

## **SEMINAR**

**Friday, May 9, 2008  
10:30 am – Noon**

**10:30 am: Refreshments will be served in the ITS lobby**

**11:00 am - Noon: Seminar, ATMS Testbed Laboratory Room 4040 AIR Building**

### **TRAFFIC CONGESTION AND ITS IMPACTS ON GREENHOUSE GAS EMISSIONS: CAN ITS HELP**

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Professor, Electrical Engineering  
University of California, Riverside**

#### **ABSTRACT**

Transportation plays a significant role in greenhouse gas emissions, accounting for approximately a third of the United States' CO<sub>2</sub> inventory. In order to reduce CO<sub>2</sub> emissions in the future, transportation policy makers are looking to make vehicles more efficient and increasing the use of carbon-neutral alternative fuels. In addition, CO<sub>2</sub> emissions can be lowered by improving traffic operations, specifically through the reduction of traffic congestion. This research examines traffic congestion and its impact on CO<sub>2</sub> emissions using detailed energy and emission models and linking them to real-world driving patterns and traffic conditions. It has been found that CO<sub>2</sub> emissions can be reduced through three different strategies: 1) reducing severe congestion, allowing traffic to flow at higher speeds; 2) reducing excessively high freeflow speeds to more moderate conditions; and 3) eliminating the acceleration/deceleration events associated with stop-and-go traffic that exists during congested conditions. Details on several CE-CERT research projects that directly address these strategies will be provided.

*Dr. Matthew Barth is a Professor of Electrical Engineering at UC Riverside, where he is also the Director of the Center for Environmental Research and Technology (CE-CERT). Dr. Barth's research focuses is in Transportation Systems, in particular how it relates to energy and air quality issues. Current research interests include Intelligent Transportation System Technology, Transportation/Emissions Modeling, Vehicle Activity Analysis, and Vehicle Navigation.*