



RESEARCH SEMINAR

Integrated Management and Operations of Transportation and Power Networks Coupled by Plug-in Electric Vehicles

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Room 150 at Science Building

Abstract

The deployment of plug-in electric vehicles (PEVs) will lead to more interactions between transportation and power systems. Specifically, the policies and measures implemented in transportation systems will change the spatial and temporal distribution of PEVs and thus the pattern of their energy requirements, thereby affecting the operations of the power systems. On the other hand, the provision of the charging infrastructures and the associated charging expenses may affect the travel patterns of PEVs and thus the operations of the transportation systems. Such more frequent and profound interactions present the opportunity to integrated management and operations of the coupled transportation and power systems. The level of integration will largely depend on the advancement in charging technologies and, more importantly, innovative control strategies that leverage advanced charging technologies to foster the integration. In this talk, we will discuss analytical foundations and methodologies for analyzing the interactions between price of electricity and travel patterns of PEVs, developing deployment strategies of public charging infrastructure and designing pricing policies of electricity and roads to maximize social welfare associated with both the road and power networks coupled by PEVs.

Biography



Dr. Yafeng Yin is a Professor at Department of Civil and Coastal Engineering and the Director of Transportation Research Center, University of Florida. He works in the area of transportation systems analysis and modeling, and has published over 80 refereed papers in leading academic journals. He is the Editor-in-Chief of Transportation Research Part C: Emerging Technologies and serves on the editorial boards for another four transportation journals such as Transportation Research Part B: Methodological. He is a member of Transportation Network Modeling Committee and International Cooperation Committee of Transportation Research Board. Dr. Yin has supervised 10 Ph.D. students and six of them now teach in various universities worldwide such as Arizona State University, Utah State University and Tsinghua University, China. He was awarded the Doctoral Mentoring Award by University of Florida in 2012 in recognition of his outstanding graduate student advising and mentoring. Dr. Yin received his Ph.D. from the University of Tokyo, Japan in 2002, his master's and bachelor's degrees from Tsinghua University, Beijing, China in 1996 and 1994 respectively. Prior to his current appointment at the University of Florida, he worked as a postdoctoral researcher at University of California at Berkeley between 2002 and 2005. Between 1996 and 1999, he was a lecturer at Tsinghua University.