Berlin School of
Optical Sciences &
Quantum Technologies

The Berlin School of Optical Sciences and Quantum Technologies (BOS.QT) together with Technische Universität Berlin, Freie Universität Berlin and Humboldt-Universität zu Berlin offers the following open positions:

7 Positions – Research Assistants (d/m/w), 0.75 working time, salary grade E13 TV-L Berliner Hochschulen

1st qualification phase for doctorate subject to funding approval until December 31, 2026.
To be filled immediately/ Limited until December 31, 2026/ Application deadline: March 19, 2023.

If applying, please indicate the project to which your application relates. Applications for several projects are possible (up to three), whereby a prioritization (place 1, 2, etc.) must be indicated in the application documents for the desired project.

Project 11: Research Associate for A novel, fiber-based hybrid quantum system

This position is part of a new research project on quantum optomechanics in the Fundamentals of Optics and Photonics group at the Humbolt-Universität zu Berlin. Specifically, we aim to achieve ground-state cooling of the mechanical motion of a tapered optical nanofiber with the goal of engineering an interaction of this motion with cold atoms trapped in the near field of the fiber. This would enable an interesting new hybrid quantum system for fundamental tests of quantum mechanics.

Department: Humboldt-Universität zu Berlin, Institute for Physics

Tasks:

- Characterization and optimization of the mechanical damping rate of a nanofiber
- Characterization and optimization of the optomechanical coupling mechanism
- Absolute temperature measurement using sideband spectroscopy
- Construction of a new, potentially cryogenic vacuum chamber
- Analysis of fiber properties in the presence of thermal alkali vapours
- Perform analytical calculations and numerical simulations to support the experimental work
- Work closely with postdoctoral fellows, Ph.D. and Masters students
- Present research results in international journals and at conferences

Technische Universität Berlin

Freie Universität Berlin

Humboldt-Universität zu Berlin

Scientific and technical competences:

Essential:

- Master's degree in physics (or in related fields with appropriate specialization) at starting date
- Good English skills; willingness to acquire the missing language skills
- Solid knowledge of the physics of driven dissipative oscillators

Desired:

- Practical experience with high vacuum systems and handling tapered optical fibers
- Experience with laser systems for optical measurements and precision polarimetry
- Data acquisition and data processing skills, ideally using Python
- General laboratory skills (especially: optics, opto-mechanics, opto-electronics, RF-electronics)

For further inquiries and information please contact Prof. Arno Rauschenbeutel (arno.rauschenbeutel@physik.hu-berlin.de)

Successful applicants* will have a graduate degree in physics or related areas (certificates of Master's, Diploma, or equivalent at the starting date) and previous experience in the above areas of work. Detailed project descriptions and requirements for each position can be found at: https://blogs.tu-berlin.de/ioap_bosqt/jobs/.

Admission to BOS.QT is possible upon successful application.

Please send your application with the project number(s) and the required documents by e-mail (in one pdf file, max. 5 MB) to the BOS.QT office: mailto:bosqt@physik.tu-berlin.de.

The following documents are required for the application:
CV with publication list, conference papers and awards (see BOS.QT CV template: https://blogs.tu-berlin.de/ioap_bosqt/jobs/); a letter of motivation; the bachelor's degree certificate and transcript of records, the Master's certificate (if issued already) and a transcript of records, a letter of recommendation, preferably from the supervisor of the Master's thesis (directly to the BOS. QT administration: bosqt@physik.tu-berlin.de); a maximum of two names (and email addresses) of people who can be contacted directly by the BOS.QT for another letter of recommendation; the master thesis (or a partial draft as a link or pdf).

By submitting your application via email, you agree to the electronic processing and storage of your data. Please note that we cannot guarantee the protection of your personal data if it is sent as an unprotected file. Please note our data protection information according to DSGVO (General Data Protection Regulation) on the homepage of the [University] [DSGVO website].

To ensure equal opportunities for women and men, applications from women with appropriate qualifications are expressly encouraged. Qualified persons with disabilities will be given preferential consideration. Technische Universität Berlin, Humboldt-Universität zu Berlin and Freie Universität Berlin value the diversity of its members and is committed to the goals of equal opportunity.

Postal address: Anja Meyer do Nascimento Pereira (BOS.QT), TU Berlin, IOAP ER 1-1, Str. des 17. Juni 135, D-10623 Berlin, Germany.
The job announcement is also available on the Internet at: https://blogs.tu-berlin.de/ioap_bosqt/jobs/.

Technische Universität Berlin

Freie Universität Berlin

Humboldt-Universität zu Berlin