

Post-doc at LPNHE Paris – CNRS/IN2P3 – Sorbonne Université – Université de Paris

Job description: ID 11112021

Postdoctoral Fellow in Particle Physics in the ATLAS group at LPNHE Paris

Closing date: **15 December 2021.**

LPNHE is a joint laboratory between CNRS and two world-class universities, Sorbonne University and University of Paris. It is located on the Pierre et Marie Curie campus of Sorbonne University, which offers a very rich scientific environment, including a dedicated transdisciplinary research center for artificial intelligence. Its location in the very center of Paris, along the Seine River and next to the historical “Jardin des plantes de Paris”, is also a unique place. LPNHE favors equal opportunity, a policy of giving everyone the same opportunities for employment, pay, and promotion, without discriminating against particular groups.

Project description:

One postdoctoral opening will be available for an outstanding individual to work with the team coordinated by Prof. Bertrand LAFORGE in the area of particle physics at the LHC. The position is funded by the French Research Agency, in the context of the DMwithLLPAtLHC project lead by two experimental ATLAS teams ([LPSC Grenoble](#) and [LPNHE Paris](#)) and one team of phenomenologists at [LPTHE](#) in Paris to foster the search for prompt or long-lived Axion-Like Particles that couple to a Dark sector with LHC Run 3 data.

This post-doc proposal offers to work on the search of axion-like particles (ALP) decaying into a pair of photons either promptly or with a possible delay if the particle is long-lived. This problem can benefit from a machine learning approach in different ways, that include for instance regressions to better measure electromagnetic shower energy and direction or classifications to distinguish a one/two shower case when the final photon pair is boosted. From the theoretical perspective, relating the ALP production rate, lifetime and decays to the underlying theoretical quantities is non-trivial. In addition to the contribution to the experimental search development, the successful applicant will work in collaboration with the theoretical team at the LPTHE to ensure that the analysis is designed in such a way that it will be easily reinterpretable in the context of other models.

Qualification requirements

Postdoctoral positions are appointed primarily for purposes of research. Applicants are expected to hold a doctoral degree or an equivalent degree.

Assessment criteria

The degree should have been completed no more than four years before the deadline for applications. An older degree may be acceptable under special circumstances, which may involve sick leave, parental leave, clinical attachment, elected positions in trade unions, or similar. In the appointment process, special attention will be given to research skills.

Terms of employment

The position involves full-time employment for two years. Start date can be as early as February 2022.

Contact

Further information about the position can be obtained from **Prof. B. Laforge** (laforge@lpnhe.in2p3.fr).

Application

It is the responsibility of the applicant to ensure that the application is complete in accordance with the instructions in the job advertisement and that it is submitted before the deadline. Please include the following information with your application and send it to Prof. B. Laforge(laforge@lpnhe.in2p3.fr) :

- Your contact details and personal data
- Contact details for 2–3 references (email, phone)

Important: Your academic referees should send us recommendation letters no later than **December 15, 2021**, via e-mail to: laforge@lpnhe.in2p3.fr and state in the subject line: “**ANR DMwithLLP@LHC Post-doc position at LPNHE - Name of the applicant**”.

- Cover letter
- CV, degrees and other completed courses, language skills, work experience, and a list of publications
- Research proposal (no more than 3 pages) describing:
 - why you are interested in the field/project described in the advertisement
 - why and how you wish to complete the project
 - what makes you suitable for the project in question
- Copy of PhD diploma
- Publications in support of your application (no more than 3 files).

You are welcome to apply!