

Scientific Initiation Studentships

Applications are open for 1 Scientific Initiation Studentships, within the framework of project special support Verão com Ciência 2022 da UID 4349 – Centro de Ciências e Tecnologias Nucleares, entitled “The Phoenician influence on bronze artefacts of the Iron Age in Portugal”, financed by national funds through FCT/MCTES (PIDDAC), under the following conditions:

Scientific Area: Chemical sciences

Admission Requirements:

- a) *To be enrolled at a professional higher technical course, at a bachelor degree, at an integrated master or master degree, or to have a bachelor degree and be enrolled at a course that does not award an academic degree and it is integrated in the educational project of a higher education institution, performed in association or cooperation with one or several R&D units;*
- b) *not to exceed with this contract, including the possible renovations, an accumulated period of one year in this type of studentship, continuously or with interruptions;*
- c) *not to have held any other fellowship directly or indirectly funded by FCT.*

Workplan: Study of bronze (fibulae, rings, needles and knives) from the Iron Age, recovered in the archaeological site of Castro dos Ratinhos (IX Moura, 8th-8th centuries BC). This site is located in an inland region rich in mineral deposits, an explored site in antiquity. In the Iron Age, there was an evolution in the production of bronze artefacts, due to the strong Phoenician influence in the coastal areas. The Phoenician settlement at Quinta do Almaraz (Almada) stands out, where decorative and cosmetic objects were collected, in addition to other common utensils.

This work, within the scope of Analytical Chemistry, focuses on the determination of minor and trace elements in artefacts, using inductively coupled plasma mass spectrometry (ICP-MS). Some questions need to be answered: Is elementary composition related to functionality? Will Phoenician influence on type and composition be recognized? Will it be possible to identify the use of different raw materials?

The work plan is:

- (i) Analytical preparation of bronze samples from the archaeological site of Castro dos Ratinhos (Iron Age). The process includes sampling, weighing and acid dissolution with heating ramp;
- (ii) Minor and trace elements analysis by total mass scanning using the ICP-MS technique;
- (iii) Analytical preparation of certified multi-element standard solutions for the elaboration of the calibration curve and dilution of the selected samples according to the concentration of the identified elements;
- (iv) Determination of the minor and trace elements content by interpolation of the calibration curve;
- (v) Interpretation of results (identification of different ores and comparison with known studies of similar archaeological sites).

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 carried out at the Center for Nuclear Sciences and Technologies (C2TN), Campus Tecnológico e Nuclear, Estrada Nacional 10, Bobadela, of the Associação do Instituto Superior Técnico para a Investigação e Desenvolvimento (IST-ID), under the scientific supervision of Dr. Susana Sousa Gomes.

Duration: The research fellowship will have the duration of one month. It's expected to begin on 16 August 2022. The fellowship contract will not be renewable.

Monthly maintenance allowance: According to the values for Research Fellowships awarded by FCT in Portugal (<http://www.fct.pt/apoios/bolsas/valores>), the amount of the monthly maintenance allowance is 486.12 €, being the payment method an option of the Fellow by Wire Transfer/Check.

Selection methods: The selection methods will be the following: *Curriculum evaluation and individual interview*, with the respective weight of 50%:50%.

Composition of the selection Jury: President: Dr. Susana Alves de Sousa e Silva Gomes, Auxiliary Researcher of Associação do Instituto Superior Técnico para a Investigação e Desenvolvimento;

Effective members: Dr. Pedro Manuel Francisco Valério, Auxiliary Researcher of Instituto Superior Técnico e António Pereira Gonçalves, Coordinator Researcher of Instituto Superior Técnico.

Substitute members: Dr. Maria Fátima Araújo, Principal Researcher of Instituto Superior Técnico.

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 July 28 until August 3, 2022.

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 or at a course that does not award an academic degree; v) motivation letter; vi) declaration on honour that the applicant does not exceed with this contract, including the possible renewals, an accumulated period of one year in this type of studentship, continuously or with interruptions, and has not held any other fellowship directly or indirectly funded by FCT.

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