



## SEMINARIO DIDATTICO - SCIENTIFICO

### Freeway Traffic Control

## Prof. Markos Papageorgiou

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Engineering and Management, Technical University of Crete

Venerdì 20 marzo - ore 10:15 – 11:45

Facoltà di Ingegneria – Sala del Consiglio

Daily traffic congestion on freeway networks around the world continues to increase, with detrimental effects on travel times, traffic safety, fuel consumption and environmental pollution. The annual cost of traffic congestion on European roads is estimated to approach 120 b€ or 1% of the GDP. Traffic congestion is only partly due to high demand, since the appearing congestion degrades the expensive infrastructure capacity essentially at the only times it is actually needed, i.e. during the daily peak periods. Traffic control measures, if properly designed and deployed, may lead to substantial savings of travel time, fuel consumption and environmental impact, along with an improvement of traffic safety. The presentation will outline the related traffic control problems and methods, with a focus on optimal control and feedback approaches. More specifically, the areas of macroscopic traffic flow modeling, local and coordinated ramp metering, variable speed limit control, mainstream traffic flow control, merging traffic control and route information and guidance will be addressed, along with the presentation of some selected field results. Current and future prospects, emerging developments and needs in relation to VACS (vehicle automation and communication systems) and their implications for freeway traffic and control will also be addressed.



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.

Dr. Papageorgiou is author or editor of 5 books and of some 400 technical papers. His research interests include automatic control and optimisation theory and applications to traffic and transportation systems, water systems and further areas. He was the Editor-in-Chief of Transportation Research – Part C (2005-2012). He also served as an Associate Editor of IEEE Control Systems Society – Conference Editorial Board, of IEEE Transactions on Intelligent Transportation Systems and other journals. He is a Fellow of IEEE. He received a DAAD scholarship (1971-1976), the 1983 Eugen-Hartmann award from the Union of German Engineers (VDI), and a Fulbright Lecturing/Research Award (1997). He was a recipient of the IEEE Intelligent Transportation Systems Society Outstanding Research Award (2007) and of the IEEE Control Systems Society Transition to Practice Award (2010). He was presented the title of Visiting Professor by the University of Belgrade, Serbia (2010). The Dynamic Systems and Simulation Laboratory he has been heading since 1994, received the IEEE Intelligent Transportation Systems Society ITS Institutional Lead Award (2011). He was awarded an ERC Advanced Investigator Grant (2013-2017).

People interested in attending are kindly required to send an E-mail to:  
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