



**IEEE Global Communications
Conference**
9-13 December 2018
Abu Dhabi, UAE
Gateway to a Connected World



Call for Papers

Selected Areas in Communications Symposium

Track on Smart Grid and Power Line Communications

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Scope and Motivation:

The electric power grid is undergoing unprecedented changes that have transformed it to a distributed, user-centric smart grid. Realizing the vision of the smart grid is contingent upon deploying reliable and effective information and communication technology solutions that enable high-speed, two-way communications. Indeed, communication technologies are a key enabler for many of the foreseen smart grid features such as demand response, advanced metering infrastructure (AMI), electric vehicle and storage unity integration, and microgrid control. To this end, a plethora of solutions for smart grid communications have recently emerged that rely on a myriad of wireless communication and power line communication technologies. This includes novel approaches to enable smart meters and other smart grid machine type devices to communicate with the grid, as well as new communication solutions to enable vehicle-to-grid and grid-to-vehicle communications. The integration of information and communication technologies in the grid also raises poses security risks that must be mitigated from a cyber-physical perspective.

Power-Line Communication (PLC) is a natural choice for smart grid communications, but it is also a cost-effective solution for a wide range of applications, including smart home, manufacturing, and in-vehicle communications.

Main Topics of Interest:

The aim of the Smart Grid and Power Line Communications track is to bring together researchers from both academia and industry in order to have a forum for discussion and technical presentations on the recent advances in theory, application and implementation in the broad areas of smart-grid and power-line communications. Topics of interest include, but are not limited to:

- Communication architectures and solutions for supporting new smart grid features.
- Big data management and grid analytics.
- Communication-centric solutions for demand response, demand-side management, and energy management.
- Integration of storage units and electric vehicles into a smart grid architecture.
- Security and privacy.
- Resource allocation, cross-layer optimization, and service integration.
- Resilient communications.
- Game-theoretic methods for smart grid management and optimization.
- Modeling and analysis of cyber-physical smart energy systems.



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- Control, operation, and optimization of distributed energy sources and microgrids.
- Renewable energy-powered communication systems.
- PLC for machine-to-machine communications.
- Economic approaches for improving efficient usage of energy.
- Optimal placement of smart grid communication infrastructure.
- Measurement data, experimental testbeds and field trials.
- Advanced Metering Infrastructure.
- Precise time synchronization and real-time communications.
- In-home, access and in-vehicle PLC networks.
- Multi-hop routing and congestion control in PLC and combined PLC / wireless networks.
- Modulation, coding, and signal processing for PLC.
- Synergies between control and communications in power systems.
- Electromagnetic compatibility, interference and coupling issues
- Cognitive, autonomous and cooperative systems for PLC
- Management, diagnostics and troubleshooting protocols and tools
- PLC channel characterization, measurements, modeling and emulation
- Regulation and standardization
- Communication-power system co-design
- Data models, communications requirements and quality-of-service for data delivery in smart grid systems