



LABORATÓRIO DE INSTRUMENTAÇÃO  
E FÍSICA EXPERIMENTAL DE PARTÍCULAS

## Scientific Initiation Studentship (BII)

**Job description:** Job description: LIP opens a call for selection of fellows for one Scientific Initiation Studentship (BII) - entitled “New physics with the Higgs boson in the ATLAS experiment”, funded in the framework of the collaboration agreement between “Fundação La Caixa” and LIP, under the following conditions:

**Application requirements:** The candidates must have a degree in Physics or Physical Engineering. They should have some experience in programming, for example in Python or C++. Depending on how the pandemic situation evolves, they should also be available to travel to CERN for short periods of time (of a few weeks). The candidates must be enrolled in a course granting a higher academic degree or in a non-academic degree course, as stipulated in the Regulations for Research Grants of the Foundation for Science and Technology (Article 6).

**Preferential requirements:** Experience with Linux systems, knowledge of Machine Learning programming interfaces such as Scikit-Learn or Keras.

**Work plan:** This fellowship is intended for scientific research work within the scope of the ATLAS experiment, one of the detectors that operate on the Large Hadron Collider (LHC), at CERN. The project will be part of the program of new physics searches carried out by the ATLAS experiment and will contribute to the development of the analysis techniques used in searches for new particles at very high energies.

The main goal of this project is the development and implementation of novel algorithms to identify Higgs bosons decaying to pair of b-quarks, with the ATLAS detector, using Machine Learning techniques. The focus will be in identifying Higgs bosons produced at high momenta, which brings challenges in the reconstruction and identification of this decay.

The student will be part of the LIP ATLAS team and will also collaborate with members of the ATLAS experiment from other institutes around the world. The results will be presented and discussed in ATLAS collaboration meetings, both remotely and/or in person.

**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, and its successive amendments).

**Duration:** The fellowship has a duration of 3 months, eventually renewable, with a foreseen starting date on April 2021,

**Work Place:** Research activities will be developed at the LIP-Lisbon facility or remotely, under the scientific supervision of Dr. Inês Ochoa and with possible occasional visits to CERN.

**Amount:** The monthly amount of the grant 416,12€, is in accordance with the values stipulated in the “FCT Regulation for Research Studentships and Fellowships ” in force: ([https://www.fct.pt/apoios/bolsas/docs/Tabela\\_Valores\\_SMM\\_LOE\\_2020.pdf](https://www.fct.pt/apoios/bolsas/docs/Tabela_Valores_SMM_LOE_2020.pdf)). This amount will be paid on a monthly basis through a bank transfer to the grant holder's bank account.

**Evaluation:** The members of the jury will take into consideration the CV (50%) and the research experience in the required field (50%).

**Members of the Jury:** Prof. Patricia Conde Muíño, Doutor Marcin Stolarski e Doutora Inês Ochoa

**Advertising / notification of results:** The results of the evaluation will be communicated to the applicants by email. In case of a negative decision, applicants dispose of a period of 10 days in which to oppose the decision in a preliminary hearing, as stated in articles 121 and following of the Code of Administrative Procedure. The panel’s final decision will be taken after analysis of the applicant’s arguments and the candidates notified. The final results will be communicated by e-mail to the applicants. In case of disagreement, the candidates have a period of 15 working days to contest the decision.

**Application deadline:** From 24th February to 24th March 2021 (17:00 - Lisbon time).

Applicants should submit a curriculum vitae, diploma and a list and grades of university courses and other relevant documents for the evaluation. The documents should be sent by email in pdf. format

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