

#3662

## Public Notice - International Selection Procedure

### PhD Scientific Researcher Recruitment (Initial Stage Researcher)

FCiências.ID/2021/DL57/CQE/2

**FCiências.ID - Associação para a Investigação e Desenvolvimento de Ciências**, through its Chairman of the Board of Directors, hereby announces the opening of an international call for the recruitment of a scientific researcher with a PhD degree, in the framework of Project EMPOWER+ Engineered and reusable nanoporous carbons for advanced water treatment (Ref. PTDC/EQU-EQU/6024/2020), financed by Fundação para a Ciência e a Tecnologia, I.P./MCTESS through national funds (PIDDAC), in the form of an indefinite duration fixed-term employment contract on an exclusive regime, according to the Portuguese Labour Code and Decree-Law No. 57/2016, of August 29<sup>th</sup>, as amended by Law No. 57/2017, of July 19<sup>th</sup>.

#### I - Admission Requirements

Portuguese nationals, foreign and stateless persons may submit applications to this selection procedure, provided they hold a doctoral degree<sup>1</sup> in Chemistry, Chemical Engineering, Materials Engineering or similar areas, have specialised skills and/or expertise in the field of Chemistry, Technological Chemistry, Physical-Chemistry, Chemical Engineering or associated fields, and fully comply with the following requirements:

- a) The PhD must have been granted at least 1 year ago;
- b) Demonstrated scientific and/or professional experience in the synthesis and characterization of porous carbon materials being valued the experience in their application in liquid phase adsorption processes;
- c) The candidate must also have experience in writing scientific papers and activity reports in English, in the dissemination of research results in international scientific congresses, including oral presentations as speaker, supervising of national and foreign students at the level of bachelor's and/or master's degrees. The candidate must have an H index  $\geq 6$  and 5 or more publications in the last 5 years of which at least two in Q1 (Quartile 1).

<sup>1</sup> Please note that Degrees obtained in foreign countries need a Portuguese Recognition issued by a Portuguese high degree Institution, according to the [Decree-Law nr. 66/2018](#), of August 16<sup>th</sup> and the [Ministerial Order nr. 33/2019](#), of January 25<sup>th</sup>. The presentation of such Recognition is mandatory for contract signature. More information can be obtained in: <https://www.dges.gov.pt/en/pagina/degree-and-diploma-recognition>.

#### II. Applicable Law

1. Decree-Law No. 57/2016, of August 29<sup>th</sup> (RCD), in the wording conferred on it by Law No. 57/2017, of July 19<sup>th</sup> (RCD);
2. Portuguese Labour Code, as approved by Law No. 7/2009, of February 12<sup>th</sup>, in its current version (CT);
3. Regulatory Decree No. 11-A/2017, of December 29<sup>th</sup>;
4. Administrative Procedure Code, as published in Decree-Law No. 4/2015, of January 7<sup>th</sup>, in its current version (CPA).

#### III. Work Plan

The work program includes part of tasks 1 to 7 of the project EMPOWER+ (PTDC/EQU-EQU/6024/2020, <http://empower.rd.ciencias.ulisboa.pt/>) and aims to develop new high performance powdered and granular activated carbons (PAC and GAC, respectively) obtained by physical activation of pine nut shell,

for more effective water treatment. The materials will be prepared and characterized in the Laboratory of Adsorption and Adsorbent Materials (DQB/CQE/FCUL). The aim is to obtain materials with particle size distribution suitable for future application in water treatment processes for human consumption in columns (GAC) or separation by coagulation-flocculation-sedimentation (CFS) and by microfiltration in the case of PAC. The effectiveness of the materials prepared at FCUL as well as the materials prepared by the EMPOWER+ partner (Supelco/MerckMillipore) will be tested in real water: batch tests to select the best performing materials. Regardless of the type of test, the performance of the materials will be evaluated in single-solute and multi-solute solutions (competition conditions) to gather data to support modelling analyses. In parallel, commercial materials will always be tested as a reference for the developed materials. The liquid phase adsorption tests will take place mainly at the Sanitary Engineering Center of LNEC (National Laboratory for Civil Engineering). The planned tasks include: i) Synthesis of GAC and PAC from pine nut shell by steam activation; ii) Synthesis of magnetic PAC; iii) Characterization of the materials by N<sub>2</sub> adsorption at -196 °C, bulk density, moisture, ash content, FTIR, pH at zero load point, XRD; iv) batch (kinetic and isothermal adsorption) and column adsorption tests, v) sedimentability tests for conventional CFS separation processes and fouling propensity tests for materials for hybrid membrane applications; vi) water quality monitoring tests by analytical techniques: UV-vis spectroscopic techniques, HPLC for monitoring, respectively, natural organic matter and pharmaceutical compounds; by chemical oxidation and IR detection for determination of total and dissolved organic carbon (TOC and DOC, respectively); and vii) regeneration tests. These activities will contribute to achieve milestones 2, 3 and 4 of the mentioned project: completion of sedimentability and fouling propensity tests for the 1st set of PACs; 1st set of magnetic PACs start batch testing and the 1st set of GAC and PAC is ready to move forward to application; and validation of GAC application in laboratory water purification, respectively.

