

EDITAL FOR RESEARCH FELLOWSHIPS WITH RESPECT TO R&D PROJECTS AND INSTITUTIONS

Call for a Research Fellowship for a Bachelor with MSc

Applications are open for **1 Research Scholarship for a Bachelor with Master's Degree** within the framework of project/R&D institution **“PORTUGAL AT ISOLDE: Materials and Nuclear Physics Research with Radioactive Isotopes and Techniques” (PT@ISOLDE2017) CERN/FIS-PAR/0005/2017**, financed by national funds through FCT under the following conditions:

Scientific Area: Materials / Physics

Admission Requirements: Master* in Physics. Experience with material's physics and nuclear material's analysis techniques are required. We privilege work experience with hyperfine interactions, ideally, with the technique of Time Differential Perturbed Angular Correlations (TDPAC) from the experimental, analytical and theoretical point of view. Experience working in c ++, ROOT, and MINUIT2. Good knowledge of English is essential. Availability to travel abroad.

* Applicants with foreign degrees shall have the degree registered or recognized/with equivalence in Portugal.

Workplan: The work concerns task T8 - DFT, MC & DATA ANALYSIS SOFTWARE of the project above mentioned: **PORTUGAL AT ISOLDE: Materials and Nuclear Physics Research with Radioactive Isotopes and Techniques**, specifically: TITLE: Software implementation of new analyzing capabilities of Time Differential Perturbed Angular Correlations (TDPAC) experiments. DESCRIPTION: TDPAC is used by our group performing material's science, molecular and biophysics nanoscale research at CTN, and at the CTN-IST experimental infrastructure actually running short lived isotopes at ISOLDE-CERN. PACme is a unique, first principles complex C++ program developed by us, dedicated to fit generalized static, dynamic, quadrupole and magnetic hyperfine interactions data obtained with TDPAC. Static Lorentzian field distributions could be already implemented for individual magnetic OR quadrupole hyperfine fields. The goal of the present application is the implementation of 1) a Lorentzian basis approximately describing any distribution of static fields, and 2) implementation of static field distributions to combined (electric quadrupole + magnetic) interactions. Optimization the program structure, calculation efficiency and running time are further expected.

Legislation and Regulations: Lei n.º 40/2004, de 18 de agosto (Estatuto do Bolseiro de Investigação Científica) (*Statute of Scientific Research Fellow, approved by Law n. 40/2004, of August 18*); Regulamento de Bolsas de Investigação da Fundação para a Ciência e a Tecnologia em vigor (*Research Fellowships Regulation of the Foundation for Science and Technology, IP, in force*) (<https://www.fct.pt/apoios/bolsas/docs/RegulamentoBolsasFCT2018.pdf>.); e Regulamento de Bolsas de investigação do IST (Research Fellowships Regulation of IST).

Workplace: Being software oriented, the work requires assiduous interaction with the developers and users at Center of Sciences and Nuclear Technologies (C2TN) at Instituto Superior Técnico and at the CTN-experimental infrastructure at ISOLDE-CERN, in person or via Skype. Periods and timing shall be defined during the work progress under the scientific coordination of Doctor João Guilherme Martins Correia and Doctor Katharina Lorenz.

Duration: The research fellowship(s) will have the duration of **6 months**. It's expected to begin in **March 2019** and may be eventually renewed for the same period or until the end of the project.

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 **€980**, being the payment method an option of the Fellow by Wire Transfer/Check.

Selection methods ():** The candidates will be graded based on **a) the curricular evaluation** (70%, 0-20 scale) considering the admission requirements, and **b) motivation letter** (30%, 0-20 scale). After ordering, if necessary, an interview may be conducted as an aid to the evaluation of the candidates (in this case, the interview has a value of 25% and the curricular evaluation 75%, scale 0-20).

Composition of the selection Jury: Dr. João Guilherme Correia (President), Dr. Katharina Lorenz (Vogal), Dr. António Pereira Gonçalves (Vogal).

Announcement/ notification of the results: The final results of the evaluation will be publicized through a list sorted by final grade obtained posted in a visible and public place of the CTN, Bobadela, Instituto Superior Técnico, University of Lisbon. All applicants will be notified **via email** of the Final Evaluation Result.

Application deadline and formalization: The call is open from 13 until 10 February 2019.

It is mandatory to formalize applications with the submission of the following documents: B1 Form – Fellowship application (<http://drh.tecnico.ulisboa.pt/bolseiros/formularios/>), *Curriculum Vitae*, *academic degree certificate(s)* and *motivation letter*. Applications must be submitted to the email: jgmcnet@ctn.tecnico.ulisboa.pt or Joao.Guilherme.Martins.Correia@tecnico.ulisboa.pt.