

Post-Doctoral Research Fellowships

Applications are open for 1 Post-Doctoral Research Fellowship(s), within the framework of PSI.COM of IPFN – PEP: 1801P.01261.1.01.01, reference 2022.04128.PTDC, financed by national funds through FCT/MCTES (PIDDAC), under the following conditions:

Scientific Area: Physics - Plasma Physics and Nuclear Fusion

Admission Requirements:

- a) *to hold a PhD degree obtained in the 3 years previously to the submission of the fellowship application;*
- b) *to have carried out the research work that led to the PhD degree in a different entity from the host institution of the fellowship;*
- c) *Not to exceed, with this fellowship contract, including the possible renovations, an accumulated period of 3 years in this type of fellowship, continuously or with interruptions;*
- d) *Not to have previously held a post-doctoral fellowship from IST-ID.*

Workplan: Execution of project Plasma-Surface Interaction (Data and Tools) Coupled Modelling (PSI.COM), involving :

- (i) the study of N₂-H₂ plasmas and the catalytic production of ammonia, using an interplay between modelling and diagnostics to understand the volume + surface kinetic paths, and to validate and reduce the kinetic scheme;
- (ii) the development and the consolidation of the LisOn Kinetics (LoKI) tool suite, aiming at full time-dependent description, extended to surface reactions and the gas/plasma thermal balance, and including Machine Learning tools for sensitivity analysis;
- (iii) participation in the formulation and implementation of solutions for data storage and parsing in LTPs modelling, aiming at developing a high-performance open-access data-storage library for LoKI, in association with the LXCat stakeholders.

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://dre.pt/application/file/a/127230968>.

Workplace: The work will be developed at Instituto de Plasmas e Fusão Nuclear of Instituto Superior Técnico (Lisbon, Portugal), under the scientific supervision of professor Luís Lemos Alves.

Duration: The research fellowship will have the duration of 12 months. It's expected to begin in July 2023 and may be eventually renewed up to the maximum of 36 months.

Monthly maintenance allowance: According to the values for Research Fellowships awarded by FCT in Portugal (<https://former.fct.pt/apoios/bolsas/valores>), the amount of the monthly maintenance allowance is € 1 741,00, being the payment method an option of the Fellow by Wire Transfer/Check.

Selection methods: The selection will consider the following items (each item scored from 1-5): A-Curriculum evaluation; B-Motivation letter; C-Recommendation letters; D-Individual interview by video-conference. In the evaluation of each item the following preferential factors are considered: previous experience in the modelling of low-temperature plasmas; programming skills and knowledge of programming languages and versioning tools; availability to develop the project throughout its duration.

The selection method will adopt a three-step procedure, as follows:

- awarding an intermediate classification, using $0.4xA + 0.4xB + 0.2xC$
- interviewing the candidates whose intermediate classification is above 3 points
- awarding a final classification, using $0.2xA + 0.2xB + 0.1xC + 0.5D$

Composition of the selection Jury: Prof Luís Lemos Alves (president of the jury, IST), Dr Olivier Guaitella (École Polytechnique, Paris), Prof. Antonio Tejero-Del-Caz (Univ. Córdoba, Spain)

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

Application deadline and formalization: The call is open from April 28 until June 30, 2023.

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; iv) motivation letter; v) two recommendation letters; vi) declaration on honour that the applicant does not exceed with this contract an accumulated period of three years in this type of fellowship, continuously or with interruptions, within the Portuguese technological and scientific system, and that the research work that led to the PhD degree was carried out in a different entity from the host institution of the fellowship.

Applications must be submitted to the email: carmo@ipfn.tecnico.ulisboa.pt

At the subject please mentioned "**BPD PSI.COM**"