

# Fully Funded PhD Position in Next-Generation High-Resolution Seismic Hazard Maps with Site Amplification and Soil–Structure Interaction

Prof. Marco Broccardo and Dr. Davide Noè Gorini at the University of Trento are seeking a highly motivated PhD candidate to work on next-generation high-resolution seismic hazard maps. The position is fully funded and will be developed in collaboration with Dr. Chiara Nardin (UniTN/ETH Zurich) and Dr. Alfio Viganò (Servizio Geologico della Provincia autonoma di Trento).

The research will advance beyond conventional regional hazard products by integrating **probabilistic seismic hazard analysis, microzonation-informed local geology, nonlinear site response, and full integration of dynamic Soil-Structure Interaction (SSI) with complete treatment of uncertainties at all levels**. A specific focus is on the regional scale analysis of SSI through a novel analytical and numerical framework simulating both frequency and nonlinear effects. The overall goal is to produce high-resolution hazard maps and practical tools that better represent the physical processes controlling ground motion and maximalizing the local information.

## Research Focus

- Probabilistic high-resolution hazard downscaling with explicit integration of microzonation data, geological models, stratigraphic profiles, and uncertainty treatment.
- Development of scalable site-response models capable of representing frequency-dependent amplification and, where relevant, nonlinear soil behavior.
- Extension from free-field hazard to structure-relevant input motion through regional-scale, holistic Soil-Structure Interaction assessments.

## Candidate Profile

We are looking for candidates with:

- A Master degree in Civil Engineering or a closely related discipline.
- Ideally, a background or specialization in geotechnical engineering or structural engineering.
- Deep Interest in earthquake engineering, geotechnics, structural dynamics, and related fields.
- Experience and interest in numerical modelling, programming, and statistical analysis.
- Good command of English and strong collaborative attitude.

## Position

- Three years fully founded PhD scholarship.
- **Start date:** November 2026
- **Host institution:** Department of Civil, Environmental and Mechanical Engineering, University of Trento, Trento, Italy.
- **Advisors:** Marco Broccardo and Davide Noè Gorini.

Applications must be submitted via this [link](#) by **May 13 2026 at 16:00** (EU central time)

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