

Postdoctoral Research Grant

**at Laboratório de Instrumentação e Física Experimental de Partículas (LIP),
Coimbra, Portugal**

LIP (Laboratório de Instrumentação e Física Experimental de Partículas) Coimbra invites applications for a postdoctoral grant within the project "Direct Detection of Dark Matter: Participation in the LUX-ZEPLIN and LUX Experiments" (Ref. PTDC/FIS-NUC/1525/2014) funded by Fundação para a Ciência e Tecnologia.

LUX, the most sensitive detector in the hunt for dark matter since 2013, has completed its final 20-month long run in May 2016. The LUX-ZEPLIN (LZ) experiment, a next-generation direct detection dark matter experiment, is presently entering the construction phase and will be installed at the Sanford Underground Research Facility (SURF) in Lead, USA. Both experiments aim to detect dark matter in the form of weakly interacting massive particles (WIMPs) using a two-phase liquid xenon time projection chamber. The successful candidate is expected to play a leading role in R&D work in the LIP-Coimbra laboratory, participate in the commissioning of the LZ experiment at SURF, as well as in the software development for LZ data analysis and the analysis of the LUX data.

The work is part of the project funded by the Portuguese Foundation for Science and Technology (FCT), focused on the Portuguese participation in the LZ and LUX experiments. The candidate will be part of a team of experimentalists in the LZ experiment dedicated to several aspects of R&D, data analysis, experiment monitoring and control, as well as physics issues beyond the dark matter search such as neutrino physics, rare decays and neutrinoless double beta decay. The Portuguese team associated to this project has a long and strong record of involvement in DM experiments and R&D in liquid xenon detectors.

The conditions are the following:

1. Main Research Area: Physics

2. Specific Research Area: Experimental Particle Physics

3. Number of fellowships: 1

4. Profile: The applicant should have a recent PhD degree in physics, physics engineering or a related field. The candidate should have experience in programming and good command of English language, both oral and written. Experience with nuclear and/or particle instrumentation, cryogenic systems, simulation tools such as GEANT4 and data analysis will be advantageous (but not mandatory). Preferential factor is a relevant curriculum in experimental physics.

5. Place of work: LIP Coimbra, Department of Physics of the University of Coimbra, Rua Larga, Coimbra, Portugal, with possible visits of up to 1 month at the SLAC National Stanford Laboratory, CA, USA and the Sanford Underground Research Facility, SD, USA.

6. Duration: 12 months, renewable up to 24 months, starting in **March 2017**, following the regulations of the FCT <https://www.fct.pt/apoios/bolsas/docs/RegulationFellowships.pdf> and the internal LIP rules for fellowships. The candidate will be strongly encouraged and supported to apply for a longer term funding during this period.

7. Scientific supervision: Doctors Francisco Neves and Vladimir Solovov, LIP, Department of Physics of the University of Coimbra, Portugal.

8. Selection and attribution criteria: Short-listed candidates will be invited for an interview, which may be conducted by video-conference. The selection criteria will be: candidate's *curriculum vitae* and its relevance to the needs of the research project (45%), recommendation letters (20%) and interview (35%). LIP reserves the right to not fill the vacancy open in the present call if no suitable candidate is found.

9. Salary: The salary will follow the reference table for FCT fellowships within Portugal. This can be found at <https://www.fct.pt/apoios/bolsas/valores.phtml.en>.

10. Formalization of application: Applications must be formalized, necessarily, by submitting the following documents: *curriculum vitae*, a one-page statement of research interests, copy of the PhD certificate and other documents the candidate may consider relevant to his/her application, from **December 20 2016 to January 31 2017 at 17:30h**, to the email isabel.lopes@uc.pt (cc bolsas@coimbra.lip.pt). **Candidates should arrange for at least two letters of recommendation to be sent directly to isabel.lopes@uc.pt.**

11. Selection Panel: Professor Isabel Lopes (LIP), Doctor Francisco Neves (LIP) and Professor Paulo Fonte (LIP).

12. Legislation: A fellowship contract will be celebrated according to the “Regulations for Research Grants of the Foundation for Science and Technology” in force, (<https://www.fct.pt/apoios/bolsas/docs/RegulationFellowships.pdf>) and to the LIP Grant regulations approved by FCT, and to the [Status of Scientific Research Fellow](#) (Law no 40/2004 of 18 of August, and its successive amendments).