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#SS8 - Special Session on

ACTIVE-BRIDGE CONVERTERS FOR ON-BOARD BATTERY CHARGING APPLICATIONS

Chair: Asst. Prof. dr. J. Everts, Eindhoven University of Technology (The Netherlands)
j.everts@tue.nl
Co-chair: dr. Baljit Riar, University of Oxford (United Kingdom)
baljit.riar@eng.ox.ac.uk

Call for Papers

The rapidly increasing market penetration of electric vehicles is driving innovation in the field of on-board, isolated AC-DC and DC-DC power converters, which are used for grid-connected charging of the high-voltage (HV) battery and for powering the low-voltage loads (e.g. lighting and instrumentation) from the HV battery. Both applications require low-cost, high-performance (i.e. in terms of weight, volume, and losses) power converters. Recent developments have shown that converters based on active-bridge topologies, such as the Dual Active Bridge (DAB), provide significant advantages over the traditional solutions. This is mainly due to their soft-switching nature and the possibility of optimal shaping of the high-frequency AC-link currents in order to minimize circulating power. Furthermore, active bridge converters are characterized by an ultra-fast dynamic response, the capability of buck-boost operation, as well bidirectional power flow. The latter enables vehicle-to-grid (V2G) operation and implementation of ancillary services. In recent years, research on active-bridge converters has focussed on several aspects to improve the converter's performance, such as advanced modulation schemes, multi-objective optimization, digital control, use of wide-bandgap power semiconductors, etc. This special session provides a platform for presentation and discussion of new work in high-performance, on-board battery chargers based on the active-bridge converter topology.

Topics of interest include, but are not limited to:

- On-board converters (chargers) based on active-bridge topologies (DAB, QAB, etc.)
- Topologies (multi-port, multi-cell, DC-DC, AC-DC, etc.)
- Advanced modulation schemes
- Modeling of converters
- Use of wide-bandgap semiconductors (e.g. GaN, SiC)
- Control and parameter decoupling
- Size, weight, cost, and efficiency optimization of converters
- Comparative evaluation of competing converter topologies
- Grid-connection and control of converters

Deadlines:

Submission of digests:	~~March 31, 2016~~ April 30, 2016
Notification of acceptance:	May 15, 2016
Submission of full papers:	July 15, 2016

All special session digests must be prepared and submitted in the same way as those for the conference regular tracks (see http://www.vppc2016.org/), except that the corresponding special session should be identified during submission.