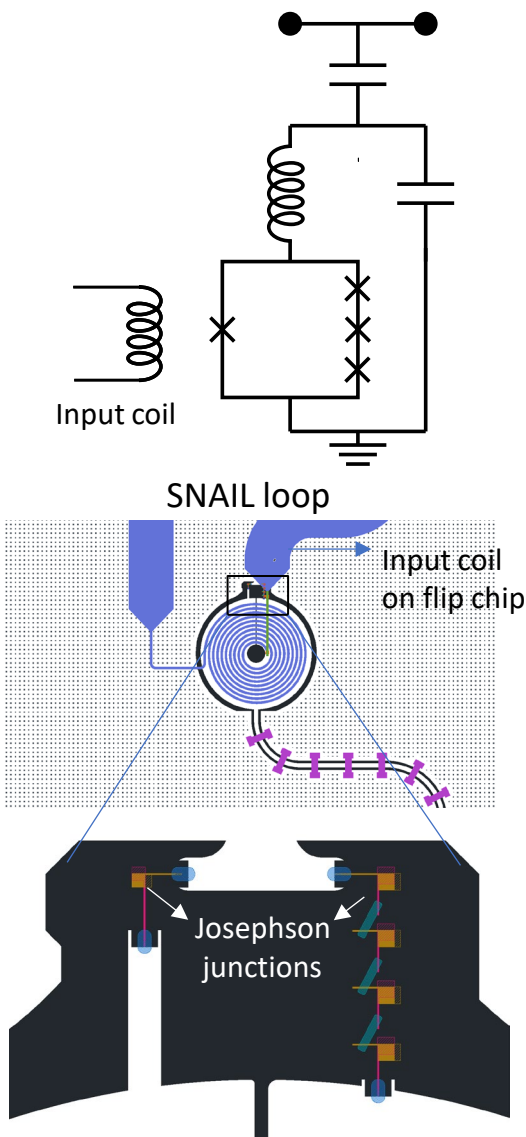


Master thesis project

Characterization of Superconducting Flux Tunable Resonators

Background: Flux-tunable superconducting resonators are sensitive detectors for measuring small magnetic fields. We use them for detecting the motion of levitated superconducting microparticles. In this project, we are interested in **SNAIL** (Superconducting Nonlinear Asymmetric Inductive eLement) resonators. These can be tuned in frequency with an external flux and at that same time one can control their Kerr nonlinearity, which is beneficial for a number of application.

SNAIL-based Flux tunable Resonator



Master thesis project

In the project you will

- design and simulate SNAIL devices for different device parameters (such as JJ asymmetry, JJ number, loop size)
- characterize fabricated devices for their flux tunability and nonlinearity for varying flux bias, and
- perform coupling experiments to levitated superconducting microparticles.

What will you learn

- Microwave measurements at low-temperature
- EM simulation for superconducting devices
- Theory of circuit quantization and Josephson nonlinearities
- Teamwork in a creative and stimulating research environment

Questions? Feel free to contact us:

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