

Special Session on

“Recent advances on Vehicle to Grid Integration”

Organized by

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Call for Papers

The worldwide trend towards further participation of renewable-resource-based power plants in electric markets has highlighted the necessity of ancillary services, capable of managing the inherent power variability and intermittency associated with renewable resources. In this context, EVs are in a unique position to provide those services to microgrids and distribution networks, both at low- and medium-voltage level. Additionally, the diversification of electric transportation has brought new EV charging technologies into play, capable of providing higher rates of power and energy to the grid, allowing a diversification of the services offered by a single vehicle or an entire fleet.

The aim of this special session is to concentrate contributions on recent developments related to support services provided by electric vehicles and charging stations integrated to active distribution networks and microgrids, specially topics related to provision of frequency- and voltage-support services, challenges of distributed provision of support service, modulation and control methods for provision of support services by electric vehicles and charging stations, power converter topologies that enable the provision of support services. The main objective of this special session is to provide a common framework for presentation and discussion of emerging technology, while promoting academic and industrial interaction and cooperation.

Topics of the Session:

Topics of interest include, but are not limited to:

1. Integration of EV charging stations in microgrids and active distribution networks.
2. Integration of EV charging stations into the utility grid: electrical challenges and services.
3. Provision of frequency and voltage-support services to the grid from EVs and charging stations.
4. Fault diagnosis and fault-tolerance operation of EVs and EV charging stations during provision of support service.
5. New control schemes and modulations for grid integration of EVs and EV charging stations.
6. Power converter topologies for service support provision of grid integrated EVs and/or EV charging stations.