UNIVERSITY OF CAMBRIDGE
Department of Engineering

GEOTECHNICAL SOCIETY

Taking advantage of soil plastic mechanisms in the seismic design of geotechnical systems

Dr. Domenico Gaudio

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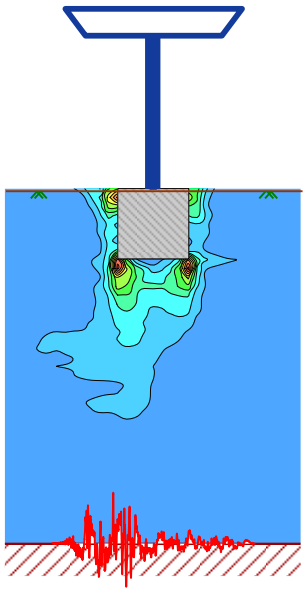
Seminar overview:

In the case of strong earthquakes, it is usually unfeasible to design structures while keeping foundation soils in the elastic regime. This is why plastic mechanisms occurring into foundation soils should be considered since the design stage, or even promoted to improve the seismic performance of the geotechnical system, provided that resulting permanent displacements are controlled and compared with some threshold values. Some consequences of this new approach are shown in this seminar, focusing on caisson foundations supporting bridge piers and reinforced-earth retaining walls.



Biography:

Prior to joining the Geotechnical and Environmental Research Group as a Research Associate, Dr. Domenico Gaudio took both his Master and PhD degree at Sapienza University of Rome and then continued his research activities at Polytechnic University of Milan. His primary research interest concerns non-linear dynamic soil-structure interaction, specifically focused on the performance-based design of caisson foundations supporting bridge piers and geosynthetic-reinforced earth retaining walls subjected to strong earthquakes. He also dealt with modelling the propagation and runout of debris flows through the Smoothed Particle Hydrodynamics (SPH) method. His research is currently focused on the design of bridge foundations under severe seismic actions, and specifically to the possibility of taking advantage of the dissipation mechanisms connected to the attainment of the shear strength in the foundation soils. He was recently awarded the “AGI-IGS Award 2020” by the Italian Chapter of the International Geosynthetics Society (IGS).

When and where:

Thursday, 19 March, 19:00
Cripps Auditorium, Magdalene College

Queries:

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