

## CALL FOR PAPERS

### Special Section on “Advanced Modeling, Simulation, Control, and Optimization Paradigms for Vehicular Power Systems”

**Scope:** Environmental concerns, public policies and mandates, and rise of private enterprises have significantly accelerated electrification of transportation fleets. Numerical simulation and optimization are essential to mimic the actual hardware and minimize hardware design iterations and retrofits. Dynamic model development and controller design are needed for stability assessment and meeting performance objectives. Truly functional virtual/computational prototyping environments are indispensable tools in automotive industry, and highly depend on the availability of accurate and efficient modeling and simulation tools. The main objective of this Special Section is to provide timely solutions for emerging technical challenges in modeling, simulation, control, and optimization of automotive power and propulsion structures. This special section covers device, component, circuit, and system level issues for energy storage, power electronics, and electromechanical energy converters in hybrid, plug-in hybrid, fuel cell, and electric vehicles. We solicit original technical papers that are not under consideration at other publication venues, as well as state-of-art survey papers that have archival values. Topics of interest of this Special Section include, but are not limited to:

- Architectural optimization of power conversion stage
- Physics-based and behavioral modeling of components, circuits, and systems, including wide band gap devices
- Stochastic modeling paradigm to include realistic drive-cycle effects
- Fault-tolerant control of electromechanical energy converters
- Reliability and availability analysis frameworks for automotive power train
- Geometrical, optimal, nonlinear, adaptive, predictive, and sensorless control techniques
- Large- and small-signal dynamic model development for stability assessment and controller design
- Stability issues for power electronics-intensive automotive power systems
- Parameterization, monitoring, and estimation of energy storage unit capacity and service life
- Peer-to-peer power sharing and energy routing in smart parking
- Autonomous decentralized vehicle-to-grid charging strategies and communications standards
- Virtual prototyping, real-time simulation, distributed simulation, and hardware-in-the-loop concepts
- Multi-physics, multi-discipline, multi-level, and multi-objective simulation environments
- Data visualization, model validation and certification, and software development issues

Authors are advised to follow the IEEE TVT manuscript format and submission procedure outlined at IEEE TVT home page <http://winet.ece.ufl.edu/tvt/authors/main.html> under Information for Authors. We recommend a length of around 20 pages (in the TVT submission format or 8 pages in final publication format) for regular papers submitted to this special section and will give papers of this length full consideration. Authors who need more space can submit papers up to 35 pages as TVT policy allows. Prospective authors should submit a PDF version of their complete manuscript via the journal online paper submission system at <http://mc.manuscriptcentral.com/tvt-ieee>

#### Timetable

Deadline for manuscript submissions	September 1 <sup>st</sup> , 2013
First editorial decision	November 1 <sup>st</sup> , 2013
Revised manuscript due	January 1 <sup>st</sup> , 2013
Final editorial decision	March 1 <sup>st</sup> , 2014
Final papers due	May 1 <sup>st</sup> , 2014
Estimated publication date	Summer 2014

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