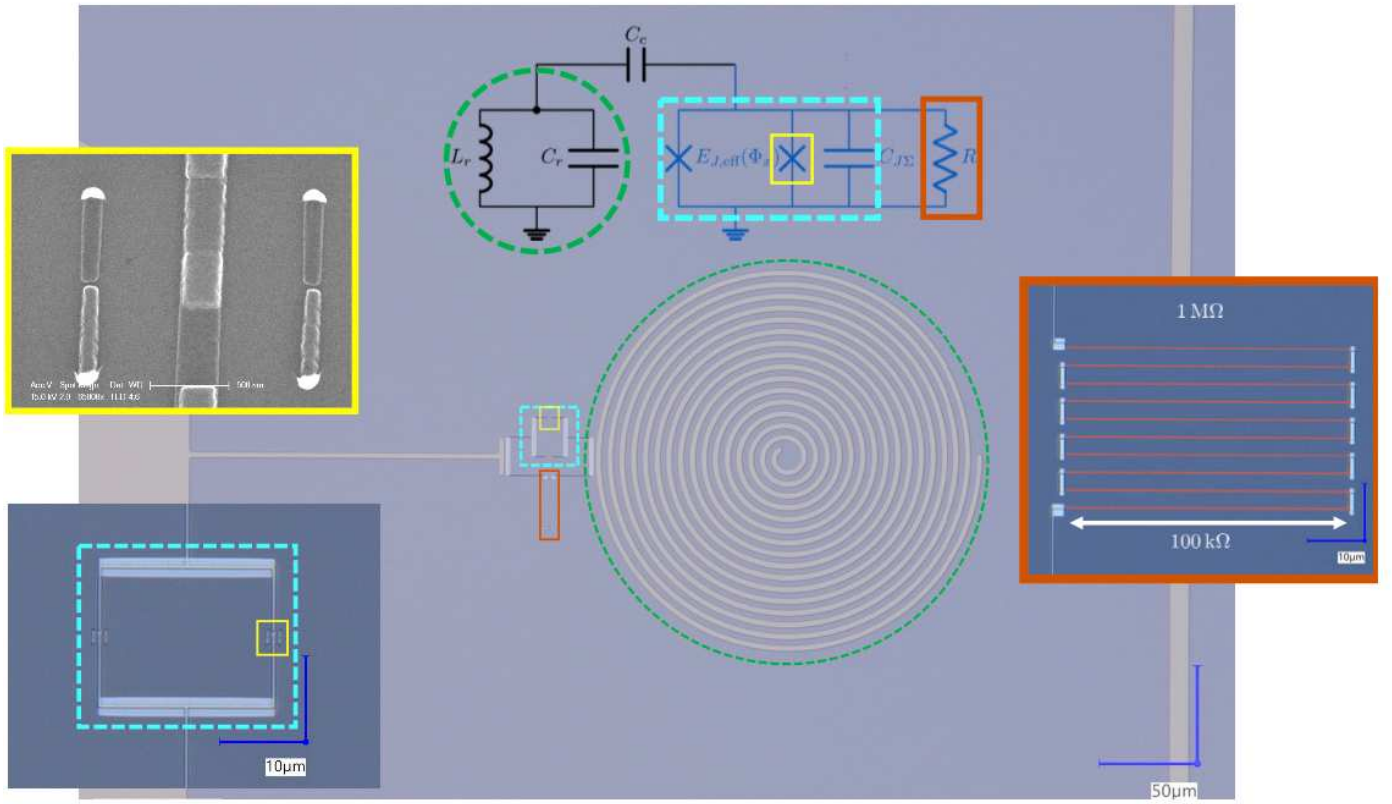
Internship offer

Laboratory: Quantronics Group/SPEC, Saclay (CNRS, CEA)
Director: Hugues Pothier/Patrice ROCHE
Address: Gif-sur-Yvette
Person in charge of the internship: Çağlar Girit
Tel: 01 69 08 55 35
Website : http://cog.cnrs.fr
e-mail: caglar.girit@cnrs.fr

Tuning Dissipation in a Superconducting Qubit



The student will work on a fundamental quantum physics problem: how does dissipation, as in a resistor, affect a nonlinear quantum circuit, a Josephson junction ? Answering this question is not only relevant for applications in the field of superconducting quantum information, but is a crucial step in resolving an outstanding controversy about the basic behavior of a resistively shunted Josephson junction. For the internship the student will develop a cryotron: a superconducting device which can act as a tunable resistor at low temperatures. The student will help design the cryotron, fabricate it in the clean room using optical lithography and electron beam evaporation, and then perform low temperature DC measurements to verify that it works.

Methods and techniques: quantum mechanics, cryogenics, microwave electronics, microlithography

Possibility to go on with a PhD ? Yes
Envisaged fellowship ? Yes