad Ghandhari, Lars Nordström  
(Royal Institute of Technology, Sweden)

### **Integrated Smart Grid Simulations for Generic Automation Architectures with RT-LAB and Mosaik**

Martin Büscher, Arno Claassen, Matthias Kube (OFFIS, Germany)  
Sebastian Lehnhoff (University of Oldenburg; OFFIS, Germany)  
Klaus Piech, Sebastian Rohjans, Stefan Scherfke, Cornelius Steinbrink,  
Jorge Velásquez (OFFIS, Germany)  
Francois Tempez, Yahia Bouzid (OPAL-RT Europe, France)

### **A Distributed Optimal Energy Management Strategy for Microgrids**

Wenbo Shi (University of California, Los Angeles, USA)  
Xiaorong Xie (Tsinghua University, China)  
Chi-Cheng Chu, Rajit Gadh (University of California, Los Angeles, USA)



## Testbed Evaluations of a Controlled-Delivery Power Grid

Roberto Rojas-Cessa, Vinitmadhukar Sahasrabudhe,  
Eugene J. Miglio, IV, Divya Balineni, Justin Kurylo, Haim Grebel  
(New Jersey Institute of Technology, USA)

Thursday, 6 November 2014 • 13:30 – 15:10 • Room D

## S5-3: Data Management and Forecasting

Chair: Jianhui Wang (Argonne National Laboratory, USA)

### A Simple Model-Driven Approach to Energy Disaggregation

Guoming Tang, Kui Wu (University of Victoria, Canada)  
Jingsheng Lei (Shanghai University of Electric Power, China)  
Jiuyang Tang (National University of Defense and Technology, China)

### Bayesian Linear State Estimation using Smart Meters and PMUs Measurements in Distribution Grids

Luca Schenato (University of Padova, Italy)  
Grazia Barchi, David Macii (University of Trento, Italy)  
Reza Arghandeh  
(UC, Berkeley; California Institute for Energy and Environment, USA)  
Kameshwar Poola (University of California, Berkeley, USA)  
Alexandra von Meier  
(California Institute for Energy and Environment; UC Berkeley, USA)

### Residential Smart Grids: Before and After the Appearance of PVs and EVs

Fabian Uriarte, Robert Hebner (University of Texas, Austin, USA)

### TMQ: Threat Model Quantification in Smart Grid Critical Infrastructures

Saman Zonouz (Rutgers University, USA)  
Luis Garcia (University of Miami, USA)

### The Comparison of Medium-term Energy Demand Forecasting Methods for the Need of Microgrid Management

Tymoteusz Hossa, Agata Filipowska, Karol Fabisz  
(Poznan University of Economics, Poland)

Thursday, 6 November 2014 • 15:40 – 17:20 • Room C

## S1-9: Grid Communication Techniques

Chair: Masahiro Morikura (Kyoto University, Japan)

### Optimal Wireless Energy Charging Policy for a Mobile Node in Smart Grid Environment

Dusit Niyato, Yang Zhang, Ping Wang  
(Nanyang Technological University, Singapore)  
Dong In Kim (Sungkyunkwan University, Korea)

### Cooperative Closed-loop MIMO Selective Transmissions in a HV Environment

Olufemi James Oyedapo (University of Poitiers, France)  
Baptiste Vrigneau (University of Rennes 1; INRIA/IRISA CAIRN, France)  
Rodolphe Vauzelle (University of Poitiers, France)

### Smart Satellites in Smart Grids

Donald Chang, Joe Lee, Tzer-Hso Lin (SDS, USA)

### Statistical Analysis of Broadband Underground Medium Voltage Channels for PLC Applications

Fabio Versolatto, Andrea M. Tonello  
(University of Udine; WiTiKee srl, Italy)  
Carlo Tornelli (RSE, Italy)  
Davide Della Giustina (A2A Reti Elettriche SpA, Italy)

### A Novel Statistical Approach of Path Loss Mapping for Indoor Broadband Power Line Communications

Mohammad Heggo, Xu Zhu, Yi Huang (University of Liverpool, UK)  
Sumei Sun (Institute for Infocomm Research, Singapore)

Thursday, 6 November 2014 • 15:40 – 17:20 • Room B

## S3-8: Power Distribution Networks

Chair: Georges Kariniotakis (MINES ParisTech, France)

