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Special Session on

"EMR AND OTHER GRAPHICAL REPRESENTATIONS"

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Call for Papers

One of the key issues in the development of Electric Vehicles (EVs) and Hybrid Electric Vehicles (HEVS) is the control design of such complex systems, which are composed of multi-sources and multi-subsystems. Model-based control design approaches provide an efficient mean to tackle the design challenges, such as reducing development time and handling growing design complexity. The general steps in model-based control design process are: system modelling, control analysis and tuning, system and control simulation, emulation and experimental validation, and finally control deployment.

At the system modelling step, different graphical modelling formalisms can be used, such as Bond Graph, Power Oriented Graph (POG), and Energetic Macroscopic Representation (EMR). These graphical formalisms highlight different properties of multi-physical systems.

As an energy-based graphical tool, EMR respects the integral causality, highlights energy properties of the power components such as energy storage, energy conversion and distribution, and provides a global energetic view of systems. Due to these features, inversion-based control can be directly deduced from EMR (http://www.emrwebsite.org/).

The aim of this special session is to present different graphical descriptions, including EMR, applied to HEVs or/and EVs to solve complex design and control problems.

Topics of interest include, but are not limited to:
- Graphical tools for modeling,
- Graphical tools for control design,
- Graphical toolbox or software for study and/or control of EVs or/and HEVs,
- Graphical interface for simulation of EVs or/and HEVs,
- Application of graphical tools for control/identification/emulation of EVs or/and HEVs.

Deadlines:
Submission of abstracts: ~~March 27th, 2018~~ **April 20th, 2018**
Notice of acceptance: May 14th, 2018
Submission of full papers: June 25th, 2018

All special session digests must be prepared and submitted in the same way as those for the conference regular tracks (see http://www.ieee-vppc.org/2018**), except that the corresponding special session should be identified during submission.**

SS organizers' short bio:

Ronan German was born in Roanne, France, in 1986. He received his PHD degree, based on the ageing of supercapacitors in hybrid and electrical vehicles, in 2013 at University Lyon 1. Since 2015 he is associate professor at university of Lille in the laboratory of electrical engineering and power electronics (L2EP). He is involved in the French network on hybrid and electrical vehicles (MEGEVH network) which groups French laboratories and companies from electric transportation systems domain. His current research interests concern modeling of energy storage systems for energy management of electrified vehicles.

Paulo G. Pereirinha received his PhD Degree in Electrical Engineering from the University of Coimbra, Coimbra, Portugal, in 2005. He is a Coordinator Professor at Polytechnic Institute of Coimbra - Coimbra Institute of Engineering (IPC-ISEC). His classes and research interests include electrical machines, electric vehicles and electromechanical drives. He is a Senior Member of IEEE and was General Chair of VPPC 2014, Publication Chair of VPPC 2015 and Award-Committee Chair of VPPC 2016. He is a member of the Vehicular Power Propulsion Standing Advisory Com. of IEEE VTS. He is a researcher at INESC Coimbra and Vice-President of the Portuguese Electric Vehicle Association, APVE.