



## Open position for Post-doc (18 months)

### Development of an integrated platform for quantum optics experiments

Quantum logic operations depend on the operation of both one quantum information bit (qubit) and two-qubit gates requiring the coherent interaction between pairs of qubits. For quantum communication and computing applications it is advantageous to integrate many qubits on a single chip. The discrete density of states of semiconductor Quantum Dots (QDs) and their ease of integration into conventional semiconductor device structures makes them ideal for quantum information processing applications ranging from single photon sources to spin qubit manipulation.

In this project we will develop a two qubit integrated device for quantum information processing. This device will be based on In(Ga)As QDs deterministically placed in specific locations in a photonic crystal. The objective is to demonstrate a scalable design of a two qu-bit gate based on on-chip optically connected spin-qubits.

The post-doc will be involved in the design and growth optimisation of QD heterostructures, working with Paola ATKINSON at INSP (Paris) and in the fabrication of photonic structures in Rémy BRAIVE's team at C2N (Palaiseau). The post-doc will work closely with the quantum optics group at the INSP (Paris) where the optical measurements of the photonic QD devices will be carried out. She/He has to have demonstrated skills in growth and clean-room techniques. She/He should have a good knowledge of the physics of quantum dots and photonic crystals. Some background in low temperature optical measurements would be greatly appreciated.

**Please send the following application documents to:** Paola ATKINSON & Rémy BRAIVE  
(e-mail address: [atkinson@insp.jussieu.fr](mailto:atkinson@insp.jussieu.fr); [remy.braive@c2n.upsaclay.fr](mailto:remy.braive@c2n.upsaclay.fr))

- Cover letter expressing your motivation in the position
- CV
- Recommendation letters