### Signal-Anticipating in Local Voltage Control in Distribution Systems

Jeries Shihadeh (University of Colorado, Boulder, USA)  
Seungil You (California Institute of Technology, USA)  
Lijun Chen (University of Colorado, Boulder, USA)

### Decentralized Stochastic Programming for Real and Reactive Power Management in Distribution Systems

Mohammadhafez Bazrafshan, Nikolaos Gatsis  
(University of Texas, San Antonio, USA)

### Power Line Communication Network for a Customer-End AC Grid in an LVDC Distribution System

Antti Pinomaa, Jero Ahola, Antti Kosonen, Pasi Nuutinen  
(Lappeenranta University of Technology, Finland)

### Optimization of the Power Quality Monitor Number in Smart Grid

Yuxin Wan, Junwei Cao (Tsinghua University, China)  
Huaying Zhang, Zhengguo Zhu, Senjing Yao  
(Shenzhen Power Supply Co. Ltd., China)

### Power-Efficient Operation of Wireless Heterogeneous Networks using Smart Grids

Mingyi Hong (University of Minnesota, USA)  
Hao Zhu (University of Illinois, USA)

Thursday, 6 November 2014 • 15:40 – 17:20 • Room D

## S4-7: Demand Side Management

Chair: Hao Wang (Chinese University of Hong Kong, Hong Kong)

### Demand-Aware Price Policy Synthesis and Verification Services for Smart Grids

Toni Mancini (Università di Roma 1, Italy)  
Federico Mari, Igor Melatti, Ivano Salvo, Enrico Tronci  
(Sapienza University of Rome, Italy)  
Jorn Gruber, Barry Hayes, Milan Prodanovic  
(Institute IMDEA Energy, Spain)  
Lars Elmegaard (SEAS-NVE, Denmark)

### Optimal Design of Serious Games for Demand Side Management

Thanasis Papaioannou  
(Center for Research and Technology Hellas, Greece)  
Vassiliki Hatzis (CERTH; University of Thessaly, Greece)  
Iordanis Koutsopoulos (Athens University; CERTH, Greece)

### Modeling of Dynamics in Demand Response for Real-time Pricing

Ichiro Maruta, Yusuke Takarada (Kyoto University, Japan)

### Integration of V2H/V2G Hybrid System for Demand Response in Distribution Network

Yubo Wang, Omar Sheikh, Boyang Hu, Chi-Cheng Chu, Rajit Gadh  
(University of California, Los Angeles, USA)

### Aggregated Residential Load Modeling Using Dynamic Bayesian Networks

Maria Vlachopoulou (Microsoft, USA)  
George Chin, Jason Fuller, Shuai Lu (PNNL, USA)

Thursday, 6 November 2014 • 15:40 – 17:20 • Room C

## Closing Remarks

**Monday, 3 November 2014 • 9:00 – 12:30 • Room A+B**

## **WS1: On-Going Smart Grid Implementations and Pilots: Spotlight on Communications**

This workshop aims to showcase achievements and lessons learned by major smart grids projects and implementations, while highlighting the architecture and technologies of the communication infrastructure. The invited speakers will introduce the drivers motivating the development of the projects, the challenges that are targeted, the recent achievements and the related lessons learned. Selected projects will discuss the specific pilots they roll out, and how technology providers support the stakeholders needs in their setting. The technical presentation will be followed by a panel discussion among the speakers and invited experts, to debate questions such as:

- What are the most important findings and lessons learned?
- What are the challenges stakeholders still face?
- What are the emerging business models with special reference to the communication aspects?
- What open questions do remain, both from the utilities and communications/ICT providers perspective?
- What tools are suitable for validation in an early stage of the project?

**Moderators:** Michele De Nigris, ISGAN & RSE, Italy  
Roberta Bigliani, IDC Energy Insights, Italy

### **Presenters:**

**Michele de Nigris**, ISGAN & RSE, Italy  
*Achievements and Perspectives of Smart Grid Projects and Deployments*  
**Kevin Mercier**, GRID4EU project, France  
*The Grid for EU Project*  
**Li Guojie**, Shanghai Jiao Tong University, China  
*Smart Grid Demonstration Projects by the Government in China*  
**Satoshi Morozumi**,  
New Energy and Industrial Development Organization (NEDO), Japan  
*On-Going Smart Grid Implementations and Pilots in Japan*  
**Ronald B. Melton**,  
Pacific Northwest Smart Grid Demonstration Project, USA  
*Pacific Northwest Smart Grid Demonstration*

### **Roundtable Discussion:**

**Bert Jan Claessens**, VITO, Belgium  
**Ronald B. Melton**, Pacific Northwest Smart Grid Demonstration Project, USA  
**Kevin Mercier**, GRID4EU Project, France  
**Satoshi Morozumi**, Smart Community and Industrial Development Organization (NEDO), Japan  
**Takayuki Shimizu**, TOYOTA InfoTechnology Center, U.S.A.