The selected candidate will also monitor in the laboratory the undergraduate and/or master students who are developing experimental work within the scope of the EMPOWER+ project both at FCUL and LNEC, will have regular meetings with the Principal Investigator of the project and will participate in the project meetings, having a relevant role in the transfer of practical knowledge between the two Portuguese institutions involved in the project. The selected candidate will contribute to the writing of the first and second progress reports of the EMPOWER+ project, as well as to the writing of articles concerning the work in which he/she has been involved.

#### **IV. Composition of the Jury**

In accordance to article 13 of the RCD, the members of the jury are:

- President – Ana Sofia Mestre;
- 1st Member of the jury – Ana Paula Carvalho;
- 2nd Member of the jury - Elsa Mesquita;
- 1st Alternate Member of the jury – Rui Viegas;
- 2nd Alternate Member of the jury – Maria João Rosa.

#### **V. Place of work**

Work will be developed at the facilities of Research Unit Centro de Química Estrutural (CQE@Ciências) specifically at the Science Faculty of the University of Lisbon, in Campo Grande, and at the Water Quality and Treatment Laboratory, Urban Water Unit, Hydraulics and Environment Department of LNEC - National Civil Engineering Laboratory, both in Lisbon, Portugal.

#### **VI. Contract Duration**

The full-time indefinite duration fixed-term employment contract is expected to start on October 2021, and will last until the Work Plan referred to in section III is completed. It will have an expected duration of 15 months, will not exceed the limits set in the RCD, including an initial experimental trial period of 30 days.

## VII. Monthly Allowance

The gross monthly salary is stipulated in clause 1 a) of article 15 of the RCD, corresponding to level 33 of the Single Remuneratory Table, as approved by Government Order No. 1553-C/2008, of December 31<sup>st</sup>, updated by the decree-law nr. 10-B/2020, of March 20<sup>th</sup>, being 2.134,73 Euros, on an exclusive regime, plus holiday and Christmas allowances, as well as food allowance in the amount and conditions set out for workers with a legal employment relationship under the Labour Code.

## VIII. Evaluation of applications

1. Failure to comply with the Admission Requirements implies the non-admission of candidates in absolute merit.
2. According to article 5 of the RCD, the selection of the candidates approved in absolute merit will rely on the evaluation of their scientific and curricular achievements in the last five years, taking into consideration the quality and relevance of the scientific production, and the professional activity indicated as more relevant by the candidate, for the project.
3. Based on the assessment of the candidates' scientific and curricular background over the past 5 years, each member of the jury, in accordance with the evaluation criteria referred to in nº 5, makes a justified proposal for admission (final classification equal to or higher than 70%) or exclusion (final classification lower than 69%) for each of the candidates.
4. The final classification of candidates is given on a scale of 0 to 100%.
5. Evaluation of the relative merit of candidates, will rely on the following criteria:
  - a) Participation in relevant scientific projects in the area of carbon materials - 10%;
  - b) Scientific publications in the area of carbon materials and/or adsorption processes for water treatment - 50%;
  - c) Experience in the synthesis and characterization of carbon materials namely by N<sub>2</sub> adsorption at -196 °C and surface chemistry characterization - 25%
  - d) Pedagogical and outreach activities, in particular in the context of promoting scientific practices, organization of courses, seminars and conferences, in the area of carbon materials and/or adsorption processes - 5%;
  - e) Assessment of the references provided by the candidate - 10%;
  - f) Interview, if deemed necessary by the jury - 10%.
6. The jury may decide to interview the three best ranked candidates [in criteria a) to e) of paragraph 5)], for clarifications and improved explanations of curricular elements. If there is an interview, the sum of the classification obtained in the evaluation criteria a) to e) will correspond to 90% of the final classification and the interview will correspond to 10%.
7. The jury shall deliberate by means of a roll-call vote based on the evaluation criteria.
8. Minutes of the jury meetings are drawn up, summarizing all relevant elements considered by jury members, as well as their individual votes and justifications.
9. After completion of the evaluation process, the jury will draw up a ranking of successful candidates with their classifications.
10. Hiring will be decided by the Chairman of the Board of Directors of FCIências.ID, based on the final jury recommendation.

