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Special Session on

"Cyber-Enabled Distributed Intelligence for Control and Optimization of Physical Microgrid Clusters"

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Call for Papers

Recent years witnessed the emerging and fast development of cyber-physical microgrid clusters. Benefiting from the latest information technologies, cyber-physical microgrid clusters enable seamless and direct connection between devices such as renewable energy, smart meters, flexible loads, energy storage systems. However, it inevitably poses some technical and theoretical challenges in architecture design, control operation and energy management. In order to address these challenges, it is essential for cyber-physical microgrid clusters to develop new methods by taking into account underlying and advanced techniques such as multi-agent systems, artificial intelligence-based control, big data cloud computing and management, and so on. Thus, this special session focuses on seeking state-of-art advances and original contributions in design and implementation of advanced control and optimization algorithms, and energy management for cyber-physical microgrid clusters.

Topics of the Session:

Topics of interest include, but are not limited to:

- Multi-agent systems-based coordination control of microgrid clusters
- Distributed control and optimization in islanded microgrid clusters

- Stochastic time-delays communication mechanisms of microgrid clusters
- The effects of communication constraints on stability of microgrid clusters
- Event-triggered network communication mechanisms of microgrid clusters
- Distributed intelligence theories and technologies for microgrid clusters
- Experimental prototypes, test-laboratories and field trial experiences of artificial intelligence techniques in microgrids security