Doctoral Thesis: Metal Stack Development for Trapped-Ion Quantum Processors (f/m/div)*

Job description

We are offering a doctoral thesis in the field of trapped-ion quantum computing (TIQC). As part of our growing TIQC-team, you will develop tailored metallization concepts for our quantum processors' electrodes. In particular, your work will focus on metal stacks with increased mechanical robustness, a large residual resistance ratio at cryogenic temperatures and low surface electric field noise. In collaboration with our research partners at the Material Center Leoben, you will furthermore support the fabrication and integration of ion traps at Infineon's fabrication facilities. The results of your thesis will accelerate our development of reliable medium-scale TIQC devices and therefore provide a substantial boost towards useful applications with economic impact.

The industrial doctorate at Infineon: Pursue a doctoral degree at a university and gain professional experience simultaneously - an ideal start for your career. Advance your research with us and profit from our vast network of doctoral candidates and the expertise of a university. Mentorship is handled by both professors and dedicated Infineon experts.

The tasks within this thesis will consist of:

- **Development and characterization of metal robustness** of cantilever electrode structures
- **Development of metal stacks** with a cryogenic residual resistance ratio exceeding 100
- **Implementation of surface modifications** to suppress surface electric field noise in the critical range of 1-10 MHz
- **Supporting the quality and reliability of Infineon ion traps** by defining control concepts for inline process control, device screening and component verification

Full-time employment: 38.5 hrs/week
Duration: 3 years

Profile

A doctoral student is a research enthusiast,

- whose interests are scientific research combined with the passion for Infineon's innovative products and applications
- who enjoys working in an industrial environment in combination with an Infineon partner university

At a glance

Location:	**Villach (Austria)**
Job ID:	**320429**
Start date:	**immediately**
Entry level:	**0-1 year**
Type:	**Full time**
Contract:	**Temporary**

Apply to this position online by following the URL and entering the Job ID in our job search:

Job ID: 320429
www.infineon.com/jobs

Contact

Mag. Elisabeth Koestenbauer
Talent Attraction Manager

- who appreciates open communication and the contribution of an international environment
- and is thus an excellent candidate for a further academic or industrial career after completion of their thesis

As the ideal candidate you:

- are a **highly motivated** individual who wants quantum computing to become a reality
- have a **m aster's degree in material science, physics, electrical engineering** or similar
- have gained **first experience in semiconductor manufacturing or ion trap fabrication**
- are **fluent in English and German**

Please attach the following documents to your application:

- Your CV
- Motivation letter
- Copy of your master degree certificate if already available
- Otherwise: copy of your latest study transcript

This position is subject to the collective agreement for workers and employees in the electrical and electronics industry. The salary for this position is EUR 2.865,00 gross p. m. (full-time basis).