

Post-Graduate Research Scholarship (M/F)

A call for applications is currently open to award a Post-Doctoral Research Scholarship within the framework of the H2020 research project “LIQUEFACT - Assessment and mitigation of liquefaction potential across Europe: a holistic approach to protect structures/infrastructures for improved resilience to earthquake-induced liquefaction disasters” (http://cordis.europa.eu/project/rcn/202709_en.html) of the Faculty of Engineering of the University of Porto.

Scientific Area: Civil Engineering- Geotechnics/Structures

Application Requirements:

Applicants need to hold a PhD in Earthquake Engineering or Geotechnical/Structural Engineering, being automatically excluded the applicants that do not provide proof of holding that degree.

Applicants with academic and research activity in geotechnical earthquake engineering, seismic design of foundations systems and structures, seismic risk assessment and loss estimation, particularly earthquake induced liquefaction damage (EILD), will be favoured. The applicant has to hold experience and have scientific publications with a strong focus on the analysis of soil-structure interaction effects. Applicants with knowledge and experience in the use of numerical modelling and analysis software to assess the structural behaviour under earthquake loading with nonlinear static (pushover) and dynamic analysis methods will be favoured, specially if they have explicitly developed work in displacement-based seismic design considering soil-foundation-structure interaction. At this level, the knowledge and experience in programming earthquake-induced-liquefaction damage in buildings and lifelines will highly be favoured. A good level of English proficiency (spoken and written) is also required. Experience in the scientific fields related to the project will be considered a positive aspect for the ranking of applications.

Workplan:

The scholarship holder will perform studies related with numerical simulation of liquefaction effects and soil-structure interaction analysis. Therefore, the primary goal of this work will be the identification and assessment of the most suitable numerical techniques to deal with the problem and the treatment of available data from losses /damages case histories from well-known earthquakes, where information is available to assess vulnerability of particular buildings and components of the network in lifelines. This will necessarily take into account the sources of uncertainties inherent to various aspects (e.g., typology, damage states), models (e.g. seismic hazard, spatial correlation and fragility curves), using tools and methods for the estimation of fragility curves. Based on that, numerical models with different degrees of complexity will be developed in order to establish simplified models with a suitable accuracy. A comprehensive parametric study will be developed for the assessment of the most influential parameters in the liquefaction vulnerability analysis of structures (underground and aboveground structures). After this identification, a probabilistic framework will be developed to establish specific vulnerability analysis procedures for a category of structures founded in liquefiable soil deposits.

Applicable legislation and regulations:

Law N.º 40/2004, of August 18, amended by the Decree-Law n.º 202/2012, of August 27 and amended by the Decree-Law n.º 233/2012, of October 29, by Law n.º 12/2013, of January 29 and by the Decree-Law n.º 89/2013, of July 9; Scholarship Regulation of the University of Porto.

Place of work and scientific supervision:

The work developed by the scholarship holder will be carried out at the Civil Engineering Department of the Faculty of Engineering of the University of Porto. The Scientific Supervision will be carried out by Prof. António Viana da Fonseca, Prof. António Silva Cardoso and Prof. Pedro Costa from the Civil Engineering Department of the Faculty of Engineering of the University of Porto.

Duration and General Terms of the Scholarship:

The scholarship will have a duration of 12 months, starting from May 2017. The scholarship holder may not simultaneously benefit from another scholarship or fellowship. The research carried out within the scope of the scholarship will be performed under a scheme of exclusive dedication.

Scholarship Stipend Conditions:

A monthly stipend with a value of 1495€ will be paid to the scholarship holder by bank transfer. The scholarship holder is entitled to a personal accident insurance covering research activities and to voluntary social insurance. The payments will be made by bank transfer.

Selection criteria:

The applications of the candidates will be ranked according to their suitability to fulfil the objectives of the research work based on the documents submitted and possible individual interviews. The main ranking and selection criteria will be:

- i) Academic profile of the candidate: PhD in Geotechnical/Structural Engineering or Earthquake Engineering in a field relevant to the project (mandatory) (1-5 points);
- ii) Research experience (or other) relevant to the research project (1-5 points);
- iii) Relevant publications and awards (1-5 points);
- iv) General CV assessment (including English proficiency) and applicant's motivation (1-5 points);
- v) Interview (1-5 points).

(1 - mediocre, 2 - acceptable, 3 - good, 4 - very good, 5 – excellent)

The weights assigned to these criteria are, respectively, 30%, 25%, 20%, 10%, 15%

The jury reserves the right not to award the scholarship if the quality of the applicants does not fulfil the necessary requirements.

Selection Committee:

- President - Prof. António Joaquim Pereira Viana da Fonseca, Associate Professor, FEUP
- 1st Effective Member - Prof. Pedro Miguel Barbosa Alves Costa, Assistant Professor, FEUP
- 2nd Effective Member - Prof. António José de Magalhães Silva Cardoso, Full Professor, FEUP
- 1st Alternative Member - Prof. Xavier das Neves Romão, Assistant Professor, FEUP
- 2nd Alternative Member - Prof. Humberto Salazar Amorim Varum, Full Professor, FEUP

Notification of the scholarship application results:

The results of the selection process will be sent to the candidates by email and by registered letter. Candidates therefore need to provide their full postal address in their application documents.

Application deadline and documents to be submitted:

Applications will be accepted between 17/04/2017 and 27/04/2017. Applications need to be sent before the deadline by normal post to Prof. António Viana da Fonseca, Project LIQUEFACT, Departamento de Engenharia Civil, Faculdade de Engenharia da Universidade do Porto, Rua Dr. Roberto Frias. 4200-465 Porto or, alternatively, can be sent by email to viana@fe.up.pt and recursoshumanos@fe.up.pt with the subject (**FEUP – LIQUEFACT Pos-Doc**).

Application Documents:

An application letter addressed to the President of the Jury Committee needs to be sent as well as:

- Cover letter (no longer than on A4 page);
- Supporting documents attesting that the applicant fulfils all the required conditions for the scholarship, namely certificates of all the academic degrees obtained, with the final average grade and marks in all subjects;
- The applicant's detailed Curriculum Vitae;
- Copy or accessible links of relevant scientific publications authored or co-authored by the applicant;
- (Optional) Additional documents such as reference letters (maximum 2) as well as proofs of internships or of additional courses or training taken by the applicant.

The documents can be submitted in Portuguese or in English. However, an English version of the cover letter always needs to be included (to analyse the applicant's English proficiency).