



Highly integrated and scalable interface circuits for quantum processors

microwave multiplexing and experimentally cooling platform

Partner's contribution

Supracon is a manufacturer of cryoelectronic devices and sensors since 2001. By introducing its unique knowhow to the project, it will contribute in two main fields:

Microwave multiplexed read-out of superconducting





- resonators,
- Setup of a 1K experimental platform for rapid prototyping.

Pulsed multiplexed microwave readout

- Multiplexed readout can reduce wiring complexity and thermal load,
- Superconducting resonators with different resonant frequencies in the 4–6 GHz range share a common transmission line,
- Multiple resonators are probed at once using a pulse-haped mix of probe signals,
- Probe signals are created and evaluated using heterodyne techniques and SDR digital processing.

1K platform for rapid prototyping

- Experimental platform with a base temperature of < 1K using closed-cycle cooling techniques,
- Pulse tube cooler (250 mW @ 4.2 K) cascaded with continuous ⁴He sorption cooler (500 μW @ 1 K),
- turn-around time: 1 experiment per 2 days,
- 4 + 2 microwave coaxial lines, 32 DC lines,
- temperature monitoring and cooler control.





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The HIQuP project acknowledges the support of the Federal Ministry of Education and Research (BMBF) within the framework programme "Enabling Technologies für die Quantentechnologien" (Grant No.13N15913).

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