



Corso di Dottorato in Ingegneria dei Sistemi Civili Coordinatore del Dottorato: prof. ing. Andrea Papola

Ciclo di seminari: Ingegneria geotecnica per la progettazione e la gestione delle infrastrutture

Seminar no.9 May 6th, 2025 15:00-17:00 Aula Arrigo Croce – ed. C8 – DICEA

Seismic behaviour and design of tunnels and underground structures **Dr Grigorios Tsinidis**

Department of Civil Engineering, University of Thessaly, Pedion Areos - 38334, Volos, Greece e-mail: gtsinidis@uth.gr

Abstract: Tunnels and underground structures are increasingly being constructed in seismically active regions to meet the growing demands of modern transportation and utility networks. Given their critical role in contemporary societies and considering documented cases of poor performance during past earthquakes, there is a growing interest among researchers and engineering practitioners in the seismic analysis and design of these types of structures. This lecture will present a state-of-the-art review of current methods for analysing and designing tunnels and underground structures to withstand ground seismic shaking. Key parameters affecting their seismic response will be identified and discussed, drawing on the findings of an extensive experimental and numerical study. This study examined the behavior of circular and rectangular tunnels embedded in soft soils and subjected to ground shaking in the transverse direction of the structures.



Dr. Tsinidis is an Assistant Professor in Computational Geotechnical Engineering & Soil-Structure Interaction at the Department of Civil Engineering of the University of Thessaly, Greece, and a member of the Division of Geotechnical and Geo-Environmental Engineering. He holds a PhD in Civil Engineering (2015) from the Aristotle University of Thessaloniki, Greece. His research interests focus on computational geotechnical engineering and soil-structure interaction, with particular emphasis on the response and vulnerability of infrastructure such as tunnels, underground structures, and bridge foundations—to seismic and other natural hazards. He has published more than 75 articles & papers in international scientific journals and conferences. He has worked as a Civil Engineer / Consultant for consultancies in Vienna, Austria (FCP Fritsch, Chiari & Partner ZT GmbH, Vienna Consulting Engineers ZT GmbH), contributing to a wide range of industrial projects worldwide. Recently, he served as the principal investigator of the research project INFRARES - Towards resilient transportation infrastructure in a multi-hazard environment, funded by the Hellenic Foundation for Research & Innovation.

Sito Web: www.dicea.unina.it |e-mail: dicea@unina.it |Pec: dip.ing-civ-ed-amb@pec.unina.it [C.F./P.IVA:00876220633

Segreteria Direzione

Segreteria Didattica

Via Claudio 21 80125 Napoli tel: +39 081 7682322 marina.dambrosio@unina.it

P.le V. Tecchio 80 80125 Napoli tel: +39 081 7682174 tiziana.bellardini@unina.it

Ufficio Contabilità

Via Claudio 21 80125 Napoli tel: +39 081 7683446 nicolina.naccarato@unina.it

Ufficio Gestione Progetti di Ricerca & Attività sul territorio Via Claudio 21 80125 Napoli tel: +39 081 7683339 stefania.volpe@unina.it

Ufficio Progetti & Contratti

Via Claudio 21 80125 Napoli tel: +39 081 7682320 gennaro.doria@unina.it