



Laboratório de Instrumentação e Física Experimental de Partículas

## ANNOUNCEMENT – Doctoral Scholarship

### EURAXESS (Job Offer id: 701916)

#### 1 - Title

Call for Applications for a Doctoral Scholarship

#### 2 - Offer description

LIP opens a call for applications for a Doctoral Scholarship in the domain of particle physics.

The grant will be funded by the Foundation for Science and Technology (FCT) under the Collaboration Agreement "*Financiamento do Plano Plurianual de Bolsas de Investigação para Estudantes de Doutoramento*", signed between the FCT and LIP, R&D Unity No. 50007.

PhD studentships will be granted to applicants that fulfil the requirements to join a study cycle towards a PhD degree, and wish to develop research work in particle physics or related domains at a Portuguese University, hosted by LIP, without prejudice to the work being carried out in collaboration with more than one institution. The research activities must be integrated in LIP's activity plan and strategy.

#### **Working Program and Supervision:**

The selected candidate will develop, within the scope of LIP's phenomenology group, models aimed at solving some of the questions that the Standard Model of particle physics leaves open.

Advanced machine learning techniques aimed at sampling the parameter space of the proposed models will also be used. To this end, three classes of algorithms and approaches will be explored and developed: black box optimization algorithms, such as Bayesian optimization and genetic algorithms; Deep Reinforcement Learning; and Learning-based Markov Chain sampling algorithms. These new algorithms will be interconnected with the usual computational tools in the studies of Physics models in addition to the Standard Model (FeynCalc, FeynArts, SUSINO, etc) and validation of parameter space points (SPHeno, SoftSusy, microOmegas, etc). The phenomenological consequences of the developed models will also be explored, proposing data analysis in present and future and observable colliders aimed at maximizing the experimental sensitivity. The scientific supervision of the candidate will be ensured by Prof. Nuno Castro and by Dr. Miguel Romão.

#### **Admissibility Requirements:**

Under the conditions set out in Article 9 and Paragraph 1 of Article 14 of FCT Regulations for Studentships and Fellowships, are eligible as applicants:

- Portuguese citizens, or citizens of other European Union member states;
- third-country citizens;
- stateless persons;
- beneficiaries of refugee status.



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To apply for a PhD studentship it is necessary:

- To hold a bachelor's or master's degree in the scientific areas defined in the call announcement or in related areas;
- Not to have benefited from a PhD or a PhD in industry studentship directly funded by FCT, regardless of its duration;
- Not to hold a doctoral degree.

**Duration:**

The duration of the grant is annual, renewable up to a maximum of four years and may not be awarded for periods of less than three consecutive months.

**Applicable Legislation:**

All missing aspects from this Call will follow the FCT Regulations for Studentships and Fellowships available at: <https://dre.pt/application/conteudo/127238533>

and the Research Fellowship Holder Statute available at: <https://dre.pt/application/conteudo/124256707>

3 - Researcher Profiles

The candidates should provide a clear demonstration of the ability to carry out a research program and skills for experimental work.

4 - Research fields

**Main research field:** Particle Physics

5 - Type of Contract

Doctoral Scholarship

6 - Application Deadline / Timezone

The call will be open from 02nd November to 23th November 2021, 17:00 (Lisbon time).

7 - Envisaged Job Starting Date

January 2022

8 - Is the job funded through a EU Research Framework Programme?

Not funded by an EU programme

9 - Reference Number

Financiamento de Unidades de I&D – LIP/50007



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10 - How to Apply?

The candidates formalize their application by sending the following documents (**mandatory**) by email to natalia@lip.pt:

- **One CV file** in pdf format;
- **One Motivation Letter file** in pdf format;
- **One PDF file containing certificates of all the academic degrees obtained**, with the final average grade and marks in all subjects
- **One PDF file containing the academic degree recognition** and conversion of the final grade to the Portuguese grading scale or the presentation of the **recognition/equivalence**, registered by a public higher education institution.
- **Two reference letters**

HIRING INFO & WORK LOCATION

11 – Organisation or R&D Unit responsible for the hiring

Organisation/Company: LIP - Laboratório de Instrumentação e Física Experimental de Partículas  
Organisation Type : Research Laboratory  
Department: Lisbon  
Country: Portugal  
Address: Av. Prof. Gama Pinto, 2, 1649-003 Lisboa  
Website: <https://www.lip.pt/>  
Contact Person Email: [natalia@lip.pt](mailto:natalia@lip.pt)  
Phone: +351 210 493 611

12 - Number of positions available / Work Location:

Vacant posts: 1  
Company/Institute: LIP - Minho  
Country : Portugal  
Street: Universidade do Minho

REQUIREMENTS

13 - Main Research Field / Level

Particle Physics or related areas

14 - Skills/Qualifications/ Specific Requirements/Required Languages

**Requirements:**

Only candidates who have completed the cycle of studies leading to a Bachelor's or Master's degree by the end of the application period will be admitted.

