Department of Electrical and Computer Engineering

TEXAS TECH UNIVERSITY
Edward E. Whitacre Jr.
College *of* Engineering™

Fall 2024 Seminar Series

Seminar Title: *Multi-Hazard Sustainability (HazSus): From Earthquake Science/Engineering Interface to Global Sea-Level Rise Model (GSLRM)*
Time: 3:00-3:50 PM, Monday, Oct 28, 2024
Location: Holden Hall 104

Speaker:
Ting Lin
Civil, Environmental, & Construction Engineering, Texas Tech University

Abstract:
Multi-Hazard Sustainability (HazSus) addresses disaster resilience against natural and anthropogenic hazards, enabled by performance-based engineering and advanced technologies such as artificial intelligence, high performance computing, and virtual reality. Embracing both probabilistic and physics-/process-based approaches, this seminar presents (1) the interface between earthquake science and engineering, which provides insights from ruptures to waveforms, from hazards to risks, via ground motion simulations and end-to-end time history analyses; (2) a vision for Global Sea-Level Rise Model (GSLRM), which builds upon Probabilistic Sea-Level Rise Hazard Analysis (PSLRHA, Lin 2012). Inspired by Probabilistic Seismic Hazard Analysis (PSHA, Cornell 1968) and climate science (e.g., Schneider 2001), PSLRHA incorporates aleatory and epistemic uncertainties from climate forcing, models, and contributing physical processes, including polar ice melting especially in Antarctica and Greenland. The core methodology from selective investigations on earthquakes and sea-level rise - illustrative of short-lived extremes and long-term stressors - is transferrable to other climate-induced hazards and novel multi-hazard combinations across temporal and spatial scales, with broader implications for global models.

Speaker Bio:
Prof. Ting Lin (Texas Tech University, USA) is the Director of the Multi-HAZard SUStainability (HazSus) Research Group with parallel tracks in earthquake engineering and climate change, as well as Faculty Affiliate of the National Wind Institute (NWI) and Climate Center. Lin is the Chair of the 2024 COSMOS/EERI/SSA Bruce Bolt Medal Selection Committee and the Former Chair of the ASCE SEI Advances in Information Technology Committee. She has served on the Board of Governors Level Task Committee and as Co-Author on Confirmation & Update of SEI Vision for the Future, and on delegations/working groups/committees under COP15, NEHRP, SCEC, NIST, UJNR, & NASEM. Her work has been implemented in hazard mapping, modeling software, and building codes & guidelines. Lin completed her B.S. (Hons.) in Civil Engineering and a concentration in Architecture from Cornell, and M.S. and Ph.D. in Structural Engineering from Stanford.