11. The evaluation results will be published on the website of the FCIências.ID ("Concursos" tab). The candidates will be individually notified of the evaluation results by e-mail sent to the address indicated in the "Personal Data" section of the submitted form.
12. With the notification referred to in paragraph 11, the hearing phase of interested parties referred to in Article 121 *et seq.* of the CPA will begin, and last for ten working days.
13. The possible pronouncement of the candidate in a prior hearing must be addressed to the President of the jury and submitted in writing to [concursos@fciencias-id.pt](mailto:concursos@fciencias-id.pt). The President of the jury will convene a jury's meeting to produce the final decision, within thirty working days.
14. Within five working days of the final jury decision, the Chairman of the Board of Directors of FCIências.ID will approve it and the candidates will be notified.
15. The communication between FCIências.ID ([concursos@fciencias-id.pt](mailto:concursos@fciencias-id.pt)) and the candidates will be electronic and will comply with the following rules:
  - a) At the time of electronic submission of any document - namely in the case of paragraph no 12 - the candidates must generate proof of "sent message".
  - b) FCIências.ID will send an email message acknowledging documents received to the email address used by the candidates, within two working days.
  - c) In case of absence of a confirmation receipt by FCIências.ID – showing the possibility of technical problems that should neither be the responsibility of the candidate nor FCIências.ID - the candidates should contact FCIências.ID, with the proof referred to in point (a), to ensure delivery and proper receipt of the documents concerned.

#### **IX. Compliance with public policies**

1. FCIências.ID actively promotes a policy of non-discrimination and equal access, so that no candidate can be privileged, benefited, disadvantaged or deprived of any right or exempt from any duty due to, *inter alia*, 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.
2. Under the terms of D.L. No. 29/2001, of February 3, a disabled candidate has a preference in equal classification, which prevails over any other legal preference. Candidates must declare their respective degree of disability, the type of disability and the means of communication / expression to be used in the selection process, under the terms of the above-mentioned diploma.

#### **X. Submission of Applications**

1. The present call will be open from August 26<sup>th</sup> to September 9<sup>th</sup> 2021.
2. The application and all the required documents may be submitted in Portuguese or English.
3. Applications will be submitted online, through the electronic platform of FCIências.ID (<http://concursos.fciencias-id.pt>).
4. On the electronic platform, applicants will complete a *mandatory* section on Personal Data [name, address, date of birth, contact email, nationality and scientific identifiers] and upload files with the documents listed below:



- i. Detailed *curriculum vitae* - *mandatory* - **CV may be provided in PDF format or through the [CIÊNCIAVITAE](#) system;**
  - ii. A motivation letter clearly demonstrating that the candidate has an adequate profile for the position and fully complies with the Admission Requirements and where the contact details of two references are given - *mandatory*;
  - iii. Up to five publications relevant for the objectives of the Work Plan - *mandatory*;
  - iv. Digital copies of documents proving formal academic degrees (PhD) and/or other scientific and professional qualifications - original documents must be provided in case of actual recruitment - *mandatory*;
  - v. Other documents that candidates consider relevant for the assessment of their scientific merit, or to declare the personal situation in the cases covered in section IX-2 of this Notice - *optional*.
5. By decision of the Chairman of the Board of Directors of FCIências.ID, candidates who do not submit the documents identified in paragraph 4 will not be admitted to the call. In case of doubts, the Chairman may also invite candidates to substantiate specific data or statements with official supporting documents, before accepting the candidates' submission.

This Public Note was approved by the jury on 25<sup>th</sup> August 2021.