ReStructure 2.0
MSCA project

ReStructure 2.0 Webinar Series

5pm February 24, 2022 (Time Zone: Europe/Rome)

New soil-structure interaction frontiers in seismic areas

Abstract: Standard seismic design of retaining structures in Europe is based on a century-old theory, that does not account for the actual physical behavior of soil-structure systems. This theory unrealistically assumes that the seismic earth pressure increment is proportional to surface acceleration. Methods based on this theory often lead to conservative design of retaining structures that causes an unsustainable consumption of resources without any benefits on the performance and safety of the construction. This presentation illustrates a novel physics-based framework based on soil-structure interaction principles, recognizing the relative displacement between wall and retained soil as the driving factor in the seismic response of wall-soil system.

Presenter Bio-Sketch: Dr. Maria Giovanna Durante is currently a Marie Sklodowska-Curie Fellow at the University of Calabria in Italy. In 2015 she obtained her PhD from the University of Naples "Federico II." In 2016 she joined the University of California, Los Angeles (UCLA) as a postdoctoral scholar. She then moved to the University of Texas at Austin where she held a postdoctoral fellow appointment between 2018 and 2020. In 2021 she was awarded the prestigious Marie Sklodowska-Curie Fellowship for a project entitled: "*ReStructure 2.0 - A novel physics-based methodology for the seismic analysis of retaining structures leveraging machine learning techniques*." Her current research interests focus on seismic soil-structure interaction using physical experiments and numerical simulations, and big data analytics and artificial intelligence applications in geotechnical earthquake engineering problems. She is the recipient of various awards including the 2018 Earthquake Spectra Outstanding Paper Award by the Earthquake Engineering Research Institute.

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