Tufts CEE Seminar Series Presents

Grace Parker
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**Topic:** Approaches to Modeling Ergodic Seismic Site Response in Central and Eastern North America

**Friday November 13, 2020 – 12:00pm – Virtual Event**

Grace Parker is a Mendenhall Postdoctoral Fellow at the U.S. Geological Survey Earthquake Science Center in Moffett Field, California. She holds a B.S. in Applied Geophysics (2014) and a PhD in Civil Engineering (2018) from the University of California Los Angeles. Her research interests are in earthquake ground motion and seismic hazard, with a particular focus on model development, nonergodic site response, and applications to earthquake early warning systems.

The seminar will be discussing the Next Generation Attenuation East (NGA-East) project resulting in a suite of ground motion models (GMMs) for central and eastern North America (CENA). These models provide ground motion intensity measure predictions for sites with a hard rock reference velocity condition of Vs = 3000 m/s (Hashash et al. 2014), or for sites with the NEHRP B/C boundary condition of VS30 = 760 m/s. In order to apply the GMMs to weathered rock or soil sites, an additional site amplification model is needed. There have been a number of approaches when developing site amplification models for CENA. These include: (1) adopting models for active tectonic regions; (2) regression of NGA-East data to develop a VS30-scaling model; (3) Regression of data to develop a model conditioned on peak site frequency from the ratio of horizontal-to-vertical spectra; (4) and one-dimensional simulation-based approaches. This presentation will explore empirical modeling approaches, present comparisons between different models, and summarize recommendations on median site response and epistemic uncertainty that were provided to the U.S. Geological Survey for the 2018 update to the National Seismic Hazard Model.