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Call for Papers for the Special Session on

Power-Electronic-Enabled Control and Market-Oriented Operation of Smart Microgrids: Optimization, Demand Response, and Peer-to-Peer Energy Trading

Organized and co-chaired by

Hamidreza Arasteh, Center for Research on Microgrids (CROM), Huanjiang Laboratory, Zhuji, Shaoxing, China — e-mail: hr.arasteh@ieee.org

Anand R, Center for Research on Microgrids (CROM), Huanjiang Laboratory, Zhuji, Shaoxing, China — e-mail: dranand@ieee.org

Josep M. Guerrero, Center for Research on Microgrids (CROM), Huanjiang Laboratory, Zhuji, Shaoxing, China — e-mail: guerrero@ieee.org

Sanjeevikumar Padmanaban, Department of Electrical Engineering, IT and Cybernetics, University of South-Eastern Norway, Porsgrunn, Norway — e-mail: sanjeev.padma@usn.no

Technical Outline of the Session and Topics

This special session addresses emerging challenges in smart microgrids by focusing on advanced optimization, peer-to-peer energy trading, demand response, and coordinated multi-energy management. Particular emphasis is placed on the interaction between market decisions and real-time system operation. As renewables, electric vehicles, and power-electronic-based resources become more widespread, issues related to stability, operational limits, resilience, and cybersecurity are increasingly critical. The session brings together recent research and practical experiences in decentralized control, digitalized microgrids, and effective control and conversion of electrical power by incorporating power electronic interfaces.

Topics of the session include, but are not limited to:

- Optimization-based control and operation of power-electronic-dominated smart microgrids
- Peer-to-peer blockchain-based energy trading and market-oriented mechanisms
- Coupling market outcomes with real-time microgrid operation
- Demand response and flexibility modeling, addressing operational constraints
- Converter-based control, stability, and protection in decentralized microgrids
- Digitalization and cybersecurity in smart microgrids

Timeline for Authors

All the instructions for paper submission are available on the conference website. Please visit www.iecon2026.org or scan the QR code for the timeline.