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Special Session on

"Grid-forming Inverters in Future Power Systems"

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Call for Papers

Compared to conventional grid-following inverters (that can be conceptualized as current sources), the dynamics of grid-forming inverters are fundamentally different. In particular, grid-forming inverters do not assume a voltage reference, and they behave as controllable voltage sources. The dynamic behaviour of grid forming inverters is intended to facilitate integration alongside conventional synchronous generation. However, a variety of modelling, analysis, design, and control challenges for grid-forming inverters in future low-mechanicalinertia networks and microgrids are far from settled. This special session will facilitate communication between the power systems community and the power electronics community to ensure the at-scale and seamless integration of grid-forming inverters in future power networks.

Topics of the Session:

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- New grid-forming inverter designs
- Multi-inverter coordination and control
- Grid-forming inverter stability analysis
- Power systems modelling approaches
- Interaction with different types of inverters
- Virtual Synchronous Machines
- Virtual Oscillator Control