

(BL125/2025-IST-ID)

Research Studentships (Master or Integrated Master students)

Applications are open for 1 (one) Research Studentship, within the framework of project “Exploratório 2023 (2023.13958.PEX) ARSENIX - 1801P.01490.1.01 (C2TN Thematic Line of Earth Systems, Radioactivity and Cultural Heritage) of the project/R&D, financed by national funds through FCT/MCTES through national funds

Scientific Area: Natural Sciences / Chemistry

Admission Requirements: *To be enrolled at an integrated master or a master.*

Workplan: This project research plan (ARSENIX) covers various scientific fields, from hydrogeology to chemical modelling and synthesis, with the common goal of remediation and sustainability of water resources, with emphasis on rice fields operations, using iron nanoparticles. One of the aims of this fellowship, will be the develop naked and chelatin-type coated superparamagnetic iron nanoparticles, with optimum characteristics to remediate arsenic and heavy metals in rice field water and which can facilitate their repeated reuse. In this fellowship proposal, the student will participate in the fieldwork in a rice field campaigns, were soils and water will be collected. Under supervision, the student will start with chemical speciation studies, to study the As in real matrixes, in which other ions as well as low, medium and high molecular weight ligands are simultaneously present and may interact with it, affecting its distribution and its efficient (selective and quantitative) sequestration from the rice fields water systems. The student will be responsible for the synthesis and characterization of iron nanoparticles coated with chelatin-type ligands. These nanoparticles are expected to have optimal characteristics to facilitate their repeated reuse, aiming to increase the efficiency of remediation efforts while promoting sustainability through the repeated application of the synthesized iron nanoparticles. Due to their large surface area and selectivity, have emerged as an alternative for the adsorption of water contaminants. Arsenium remediation within the water rice fields will be tested with: extraction, adsorption regeneration and reuse of the SPIONs samples, to determine the best conditions for the adsorption of As(III) ions. Besides, the regeneration and life cycle assessments of the adsorbents will be performed. This possibility of reuse will contribute to reducing the economic burden associated with water treatment processes.

Legislation and Regulations: Statute of Scientific Research Fellow, approved by Law nr. 40/2004, of August 18, as worded by Decree-Law nr. 123/2019, of August 28; FCT Regulation for Research Studentships and Fellowships, available on <https://www.fct.pt/apoios/bolsas/docs/RegulamentoBolsasFCT2019.pdf> and <https://dre.pt/application/file/a/127230968>.

Workplace: The work will be developed at Centro de Ciências e Tecnologias Nucleares (C2TN) of Instituto Superior Técnico, under the scientific supervision of Dra. Paula Carreira Paquete and Dra Maria Paula Cabral Campello

Duration: The research fellowship(s) will have the duration of 12 months. It's expected to begin in June/2025, and may be eventually renewed up to the maximum of 15 months, including the duration of the initial contract.

Monthly maintenance allowance: According to the values for Research Fellowships awarded by FCT in Portugal (<https://www.fct.pt/fct-atualizou-o-valor-das-bolsas-para-2025/>), the amount of the monthly maintenance allowance is € 1040.98, being the payment method of the Fellow by Wire Transfer.

Selection methods: The selection methods will be the following: Curriculum evaluation (grades; curriculum program; chemical engineering training) – 50 %; Experience in the tasks to be performed – 30 %; individual interview – 20 %.



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Composition of the selection Jury: Doutora Paula Maria Mimo Carreira Paquete, Doutora Maria Paula Cabral Campello, Doutora Ana Sofia Cavalheiro Gama.

Announcement/ notification of the results: The final evaluation results will be communicated to all applicants by email.

Deadlines and procedures of complaint and appeal. A complaint may be lodged from the final decision within 15 working days, or an appeal to the Executive Board of IST-ID within 30 working days, both counted from the respective notification

Application deadline and formalization: The call is open from May 7 until May 20, 2025.

It is mandatory to formalize applications with the submission of the following documents: i) B1 Form – Fellowship application (<https://ist-id.pt/concursos/bolsas/>); ii) *Curriculum Vitae*; iii) academic degree certificate, where applicable; iv) proof of enrollment at an academic degree course (Master, Integrated Master); v) motivation letter;

Applications must be submitted to the email: carreira@ctn.tecnico.ulisboa.pt



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