



## Postdoc position on “Optomechanics with cavity polaritons”

A post-doc position (11 months with potential extension) has opened in the group of Prof. Jacqueline Bloch to carry out experimental research on “Optomechanics with cavity polariton”s at the Center for Nanoscience and Nanotechnology (C2N), Paris Saclay Campus in Palaiseau, France (<http://www.polaritonquantumfluid.fr>).

Cavity polaritons emerge in semiconductor microcavities where both light and electronic excitations (excitons) can be confined in very small volumes. The resulting strong light-matter coupling gives rise to hybrid light-matter quasi-particles named cavity polaritons. Polaritons propagate like photons, but strongly interact with their environment via their matter part: they behave as quantum fluids. As a result, they show fascinating properties such as superfluidity or Bose Einstein condensation. It is now well established that semiconductor microcavities not only confine polaritons but also phonons. It is thus possible to engineer novel microstructures in which photons, excitons and also phonons are confined and coupled with each other. This opens a new research avenue, namely optomechanics with cavity polaritons, where the coupling of phonons to a quantum fluid of light could dramatically modify heat transport.

The recruited postdoc will contribute to the design and fabrication of the cavity samples. He/she will be in charge of the optical characterization of the samples. He/she will explore the opto-mechanical properties of these novel microstructures using advanced optical spectroscopy techniques, modeling and numerical simulations. He/she will actively participate in weekly research group meetings. The work will strongly benefit from a tight collaboration with the team of Daniel Lanzilloti Kimura.<sup>2</sup>

The postdoc position is funded by the Labex NanoSaclay Flagship project entitled MaCaCQu (Manipulating Heat Carriers: from the Classical to the Quantum Regime).

### **How to apply:**

Candidates are requested to send the following documents to Jacqueline Bloch ([jacqueline.bloch@c2n.upsaclay.fr](mailto:jacqueline.bloch@c2n.upsaclay.fr)):

- Detailed CV (pdf)
- Motivation letter (pdf)