Special Issue

Dynamics and Control of Electric Vehicles

Message from the Guest Editors

The rapid electrification of transportation represents not merely an evolution in vehicular technology but a profound transformation of the broader energy ecosystem. Electric vehicles (EVs) are complex cyber-physical systems where high-fidelity modeling, sophisticated dynamic analysis, and robust hierarchical control strategies are paramount. These imperatives extend beyond the vehicle itself to encompass charging infrastructure, bidirectional energy exchange (V2G/G2V), and the large-scale, systemic impact of EV fleets on power grid stability, planning, and economics. Advances in these interconnected domains—spanning battery electrochemistry, traction drive performance, power electronics reliability, and intelligent grid interaction—are critical to achieving superior system efficiency, safety, reliability, and sustainability. This Special Issue aims to consolidate cutting-edge research that bridges theoretical innovation with practical implementation, providing a comprehensive resource for engineers and researchers shaping the future of transportation and energy.

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Machines is an international, peer reviewed journal on machinery and engineering. It publishes research articles, reviews and communications.
Our aim is to encourage scientists to publish their experimental and theoretical results in as much detail as possible. There is no restriction on the length of the papers. Full experimental and/or methodical details must be provided.
There are, in addition, unique features of this journal: Manuscripts regarding research proposals and research ideas will be particularly welcomed; Electronic files or software regarding the full details of the calculation and experimental procedure - if unable to be published in a normal way can be deposited as supplementary material.

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