

SPECIAL SESSION ON EMR AND OTHER GRAPHICAL DESCRIPTIONS

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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 digest: April 21, 2019

Notice of acceptance: June 23, 2019

Submission of full papers: July 28, 2019

All special session digests must be prepared and submitted in the same way as those for the conference regular tracks (see <http://www.vppc2019.org/>), except that the corresponding special session should be identified during submission.