

International call for a PhD Holder Position to pursue scientific research

Reference: CT AddStrength INEGI 14/18 – POCI – 01-0145-FEDER-031307

Title: Add.Strength - Enhanced mechanical proprieties in additive manufactured components

Main research field: Mechanical Engineering

Sub research field: Numerical Modelling

Within the framework of article 23 of Decree-Law no. 57/2016, of August 29, and taking into account the legal regime to which it refers, an international call for holders of a PhD degree is open for a position to pursue scientific research activities funded by national funds through the Fundação para a Ciência e Tecnologia, I.P.

1. This is a research position to pursue scientific research activities within the framework of the project entitled as “Enhanced mechanical proprieties in additive manufactured components (Add.Strength)”, under a non-fixed term work contract, with the primary objective to carry out the activities foreseen in the project proposal.

2. Duration: 12 months, renewable until the end of the project.

3. Applicable Legislation: Decree-Law no. 57/2016 of August 29th, amended by Law 57/2017 and Regulatory Decree No. 11- A / 2017 which approved the doctorate hiring regime destined to stimulate scientific and technological employment for all knowledge areas (RJEC); Portuguese Labour Code, approved by Law 7/2009 of February 12, in its actual form.

4. Pursuant to article 13 of RJEC, the selection panel is to be formed by: Prof. Doutor Pedro Ponces Camanho (Faculdade de Engenharia Mecânica, Universidade do Porto, President of the Scientific Council), Doutor Sérgio Tavares (LAETA) and Prof. Doutor Abílio de Jesus (FEUP and LAETA/INEGI).

5. The workplace shall be at INEGI facilities, Porto.

6. Monthly remuneration to be paid is the one set by article 23 (3) of RJEC, corresponding to level 33 of the Single Salary Table, approved by Order no. 1553-C/2008 of December 31st, i.e. 2.128,34 Euros.

7. If the doctoral degree has been conferred by a foreign higher education institution (not Portuguese), it must comply with the provisions of Decree-Law no. 341/2007, of October 12, and with all formalities established therein must be fulfilled by the application deadline.

8. Admission requirements:

The application can be submitted by any national, foreign and stateless candidate(s) holding a doctorate degree in Mechanical Engineering, Computational Mechanics or a similar field, and a scientific and professional curriculum whose profile is suited for the activity described below:

- knowledge and experience on multi-physics process modelling, in particular metal-based manufacturing technologies;
- knowledge in fatigue, stress concentration evaluations and residual stress effects;
- knowledge and experience in finite element numerical tools, in particular ABAQUS;
- knowledge and experience in the programming software C/C++, Python, FORTRAN, MATLAB, or others;

- knowledge and experience in process predictive simulation tools, in particular ESI SYSWELD, ProCAST, Simufact AM or similar;
- knowledge and experience in the processing of metallic materials, in particular by laser-based technologies, fusion-based processes (i.e., foundry or welding) and/or powder metallurgy techniques;
- knowledge and experience in mechanical testing and particularly aiming fracture and fatigue characterization of metallic materials;
- knowledge and experience in planning and manufacturing testing apparatus for mechanical characterization of metallic materials;
- motivation to work in the area of metal additive manufacturing;
- outstanding scientific record (journal, conference papers and book chapters);
- good skills of critical analysis and objective oriented behaviour;
- strong communication skills;
- capacity for carrying out independent and responsible work;
- excellent English language skills (both writing and speaking).

9. Pursuant to *article 5 of RJEC*, the selection is to be made based on the evaluation of the scientific and curricular career of the candidate.

10. The scientific and curricular career evaluation will focus on the relevance and quality:

- I. of the scientific production in the last five years considered most relevant by the candidate;
- II. of the research activities, in terms of both fundamental or applied science, developed in the last five years, considered of high impact by the candidate;
- III. of the transfer of knowledge and dissemination activities developed in the last five years, deemed most relevant by the candidate.

11. Evaluation criteria. The evaluation of the CV of the candidates, in particular, the scientific merit and research experience, will take into consideration its relevance to the work to be conducted, according to the following criteria:

A). Integrated assessment of the scientific and curriculum trajectory of the candidate, namely:

AI. Relevance of the CV for the research activities to be conducted (see point 1). – 25%

AII. Quantity and quality of the scientific publications, and corresponding recognition by the scientific community, - 35%

AIII. Coordination and participation in research projects - 30%

AIV. Extension and dissemination activities – 10%

A maximum of 100 points will be given to each criterion AI to AIV. The final score of the curricular assessment will be calculated by the following formula:

$$A=0.25AI+0.35AII+0.30AIII+0.10AIV$$

12. In the case of admitted candidates whose evaluation does not differ more than 10% from that obtained by the best-positioned candidate, the jury will interview these candidates. This will be aimed at obtaining clarifications and explanations about the curricular elements and additional information as well as to evaluate the attitude profile, communication skills, and motivation of the candidate.

The final score of each jury member (Sc) is obtained by 90% scientific (A) and curricular career evaluation and 10% interview (B) according to the following formula, where B will take values comprised between 0 and 100:

$$Sc=0.90A+0.10B$$

The final classification of each candidate is given by the arithmetic mean of the classifications attributed by the jury members. In the event of a tie, the chairman of the jury will have the casting vote.

13. The final classification system shall be given based on a scale from 0 to 100.

14. Application Documents:

- i) Cover Letter describing the motivation to apply for the particular position (max. 2500 characters, including spaces);
- ii) Detailed Curriculum vitae in accordance with the requirements of the application;
- iii) Certificate or diploma copy of the doctoral degree;
- iv) Any relevant documents demonstrating the candidate's adequacy for the requested profile;
- v) A brief description of the most relevant scientific and innovation/dissemination activities of the last 5 years (1-page maximum).

15. The candidates shall submit their application files and support documentation, at the official INEGI's page at www.inegi.up.pt Working at INEGI | Available Vacancies, pressing **Submit CT AddStrength INEGI 14/18** from 29th May to 10th July 2018, or by post to:

INEGI – Instituto de Ciência e Inovação em Engenharia Mecânica e Engenharia Industrial
Serviços de Recursos Humanos
Rua Dr. Roberto Frias, 400
4200-465 Porto
Portugal

16. The final results of the evaluation will be published online: <http://www.inegi.up.pt>

17. The selection of candidate to be hired is determined by orientations and regulations issued by Fundação para a Ciência e Tecnologia upon verification of all legal requirements. INEGI is entitled to annihilate the present process in case the legal requirements are not fulfilled.

18. Non-discrimination and equal access policy: INEGI actively promotes a non-discrimination and equal access policy, wherefore no candidate can be privileged, benefited, impaired or deprived of any rights whatsoever, or be exempt of any duties based on their ancestry, age, sex, sexual preference, marital status, family and economic conditions, instruction, origin or social conditions, genetic heritage, reduced work capacity, disability, chronic illness, nationality, ethnic origin or race, origin territory, language, religion, political or ideological convictions and union membership.

19. According to Decree-Law no. 29/2001 of 3 February, disabled candidates shall be preferred in a situation of equal classification, and said preference supersedes any legal preferences. Candidates must declare, in their honour, their respective disability degree, type of disability and communication/expression means to be used during selection period on their application form, under the regulations above.