Postdoctoral position at Université Gustave Eiffel, Campus Nantes, France (18 months, start in early 2027)

Subject: **Joint Seismic Surface Waves and Cone Penetration Testing Using Geotechnical Centrifuge Modelling for Offshore Site Investigation**

University: **Université Gustave Eiffel**

Department: **UMR Telluris / Department of Geotechnical engineering, Environment, Natural hazards and Earth sciences (GERS)**

Laboratory: **Geophysics and Non Destructive Evaluation Laboratory (GeoEND)**
Centrifuges for Geotechnics (CG)

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1 Description of the postdoctoral position

An 18-month postdoctoral research position is available at Université Gustave Eiffel, Campus de Nantes, within the GERMEH project, funded by the French National Research Agency (ANR https://anr.fr/Projet-ANR-25-CE05-4607). The GERMEH project aims to advance geophysical investigation methods for offshore subsurface characterisation, particularly in the context of marine renewable energy development and offshore geotechnical engineering.

At Université Gustave Eiffel, campus de Nantes, the GeoEND and CG research teams will jointly carry out Work Package 3 (WP3) – Centrifuge-Based Joint SSW–CPT, focusing on the combined use of seismic surface waves (SSW) and Cone Penetration Testing (CPT) for offshore subsurface investigation.

The postdoctoral researcher will contribute to the development and implementation of experimental investigations using geotechnical centrifuge modelling. The objective of this study is to assess the potential of seismic surface wave analysis for geotechnical characterization through comparison and integration with CPT measurements. The main research activities will include:

- Development and preparation of physical soil models for centrifuge testing.
- Implementation of seismic surface wave excitation and measurement systems in centrifuge experiments.
- Performance of centrifuge mini-CPT measurements and investigation.
- Acquisition, processing and interpretation of experimental seismic and geotechnical data.
- Investigation of relationships between seismic wave measurements, CPT results and soil mechanical properties.
- Contribution to scientific publications, technical reports and project meetings.

The research will be conducted jointly by the GeoEND and CG teams, combining expertise in experimental geophysics, soil dynamics and geotechnical centrifuge modelling.

2 Working conditions

The position will be based at Université Gustave Eiffel, Campus de Nantes, France, within the UMR Telluris/Department of Geotechnical Engineering, Environment, Natural Hazards and Earth Sciences (GERS). This postdoc research project will be jointly conducted by laboratories GeoEND and CG at Université Gustave Eiffel, combining complementary expertise in geophysics and geotechnical engineering.

The GeoEND research team specialises in geophysical investigation and non-destructive evaluation techniques, including seismic wave propagation, measurement systems and signal interpretation. GeoEND website: https://geoend.univ-gustave-eiffel.fr/en/

The CG research team specialises in physical modelling of geotechnical problems using centrifuge testing, with applications in offshore engineering, foundation engineering and soil–structure interaction. CG website: https://cg.univ-gustave-eiffel.fr/en/

The successful candidate will work closely with researchers, engineers and technical staff from both teams and will have access to the experimental facilities and instrumentation required for the project.

3 Qualifications

- Ph.D in geophysics, geomechanics, seismology, dynamic testing or other relevant disciplines.
- Experience or strong interests in laboratory tests.
- Good understanding of wave propagation, soil behaviour or geotechnical investigation methods.
- Experience in seismic signal processing, wave propagation analysis, and scientific programming (particularly Python) would be an advantage.
- Ability to conduct independent research and collaborate within a multidisciplinary team.
- Good scientific communication and technical writing skills in English.

4 Application Deadlines

The position is expected to start in early 2027, and applications will remain open until the position is filled.