



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 for the QUEST Institute for Experimental Quantum Metrology as of June 1, 2025:

## Doctoral candidate

### Physics – development of a clock based on highly charged ions

Remuneration Group 13 [TVöD Bund](#) ◦ Three-year fixed term ◦ Part-time (33.15 hours/week)

#### Your tasks:

The [QUEST Institute](#) for Experimental Quantum Metrology is a joint facility of Leibniz Universität Hannover and PTB Braunschweig. In the Quantum Logic Spectroscopy research group, we work on precision spectroscopy of trapped and laser-cooled atomic and molecular ions. You will support us by performing the following activities:

- Setting up and developing an optical clock based on highly charged Californium ions
- Using quantum engineering techniques such as entanglement or dynamic decoupling to suppress systematic effects
- Evaluating the systematic uncertainties of the clock
- Carrying out frequency comparisons with other optical clocks
- Interpreting the clock comparisons for fundamental physics tests
- Participating in projects such as the FunClocks ERC project and the QuantumFrontiers Cluster of Excellence
- Presenting the scientific results at national and international conferences

#### Your profile:

- You have completed your university studies (master's degree or German *Diplom*) in physics with an overall grade of "good", "very good" or the equivalent for non-German degrees.
- You are interested in developing and performing high-precision experiments.
- You have proven knowledge of atomic physics, quantum optics, laser cooling, spectroscopy or a comparable discipline.
- You ideally have basic knowledge of a programming language (e.g., Python) and a fundamental knowledge of electronics.
- You are highly committed and capable of working independently.
- You are a strong team player with excellent communication skills.
- You have achieved [C1 level](#) in English. German language skills would be an advantage.
- You are willing to travel for work both in Germany and abroad.

- You must have the physical ability to work in a laboratory and perform experiments at external sites.

### 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. 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.
- **Practical training:** Modern experimental technologies of laser and quantum physics and frequency metrology
- **Experience abroad:** Research stays abroad via our wide-ranging network
- **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.

### Your application:

For subject-related questions concerning this position, please contact [QUEST Institute](#): Prof. Dr. Piet O. Schmidt, phone: +49 531 592-4700, email: [piet.schmidt@ptb.de](mailto:piet.schmidt@ptb.de).

We look forward to receiving your [online application](#) by 9 April 2025 under Ref. No. 25-41-QUESTB. 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.