Fluent in English



#### 15 - Required Research Experience

The candidate should provide a clear demonstration of the ability to carry out a research program.

#### ADDITIONAL INFO

#### 16 - Website for additional job details

<https://www.lip.pt/?section=about&page=recruitment>

#### 17 - Benefits

The selected applicant will be awarded monthly stipends and supplementary support, which may include tuition fees, relocation costs, travel awards and health insurance, whenever applicable, as detailed in the FCT Regulations.

#### 18 - Eligibility criteria

##### Requirements:

Only candidates who have completed the cycle of studies leading to a Bachelor's or Master's degree by the end of the application period will be admitted. In order to comply with the foreseen applicable Portuguese legislation regarding the recognition of foreign qualifications, all the rights inherent to academic degrees granted by foreign higher education institutions is duly recognised to the holders of these degrees. This recognition is subject to the presentation of **the academic degrees recognition and conversion of the final grade to the Portuguese grading scale**, requested to the Dean of a public Portuguese University, the Head of a Public Polytechnic Institute or the Director-General for Higher Education; or by the presentation of the **recognition/equivalence**, registered by a public higher education institution.

Candidates who do not yet have their degree certificate may present a declaration of honor, stating that they have completed the necessary qualifications for the purposes of the call by the end of the application deadline. The granting of the scholarship will depend on the presentation of all the documents. For candidates with diplomas issued by foreign institutions the academic degrees recognition and conversion of the final grade to the Portuguese grading scale or the presentation of the recognition/equivalence will be required for the granting of the scholarship. The presentation of the degree certificates in the application form is determinant for evaluation purposes, namely to calculate the score of A1, a sub-criterion of the Merit of the Applicant. In case of academic degrees obtained abroad, only degrees with the respective records of recognition/equivalence and conversion to the Portuguese grading scale will be considered to calculate the score of A1 sub-criterion (minimum grade = 0 if no recognition).

#### 19 - Selection process

Evaluation takes into account two criteria:

##### A) Criterion A - Merit of the Applicant

The criterion A, which has a 60% relative weight to the final score, is evaluated based on two sub-criteria:

A1. Academic career, with a relative weight of 20% in the Merit of the Applicant.

A2. Personal curriculum with a relative weight of 40% in the Merit of the Applicant.



**B) Criterion B – Adequacy of the candidate’s experience to the working program** with a relative weight of 40%

**Final classification** =  $(0.2 \times A1) + (0.4 \times A2) + (0.4 \times B)$

For purposes of tiebreak, the final ranking list will be based on the scores assigned to each of the evaluation criteria in the following order: criterion A2, criterion B and criterion A1.

All applications will be graded from 1 (minimum) to 100 (maximum) in each of the two evaluation criteria.

Applicants whose application is scored with a final grade lower than 60 points will not be eligible for studentship granting.

**Members of the Jury:**

- Prof. Guilherme Milhano, LIP and IST;
- Prof. José Ricardo Gonçalves, LIP and Universidade de Coimbra;
- Dr.<sup>a</sup> Liliana Apolinário, LIP;
- Dr. Grigorios Chachamis, LIP;
- Dr. João Nunes Pires, LIP.

**Disclosure of results :**

The results of the evaluation will be communicated to the applicants by email, and the conclusion of the process will be published on the LIP website. 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. In case of disagreement, the candidates have a period of 15 working days to contest the decision. A final appeal may also be lodged with the highest body of the funding entity (FCT) within a period of 30 working days after the announcement of the jury’s final classification.

20 - Additional comments

**Funding:**

The scholarship contracts will be signed with FCT. The attribution of grants is conditional on the presentation of all required documentation and on the admission of the candidate by the Institution granting the academic degree, as well as subject to the availability of FCT funds. The lack of any of the necessary documents to complete the contracting procedure implies the expiration of the studentship granting and conclusion of the process; applicants have up to 6 months after the disclosure of the provisional granting to present all of the listed documents.

**Equality and non-discrimination Policy:**

We are committed to promoting equality and preventing discrimination, and welcome applications of all qualified candidates irrespective of their age, disability, gender, marital status, pregnancy, maternity, gender identity, race, colour, nationality, ethnicity or national origin, sexual orientation, religion or belief, social background or culture or trade union membership.