

Special Issue on
Theory of Complex Systems with Applications to Smart Grid Operations

The present electric grids, being recognized as one of the major engineering accomplishments, work exceptionally well for the purposes they have been designed to achieve. Enabled by the advances in sensing, communication, computation, and actuation, smart grids are rapidly growing in scale, interconnectivity, and complexity. Major paradigm shifts in power grids include departing producer-controlled structures and transforming to more decentralized and consumer-interactive ones, being more distributed in power generation, enhancing the coupling between the physical and cyber layers, and design and operation in more variable and stochastic conditions. Driven by these emerging needs, power grids are anticipated to be complex and smart networked platforms in which large volume of high-dimensional and complex data is being routinely generated, exchanged, and processed for the purposes of monitoring and controlling the grid. The objective of this special issue is to identify, address, and disseminate state-of-the-art research in theory of complex systems with applications to smart grid. We seek original papers with novel research contributions in all aspects of complex and large-scale systems of relevance and significance in smart grid. Topics of interest include, but are not limited to:

- Monitoring and inference in large-scale systems with smart grid applications
- Cascading failures in complex smart networks
- Interplay between communication and control in smart systems
- Large-scale optimization with smart grid applications
- Data security and privacy in smart systems
- Distributed monitoring and control in smart grids
- Network economics and game-theoretic studies in smart grids

Submission Guidelines:

Two page extended abstracts are solicited for the first round of reviews. For information purposes, please submit a PDF version of the abstracts including a cover letter with authors' contact information via e-mail to tajer@ecse.rpi.edu with the subject line '**Special Issue on TSG**' by the submission date. Authors of selected abstracts will be invited to submit the full papers in the second round. Authors must refer to the IEEE Transactions on Smart Grid author guidelines at <http://www.ieee-pes.org/publications/information-forauthors> for information on content and formatting of submissions.

Important Dates

- March 1, 2015: Deadline for extended abstract
- April 15, 2015: First round of reviews
- September 1, 2015: Deadline for full paper submission
- March 1, 2016: Final decision notification
- April 1, 2016: Publication material due

Guest Editorial Board

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