

Research Studentships for Master or Integrated Master students

Applications are open for one Research Studentship, within the framework of project “Spectroscopic detection of bio-signatures in natural ice samples as a proxy of icy moons”, Reference MIT-EXPL/SOE/0058/2019, financed by national funds through FCT/MCTES (PIDDAC).

Scientific Area: Synthesis, Molecular Structure and Chemical Analysis, Astrobiology, Extreme Environments, Environmental Chemistry

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

Workplan: The main objective of the innovative “Spectroscopy detection of bio-signatures in natural ice samples as a proxy of icy moons” (BIOMOON) research plan presented consists of determining the most suitable spectroscopic analytical methods that can be used in the search for organic molecules that are representative of life that may potentially exist in icy moons of Jupiter and Saturn. The exploratory project is divided into four objectives: (1) Literature review for the selection of their optical properties; this will be achieved by identifying target compounds that can be used as signatures of extraterrestrial life. (2) Spectroscopic analysis of molecules using UV-VIS and IR absorption/emission techniques in pure solutions and mixtures to investigate the best spectroscopic signals, by determining the spectroscopic properties of the selected compounds. (3) Perform the same analysis but in artificial ice samples prepared in the laboratory that will act as analogues of the icy moons, using the known composition of icy moons of Jupiter and Saturn; this will be achieved by the identification of biomarkers on artificial ice samples. (4) with the obtained results, perform similar analysis as in point 3) but this time in-situ in the field in the Canadian sub-Arctic, which is an analogue of the icy moons of Jupiter and Saturn. The work developed through this project should be used as a final dissertation for a Master degree.

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 Química Estrutural of Instituto Superior Técnico, Campus Alameda, under the scientific supervision of Profs. Zita Martins and João Canário.

Duration: The research fellowship(s) will have the duration of 12 months. It's expected to begin in November 2021, and is not 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 € 835,98€, being the payment method an option of the Fellow by Wire Transfer/Check.

Selection methods: The selection methods will be the following: *Motivation letter, Curriculum evaluation, individual interview to the top three candidates*, with the respective weight of 40/30/30%. Only the three top candidates of the motivation and curricular evaluation will go to the interview process. Preference will be given to candidates that have previous experience on working with extraterrestrial samples and/or fieldwork skills.

Composition of the selection Jury: Prof. João Canário (Research Coordinator and PI), Prof. Zita Martins (Associate Professor and co-PI) and Prof. Margarida Correia dos Santos (Associate Professor).

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 29 September until 13 October 2021.

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 both of the emails: joao.canario@tecnico.ulisboa.pt and zita.martins@tecnico.ulisboa.pt