



**Technische Universität Berlin**



Technische Universität Berlin offers an open position:

## **Research Assistant - 0.75 working time - salary grade E13 TV-L Berliner Hochschulen**

**Faculty II - Institute of Optics and Atomic Physics / Ultrafast Nanoscience**

**Reference number:** II-588/24 (starting at the earliest possible / limited until 31/12/2027 / closing date for applications 18/02/25)

### **Working field:**

This project seeks to unravel the complex electronic behaviors of 2D van der Waals semiconductor heterostructures, focusing on 0°-twist angle H-WSe<sub>2</sub>/H-MoTe<sub>2</sub> and H-WSe<sub>2</sub>/Td-MoTe<sub>2</sub>. Our methods of ARPES signal analysis allow not only to explore the electronic structure in reciprocal space and in the time domain, but also to address the topology of the electronic wavefunction. With this, we aim to illuminate the roles of moiré modulation, correlated physics, and band topology in these layered systems, pushing the boundaries of our understanding of 2D materials and their applications in next-generation electronic devices.

Our investigation employs a cutting-edge table-top XUV trARPES setup, complemented by custom optical parametric amplifiers for spectral tunability and photoexcitation control. This setup, alongside UHV-based sample preparation methods achieving monolayer heterostructures with extremely high levels of interface purity, enables precise analysis of the electronic band structure and its dynamics.

### **Requirements:**

- Successfully completed scientific university degree (master, diploma or equivalent) in physics or a related field; very good degree desired
- Good knowledge of German and/or English required; willingness to acquire the respective missing language skills

### **Desirable:**

- Motivation about experimental solid-state physics and ultrafast phenomena and practical experience an advantage
- Willingness to work as part of a team of experienced experimental physicist
- Prior knowledge of programming is an advantage (e.g. Python, Matlab, etc)

Please send your application with the **reference number** and the appropriate documents (combined in a single pdf file, max 5 MB) **by email to Prof. Dr. Ralph Ernstorfer (ernstorfer-office@physik.tu-berlin.de)**.

By submitting your application via email you consent to having your data electronically processed and saved. Please note that we do not provide a guarantee for the protection of your personal data when submitted as unprotected file. Please find our data protection notice acc. DSGVO (General Data Protection Regulation) at the TU staff department homepage: [https://www.abt2-t.tu-berlin.de/menue/themen\\_a\\_z/datenschutzerklaerung/](https://www.abt2-t.tu-berlin.de/menue/themen_a_z/datenschutzerklaerung/).

To ensure equal opportunities between women and men, applications by women with the required qualifications are explicitly desired. Qualified individuals with disabilities will be favored. The TU Berlin values the diversity of its members and is committed to the goals of equal opportunities. Applications from people of all nationalities and with a migration background are very welcome.

Technische Universität Berlin - Die Präsidentin - Fakultät II, Institut für Optik und Atomare Physik, Prof. Dr. Ernstorfer, Sekr. ER 1-1, Hardenbergstraße 36, 10623 Berlin

The vacancy is also available on the internet at <https://www.personalabteilung.tu-berlin.de/menue/jobs/>

