

**NOTICE OF OPENING OF AN INTERNATIONAL SELECTION PROCEDURE FOR THE
RECRUITMENT OF A RESEARCHER POSITION UNDER DECREE-LAW No. 57/2016, OF AUGUST
29th, AMENDED BY LAW No 57/2017 OF JULY, 19th.**

1. By order of 10-09-2018, the Dean of FEUP, Professor João Bernardo de Sena Esteves Falcão e Cunha, deliberated to open an international selection procedure for the recruitment of 1 Doctoral Researcher within the scope of Research Project EnergySwitch - PTDC/EME-SIS/31575/2017 - POCI-01-0145-FEDER-031575 funded by European Regional Development Fund (FEDER) through COMPETE2020 - Operational Program for Competitiveness and Internationalization (POCI) and with the financial support of FCT / MCTES through national funds (PIDDAC) for research scientific activities in the area of Physics/Physics Engineering in the form of a Uncertain Term Employment Contract, under the Labor Code, never exceeding the maximum limit of six years.

The recruitment of this research position aims at the development of R&D activities in the scope of the area of Physics/Physics Engineering aiming the development of thermal management and storage systems, particularly the development of thermal diodes and their integration in magnetic refrigeration devices according to the following activities and work packages detailed in the application:

Activity 1 - Numerical simulation and optimization of magnetocaloric refrigerators with thermal switches:

T1.1. Solid state magnetocaloric refrigerators based on thermal switches;

T1.2. Active magnetic regenerative solid state magnetocaloric refrigerators.

Activity 2 - Materials preparation and physical-chemical characterization

T2.1. Magnetocaloric materials preparation;

T2.2. Materials characterization.

Activity 3 - Development of fully solid state thermal switches:

T3.1. Thermal switches based on nanoparticle ensembles;

T3.2. Thermal switches based on colossal magneto-resistive materials;

T3.3. Thermal switches based on bulk memristors;

T3.4. Mechanical thermal switch systems.

Activity 4 – Magnetocaloric refrigerator with integrated solid state thermal switches

T4.1. Assembly of a thermal switch magnetocaloric refrigerator;

T4.2. Integration with commercial refrigerator systems and benchmark tests.

2. Applicable Legislation: Decree-Law no. 57/2016, of 29 August, approving a regime for contracting doctorates to stimulate scientific and technological employment in all areas of knowledge (RJEC), in the wording introduced by the first amendment provided Law no. 57/2017, of July 19, Regulatory Decree no. 11-A/2017, of December 29, and Labor Code, Law on 7/2009, of 12 February, in its current version .

3. In the wording of article 16 of Decree-Law no. 57/2016 of 29 August, this procedure is exempted from the authorization of the members of the Government responsible for the areas of Finance and Public Administration, namely in paragraph no.3 of article 7 of the LTFP; from the prior favorable opinion of the members of the Government responsible for the areas of Finance and Public Administration as mentioned in no. 5 of article 30 of the LTFP and from the procedure for the recruitment of workers in the requalification situation referred to in Article 265 of the LTFP.

4. In accordance with article 13 of the RJEC and according to the appointment, the jury is composed as follows:

President: Joana Cacilda Rodrigues Espain Oliveira (FEUP)

Member: João Oliveira Ventura (FCUP)

Member: André Miguel Trindade Pereira (FCUP)

Substitute Member: Maria Helena Sousa Soares de Oliveira Braga (FEUP)

Substitute Member: João Pedro Esteves de Araújo (FCUP)

5. The work will be developed at the Department of Physics Engineering of the Faculty of Engineering of the University of Porto (FEUP).

6. The monthly remuneration to be attributed is the one provided in no. 1 of article 2 of the Regulatory decree no 11-A/2017, December, 29, corresponding to the level 33 of the single remuneration table, approved by the Administrative Rule no. 1553-C/2008, December 31, in the amount of € 2128,34 Euros, on exclusive dedication.

