OPTIMAL MAINSTREAM TRAFFIC FLOW CONTROL OF LARGE SCALE MOTORWAY NETWORKS

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Abstract

The continuously increasing daily traffic congestions on motorway networks around the world call for innovative control measures that would drastically improve the current traffic conditions. Mainstream traffic flow control (MTFC) is proposed as a novel and efficient motorway traffic management tool, and its possible implementation and principal impact on traffic flow efficiency is analysed. Variable speed limits, suitably operated and enforced, is considered as one (out of several possible) way(s) for MTFC realisation, either as a stand-alone measure or in combination with ramp metering. A previously developed, computationally efficient software tool for optimal integrated motorway network traffic control including MTFC is applied to a large-scale motorway ring-road. It is demonstrated via several investigated control scenarios that traffic flow can be substantially improved via MTFC with or without integration with coordinated ramp metering actions.

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