**Monday, 3 November 2014 • 09:00 – 12:30 • Room C**

## **WS2: Managing Heterogeneous and Secure Communication Networks for Smart Grids**

This workshop aims to address the communication challenges of smart grid applications. The presentations will deal with how to develop a holistic communication strategy and manage multiple communication networks, i.e., a scalable information infrastructure supporting a broad range of smart grid applications and communication technologies, as well as managing multiple/heterogeneous communication networks. They will explain the idea of smart grid control based on adaptive layers and information centric networking, with the support of a reference architecture providing an integrated view of several control cases such as Automated Meter Reading, Customer Energy Management Systems, Electrical Vehicle Charging in Low Voltage Grids, External Generation Site, Voltage Control in Medium Voltage Grids. Security challenges/requirements and possible solutions of some smart grid use cases will be highlighted. The developments in the EU SmartG2Net and C-DAX projects will set the technical background for the roundtable discussion among the speakers and the invited panelists, to address key questions such as:

- What is the dependency and the impact of ICT in the management of distribution networks?
- What are adequate control strategies?
- What are the necessary security measures for the different business cases?
- Cyber risk assessment of smart grids: does it help in the implementation of security measures?
- What are the benefits of monitoring the smart grid ICT infrastructures?

**Moderator:** Giovanna Dondossola, RSE, Italy

### **Presentations:**

**Hans Schwefel**, FTW, Austria  
*Smart Grid Control Based on Heterogeneous Communications and Adaptive Layer*  
**Konstantinos Katsaros**, University College London, UK  
*C-DAX: An Information-centric Approach for Smart Grid Communications*  
**Rasmus Olsen**, Aalborg University, Denmark  
*Adaptive Monitoring and Information Access for Network Resource Efficient Smart Grid Control*  
**Erik Poll**, Radboud University, Netherlands  
*Security of Smart Grid Communication Protocols*

### **Roundtable Discussion:**

**Herman Bontius**, Alliander/Liandon, The Netherlands  
**Nuno Silva**, Efacec, Portugal  
**Konstantinos Moulinos**, Enisa EC, Greece  
**Aurelio Blanquet**, EDP, Portugal

**Monday, 3 November 2014 • 14:00 – 17:20 • Room C**

## **WS3: Integrating Renewables and Exploiting Customer Flexibility**

This workshop explores challenges, research questions, and proposed solutions to deal with the challenge of increasing penetration of distributed renewable energy sources (DRES), especially at the distribution grid level (while respecting the operating conditions, e.g., in terms of voltage deviations). The invited speakers will present technical solutions to connect DRES, as well as accommodate their variable power output (given the dependency on natural phenomena that are not controllable) through steering the consumption, for instance using demand side management. The latter thus involves a study on the potential flexibility on the energy consumption side, and techniques for automating the adaptation of consumption patterns at the end user level. The technical presentations, as well as the panel discussion will address questions such as:

- How to increase RES penetration, esp. at the distribution grid level?
- How to gather more detailed insight, e.g., via data mining, in the energy consumption/production patterns?
- How to identify and/or exploit flexibility in the energy consumption side?
- How to realize distributed control to address the distribution network operator's technical challenges?

