

SEMINAR

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1:30 – 2:30 pm

Seminar Room 4080 AIR Building

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.

Markos Papageorgiou received the Diplom-Ingenieur and Doktor-Ingenieur (honors) degrees in Electrical Engineering from the Technical University of Munich, Germany, in 1976 and 1981, respectively. He was a Free Associate with Dorsch Consult, Munich (1982-1988), and with Institute National de Recherche sur les Transports et leur Sécurité (INRETS), Arcueil, France (1986-1988). From 1988 to 1994 he was a Professor of Automation at the Technical University of Munich. Since 1994 he has been a Professor at the Technical University of Crete, Chania, Greece. He was a Visiting Professor at the Politecnico di Milano, Italy (1982), at the Ecole Nationale des Ponts et Chaussées, Paris (1985-1987), and at MIT, Cambridge (1997, 2000); and a Visiting Scholar at the University of California, Berkeley (1993, 1997, 2001, 2011) and other universities.