

**Matthew J. Barth**

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Matthew Barth (Member 1990, Senior Member 2000, Fellow 2014) is the Yeager Families Professor at the College of Engineering, University of California-Riverside. He is part of the intelligent systems faculty in Electrical and Computer Engineering and is also serving as the Director for the Center for Environmental Research and Technology (CE-CERT), UCR's largest multi-disciplinary research center. He received his B.S. degree in Electrical Engineering/Computer Science from the University of Colorado in 1984, and M.S. (1985) and Ph.D. (1990) degrees in Electrical and Computer Engineering from the University of California,

Santa Barbara. Dr. Barth joined the University of California-Riverside in 1991, conducting research in Intelligent Systems.

Dr. Barth's research focuses on applying engineering system concepts and automation technology to Transportation Systems, and in particular how it relates to energy and air quality issues. His current research interests include ITS and the Environment, Transportation/Emissions Modeling, Vehicle Activity Analysis, Advanced Navigation Techniques, Electric Vehicle Technology, and Advanced Sensing and Control.

Dr. Barth is active with the U.S. Transportation Research Board serving in a variety of roles in several committees, including the Committee on ITS and the Committee on Transportation Air Quality. He was awarded the TRB Pyke Johnson Award for TRB outstanding paper in 2007. In 2011, he was one of the winners of the Connected Vehicle Technology Challenge sponsored by U.S. Department of Transportation's Research and Innovative Technology Administration (RITA). He has also served on a number of National Research Council (NRC) Committees. Dr. Barth has also been active in IEEE Intelligent Transportation System Society for many years, participating in conferences as a presenter, invited session organizer, session moderator, reviewer, associate editor of the Transactions of ITS, and member of the IEEE ITSS Board of Governors. He was the IEEE ITSS Vice President for Conferences from 2011-2012, President-Elect for 2013, and is currently serving as the IEEE ITSS President for 2014-2015.

**Talk Title and Abstract:****The Role of Vehicle Automation and Intelligent Transportation Systems in Sustainable Transportation: Issues and Research Opportunities**

**Abstract:** There has been an increased emphasis worldwide on sustainable transportation in recent years, with the drive to improve vehicle fuel economy and to reduce CO<sub>2</sub> emissions from the transportation sector. Most of this effort is being applied at the vehicle level, where a variety of technology is being developed to improve overall vehicle fuel efficiency. To a lesser extent, programs are going into place to reduce the amount of driving and to improve overall transportation system efficiency. Intelligent Transportation System technology can certainly play a major role in these areas, including the introduction of connected and automated vehicles, intelligent navigation systems, eco-friendly traffic light signalization, and multi-modal traffic management. This presentation will discuss the complex issues and trade-offs with eco-friendly transportation systems, describe some of the latest work on how connected and automated vehicles can reduce fuel consumption and vehicle emissions, and identify many research opportunities in this field.