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OPEN INVITED TRACK

Control of Power Electronic Converters

(Code: p15u9)

IFAC Technical Committee for Evaluation: TC6.3. Power and Energy Systems

Organizer

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Abstract

Power systems are going through a paradigm change from centralized generation to distributed generation. A huge number of active units including wind farms, solar farms, small distributed energy resources (DERs), electric vehicles, energy storage systems and flexible loads are being integrated into power systems through power electronic converters. This imposes great challenges to the stability, scalability, reliability, security and resiliency of future power systems. Hence, it is vital to develop appropriate control architecture and technologies so that all these different players are able to take part in the regulation of future power systems in an autonomous and responsible way. This is also true for other smaller-scale power systems, e.g. those in more-electric aircraft, all-electric ships, and satellites etc. The control of power electronic converters lies in the heart of these applications and many other energy-related systems. The objective of this open invited track is to join the forces of the communities of control/systems theory and power electronics, from academia and industry, to address various emerging issues in modelling, control, converter design, stability and protection of power electronic conversion systems.

Topics

Any original contributions related, but not limited, to the following topics are encouraged to submit to this open invited track:

- Control of Power Electronic Converters
 - Power Quality Control
 - Impedance Shaping
 - Power Factor Control
 - Virtual Synchronous Machines
 - Synchronverters
 - Emerging Control Strategies
 - Topologies of Advanced Power Electronic Converters
 - Fault Ride-through
- Integration and Interfacing
 - Integration of Wind
 - Integration of Solar Energy
 - Integration of EVs
 - Integration of Energy Storage
 - Integration of Smart Loads
- Control of Multi-converter Systems
 - Droop Control
 - Control of AC Microgrids
 - Control of DC Microgrids
 - Autonomous Operation of Power electronics-enabled Power Systems
 - Stability Analysis and Robustness