Progetto Laurea Magistrale Plus

(Students enrolled for the first time in the Academic Year 2019/20, undertaking the internship in the company in 2020/2021)

University infos

Laurea degree: LAUREA MAGISTRALE IN ELECTRONIC ENGINEERING
University tutor / Thesis supervisor: Prof. Matteo Galli
Courses / Expertize of the university tutor: Integrated photonics for classical and quantum applications

Company infos

Company name: CEA-Leti
Company Tutor(s): Segolene OLIVIER
Role in the company of the tutor(s): R&D engineer in silicon photonics

Contents and infos on project and internship

Project title: Development of waveguide-integrated superconducting single photon detectors on silicon for quantum information processing
Activity scenario and targets of the internship - Area/Department/office/lab (where the trainee will be involved): The student will join the silicon quantum photonics team at CEA-LETI to contribute to the development of single photon superconducting detectors in collaboration with CEA-IRIG (both institutes are in the same location). The student will carry out the characterization of a first generation of single photon detectors on Si at cryogenic temperature that are currently under development. Then, on the basis of the characterization results and their analysis with respect to predictions, the student will perform optical simulations to design a second generation of single photon detectors, leading to the preparation of a new maskset and to the definition of the technological steps to be realized in the 200 mm CMOS clean room.
Background / Expertize of the student required for the internship: Master studies including semiconductors, photonics, nanotechnologies, superconductivity.
Potential thesis topics: The internship could be directly followed by a PhD thesis on the same topic
Company location and place of work: (Full address) CEA-Leti – Optics and Photonics Department – 17 rue des Martyrs – 38054 Grenoble - France
Time length of the internship: **12 MONTHS**
Benefits provided by the company (at least reimbursement of 500€ per month): Reimbursement >500€ per month
Specific company requests: Strongly motivated students with good exam scores, team working and flexibility skills to work in a multi-disciplinary environment (photonic component design, pre-industrial clean room fabrication, optical characterization at cryogenic temperature) and attracted by experimental R&D work.
Other comments: The student will work with several highly-qualified people in the the fields of design, CMOS fabrication and optical characterization, with state-of-the-art equipment. He/She will get a pratical insight of the various aspects of integrated silicon photonics technology in one of the largest technological R&D institutes in Europe and will be familiarized with current quantum photonics challenges.