

**Paper presented at the 9<sup>th</sup> Annual International IEEE ITS Conference, Toronto, Canada, September 17-20, 2006.**

## **Local ramp metering in the case of distant downstream bottlenecks**

Yibing Wang and Markos Papageorgiou  
*Technical University of Crete*  
*Chania, Greece*

**Abstract:** The paper addresses a macroscopic simulation investigation of the performance of feedback local ramp-metering controller ALINEA and its PI (Proportional-Integral) extension for freeway stretches with a bottleneck at a distant location downstream of the metered on-ramp. The investigation indicates that the ALINEA ramp metering performance deteriorates in the distant downstream bottleneck case, while a significant improvement may be obtained by addition of a proportional term and by specification of suitable parameter values of the controller.