7. The applicants may be national, foreign and stateless candidates holding a doctor degree in Physics/Physics Engineering, or other related area and holding of a science curriculum and training to reveal a profile suitable for the activity to develop. If the doctorate has been awarded by a foreign higher education institution, it must comply with the provisions of Decree-Law no. 341/2007, of October 12, and any formalities established there must be fulfilled until the expiration date for the application.

8. General requirements for admission to competition are those defined in the previous paragraph. In order to determine the profile appropriate to the activity to be developed, the following criteria are defined: Candidates must have expertise in magnetocaloric materials,

numerical simulation of magnetocaloric refrigeration and magnetocaloric refrigeration systems; systems of thermal management and storage.

9. In terms of the article 5 of the RJEC, the selection is made through the evaluation of the scientific and curricular careers of the candidates.

10. The evaluation of the scientific and curricular path, taking into account the profile appropriate to the activity to be developed, focuses on relevance, quality and current impact of:

- a) the scientific, technological, cultural or artistic production of the last five years considered to be more relevant by the applicant;
- b) the applied or practice-based research activities developed over the last five years and considered as having the greatest impact by the candidate;
- c) the activities of extension and dissemination of knowledge developed during the last five years, in particular in the context of culture and scientific practices promotion that are considered by the candidate to be of greater relevance;
- d) the activities of management of science, technology and innovation programs, or the experience in observing and monitoring the scientific and technological system or higher education, in Portugal or abroad.

11. The period of five years referred to in the preceding paragraph may be increased by the jury, at the request of the candidate, when justified on grounds of suspension of scientific activity for socially protected reasons, namely on grounds of parental leave, prolonged serious illness, and other situations of unavailability for work legally protected.

12. This position is open for carrying out activities in the area of Physics/Physics Engineering, below designated as area of preference.

The evaluation criteria are the following:

The Evaluation of the Scientific Career and Curriculum Vitae (ESCC) focuses on three parts described below and the final classification is obtained by: $ESCC = 0.2 AQ + 0.4 SCC + 0.4 MCI$.

1. Academic Qualifications (AQ)

Assessment of the area of study of the candidate: PhD in Physics/Physics Engineering, AQ = 5 points; PhD in Related Areas, AQ = up to 3 points.

2. Scientific Career and Curriculum (SCC)

Assessment of the relevance, quality and current impact of scientific career and curriculum.

This evaluation focuses on the parameters described below and the classification is obtained by: $SCC = 0.6 SC + 0.4 RA$.

2.1 Scientific Production (SC)

Assessment of the scientific production (SCV), over the last five years. The classification is obtained by: $SC = 0,6 SCV + 0,4 SCQ$.

Quantitative Evaluation (SCV): publications in ISI journals, in the area of preference, SCV = up to 5 points; publications in related areas, SCV = up to 3 points; publications in other areas, SCV = 0 points.

Qualitative Evaluation (SCQ): the candidate must provide copies of up to 5 articles considered to be most relevant, SCQ = up to 5 points.

2.2 Research, Extension, and Management Activities (RA)

Evaluation of applied, or based on practice, research activities, as well as activities of extension and management developed in the last five years. This parameter includes (i) participation in R&D projects, services, and technology transfer and (ii) participation in science management and knowledge dissemination activities, including the organization of conferences, symposia, and scientific cooperation activities. Activities in the area of preference, RA = up to 5 points; activities in related areas, RA = up to 3 points; activities in other areas, RA = 0 points.

3. Motivation and Capacity for Innovation (MCI)

Evaluation of the candidate's motivation and capacity for innovation. For this evaluation, the applicant must submit the documents described below and the classification is obtained by the following formula: $MCI = LM$

3.1 Letter of Motivation (LM)

Letter of motivation describing the relevance of the candidate's scientific career to this position: LM = up to 5 points.

