

俄克拉荷马大学王乃玉博士学术报告



题目: Toward a Hazard-Resilient Built Environment

报告人: Naiyu Wang, Ph.D. (王乃玉 博士)

Assistant Professor, The University of Oklahoma

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地点: 浙江大学 (紫金港校区) 安中大楼A326

报告简介:

The resilience of a community (or city) is defined by its ability to prepare for, withstand and recover from the effects of natural or man-made disasters. The performance of the built environment, which is a key factor in community resilience, is largely determined by codes and standards, which are applicable to individual facilities and have the primary objective of preserving life safety under severe events. Current codes do not address the performance of spatially distributed physical infrastructure systems, nor do they address the performance of engineered facilities in the period of recovery following an event. Moreover, the design of buildings, transportation and utility network components currently is based on different performance criteria, and there is no assurance that all facilities required for community resilience will perform at a consistent level during and following an extreme hazard. Science-based measurement tools to evaluate performance and resilience at community scales, fully integrated supporting databases, and risk-informed decision frameworks to support optimal life-cycle engineering and socioeconomic policies aimed at enhancing community resilience do not exist at the present time. This presentation will highlight some of the significant research challenges facing community resilience planning and will emphasize the need to embrace uncertainties and communicate risks in making community planning decisions, illustrating through community building portfolio and lifeline network resilience assessment and recovery modeling.

报告人简介:

Dr. Naiyu Wang joined the School of Civil Engineering and Environmental Science at the University of Oklahoma in 2013. She earned her Ph.D. degree in Civil Engineering from Georgia Institute of Technology, Atlanta, Georgia, in 2010. Before joining the OU faculty, she worked at Simpson, Gumpertz & Heger, Inc. in Boston, MA, and was involved in projects concerning a variety of engineered facilities, including nuclear power plants, water distribution pipelines, radio telescopes, and wind turbines. Dr. Wang's research interests include risk-based community resilience planning; risk-informed decision support to design and maintenance of resilient and sustainable civil infrastructure systems; analysis and mitigation of competing hazards and risks to infrastructure systems; and structural safety and reliability assessment of complex infrastructure facilities. Dr. Wang serves as a member and secretary of the ASCE Standard 7 Minimum Design Loads for Buildings and Other Structures, Subcommittee on Strength Design (Load Combinations), since 2011. She also is a member of the SEI-ASCE Technical Council on Life-Cycle Performance, Safety, Reliability and Risk of Structural Systems, and a member of NIST Community Resilience Panel, Committee on Data, Metrics & Tool. Dr. Wang has a leadership role in the NIST-sponsored Center of Excellence for Risk-based Community Resilience Planning, managing the team on Building Portfolio Analysis.

联系人: 吕庆 13588878016 lvqing@zju.edu.cn

浙江大学防灾工程研究所
浙江省岩土力学与工程学会