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Special Session on

"Model Predictive Control for Power Converters in Microgrids"

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Call for Papers

Model Predictive Control (MPC) has interesting and superior features, including fast dynamic response, flexibility in constraint incorporation, and convenience for implementation, over the classic linear control and pulse width modulation strategies. Therefore, MPC is an attractive and promising strategy for power converters, which play the critical roles for the operations of microgrid, such as the integration of renewable energy sources and the management of energy storage system. The challenges in the future research work of MPC for power converters in microgrids are: application to complex topologies, unique microgrid applications, and existing technical issues of MPC, etc.

Topics of the Session:

This special session aims to investigate the state-of-art developments and provide the promising solutions to emerging challenges of MPC for power converters in microgrids. Original technical paper and state-of-the-art survey papers are invited for submission.

Topics of interest include, but are not limited to:

- Implementation of MPC for power converters in microgrid. (classical converters, multiport converters, multi-level converters, etc.)
- MPC for the management of energy storage system in microgrids
- MPC for the integration of renewable energy sources into microgrids
- Stability analysis of MPC for power converters in microgrids.
- Technical design issues of MPC for power converters: cost function, weighting factor, constraint, control and prediction horizon, etc.
- Sensor-less MPC for cost reduction of microgrid
- Event-triggered MPC for high computational efficiency
- Dynamic MPC based on fault detection in microgrid
- Fixed switching frequency operation of MPC