13. The selection process includes a professional interview to the candidates, which exclusively intend for the clarification of aspects relates to the results of their research, for the candidates with an Evaluation of the Scientific and curriculum Vitae (ESCC) exceeding 4 points. The (PI) will be classified on a scale of 0 to 5 values.

14. The final grade is the sum of the classifications obtained in the Evaluation of the Scientific and Curriculum Vitae (ESCC) and Professional Interview (PI) ($0.9 ESCC + 0.1 PI$). The position can only be filled by candidates whose final classification is equal or greater than 4.2 points.

15. The jury shall deliberate by means of a nominal vote based on the selection criteria adopted and published, and abstentions are not allowed.

16. Minutes of the meetings of the jury are drawn up, containing a summary of what has taken place in the meetings, as well as the votes cast by each of the members and their reasons; these minutes should be available to candidates whenever requested.

17. After completing the application of the selection criteria, the jury will draw up an ordered list of successful candidates with their classification.

18. The final decision of the jury is approved by the maximum leader of the institution that also has to decide on the hiring.

19. Formalization of applications:

19.1. Applications must be formalized via email to recursoshumanos@fe.up.pt and to jespain@fe.up.pt and should clearly state the reference **FEUP- PTDC/EME-SIS/31575/2017**.

The application must include: complete name, number and date of the identity card, tax identification number, date and location birth, residence and contact address, including e-mail and telephone contact.

19.2 The application shall be accompanied by documents proving the conditions laid down in paragraphs 7 and 8 for admission to this call, namely:

- a) Copy of a doctoral certificate or diploma;
- b) PhD Thesis;
- c) Detailed Curriculum Vitae;
- d) Other documents relevant to the evaluation of the qualification in related scientific area;
- e) Copy of the 5 most relevant publications;
- f) letter of Motivation;
- g) Letters of Recommendation (optional);
- h) Documents proving professional experience;
- i) Information regarding scientific and technological production, applied research activities, activities of extension and dissemination of knowledge and activities of management of science, technology and innovation programs.

19.3. The application period starts on the day following the publication of this notice and takes place for a period of 10 (ten) working days.

20. Candidates who formalize their application incorrectly or do not prove the general requirements specified in this notice are excluded from admission to the competition. The jury has the power to require any candidate, in case of doubt, to present documents proving their statements.

21. False statements by candidates shall be punished in accordance with the law.

22. The list of admitted and excluded candidates and the final classification list are published on the FEUP website at https://sigarra.up.pt/feup/en/noticias_geral.lista_noticias#gruponot12, and the candidates

will be notified by email with receipt of delivery of the notification. These lists are also posted on FEUP's premises, located at Rua Roberto Frias, s / n, 4200-465 Porto.

23. Preliminary Hearing and deadline for the Final Decision: in accordance with article 121 of the Code of Administrative Procedure, after being notified, the candidates have 10 working days to pronounce. Within a maximum period of 90 days from the deadline for submitting applications, the final decisions of the jury are given.

24. The present competition is exclusively intended to fill the vacancies indicated, and may be terminated until the final list of candidates is approved and will expired with their respective occupation of the job on offer.

25. Non-discrimination and equal access policy: FEUP actively promotes a policy of non-discrimination and equal access, so that no candidate can be privileged, beneficiary, disadvantaged or private of any right or exemption from any duty owing, in particular, to ancestry, age, sex, sexual orientation, marital status, family status, economic situation, education, social origin or condition, genetic heritage, reduced working capacity, disability , chronic illness, nationality, ethnic origin or race, territory of origin, language, religion, political or ideological beliefs and trade union membership.

26. The selection boards approved this notice at the meeting held on 12-09-2018

27. Under the terms of D.L. No. 29/2001, of February 3rd, the disabled candidate has preference in equal classification, which prevails over any other legal preference. Candidates must declare their respective degree of incapacity, the type of disability and the means of communication / expression to be used in the selection process, under the terms of the aforementioned diploma.