

Special Session on

**“Smart Automation, Digital Control, and Data Analytics in Power and Energy
Systems”**

Organized by

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Call for Papers

The power and energy systems domain is experiencing a major change in terms of operation and planning. The advancement into a so called smart energy system or a smart grid produces new challenges. With the introduction of distributed, renewable generation (e.g., solar, wind, small hydro power) and controllable loads (e.g., electric vehicles, energy storage systems) new and advanced automation, control, and Information and Communication Technology (ICT) concepts and corresponding methods are required in order to cope with these new challenges.

Topics of the Session:

This special session targets this challenging, interdisciplinary field:

- Advanced information and communication systems
- Distributed automation concepts
- Distribution automation and SCADA systems
- Internet of Things (IoT) and data driven power system analytic applications
- IoT and cloud technology for automation and advanced distribution system applications
- Holonic, multi-agent and service-oriented concepts
- Demand-side management and flexibility concepts
- Self-healing systems covering fault location, isolation, service restoration, etc.
- Self-organizing power systems and microgrids



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- Advanced control concepts for power converters
- Application of smart grid related automation standards (e.g., CIM, IEC 61850, OPC UA, IEC 61499)
- Data acquisition, analytics, and artificial intelligence in power and energy systems
- Smart protection, Phasor Measurement Units (PMU) and Wide-Area Measurement Systems (WAMS)
- Modeling, simulation and validation concepts for cyber-physical energy systems
- Cyber-security and resiliency in power systems