

CALL FOR AWARDING RESEARCH FELLOWSHIPS WITHIN PROJECT GRANTS AND R&D INSTITUTIONS

One research fellowship (BI) for Master Student

1 Research Fellowship(s) (BI) is(are) open at the **FCiências.ID – Associação para a Investigação e Desenvolvimento de Ciências**, for the project/R&D institution EMPOWER+ Engineered and reusable nanoporous carbons for advanced water treatment/CQE, PTDC/EQU-EQU/6024/2020, financed by Fundação para a Ciência e a Tecnologia, I.P./MCTES through national funds (PIDDAC)”, under the following conditions:

1. **Scientific Area:** Chemistry, Technological Chemistry, Materials Engineering, Chemical Engineering or related fields
2. **Requirements for admission:** Candidates must have a degree in Chemistry, Technological Chemistry, Materials Engineering, Chemical Engineering or related fields as a minimum, as well as relevant research experience in the field of carbon materials and adsorption processes in gaseous and liquid phase.
3. **Additional optional skills and qualifications:** Master's student with availability to carry out the final Master's work with knowledge in the field of nanoporous carbon materials (synthesis and characterization) and of the adsorption processes in gaseous and liquid phase.
4. **Contracting requirements:** Presentation of the academic qualifications and/or diplomas. Enrolment in a master or integrated master course.
5. **Work plan:** The present R&D theme covers part of the EMPOWER+ project (PTDC/EQU-EQU/6024/2020) focused in the development of new high-performing powdered and granular activated carbons (PAC and GAC, respectively) obtained by physical activation of pine nut shells, for a more efficient water treatment (<http://empower.rd.ciencias.ulisboa.pt/>). The materials will be prepared and characterized in the Laboratório de Adsorção e Materiais Adsorventes (DQB/CQE/FCUL). It is aimed to obtain materials with a particle size distribution fitted to the future application in treatment processes of water for human consumption in column (GAC) or separation by coagulation-flocculation-sedimentation (CFS) and microfiltration for PAC. The effectiveness of the materials prepared at FCUL along with those prepared by the EMPOWER+ partner (Supelco/MarckMillipore) will be tested in real water: batch assays for the selection of the materials with the best performances. Regardless the assay, the materials will be assessed in single-solute and multi-solute conditions (competition scenario) to gather data to support adsorption modelation. For benchmarking commercial activated carbons will be also tested. The liquid phase assays will be mainly performed at the Urban Water Unit of LNEC (Laboratório Nacional de Engenharia Civil). The main tasks planned include: i) Synthesis of GAC and PAC materials by steam activation of pine nut shells; ii) Synthesis of magnetic PAC materials (MPAC); iii) Characterization of the materials by N₂ adsorption at -196 °C, apparent density, moisture content, ash content, FTIR, pH at the point of zero charge, and XRD; iv) batch adsorption assays (kinetic and adsorption isotherms) and column assays; v) settleability assays for conventional separation processes by CFS and fouling propensity tests for the materials to be applied in hybrid membrane processes; vi) water quality monitoring assays by analytical techniques: spectroscopic techniques UV-vis and HPLC for, respectively, natural organic matter and pharmaceutical compounds monitoring; by chemical oxidation and IV detection for total and dissolved organic carbon determination (TOC and DOC, respectively).
6. **Legislation framework:** Research Fellowship Holder Statute, in accordance with Law 40/2004, of 18 August, in its current version and the FCT Regulation for Research Studentships and Fellowships, in its current version (Reg. 950/2019 published in DR on 16th December: <https://dre.pt/application/file/a/127230968>, or at the FCT website:

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<https://www.fct.pt/apoios/bolsas/regulamento.phtml.pt>), and FCIências.ID Fellowship Regulation, as approved on 12th May 2020 (available at [Regulamento de Bolsas de Investigação Científica da FCIências.ID](#)).

7. **Place of work:** The work will be developed at the Centro de Química Estrutural e no Núcleo de Engenharia Sanitária (Urban Water Unit) from Faculdade de Ciências da Universidade de Lisboa (FCUL) e do Laboratório Nacional de Engenharia Civil (LNEC), respectively, under the scientific supervision of Professor Ana Paula Carvalho and Rui Viegas.

8. **Fellowship duration:** This position is initially opened for 3 months and will begin on October 2021. The fellowship contract may be potentially renewed for up to a total of 12 months.

9. **Monthly allowance:** The fellowship amounts to € 835.98 ,according to [table values](#) of the fellowships awarded directly by the FCT, IP. The fellowship holder will have a personal accident insurance and can ensure the right to social security through adherence to the voluntary social insurance scheme, if not covered by any other social protection scheme, pursuant to *Código dos Regimes Contributivos do Sistema Previdencial de Segurança Social*. The fellowship will be paid monthly by bank transfer.

10. **Evaluation and selection process:** Candidates will be assessed by the quality of their CV (60%) and relevance of previous experience (30%). If necessary, the candidates with the highest ranking will be called for an interview (10%). The jury reserves the right not to award the scholarship if the profile of the candidates does not meet the minimum qualities for the execution of the work plan, i.e. if the candidate receive a classification lower than 60% in an evaluation of 90% without interview.

11. **Selection Committee:** Ana Paula Carvalho (President), Rui Viegas (Vogal), Ana Sofia Mestre (Vogal), Elsa Mesquita (Suplent vogal)

12. **Publication/notification of results:** All the candidates will be notified by e-mail, sent by the call holder, with the selection meeting minutes enclosed.

13. **Deadlines:** This call for applications is open from 26/08/21 to 07/09/2021 .

14. **Application:** Applications should be sent via e-mail to ana.carvalho@fc.ul.pt, by attaching the following documents:

- Curriculum vitae – **CV may be submitted in pdf or through the [CIÊNCIAVITAE](#) system;**
- Certificate of completion of previous degree;
- Motivation Letter with References

15. **Time limits for the appeal procedure:** In case of negative decision, the candidates have 10 business days, after the date of announcement of the results of the candidates evaluation, to pronounce their disagreement in accordance with the *Código do Procedimento Administrativo*. Appeals against the final decision may be submitted to the Administration Board of FCIências.ID (fciencias.id@fciencias-id.pt) within 15 business days after the notification date

Note 1: The documents that prove the entitlement of the academic qualifications and diplomas, or the proof of registration in the academic degree or diploma requested on the call, can be dismissed during the application period

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and replaced by a declaration on their honour from the applicant. Their delivery is mandatory for the fellowship contractualization.

NOTE 2: Please note that - higher education degrees and diplomas awarded by foreign higher education institutions need to be recognized by a Portuguese higher education institution, pursuant to the [Decree-Law nr. 66/2018](#) (August 16) and the [Ministerial Order nr. 33/2019](#) (January 25). The presentation of the recognition certificate is mandatory for contract signature. More information can be obtained at: <https://www.dges.gov.pt/en/pagina/degree-and-diploma-recognition>.