**Moderator: Chris Develder**, Ghent University, Belgium

### **Presentations:**

**Marjan Jerele**, Elektro Gorenjska, Slovenia

*Increasing The Penetration of Renewable Energy Sources in the Distribution Grid by Developing Control Strategies and using Ancillary Services*

**Enrico Tronci**, University of La Sapienza, Italy

*SmartHG: Energy Demand-Aware Open Services for Smart Grid Intelligent Automation*

**Bert Claessens**, Vito, Belgium

*Demand Response of Large Heterogeneous Residential Clusters: Combining System Level Objectives with Local Constraints, from Reinforcement Learning to Droop Control*

**Gianfranco Chicco**, Politecnico of Torino, Italy  
*Demand Flexibility for Load Aggregations*

### **Roundtable Discussion:**

**Anna Scaglione**, University of California, Davis, USA

**Stella Di Carlo**, Enel Distribuzione S.P.A., Italy

**Monday, 3 November 2014 • 14:00 – 17:20 • Room A+B**

## **WS4: Standards for Smart Grid Communications and EMC**

Standards and interoperability are essential to economically implement smart grid projects and to foster economies of scale in the industrial production and supply of components. This workshop focuses on communication standards, interoperability and electromagnetic compatibility issues of smart grid devices, and it aims to pragmatically address the following items:

- Where do we stand?
- What is actually going on with regards to emerging standards?
- What is utilities' pragmatic approach, today and in the near future?
- What is the opinion of technology manufacturers?
- Are there best practices from other industries to evaluate?

**Moderator: Claudia Imposimato**, RSE, Italy

### **Presentations:**

**David Johnson**, Consultant, UK

*Focus on M/441 Communications Reference Architecture, Smart Metering & the Smart Home*

**Paolo Giubbini**, Enel Distribuzione SpA, Italy

*Standards Activity in DLC (Distribution Line Communication) Media*

**Bill Radasky**, Metatech Corp., USA  
*Focus on the Activities of the US Smart Grid Interoperability Panel (SGIP/NIST) and EMC testing for Smart Grids*

**Masamitsu Tokuda**, Tokyo City University, Japan

*Focus on Wireless Power Transfer Emission Standards and EMC below 150 kHz on Telecommunication Systems*

### **Roundtable Discussion:**

**Giuseppe Michele Salaris**,

ENEL Distribuzione SpA, on behalf of Meters and More, Italy

**Thierry Lys**, ERDF, on behalf of G3-PLC Alliance, France

**Alfredo Sanz**, Atmel, on behalf of PRIME Alliance, Spain

**Larry Colton**, Echelon, on behalf of OSGP Alliance, USA

**Jaroslav Kussyk**, Siemens AG, Austria



## SOCIAL PROGRAM



### Demo and Exhibits

Monday, 3 November 2014  
17:30 - 18:30 • F2: Foyer 2



### Welcome Reception

Tuesday, 4 November 2014  
19:30 – 21:00 • F1: Foyer 1



### Gala Dinner

Wednesday, 5 November 2014  
19:30 – 22:00 • F1: Foyer 1

## GENERAL INFORMATION

### Badges

IEEE SmartGridComm 2014 badges must be worn at all times and are necessary for entrance into all IEEE SmartGridComm 2014 sessions.

### Meals

The full registration includes the Welcome Reception, Lunches, Coffee Breaks, and Banquet (not for student registration) for the full conference days (3-6 November 2014).

The Workshop registration includes the Lunch and the Coffee Breaks on Monday, 3 November 2014.

### Registration

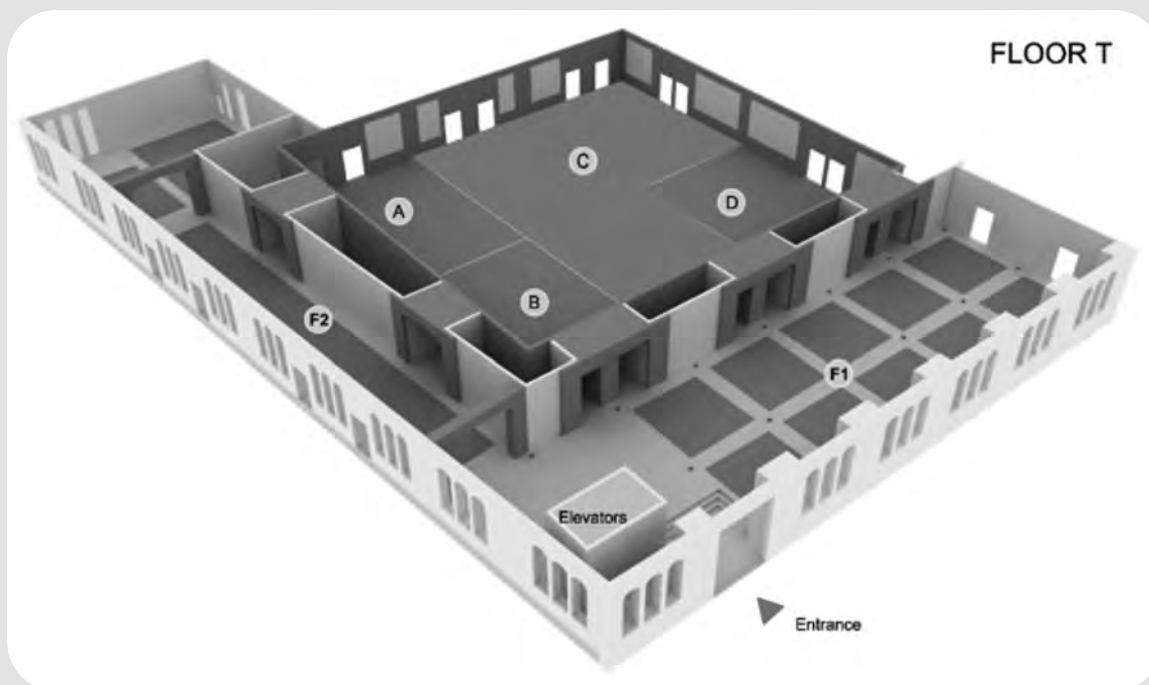
Registration is located on the Floor T in the Foyer 1 (F1) of the hotel. All attendees must be registered to participate in the conference activities.

