

### 1 Research Grant Announcement (M/F)

Call open for applications for a research grant within the framework of Project EXPL/EI-EGC/1420/2021 – InaWAVE - Innovative approach to wave-based experimental determination of soil damping, funded by national funds through the FCT/MCTES (PIDDAC), under the following conditions:

**Scientific Area:** Civil Engineering.

**Admission requirements:** Candidates who cumulatively meet the following two requirements may apply for this grant:

**Requirement 1:**

- Be a student enrolled in a doctoral program in the area of Civil Engineering, a requirement to be duly proven at the time of signing the contract.

or

- Holder of an academic degree enrolled in a non-academic degree course integrated in the educational project of a higher education institution, developed in association or cooperation with one or more R&D units, a requirement to be duly proven at the time of signing the contract.

*Note: In the case of masters who are enrolled in non-academic degree courses, the scholarship can only be awarded to those who do not exceed, with this scholarship contract, including possible renewals, an accumulated period of two years in that typology of the scholarship, followed or interpolated.*

**and**

**Requirement 2:**

- Hold a master's degree in Civil Engineering, with emphasis in Geotechnical and/or Structural Engineering.

*If the degree has been awarded by a foreign higher education institution, it must comply with the provisions of the Decree-Law no. 66/2018, of august 16th, and any formalities established there must be fulfilled until the time of signing the contract.*

**Activity Outline:** The candidate will be dedicated to the study in the laboratory and by means of numerical simulations of the assessment of stiffness and damping parameters in soils, under monotonic or cyclic loading. The experimental work will involve the design, development, validation and calibration of an innovative technological tool that will allow the laboratory determination of soil damping, using bender elements (BE), supported by the extensive know-how and experience available



at labGEO. These experimental tasks will be complemented by numerical modelling, for validation and calibration of the experimentally derived parameters. The activities of the candidate will be closely linked and framed with the tasks of the project, namely:

T1: Characterisation of BE-system response by laser measurements

T2: Experimental measurement of soil damping using BE

T3: Calibration against resonant-column tests

T4: Method validation by numerical simulations

T5: Proposal of a new testing protocol for wave-based determination of soil damping

According to the objectives of the project, the candidate will contribute to the definition of the experimental protocols for the simultaneous determination of the shear modulus and damping ratio, including the implementation procedures in current geotechnical tests.

**Legislation and regulations:** Law Nº. 40/2004, of 18th August, in its current wording (Statutes of Scientific Research Fellow) and Regulation of Research Grants of Fundação para a Ciência e a Tecnologia, in force (<https://www.fct.pt/apoios/bolsas/regulamento.phtml.pt>) and Regulation of Research Grants of University of Porto in force.

**Work place:** The work will be developed at the Department of Civil Engineering of the Faculty of Engineering of the University of Porto (FEUP), under the scientific supervision of Doctor Cristiana Ferreira.

**Grant duration:** Initial duration of **6 months**, with the predicted starting date in **June 2022**, on an exclusive basis, eventually renewable but never exceeding the project duration.

The eventual renewal of the scholarship will be carried out as determined in article 6 of the Research Grants Regulation of the Foundation for Science and Technology, I.P.

If the recruitment procedures do not allow the grant to last for a minimum of 3 consecutive months, in accordance with paragraph 3 of article 6 of the Research Grant Regulations of the Foundation for Science and Technology, I.P. , the scholarship will not be awarded.



**Stipend:** The grant stipend amounts to 1.144,64€ according to the table of values of the grants awarded directly by FCT, I.P. in the Country (<https://www.fct.pt/apoios/bolsas/valores>).

The payment will be made by bank transfer.

**Selection procedure:**

The curricular evaluation (60%) of the candidates will be made, based on the merit of the candidate, in which the following factors will be considered:

- a) Academic training (Master in Civil Engineering or Geotechnical Engineering - 9 points; Other Masters - 2 points)
- b) Research training and knowledge, including research experience in the area of Civil Engineering, specialisation in Geotechnical or Structural Engineering, namely in the fields of soil dynamics and earthquake engineering, and in the assessment of the dynamic and seismic behaviour of soils and structures - 5 points; research training and knowledge in areas close to that of the project - 3 points; in other areas - 1 point;
- c) Publications in the area of the project (author of 1 scientific paper - 1 point; author of 3 or more scientific papers - 2 points; in the case of an ISI/JRC or Scopus indexed journal- 4 points);
- d) Good knowledge of the English language (written and spoken) - 1 point;
- e) Fair knowledge of the Portuguese language (written and spoken) - 1 point.

The curriculum of each candidate will be evaluated in a 1-20 points scale. Candidates with less than 13 points in the curricular evaluation will not be invited for the interview (40%).

In the interview topics related with the work plan, experience and the candidate's CV will be discussed with the invited candidates.

**Selection Jury:**

President: Doctor Cristiana Maria Fonseca Ferreira

Effective member: Professor Manuel António de Matos Fernandes

Effective member: Professor António Joaquim Pereira Viana da Fonseca

Supplementary member: Professor José Eduardo Tavares Quintanilha de Menezes

Supplementary member: Doctor Sara Rios da Rocha e Silva

**Advertisement of final decision:** The results of the evaluation will be released to the candidates



by email to the email address indicated in the application process.

**Deadline for applications and form of presentation of the applications:**

The call is open from 18-05-2022 to 31-05-2022 (until 23h59m, GMT time).

Applications must be formalized by email to [cristiana@fe.up.pt](mailto:cristiana@fe.up.pt) and to [recursos humanos@fe.up.pt](mailto:recursos humanos@fe.up.pt), clearly stating the reference **FEUP- INAWAVE** and including the following pdf documents: Motivation letter, Copy of certificates evidencing academic degree (referring the classification of each separated or integrated degree), detailed Curriculum Vitae; Declaration on honour that the candidate fulfils the requirement contained in article 6 of the Regulation for Research Grants of the Foundation for Science and Technology, I.P. (model below, for student enrolled in a non-academic degree course integrated in the educational project of a higher education institution, developed in association or cooperation with one or more R&D units) and other documents considered relevant by the applicant.

In order to assure that all documents can be read, the preferred saving format is the Portable Document Format (.pdf).

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Declaration on honour

I, (identification of the scholarship holder), holder of the Citizen Card / Visa / Residence Permit no. valid until \_\_\_\_\_, declare under honour, to be in the conditions of no. 5 of article 6º of the Research Grants from FCT, IP - Regulation No. 950/2019, of 16 December.

Porto, \_\_/\_\_/\_\_

Signature

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(scholarship holder)

