SUSTAINABLE TRANSPORTATION INFRASTRUCTURE: ASSESSMENT METHODS AND RESEARCH CHALLENGES

Wednesday, September 11
1:40 - 2:45 PM (US Arizona)

College Avenue Commons (CAVC) Room 559

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About the Talk

In the recent years, we have seen increasing efforts to understand and incorporate sustainability for transportation infrastructure planning, design, and project selection. Sustainability assessment methods including rating systems, life-cycle assessment (LCA), and life-cycle cost analysis (LCCA) are often used alone or together to provide an objective measure of progress toward sustainability goals. In this presentation, the concept of sustainable infrastructure will be introduced followed by example applications of various assessment methods with an emphasis on LCA will be presented. The life-cycle assessment (LCA) framework was used to measure the impact of materials, construction, maintenance, rehabilitation, and operations of various infrastructure assets. The research challenges addressed includes the development of a regional inventory database for various roadway and roadside assets, methodological choices for LCA (system boundary, analysis period, allocation, etc.), and development of use-stage models to describe the relationship between pavements and vehicles. Different classes of infrastructure problems where LCA and LCCA were successfully used will be presented along with potential future applications. Those problems include optimization of truck platooning, efficiency of pavement preservation methods, sustainable practices of construction and material selection, and use of recycled or by-products in paving applications.

About the Speaker

Dr. Hasan Ozer earned his Bachelor of Science degree in 1999 from the Middle East Technical University in Turkey, MS degree in 2005 from the Northwestern University and PhD in 2011 from the University of Illinois at Urbana-Champaign (UIUC). Dr. Ozer worked as Research Assistant Professor at UIUC and Illinois Center for Transportation until he joined the faculty ranks of ASU's School of Sustainable Engineering and the Built Environment in 2019. His research focuses on pavement materials characterization, pavement design analysis, development of rehabilitation and preservation programs. Dr. Ozer is interested in developing computational mechanics methods for structural performance modeling of pavements and using life-cycle assessment for development of sustainable transportation infrastructure.

This seminar is webcast live to a worldwide audience by
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Light refreshments will be served. Event is open to the public.