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**IEEE SIGNAL PROCESSING MAGAZINE**  
***Special Issue on Signal Processing Techniques for Smart Grid***

**Guest Editors;**

*Hamid Gharavi, NIST, USA ([gharavi@nist.gov](mailto:gharavi@nist.gov))*

*Mischa Dohler, CTTC, Spain ([mischa.dohler@cttc.es](mailto:mischa.dohler@cttc.es))*

*Xiaohong Guan, Xian Jiaotong University, P.R. China ([xhguan@sei.xjtu.edu.cn](mailto:xhguan@sei.xjtu.edu.cn))*

*Anna Scaglione, University of California at Davis, USA ([ascaglione@ucdavis.edu](mailto:ascaglione@ucdavis.edu))*

*Lang Tong, Cornell University, USA ([ltong@ece.cornell.edu](mailto:ltong@ece.cornell.edu))*

We are at an historic point where countries worldwide are charting new ways to produce, distribute, deliver and use electricity. Whereas the current electricity systems are based on a one-way flow of energy and information from the source to the end user, the future Smart Grid system will provide a two-way flow of energy and information throughout the system. The results will be a potential paradigm shift from the current hydrocarbon-driven economies to electricity-driven economies.

This special issue focuses on technical challenges of the Smart Grid from signal processing perspectives. In particular, perspective authors are invited to contribute tutorial and survey articles that articulate signal processing methodologies critical to the design and operations of future Smart Grid. Of particular interest are roles of signal processing in data representation and forecasting, to track renewable energy generation, and load demand, and to for the rapid monitoring and detection of infrastructure attacks, both in the cyber as well as in the physical infrastructure. A significant role can also be played smart sensors and meters and demand and response programs, where load scheduling can lead to new forms of smart grid control, but also pose new physical and cyber security threats as well as privacy concerns.

Tutorial and survey papers are solicited on, but not limited to, the following topics:

- New models for power grid data and state estimation;
- Smart Grids sensor data collection and networking;
- Sensor fusion and data mining models for Smart Grids;
- Distributed demand-response, load scheduling and pricing management;
- Cyber and physical vulnerabilities and smart grids security;
- Load forecasting models for renewable generation and for loads;
- Energy cyber-physical systems models;
- Data compression, storage and processing architectures;
- Signal processing for smart appliances, smart meters, and sensors.

**Submission procedure**

Prospective authors should submit a 4-page white paper to the IEEE Signal Processing Magazine online manuscript submission website at

<http://mc.manuscriptcentral.com/spmag-ieee>. Please follow the instructions on

<http://www.signalprocessingsociety.org/publications/periodicals/spm/> when preparing the white paper. Note that relevance to signal processing and the tutorial value of the paper are key selection criteria.

**Schedule:**

White paper due: April 15, 2011

Invitation notification: May 30, 2011

Manuscript due: August 30, 2011

Acceptance Notification: October 15, 2011

Revised Manuscript due: December 15, 2011

Final Acceptance Notification: Feb 15, 2012

Final Manuscript due: March 15, 2012

Publication date: July 2012