

## **SESSION 50- Geophysical Methods for Site Characterization and Structural Integrity Assessment**

### **Conveners**

M. Emin Candansayar (Ankara University, Türkiye)  
Enzo Rizzo (University of Ferrara, Italy)  
Hakan Karslı (Karadeniz Teknik University, Türkiye)  
Stefano Parolai (University of Trieste, Italy)  
Sadi Kuleli (retired from MIT, USA)

### **Session Description**

This session invites contributions focusing on the development, application, and integration of geophysical techniques for site characterization and structural health assessment in seismic environments. We aim to bring together recent advances in seismic and non-seismic geophysics, emphasizing methodological improvements, case studies, and practical challenges in engineering and seismological contexts.

We encourage submissions in the following thematic areas (but not limited to):

**1. Seismic-based site characterization methods** o Applications of surface wave methods (e.g. MASW, REMI, SPAC) and refraction tomography for shear-wave velocity profiling

- Microtremor (ambient vibration) methods for site response assessment
- Data acquisition strategies, signal processing enhancements, inversion and interpretation workflows
- Hybrid and multi-technique seismic approaches for improved resolution

**2. Advances in non-seismic geophysical methods for site investigations**

- DC resistivity, induced polarization (IP), electromagnetic (EM) methods including ground-penetrating radar, and other complementary techniques
- Instrumentation developments, deployment approaches, 2D/3D inversion algorithms, and integrated interpretations
- Applications to mapping subsurface heterogeneities, lithological contrasts, groundwater, and engineering parameters

**3. Non-destructive geophysical evaluation of concrete, masonry, and structural elements**



- Seismic Ultrasonic, DC resistivity, electromagnetic (GPR), and acoustic emission methods for in situ inspection
- Techniques for assessing damage, voids, delamination, and reinforcement corrosion
- Integration of non-destructive geophysics with structural health monitoring and performance assessment

We particularly welcome interdisciplinary contributions that link geophysical insights to earthquake engineering, seismic hazard assessment, structural resilience, and design practice.

