PhD Opportunity in
Quantum-Integrated Multi-Physics Soil-Structure Interaction Framework for Nonlinear Dynamic Analysis of Large-Scale Civil Structures

Prof. Davide Noè Gorini, Associate Professor at the University of Trento, is seeking a highly motivated PhD student to join his research group on **Quantum-Integrated Computational Mechanics for Civil Engineering Problems**.

The successful candidate will contribute to the development of a novel **Quantum-based framework for the nonlinear dynamic analysis of multiphysics, civil engineering structures exposed to natural hazards**. The PhD research will substantially extend an emerging quantum formulation being developed by the research group to analyse **complex, multi-physics soil-structure systems**. As a flagship application, the Quantum framework will be deployed for **high-fidelity seismic evaluations of CERN strategic underground infrastructures**.

The ideal candidate should have a strong background in **Computational Mechanics**. Knowledge of **Quantum Algorithms and Computing, Quantum Information** and **Finite Element Analysis** is highly desirable. Experience with programming languages and platforms such as **OpenSees**, **ABAQUS**, **MATLAB/Simulink** or **Python** is particularly valued.

This highly multidisciplinary project is carried out **in close collaboration with the European Organization for Nuclear Research (CERN, Switzerland) and leading international research partners**. The selected PhD candidate will have the opportunity to spend research periods abroad while working alongside internationally recognised experts in **quantum computing, computational mechanics and earthquake engineering**.

Candidate Profile

Applicants are expected to demonstrate:

- Master's degree in **Civil Engineering**, **Applied Physics, Computer Engineering** or **Mechanical Engineering**;
- Background in **Computational Mechanics** and **programming**;
- Experience with the analysis of **dynamic problems**;
- Advanced level of English and collaborative skills.

Contract

- **Position**: fully funded PhD studentship
- **Duration**: three years
- **Location**: Department of Civil, Environmental and Mechanical Engineering, University of Trento, Trento, Italy
- **Start date**: November 2026
- **End date**: October 2029

Application process

Applications can be submitted exclusively via the following link by August 24 at 16:00 (Italy Local Time): https://webapps.unitn.it/Apply/it/Web/Home/dott

Should you require any additional information, do not hesitate to reach out at: davidenoe.gorini@unitn.it