

Special Session 1
Smart DC Distribution Systems

Session Chair:

Miao Yu, Zhejiang University, Associate Professor, zjuyumiao@zju.edu.cn

Session Co-Chair:

Xia Chen, Huazhong University of Science & Technology, Associate Professor, cxhust@hust.edu.cn

Scope of the Session:

With the social and economic development, the power system is undergoing profound reforms. Since there are plenty of distributed generations (DGs), the conventional unidirectional generation-transmission-distribution power consumption has been changed, especially on the distribution side, the bi-directional power flow and the coexistence of loads and generations form new requirements for the existing regulation, relay protection and so on. At the same time, large numbers of dc DGs and dc loads cause some new challenges for the traditional pure ac power supply. DC microgrids and distribution systems are becoming an effective solution as they perform better in terms of efficiency, scalability, and stability. The objective of this special session are to disseminate state-of-the-art research results on Smart DC Distribution Systems. We seek original papers that offer novel research contributions, as well as seminal survey papers that have archival values. Topics of interest include, but are not limited to:

- Topological studies of power-electronics DC/AC/DC conversion stage
- Distributed monitoring, estimation, and control strategies of DC systems
- Coordination of storage units, renewable energy sources and loads in DC microgrid
- Stability issues for power electronics-intensive DC microgrids
- Energy management strategies for DC distribution networks
- Emergency control, recovery control, black start of DC distribution networks
- Planning, demonstration, marketing issues for DC microgrids
- Control and optimization issues in AC/DC hybrid systems