

Graduate Seminar Information

Evaluating Crashworthiness of Roadside Barriers Installed on Curved Roadway Sections

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Date: 2/19/15

Location: ENGR 1602

Time: 5:00 pm

Abstract:

Curved roadway sections are generally constructed with superelevation (banking) to compensate for the centripetal forces exerted on the vehicles and make it easier for the driver to control the vehicle through the curve. The severity of vehicle impacts into roadside barriers on curved sections could potentially be higher than on straight sections due to differences in the interface of the vehicle with the barrier and the manner crash energy is dissipated by the barrier. Efforts have been underway to study impacts on curves using computer simulation. Vehicle dynamics and finite element simulations were used to analyze the physics of the interaction of the vehicle and barrier in the crash event. The results provide insights on the performance of the barriers as well as the severity of the crash. Efforts continue on this research with the goal for developing recommendations for the selection and placement of barriers on curved, superelevated roadway sections using the simulation results for use by federal and state transportation agencies.

Bio:

Dr. Marzougui holds a D.Sc. degree in Mechanical Engineering from the George Washington University, and M.Sc. and B.Sc. degrees from the Pennsylvania State University. Prior to joining GMU, he was the Co-Director of the National Crash Analysis Center (NCAC) at the George Washington University where he led research projects on vehicle crashworthiness, roadside hardware development and evaluation, and infrastructure security research. His focus areas are in computer simulation of structures, mathematical and analytical modeling, and testing for crash analysis. Dr. Marzougui's contributions included the development of innovative numerical methods and tools for use in transportation safety research. Dr. Marzougui is also actively involved in crash testing and is managing the FHWA Federal Outdoor Impact Laboratory (FOIL).