

Technische Universität Braunschweig - Institute for CMOS Design



With around 15,000 students and 3,800 employees, the Technische Universität Braunschweig is one of Germany's leading institutes of technology. It stands for strategic and performance-oriented thinking and acting, relevant research, committed teaching, and the successful transfer of knowledge and technologies to the economy and society. We consistently advocate for family friendliness and equal opportunities. Our research focuses are mobility, engineering for health, metrology, and city of the future. Strong engineering and natural sciences are our core disciplines. These are closely interconnected with economics, social and educational sciences and humanities. Our campus is located in the midst of one of the most research-intensive regions in Europe. We work successfully together with over 20 research institutions in our neighborhood as we do with our international partner universities. The collaboration between the Braunschweig University of Technology, Leibniz University Hannover and PTB, aims at realizing a 50-Qubit quantum computer based on trapped ions. In the frame of this research work, the Institute for CMOS Design is looking for talents worldwide, who want to join our team as

PhD student (m/f/d) in Integrated Circuit Design for Quantum Computer

focussing on Analog and Mixed-Signal Integrated Circuits in CMOS

(EG 13 TV-L) The position is temporary (3 years) with a possibility of extension. The location is Braunschweig. Remuneration will be in line with the current German collective pay agreement up to TV-L E 13, depending on personal qualification and task assignments. The control of quantum states of trapped ions is one of the most advances approached on the way towards error tolerant programmable quantum computers. Based on chip technology for ion traps in combination with microwave control, a 50-Qubit-System will be built by the consortium in Lower Saxony. Within this research work the Institute for CMOS Design of the Braunschweig University of Technology has the task to develop integrated circuits in CMOS and BiCMOS technologies at cryogenic temperatures, to enable scalability of qubits. We are part of an excellent research environment with access to the unique infrastructure of the entire consortium. The team is working in an excellent national and international network and is participating in various large collaborative projects, including „Quantum Valley Lower Saxony“ and the Excellence Cluster „QuantumFrontiers“.

City: Braunschweig; Starting date (earliest): At the earliest possible; Duration: 3 years;
Remuneration: EG 13 TV-L; Closing date: 05/03/26

Tasks

- Active participation in research projects and consortia
- Design of analog, mixed-signal and high-frequency integrated circuit for Electronic control of the ion traps, e.g. Direct Digital Synthesizer (DDS), Oscillators, Bit pattern generator, cryogenic DACs and amplitude waveform shaping
- Design of highly-integrated low-power and low-noise RF front-ends
- RF system-level concept development, level calculations and system modeling

- High-level integration of circuits into a System-on-Chip and top-level simulations
- Verification in measurement of the circuits on-wafer and on board

Requirements

- Master degree in electrical engineering, physics or relevant field
- Knowledge in the field of analog, mixed-signal and/or RF integrated circuits
- Understanding in the field of microwave engineering and RF systems
- Experience with Cadence Virtuoso is a plus
- Experience with electromagnetics field simulation tools is a plus
- Good MATLAB skills are advantageous
- Expert knowledge in one or more of the above-mentioned research areas
- High level of personal motivation, responsibility and continuous learning abilities
- Pronounced communication and team building capabilities
- Openness to work in a diverse, international working environment
- Very good knowledge of the English (and possibly German) language
- Readiness to perform research in partner labs at various locations when necessary

What we offer

- Work on exciting future-oriented research topics in an inspiring work environment as part of the university community
- A vibrant campus life in an international atmosphere with lots of intercultural offers and international cooperations
- Pay in accordance with the collective agreement TV-L (a special payment at the end of the year as well as a supplementary benefit in the form of a company pension, comparable to a company pension in the private sector) including 30 days' vacation per year
- Advantage portal for employees of TU Braunschweig with attractive offers from strong brand
- Flexible working and part-time options and a family-friendly university culture, awarded the "Family-friendly university" audit since 2007
- Special continuing education programs for young scientists, a postdoc program, as well as other offerings from the Central Personnel Development Department and sports activities.

Application

We welcome applicants of all nationalities. At the same time, we encourage people with severe disabilities to apply. Applications from severely disabled persons will be given preference if they are equally qualified. Please attach a proof of disability to your application. We are also working on the fulfilment of the Central Equality Plan based on the Lower Saxony Equal Rights Act (Niedersächsisches Gleichberechtigungsgesetz—NGG) and strive to reduce under-representation in all areas and positions as defined by the NGG. Therefore, applications from women are particularly welcome in this case.

The personal data will be stored for the purpose of processing the application. By submitting your application, you agree that your data may be stored and processed electronically for application purposes in compliance with the provisions of data protection law. Further information on data protection can be found in our data protection regulations at www.tu-braunschweig.de/datenschutzerklaerung-bewerbungen.

Application costs cannot be reimbursed.

For further information please contact:

Prof. Dr. Vadim Issakov, E-Mail: [V.Issakov\(at\)tu-braunschweig.de](mailto:V.Issakov@tu-braunschweig.de)

Website: www.qyls.de
www.quantumfrontiers.de

Are you interested?

In this case we are looking forward to your application. Please send your application via email ([V.Issakov\(at\)tu-braunschweig.de](mailto:V.Issakov@tu-braunschweig.de)) as a single PDF document. In case this is not possible, a written application may be sent to: Institut für CMOS Design, Frau Selma Dormeier, Technische Universität Braunschweig, Hans-Sommer-Straße 66, 38106 Braunschweig).

Application deadline: March 5th 2026

More information at <https://stellenticket.de/201674/HTWB/>
Offer visible until 05/03/26

