

RobustSuperQ – Job offer

Junior research leader

On new paradigms for cat qubits

You will lead the experimental effort on new paradigms for cat qubits based on superconducting circuits. Your goal will consist in exploring potentially disruptive physical implementations of a cat qubit, based for example on:

- Reservoir engineering by dynamic Coulomb blockade allowing autonomous bit flip stabilization.
- An interesting approach would be to use the excellent quality factors of mechanical resonators to encode Schrödinger cats with coupled superconducting circuits.
- Superconducting resonators are usually operated at a few GHz to avoid too large a thermal population at the temperature of dilution refrigerators. However, resonant circuits at a few tens of MHz typically have larger lifetimes. It would therefore be interesting to realize circuits operating in a regime where the thermal energy is larger than that of a single photon so that cat qubits can be encoded in these resonators at MHz.

You will be working in collaboration with the consortium of RobustSuperQ and have access to its fabrication facilities. A dedicated dilution refrigerator and substantial funding will be made available to realize the project.

In the Quantum Circuit Group
at Laboratoire de Physique à l'ENS de Lyon
www.physinfo.fr

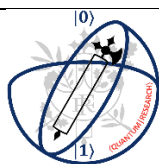
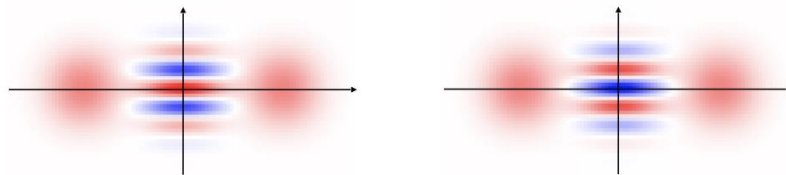
Starting date:
early 2023

Job requirements

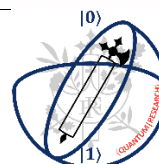
The candidate must have at least 2 years of experience after their PhD and have realized experiments on superconducting circuits or related systems in the recent past.

How to apply

Please send your application to benjamin.huard@ens-lyon.fr
Required documents: *CV, references, research statement (1 page)*



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<https://www.robustsuperq.fr>