

# Postdoctoral research position in nuclear and particle physics. 3-year full-time appointment at the University of Salamanca

The hadron and high-energy particle physics group at the University of Salamanca (USAL in what follows) offers a 3-year full-time postdoctoral position. Outstanding performance during the postdoctoral period may lead to consideration for a tenure-track position at our institution, depending on departmental needs and available funding.

Our group consists on a number of tenured professors, postdocs, master and PhD students, that work on the following topics:

- Collider physics with EFT methods: jets and top quarks.
- Precision physics: loop-tree duality and multi-loop computations.
- Heavy-quark physics.
- Hadron spectroscopy.
- Neutrino-nucleus scattering.
- Electron-positron tomography and hadronteraphy.
- Nuclear astrophysics.

Other groups at <u>our department</u> carry out research on a variety of topics: experimental nuclear physics, cosmology, astrophysics, dark matter, general relativity, gravitational waves, disordered systems, condensed matter, and quantum computing. Our group is also part of the <u>Institute for Fundamental</u> <u>Physics and Mathematics</u>. With over 800 years of history, our university is one of the oldest in Europe, offering a unique, inspiring and rich historical setting for conducting groundbreaking research.

# **Contract features**

This postdoc is funded through the regional grant "Quantum Computing and Machine Learning as a tool to study fundamental interactions and their applications", whose IPs are professors Vicent Mateu and Pablo G. Ortega. In addition to a gross salary of 30400 Euros per year, the position includes health benefits, retirement contributions, and funding for equipment and conference travel.

# **Expected duties**

- Conduct independent and collaborative research on the phenomenology of the strong interactions. Apply Machine learning tools to determine fundamental parameters or study hadronization. Devise algorithms to treat such problems in a Quantum Computer.
- Collaborate in mentoring graduate and undergraduate students.
- Optionally, the fellow can collaborate in teaching duties.

# **Prerequisites for Application**

- PhD in theoretical particle physics, or nearing completion by the start of the position.
- Strong research record in high-impact peer-reviewed journals on the fields of phenomenology of the strong interactions, hadronic physics, and nuclear physics applied to medicine.
- Experience on Quantum Computing and Machine Learning methods.

# How to apply

Application opens on October 8th 2024, and closes on October 22nd 2024. Interested candidates should send

- The application form, to be downloaded <u>here</u>.
- A motivation letter.
- A complete CV including research interests, scientific skills, publication record, postdoctoral experience, dissemination of results in the form of posters or invited/contributed talks at conferences and workshops, languages spoken, and any other aspect the candidate thinks speaks in their favor.
- Copy of Spanish ID or passport.
- Copy of PhD title.
- For Spanish candidates, "vida laboral".

This documentation should be sent in one of the following ways:

- 1. For those having a Spanish electronic certificate, using the online portal <u>https://sede.usal.es/web/guest/registro-electronico</u>, addressed to "Agencia de Gestión de la Investigación", code 70100.
- 2. Using this <u>online platform</u>, that requires creating an account at USAL through <u>this form</u>. This procedure cannot be used by Spanish citizens or non-spanish applicants holding a Spanish ID (NIE).
- 3. At Spanish embassies or consulates. In that case, all documents mush also be mailed to <u>serv.agi@usal.es</u> before the due date.
- 4. By post mail or urgent courier, to the address "Registro Único de la Universidad de Salamanca C/ Patio Escuelas, 1-37008-Salamanca", making sure it reaches destination before the deadline. In this case, the documentation should also be mailed to <u>serv.agi@usal.es</u> before the due date.

On top of these, two recommendation letters should be sent to one of the following addresses: <u>vmateu@usal.es</u>, <u>pgortega@usal.es</u>.

Further details of the call and the appointment can be found (in Spanish) <u>here</u> and <u>here</u>, respectively. In case you have any doubts, please do not hesitate to contact us by sending us an email.

The successful candidate is expected to start the contract on January 2025.