Physikalisch-Technische Bundesanstalt (PTB)

Physikalisch-Technische Bundesanstalt
Nationales Metrologieinstitut

The art of measurement — made in Germany. Striving to perfect it is the mission of the 2,100 employees of PTB, the Physikalisch-Technische Bundesanstalt. As Germany's national metrology institute and a leading center of research, we operate in an international environment to develop world-class measurement standards. We at PTB work to ensure that people and organizations can trust the measurements they use. At our Braunschweig site, we are looking to fill the following position in Department 2.4 (Quantum Electronics): Doctoral candidate or postdoctoral researcher in physics, electrical engineering, superconducting quantum circuits

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For doctoral candidates: Remuneration Group 13 TVöD Bund ○ Three-year fixed term ○ Part-time (33.15 hours/week) For postdoctoral researchers: Up to Remuneration Group 14 TVöD Bund ○ Three-year fixed term ○ Full-time

City: Braunschweig; Starting date (earliest): At the earliest possible; Remuneration: Up to Remuneration Group 14 TVöD Bund; Reference number: 25-72-2B; Closing date: 22/04/25

Working field

Our Department 2.4 (Quantum Electronics) focuses on developing and characterizing superconducting quantum circuits. For these tasks, we have a Clean Room Center ("RRZ") with its exhaustive thin-film technology facility and the corresponding installations for cryogenic low- and radio-frequency measurements at our disposal.
You will work in a research project funded by the Federal Ministry of Education and Research whose objective is to realize a superconducting quantum-accurate ultra-broadband arbitrary waveform generator.

Your tasks will include the following:

- Developing and manufacturing superconducting Josephson circuits using niobium-based thin-film technologies at PTB's Clean Room Center with a focus on stacked Josephson junctions and on integrating the superconducting electronic components equipped with high-frequency circuits
- Conducting low- and high-frequency characterization of the manufactured circuits at low temperatures
- Presenting and publishing the research results

Requirements

- You have completed your university studies (master's degree or German Diplom) in physics, electrical engineering or a comparable discipline with an overall grade of "good" or the equivalent for non-German degrees.

- If you are a postdoctoral applicant, you will have obtained a relevant doctor's degree with an overall grade of at least “very good” or the equivalent for non-German degrees.
- You have a very good knowledge of and practical experience in thin-layer technologies and micro-/nanostructuring.
- Ideally, you are familiar with high-frequency electronics and with low-temperature physics.
- You are able to perform scientific work in an independent manner.
- You are a strong team player and have good communication skills.
- You have achieved C1 level in English. Basic German language skills would be an advantage.
- You are willing to travel for work both in Germany and abroad.
- Taking on this position requires you to be physically qualified to work in PTB’s Clean Room Center.

What we offer

- Support for your doctoral work: You will carry out research as part of an internationally renowned team and will benefit from PTB's excellent infrastructure. At PTB, you will be able to concentrate on your doctoral work without having to give lectures. Our support program for doctoral candidates additionally gives you the opportunity to network with your peers at the national and international levels, for example, at scientific conferences.
- Work-life integration: We offer flexible working arrangements and conditions (part time, flextime, work from home, telework, compensation days) to help you manage your family, care and career responsibilities in all of life's phases.
- Transparent terms: Remuneration in accordance with Germany's collective agreement for federal-level public service employees (TVöD Bund), 30 days of paid vacation and an employment-based pension plan for employees covered by the collective agreement are just some of the benefits of working at PTB.
- Location benefits: Our attractive campus offers an easy commute for drivers and cyclists as well as very good direct bus services. Plenty of free parking is available.
- Jobticket: We take environmental and climate protection seriously. To encourage commuting by public transportation, we offer a subsidy towards the cost of the Deutschlandticket Job.
- Family friendly: From daycare and dedicated parent-child offices to school holiday childcare, we offer a variety of ways to help you master the family-work balancing act.
- Inclusion: For people with disabilities, we offer an inclusive corporate culture and a range of integrative programs.
- Learning opportunities: We want to help you get ahead by offering a wide range of training and development programs to expand and enhance your skills.
- Health options: Your health is important to us, which is why we offer health promotion and maintenance programs, including workplace sports, a mobile massage service and back care classes.
- Canteen: Situated on our park-like campus grounds, our canteen offers a wide variety of culinary choices every day, including vegetarian/vegan options.

This is important to us:

PTB promotes gender equality and strongly encourages applications from female candidates. At the same time, we strive to reflect the diversity of our society. We therefore welcome every application submitted, regardless of the candidate's gender, cultural or social background, religion, ideology or sexual identity. If equally suited to the position, disabled persons or persons having equivalent status under German law will be given preference.

Application

For subject-related questions concerning this position, please contact Department 2.4: Dr. Mark Bieler, phone: +49 531 592-2400, email: mark.bieler@ptb.de.

We look forward to receiving your online application by 22 April 2025 under Ref. No. 25-72-2B. Please send us all the documents relating to your application comprising your CV, the relevant certificates and a letter of motivation that clearly shows your interest in this position. Unfortunately, we cannot accept applications sent via email.

More information at https://stellenticket.de/193398/TUBS/
Offer visible until 22/04/25