
Post-doctoral position in simulating gauge theories with Rydberg atom arrays

ICFO is offering a postdoctoral position to a well-qualified, highly motivated and dynamic young scientist who wishes to enhance his/her scientific career in a friendly and stimulating environment.

The successful candidate will be joining the **Ultracold Quantum Gases** group led by Prof. Dr. Leticia Tarruell.

Gauge theories play a fundamental role in our understanding of nature, from the interactions between elementary particles to the effective description of strongly correlated systems. In recent years, there has been an immense effort to quantum simulate them in AMO systems. However, until now the experiments have remained limited to very specific models and to one spatial dimension. Thanks to their flexibility and controllability, combined with the long-range character of the Rydberg blockade, Rydberg atom arrays constitute an ideal experimental platform to extend these studies to higher dimensions and more complex theories. We are currently setting up a new experimental apparatus, based on arrays of strontium atoms trapped in decorated tweezer arrays, to tackle the challenge of simulating lattice gauge theories in two and three spatial dimensions.

The successful candidate will join a small team of Master, PhD students and postdocs, and is expected to play a leading role in the development of the apparatus, as well as on planning and performing the first experiments. The group has previous experimental experience on the simulation of gauge theories with ultracold atoms [Nature 608, 293 (2022)], and the project is supported through several theoretical collaborations within the European QuantERA project DYNAMITE (From Dynamical Gauge Fields to Lattice Gauge Theory).

Eligibility and Conditions

Candidates must hold, at the time of contract initiation, an internationally-recognized Ph.D.-equivalent degree (or evidence of its completion in the nearest future) in Physics or closely related fields.

The candidate should have a proven track record of experimental atomic, molecular and optical physics. Experience with Rydberg atoms and/or ultracold quantum gases is strongly desirable.

ICFO is an equal opportunity employer. Candidates are selected exclusively on merit and potential on the basis of submitted application material. No restrictions related to disabilities, citizenship or gender apply to ICFO positions. ICFO abides by the principles of openness, efficiency, transparency, supportiveness, and international comparability as stated in the European Charter for Researchers and the European Code of Conduct for the Recruitment of Researchers.

Salaries for ICFO Postdoctoral positions are assigned by the Selection Committee, based on experience and seniority of the applicant, as well as the assigned tasks and responsibilities within the group. Standard salaries range from a lower level aligned with national Ramon-y-Cajal fellowships to higher levels aligned with Marie Skłodowska-Curie individual fellowships.

The contract is offered for a period of 3 years.

Additionally, a family allowance is also available on request and after corresponding approval for people with family charges in the terms described in the corresponding policy.

Application procedure

Suitable candidates are requested to submit:

- Presentation letter with a declaration of interest,
- Curriculum Vitae, including contact details,
- The contact e-mail of two potential referees.

Candidates will be assessed as they apply and the call will remain open until the suitable candidate is identified.

Candidates may contact jobs@icfo.eu for formal enquiries regarding the application, as well as address scientific enquiries to leticia.tarruell@icfo.eu.

For updated information about ICFO, please visit <https://www.icfo.eu>.

Deadlines

The call will remain open until 10/04/2024.