

## **2016 Joyner Lecture: Jonathan P. Stewart, PhD, PE**

Professor and Chair, Civil & Environmental Engineering Department

University of California, Los Angeles

### ***Site response uncertainty and its implications for seismic risk characterization***

#### **Abstract**

This presentation offers fresh perspectives on the topic of site response and its effects on seismic risk analysis. Although it is standard practice to account for site effects in ground motion characterization, limited understanding of underlying physical processes and limited availability of suitable analysis tools too often results in mis-characterizations. Intended for a broad audience, the speaker will address four main considerations:

1. The physical processes responsible for site effects;
2. The manner by which these processes are (or are not) reflected in relatively generic site factors used in GMPEs and in building codes;
3. Effectiveness of site-specific geotechnical ground response analyses to estimate site effects;
4. Recommended procedures for evaluating site-specific site response and its implementation in risk characterization for critical facilities.

#### **Joyner-Related Bio**

Jonathan P. Stewart is Professor and Chair of the Civil & Environmental Engineering Department at UCLA. He was selected as the 2016 Joyner Lecturer in recognition of his work on the characterization of earthquake ground motions for engineering applications, with special emphasis on site response effects. He will deliver his lecture in April 2016 at the SSA Annual Meeting in Reno, NV and at the EERI Annual Meeting in San Francisco, CA. Dr. Stewart has worked extensively at the interfaces of traditional disciplines, including seismology-engineering (on ground motions) and geotechnical-structural engineering (on soil-structure interaction). The work of his research teams has impacted the US National Seismic Hazard Maps; the Global Earthquake Model; building code documents (ASCE-7); and guidelines documents for existing structures (ASCE-41), soil-structure interaction (NIST, 2012), and seismic landslide hazards (SCEC, 2002). He is a former Chief Editor for the ASCE Journal of Geotechnical and Geoenvironmental Engineering and is the current Editor of Earthquake Spectra. Previous recognition of Dr. Stewart's work has included the Huber Prize and Casagrande Awards from ASCE, a Fulbright Scholarship from the US State Department, an NSF CAREER award, and the Distinguished Teaching Award from the UCLA Academic Senate.