### Internet Access

Wireless access will be available in the conference rooms.

### Awards

The Best Paper Awards, the winner of the Student Video Competition and of the Student Travel Grants will be announced at the Gala Dinner on November 5.





IEEE SmartGridComm™  
— 2-5 November 2015 • Miami, Florida —



## IEEE International Conference on Smart Grid Communications CALL FOR PAPERS

The transformation of modern electricity grids at the local and global scale into smart grids is at the core of sustainable economic, environmental and societal growth worldwide. This migration to more intelligent, user-friendly and responsive grids around the world is in large part enabled by the development and deployment of appropriate communication and information technologies. Such Smart Grid Communication systems need to be seen as part of a larger system of systems to manage energy generation and distribution with C<sup>3</sup> technologies - Communication, Control and Computing - playing key roles. Smart Grid Communications support such applications as control and information processing systems to support two-way energy flows, the automatic management of power outages, and the integration of renewable energy sources and allowing the consumers to play an active role in energy production and adaptive consumption. The resulting rich confluence of disciplines is part of the specific challenge and appeal of smart grid communications research and development.

The 2015 IEEE International Conference on Smart Grid Communications (SmartGridComm) will provide a forum to discuss all relevant aspects of Smart Grid communication and information technologies. The conference will bring together researchers and practitioners from academia, industry and governmental institutions from around the world, with a variety of backgrounds in communication, energy, control, signal processing, and information systems. A major goal IEEE SmartGridComm 2015 is to foster a relaxed atmosphere to exchange ideas, explore enabling technologies, discuss innovative designs, and share field trial experiences as well as lessons learned. IEEE SmartGridComm 2015 will be held from 2 – 5 November 2015 in Miami Florida, USA. Miami is a major crossroads of multiple continents, rich in cultural diversity and offering many opportunities for leisure and exploration.

### PROSPECTIVE AUTHORS ARE INVITED

to submit original contributions  
(standard two-column IEEE format,  
up to six pages) using EDAS  
<http://www.edas.info/>  
under the track "SmartGridComm2015"  
on all aspects of smart grid  
communications grouped under the  
following four technical symposia:

1. Communications and Networks to Enable the Smart Grid
2. Cyber Security and Privacy for the Smart Grid
3. Architectures, Control and Operation for Smart Grids, Microgrids and Distributed Resources
4. Data Management and Grid Analytics

See the website ([www.ieee-smartgridcomm.org/2015](http://www.ieee-smartgridcomm.org/2015))  
for requirements of accepted papers.

### IMPORTANT DATES

PAPER SUBMISSION DEADLINE:  
19 APRIL 2015

NOTIFICATION OF ACCEPTANCE:  
11 JULY 2015

CAMERA READY PAPER DUE:  
3 AUGUST 2015

AUTHOR REGISTRATION DEADLINE:  
3 AUGUST 2015

For more information, visit  
[www.ieee-smartgridcomm.org/2015](http://www.ieee-smartgridcomm.org/2015).



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