

## Quantum Computer in the Solid State

research and development of superconducting flex wires and characterization of TWPAs

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

- Manufacturing processes for superconducting and thermally insulating flex wires
- Characterization processes of noise-minimized microwave amplifiers (TWPA)

The focus is on the development of cleanroom-based manufacturing technologies for flexible superconducting thin-film conductors as RF flex cables. Furthermore, innovative characterization methods for these flex cables and noise-minimized microwave amplifiers on superconductors are being developed. The overall aim is to perform research on fundamental components for signal connection and readout of qubits in the millikelvin range for future quantum computers.

### Research on superconducting, thermally insulating flex cables

- Development of manufacturing technology of flex wires (single-layer vs. multilayer)
- Interconnection technology including technologies to extend the cables
- RF and thermal characterisation of the cables
- Assembly technology
- support for partners during system integration

### Research on characterization methods of TWPAs'

- Development and implementation of characterization methods for TWPA

