



LABORATÓRIO DE INSTRUMENTAÇÃO E FÍSICA EXPERIMENTAL DE PARTÍCULAS

A research position for one Research Grant (“Bolsa de Investigação Pós-Doutoral”) is open at LIP - Laboratório de Instrumentação e Física Experimental de Partículas, in the scope of the Portugal-Austin funded project “TOF-PET for Proton Therapy (TPPT) - In-beam Time-of-Flight (TOF) Positron Emission Tomography (PET) for proton radiation therapy”, Ref: Project 45904 (SI-47-2019-05). This work is supported by UT-Austin-Portugal, through the COMPETE 2020 Program, the Regional Operational Programs, Agência Nacional de Inovação (ANI), and Fundação para a Ciência e a Tecnologia (FCT) under “Go Portugal – Global Science and Technology Partnerships Portugal”.

Work Plan: The focus of this R&D work lies on GEANT4-based, Monte Carlo simulation of the production of beta+ decaying radioisotopes for time-of-flight positron emission tomography (TOF-PET) for monitoring proton therapy. After validation of pertinent experimental cross-sections found in the literature simulation should implement the macro- and microstructure timings of a synchrotron-delivered proton beam typical of proton therapy treatments at MDAnderson Cancer Center in Houston, Texas, USA. Typical computed tomograms of real treatments should be incorporated in the GEANT4 toolkit so that the impact of normal and compromised treatments can be studied, together with an analysis of its detectability via in-beam TOF-PET.

Admission requirements: The applicant should have a recent PhD in physics, physics engineering, biomedical engineering, or a related field (less than 3 years). The candidate should have experience in programming and a good command of English language, both oral and written. Experience with simulation tools such as GEANT4 and data analysis such as ROOT and Matlab will be advantageous. Preferential factor is a relevant curriculum with strong experience in Monte Carlo techniques.

Legislation: A fellowship contract will be celebrated according to the “Regulations for Research Grants of the Foundation for Science and Technology” in force, (<https://dre.pt/application/conteudo/127238533>), and to the Status of Scientific Research Fellow (Law nº 40/2004, of 18 august, and its successive amendments). In the event of the PhD degree was awarded by a foreign higher education institution, the degree must comply with the provisions of the Decree-Law nº. 66/2018, of 16 august <https://www.dges.gov.pt/en/pagina/degree-and-diploma-recognition>). The selected candidate must provide the recognition of the degree when signing the contract.

Duration: The position will have the initial duration of 12 months, starting in 1st July 2020 or as soon as possible, and could be renewed, pending successful assessment and funding availability (maximum duration of three years).

Place of work: LIP Lisbon, Portugal.



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Scientific supervision: Prof. Patrícia Gonçalves (LIP Lisbon and IST) and Prof. Paulo Crespo (LIP Coimbra and University of Coimbra).

Monthly Amount: The monthly amount of the grant 1.600,00 € is in accordance with the values stipulated in the FCT Regulations in force (<https://www.fct.pt/apoios/bolsas/valores>). This amount will be paid on a monthly basis through a bank transfer to the grant holder's bank account.

Selection methods: The Selection criteria will be the appreciation of the Candidates' Curriculum vitae (50%) and the suitability of the candidates' profile to the project based on admission requirements and relevant work experience in the tasks described in the work plan (50%).

Jury Panel: Prof. Paulo Crespo, Dr. Jorge Sampaio, Prof. Patrícia Gonçalves

Notification of results: The results of the evaluation will be communicated by email through a list sorting the candidates, according to their attributed mark; in case of disagreement, the candidates have a period of 10 working days to contest the decision, as provided for in the Code of Administrative Procedure in a preliminary hearing. At the end of this period, the arguments presented will be analysed by the jury committee, which will simultaneously communicate the final decision to all the candidates who submitted allegations. The final results of the shortlisted applicants will be communicated by e-mail. In case of disagreement, the candidates have a period of 15 working days to contest the decision.

Application period and required documentation: The call for applications is open between 1st June 2020 and 16th June 2020 (17:00 Lisbon Time). The applications should include a motivation letter, a detailed Curriculum Vitae, and certificates for the Candidate's Academic Degree(s). The candidates may include other documents they find relevant in their application.

The applications should be submitted in pdf format from 01st until 16th June 2020 by e-mail to ofelia@lip.pt.