Thesis: Integrated cryogenic MOS-Switches for Quantum Computers (f/m/div)*

Job description

You are looking for a challenging topic for your master thesis and want to contribute to the innovation processes in a globally operating tech-corporation? Our growing team of quantum technology experts in Munich is looking for a committed student to design an analog switch matrix for cryogenic temperatures as a component for practical quantum computers. You think this task is made for you? Then we are looking forward to your application!

The work on your thesis will include:

- Getting familiar with the system's requirements and deriving electrical limits for the analog switches;
- Researching cryogenic semiconductor behavior and establishing technology key figures such as oxide thicknesses and doping concentrations from the electrical limits. Including the comparison of the different approaches and discussing them with our technology experts;
- Deciding on one possible technology and establish a fabrication strategy;
- Designing test structures and characterize their electrical behavior at room- and cryogenic temperature;
- Developing a concept or a reference circuit implementation for the actual switching matrix.

Profile

You are best equipped for this task if you:

- Almost finished your master studies in electrical engineering, physics or a similar field;
- Have a solid knowledge of semiconductor MOS technology including relationships of carrier distributions and doping concentration at cryogenic temperatures;
- Are familiar with analog IC design;
- Ideally already gained knowledge of circuit- (SPICE) simulation tools;
- Are proficient in spoken and written English.

Please attach the following documents to your application:

- CV in English;
- Certificate of enrollment at university;
• Latest grades transcript;
• High school report.