



**Società Italiana Gallerie**

Italian Tunnelling Society

TRAINING & FORMATION

The Italian Tunnelling Society (SIG) is promoting specific teaching events all around Italy to disseminate technical and scientific knowledge concerning all the topics related to tunnelling. A first successful event was organized at Politecnico di Torino on June 9th, 2023, where several recent experiences in the mechanized full-section excavation were presented. This second event at Politecnico di Milano is dedicated to the presentation of the most popular numerical methods employed to solve geotechnical boundary value problems, with special emphasis on the assessment of the potential hazards related to tunnelling. In particular, distinct and finite element methods will be presented and discussed, focusing on hydro-mechanical coupling, seismic conditions and interferences with already existing structures and infrastructures. This event is devoted to engineers, students and practitioners, and is also conceived as an introduction to a recently published volume, edited by the Italian Tunnelling Society, entitled "Handbook on Tunnels and Underground Works: Volume 1: Concept – Basic Principles of Design".

## ADVANCED NUMERICAL APPROACHES TO THE MODELLING OF TUNNEL EXCAVATION AND CONSTRUCTION

**Venerdì 27 ottobre 2023 Ore 9,00**

Il Convegno sarà tenuto interamente in lingua inglese

Presso il Politecnico di Milano, Aula Rogers Edificio 11 Architettura Milano Città Studi

Via Bonardi

Con il patrocinio di:



### PROGRAMMA

9:00 AM **Registration**

10:00 AM **Opening speeches**

C.G di Prisco e C. Callari (SIG. Coordinator)

R. Casale (SIG President)

B. Finzi (Ordine degli Ingegneri di Milano)

A. Taliercio (Dean of the School of Civil, Environmental and Land Management Engineering)

10:30 AM **A methodological approach for the application of the Distinct Element Method to tunnel design.**

M. Barla (Politecnico Torino)

**The influence of hydromechanical coupling on tunnel stability response to excavation.**

C. Callari (Università del Molise)

11:30 AM *Coffee Break*

12:00 AM **Multiscale approach in advanced 3D FEM modelling: from large 3D geological and geotechnical models to local coupled interactions**

R. Castellanza (Università di Milano Bicocca)

**Soil-structure interaction due to tunnelling in the urban environment: detailed analyses and simplified structural models**

N. Losacco (Politecnico di Bari)

1:00 PM *Lunch break*

**2:00 PM Seismic behaviour of tunnels**

E. Bilotta (Università Federico II di Napoli)

**Design of tunnel face reinforcement**

L. Flessati (TU Delft)

**3:00 PM Machine Learning. Applications to underground works.**

P. Mazzalai e A. Danzi (SWS-SYSTR)

**Design of tunnel in rock with high overburden: methodology and case histories.**

D. Merlini (Pini Group)

**Lyon-Turin railway line: excavation methods for the construction of a large cavern at the end of the Saint Martin La Porte adit.**

F. De Sanctis (Rocksoil)

**4:00 PM Conclusions**

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**Comitato scientifico:** *C. Callari, D. Peila, C. Di Prisco, E. Bilotta, M. Barla, R. Castellanza, R. Casale, L. Flessati, C. Todaro, M. Zerbi*

**MODALITA' DI ISCRIZIONE**

Iscrizione Gratuita per gli studenti. Per gli studenti del Politecnico di Milano è prevista solo la partecipazione in presenza.

Per le iscrizioni dei partecipanti si rimanda al FORM DA COMPILARE DIRETTAMENTE SUL SITO [www.societaitalianagallerie.it](http://www.societaitalianagallerie.it) Area Eventi.

**SOCI SIG 50 € in presenza iva incl**

**NON SOCI SIG 70 € in presenza iva incl**

**SOCI/NON SOCI SIG 50 € in streaming iva incl**

L'iscrizione dovrà essere fatta entro il 20/10/2023

Sono stati concessi N. 3 CFP dal Consiglio Nazionale degli Ingegneri.

Organizzazione a cura di

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