



**IEEE 14th International Conference
on Compatibility, Power Electronics
and Power Engineering
IEEE CPE-POWERENG 2020**



1-3 April, 2020
Setúbal, Portugal

Proposal for IEEE CPE-POWERENG 2020 Special Session

Special Session on: **Charging Technologies and Battery Storage Systems for Electric Vehicles**

Technical Outline of the Session (100-200 words) and Topics:

The fast growing of the Electric Vehicle (EV) market, but also the electric transportation in general, has led to an increased interest in the charging technologies and the battery storage systems. New solutions are crucial in order to increase the efficiency of the charging stations, decrease the charging time, and increase the battery lifetime and reliability. This special session aims to provide and share innovative advances of the battery packs, battery management systems (BMS), SoC and SoH estimation algorithms, charging stations topologies by also considering wide bandgap components, strategies for the power and energy management, and novel services linked to vehicle-to-grid (V2G), vehicle-to-home (V2H) and vehicle-for-grid (V4G) modes. The topics of interest include, but are not limited to:

- Emerging topologies of power electronics converters for on-board and off-board EV chargers;
- Innovative fast charging systems;
- EV chargers based on wide bandgap components (SiC and GaN);
- Multifunctional EV battery charging systems;
- Wireless Power Transfer (WPT);
- Vehicle-to-Grid (V2G), Vehicle-to-Home (V2H) and Vehicle-for-Grid (V4G) services;
- Communication infrastructures among the charging stations, the vehicle and the grid;
- Analysis, modelling and control of power converters for EV chargers;
- Novel technologies of battery storage systems for EVs;
- Advanced Battery Management Systems (BMSs);
- New State-of-Charge and State-of-Health estimation algorithms.

Special Session Organizers (names and contact emails):

- Mattia Ricco – mattia.ricco@unibo.it
- Vitor Monteiro - vmonteiro@dei.uminho.pt
- Jelena Loncarski - jelena.loncarski@poliba.it

Special Session Organizers (short bios with photo):



Mattia Ricco – mattia.ricco@unibo.it (M'16, SM'19) received the master's degree (cum laude) in Electronic Engineering from the University of Salerno in 2011. He received the Ph.D. degrees in Electrical and Electronic Engineering from the University of Cergy-Pontoise (France) and in Information Engineering from the University of Salerno (Italy) in 2015. From 2015 to 2018 he has been a Postdoctoral research fellow at Aalborg University (Denmark) in the Energy Technology Department. He is currently a Senior Assistant Professor with the Department of Electrical, Electronic and Information Engineering “Guglielmo Marconi” - DEI, University of Bologna. His research interests include power electronics, FPGA/SoC based controllers, battery management systems, electric vehicle chargers, modular multilevel converters and photovoltaic systems.



Vítor Monteiro – vmonteiro@dei.uminho.pt (S'10) was born in Guimarães, Portugal, on May 1984. He received the Ph.D. degree in Power Electronics and Energy Systems in 2016 from the School of Engineering, University of Minho, Guimarães, Portugal. Since September 2016, he is Invited Professor in the Industrial Electronics Department at the University of Minho, and his research activity has been developed at the Centro ALGORITMI, University of Minho. His main research interests are related with power electronics for smart grids, namely, new topologies of power electronics converters and digital control strategies for electric mobility, renewable energy, power quality, active power conditioners, energy storage systems, and solid state transformers. Dr. Monteiro is a member of the IEEE Industrial Electronics and IEEE Vehicular Technology Societies.



Jelena Loncarski – jelena.loncarski83@gmail.com (S'11, M'14) received the Dipl.-Ing. and M.Sc. degrees from the Faculty of Electrical Engineering, University of Belgrade, Belgrade, Serbia, in 2007 and 2010, respectively, and the Ph.D. degree from the Department of Electrical Engineering, University of Bologna, Bologna, Italy, in 2014. In April 2014, she joined the Department of Engineering Sciences, Ångström Laboratory, Uppsala University, as a Postdoctoral Researcher, where she is now visiting researcher. She is currently a researcher with the Department of Electrical and Information Engineering, Polytechnic University of Bari. Her main research interests are focused on power electronic circuits and power electronic converters for renewable energy sources, smart grids and electric transportation.