



Palaiseau, November 10th 2020

Two Post-doctoral positions on Semiconductor based optical quantum technologies *Center for Nanoscience and Nanotechnology – CNRS – University Paris Saclay*

Two post-doctoral positions are open in the GOSS group at the Center for Nanoscience and Nanotechnology (C2N), a joint CNRS-University Paris Saclay laboratory. The first position takes place within the QLUSTER European FET research program (<https://qluster.eu/>), and is dedicated to the development of photonic cluster states based on spin-photon entanglement. The second position takes place within the PHOQUSING European FET research program (<https://www.phoquusing.eu/>) and is aimed at developing new types of quantum bits and implementing small-scale optical quantum computations. We are looking for excellent candidates with an experimental PhD in quantum technologies, quantum optics or semiconductor quantum physics.

Over the last decade, the GOSS group at C2N has become an important player in the development of resources for optical quantum technologies: high performances single and entangled photon sources [1], spin-photon interfaces [2], non-linearities at the single-photon level [3], photon-number encoded qubits [4]. We also collaborate with several leading European teams in optical quantum technologies to develop on-chip quantum computation [5] and provide new resources for measurement-based quantum computing and communications [6]. Our approach is based on semiconductor quantum dots inserted in optical cavities and benefits from the C2N state-of-the-art nanotechnology facilities so that both device fabrications and quantum optics measurements are done in-house. Last but not least, we benefit from long term collaborations with theory groups, both at the national and international level.

The post-doctoral fellows will participate to the experimental research efforts, leading quantum optics measurements on quantum dots and implementing optical quantum information schemes. They will help mentoring PhD students and take responsibilities in the group's collaborations.

Both positions are for 2 years with possible extension, and salaries are in the 2100-2800 €/month after tax, depending on the candidate's previous experience.

References

- [1] Nature 466 (7303), 217 (2010), Nature Photonics 10 (5), 340 (2016)
- [2] Nature communications 6, 6236 (2015)
- [3] Nature Nanotechnology, 12 (7), 663 (2017)
- [4] Nature Photonics 13, 803 (2019)
- [5] Optica 4, 1326 (2017)
- [6] Nature Communications 11, 5501 (2020)

How to apply: Candidates are requested to send the following documents by mail to Pascale Senellart (pascale.senellart-mardon@c2n.upsaclay.fr):

- Detailed CV (pdf)
- Motivation letter (pdf)
- Candidates are kindly requested to ask to at least two reference researchers to send recommendation letters directly to Pascale Senellart.
- Deadline for application: December 18th 2020.