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Special Issue Reprint

Performance and Safety Enhancement Strategies in Vehicle Dynamics and Ground Contact

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Recent trends in vehicle engineering are testament to the great efforts that scientists and industries have made to seek solutions to enhance both the performance and safety of vehicular systems. This Special Issue aims to contribute to the study of modern vehicle dynamics, attracting recent experimental and in-simulation advances that are the basis for current technological growth and future mobility. The area involves research, studies, and projects derived from vehicle dynamics that aim to enhance vehicle performance in terms of handling, comfort, and adherence, and to examine safety optimization in the emerging contexts of smart, connected, and autonomous driving.This Special Issue focuses on new findings in the following topics:
(1) Experimental and modelling activities that aim to investigate interaction phenomena from the macroscale, analyzing vehicle data, to the microscale, accounting for local contact mechanics; (2) Control strategies focused on vehicle performance enhancement, in terms of handling/grip, comfort and safety for passengers, motorsports, and future mobility scenarios; (3) Innovative technologies to improve the safety and performance of the vehicle and its subsystems; (4) Identification of vehicle and tire/wheel model parameters and status with innovative methodologies and algorithms; (5) Implementation of real-time software, logics, and models in onboard architectures and driving simulators; (6) Studies and analyses oriented toward the correlation among the factors affecting vehicle performance and safety; (7) Application use cases in road and off-road vehicles, e-bikes, motorcycles, buses, trucks, etc.

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