



## 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;

### At a glance

Location: **Munich**  
Job ID: **312019**  
Start date: **immediately**  
Entry level: **0-1 year**  
Type: **Full time**  
Contract: **Temporary**

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### Contact

**Anna Happach**  
Student Attraction Manager



- Latest grades transcript;
- High school report.

