**PhD position for the Project: Attosecond and strong-field quantum optics**

The successful candidate will be part of the [Quantum Optics Theory Research Facility](https://www.icfo.eu/research-group/11/qot/home/10305/) led by Prof. Dr. Maciej Lewenstein. Tentative starting date is on 01/03/2025 (negotiable).

The project: “Attosecond and strong-field quantum optics” will bring theoretical investigation of the effect of strong-field phenomena on the quantum state of the driving radiation.

The research will focus on:

1. Quantum Electrodynamics and Quantum Optics of Atto-science;
2. Generation of quantum correlations and entanglement in "Zerfall" (ionization) processes;
3. Atto-physics with strongly correlated systems.

The expected results are to identify different strategies for the creation of nonclassical states of light exploiting strong-field processes such as high-order harmonic generation and above-threshold ionization.

Candidate tasks:

* Conduct research in all three lines of the project, mentioned above
* Participate in the activities of the Quantum Optics Group, ICFO, and QU-Atto (seminars, workshops, lectures, colloquia, collaborations, etc.;
* Depending on the candidate's preparation, learn additional areas necessary for interdisciplinary research.

Secondment and international collaborations: The project involves an exciting network of collaborators and will include several secondments abroad in top European institutes and companies.

Requirements and conditions

Candidates must hold an internationally recognized Master’s degree, preferably in Biomedical Engineering, Optical Engineering, Electronic Engineering, or Computer Sciences, completed by the start of the PhD.

Additionally, to the general eligibility criteria, candidates for the DN positions must comply with the following EU-rules by the time of activation of the fellowship:

By the time of the potential recruitment date, the candidate must not have resided or carried out their main activity (work, studies, etc.) in Spain for more than 12 months during the last 3 years. Compulsory national service and/or short stays such as holidays are not taken into account.

It will be desirable for the candidate to demonstrate good communication skills and command of the English language.

The candidate should hold appropriate expertise from her/his studies or MSc project to contribute to the research field described above.

Application procedure

The formal application should be submitted online via our currently open PhD Call: https://jobs.icfo.eu/?detail=937

Candidates may contact jobs@icfo.eu for informal enquiries regarding the application, as well as address scientific enquiries to Prof. Dr. Maciej Lewenstein (maciej.lewenstein@icfo.eu). Deadline: October 1, 2024.