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## ReStructure 2.0 Webinar Series

**Aula Caldora** – Convention Center Università della Calabria

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# Urban-scale seismic risk assessment: (how) does it change if we include SSI and site amplification effects?

Abstract: Seismic risk assessment is still performed at an urban scale assuming all structures and the man-made environment are fixed on the soil. Intuitively, one could argue that this is the case if only the ground is rock hard. To tackle this shortcoming, in an ongoing effort, a new framework was developed, applied, and tested to include soil-foundation-structure interaction (SSI) and site effects in the vulnerability assessment of structures at an urban scale. Soil-structure interaction and, especially, local site-effects, should not be neglected in urban-scale risk assessment. This new framework uses state-of-the-art open-source software, bound together using Python. The results reveal the soil-related effects on the vulnerability of buildings.



Presenter Bio-Sketch: Dimitris Pitilakis is an Associate Professor in the Department of Civil Engineering of the Aristotle University of Thessaloniki, Greece (M.Sc. in Engineering, University of California, Berkeley and Ph.D. in earthquake engineering from Ecole Centrale Paris, France). He is an expert in geotechnical earthquake engineering, emphasizing on soil – foundation – structure interaction, dynamics of foundations, and performance-based design. Lately, he has been working on the earthquake vulnerability assessment of soil-foundation-structure systems on a local and city scale. He is a member of the TG207 committee of ISSMGE on soil-structure interaction and retaining walls. He is the author of more than 120 papers in peer-reviewed scientific journals and international conference proceedings. He is a member of national and international scientific societies on Earthquake Engineering and a reviewer of international scientific journals. He has developed software to simulate the soil-foundation-structure interaction, focusing on nonlinear soil and structure behavior and foundation design and analysis software. He has extensive experience in experimental soil-foundation-structure interaction in small-scale (shaking table and centrifuge) and full-scale (EuroProteas in Euroseistest <http://euroseisdb.civil.auth.gr/sfsis>) facilities. He is currently in charge of the shaking table and the full-scale EuroProteas facility of the Soil Dynamics and Geotechnical Earthquake Engineering Laboratory of the Aristotle University of Thessaloniki.

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