

Post-doctoral position in quantum machine learning and quantum artificial intelligence

Thu, 2020-07-16 11:25 - [ICFO - The Institute of Photonic Sciences](#) [1] **At:** ICFO - The Institute of Photonic Sciences

Deadline: 15 September, 2020

Location

Avenue Carl Friedrich Gauss, 3
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ICFO-The Institute of Photonic Sciences <https://www.icfo.eu/> [2] (Barcelona, Spain) 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 **Quantum Optics Theory and Quantum Information Theory groups** led by **Prof. Dr. Maciej Lewenstein and Prof. Dr. Antonio Acín**, respectively. The groups have experience in all areas of theoretical physics, but in the context of the present project the relevant are: a) classical statistical physics; b) information theory; c) many body physics, including quantum many body physics; d) numerical methods; e) classical and quantum machine learning; f) classical and quantum artificial intelligence. The project will focus on development, optimization and implementation of novel Monte Carlo and related schemes, including quantum inspired ones, based in applications of tensor network codes.

The successful candidate will carry out their tasks (development, optimization and implementation of novel Monte Carlo and related schemes, including quantum inspired ones) within the joint project Quspin (RTC2019-007196-7). Quspin, one of the projects running in the ICFO-Quside Joint Lab, seeks to develop a hardware-accelerated computer system specialized in the efficient and precise solution of some of the most widespread optimization processes. To achieve this goal, we face the challenge from a dual approach: the development and deployment of Quspin Annealer, an innovative product to accelerate through specialized hardware systems the execution of tempering or annealing algorithms, which have demonstrated its applicability in multiple combinatorial optimization problems.

ELIGIBILITY AND CONDITIONS

Candidates must hold an internationally-recognized Ph.D.-equivalent degree (or evidence of its completion in the nearest future) preferably (in order of preference) in theoretical physics, computer science, applied mathematics. The degrees in theoretical quantum chemistry and computational chemistry will also be considered.

The candidate should have a proven track record of top level research during the PhD studies and possible earlier postdoc positions. Positively valued will be experience in the areas a) classical statistical physics; b) information theory; c) many body physics, including quantum many body physics; d) numerical methods; e) classical and quantum machine learning; f) classical and quantum artificial intelligence. Particularly desired is an experience in numerical methods and machine

learning.

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.

The contract is offered for periods of one year, renewable for a total of up to 2 years.

APPLICATION PROCEDURE

The formal application should be submitted online via <http://jobs.icfo.eu/?detail=517> [3]

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 may contact [jobs \[at\] icfo \[dot\] eu](mailto:jobs@icfo.eu) for informal enquiries regarding the application, as well as address scientific enquiries to [antonio \[dot\] acin \[at\] icfo \[dot\] eu](mailto:antonio@icfo.eu) or [maciej \[dot\] lewenstein \[at\] icfo \[dot\] eu](mailto:maciej@icfo.eu)

The call will remain open until September 15, 2020.

For updated information about ICFO, please visit <https://www.icfo.eu/> [2]

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