Dresden University of Technology

TUD Dresden University of Technology, as a University of Excellence, is one of the leading and most dynamic research institutions in the country. Founded in 1828, today it is a globally oriented, regionally anchored top university as it focuses on the grand challenges of the 21st century. It develops innovative solutions for the world's most pressing issues. The **Cluster of Excellence "Responsible Electronics in the Climate Change Era (REC²)"** addresses the key challenge posed by the ubiquitous use of electronics, which leads to an enormous resource and energy consumption and the generation of electronic waste. REC² establishes the scientific foundation for the electronics of the future, including new material platforms, component concepts, and integrated systems that enable the realization of responsible electronics in an ecologically, economically, and socially sustainable manner.
In research and academic programs, the university unites the natural and engineering sciences with the humanities, social sciences and medicine. This wide range of disciplines is a special feature, facilitating interdisciplinarity and transfer of science to society. As a modern employer, it offers attractive working conditions to all employees in teaching, research, technology and administration. The goal is to promote and develop their individual abilities while empowering everyone to reach their full potential. TUD embodies a university culture that is characterized by cosmopolitanism, mutual appreciation, thriving innovation and active participation. For TUD diversity is an essential feature and a quality criterion of an excellent university. Accordingly, we welcome all applicants who would like to commit themselves, their achievements and productivity to the success of the whole institution.

The **Cluster of Excellence REC²** offers at the **Faculty of Physics, Institute of Applied Physics, Chair of Ultrafast Microscopy and Photonics** a position as

Research Associate / PhD Student (m/f/x)

(subject to personal qualification employees are remunerated according to salary group E 13 TV-L)

starting **March 1, 2026**. The position is limited to three years with the option of extension and entails 75% of the full-time weekly hours. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz - WissZeitVG). The position offers the chance to obtain further academic qualification (usually PhD), which is highly recommended.

The research activities of the **Chair of Ultrafast Microscopy and Photonics** concentrate on many-particle effects and interaction with light in solid matter for basic research and applications in future technologies. They take place at the TUD, one the world's leading research institutions in the field of optoelectronics and novel semiconductors, as part of the research projects focused on propagation dynamics of exciton-electron complexes in atomically-thin semiconductors and quantum gases in moiré-ordered and reconstructed heterostructures.

Tasks: scientific research on optical and electronic properties of novel two-dimensional materials combined with quantum dot nanostructures: spectroscopic investigations of two-dimensional semiconductors, measurements and analysis using microscopy and time-resolved spectroscopy, testing reusability of heterostructures, dielectric engineering concepts, and join work with sustainability experts; acquiring knowledge and tools for life-cycle and sustainability analysis. The scientific work further includes collaborations with national and international research partners as well as communication of the results in peer reviewed journals and at international conferences.

Requirements:

- university degree (master or comparable) in physics
- interest in basic and application-related research
- high self-motivation; experimental skills in optics and material preparation
- familiarity with the broader field of low-dimensional van der Waals materials
- ready-to-use and up-to-date knowledge of spectroscopy and microscopy
- experience with strain engineering and hybrid heterostructures
- excellent command of English language

What we offer: We will be happy to welcome you to an international team of highly motivated researchers to be part of a highly active scientific field. What we offer:

- access to state-of-the-art research of leading academic institutes
- possibility to apply for GreenRiskFunds to pursue your own high-risk/high-gain research ideas
- possibility of exchange with partner institutions in the Global South
- promotion of gender equality and a family-friendly work environment
- If PhD studies are pursued, supervision via a dual supervision concept, including a structured PhD project plan, international exchange, and a dedicated Thesis Advisory Committee (TAC)
- mentorship via the REC² mentoring board

TUD strives to employ more women in academia and research. We therefore expressly encourage women to apply. The University is a certified family-friendly university. We welcome applications from candidates with disabilities. If multiple candidates prove to be equally qualified, those with disabilities or with equivalent status pursuant to the German Social Code IX (SGB IX) will receive priority for employment.

Please submit your detailed application with the usual documents by **December 11, 2025** (stamped arrival date of the university central mail service or the time stamp on the email server of TUD applies), preferably via the TUD SecureMail Portal https://securemail.tu-dresden.de by sending it as a single pdf file to **alexey.chernikov@tu-dresden.de** with the **subject line "REC²"** or to:

TU Dresden, Chair of Ultrafast Microscopy and Photonics, Prof. Alexey Chernikov, Helmholtzstr. 10, 01069 Dresden, Germany.

Please submit copies only, as your application will not be returned to you. Expenses incurred in attending interviews cannot be reimbursed.

REC² RESPONSIBLE ELECTRONICS

TUD is a founding partner in the DRESDEN-concept alliance.

DRESDEN concept

Reference to data protection: Your data protection rights, the purpose for which your data will be processed, as well as further information about data protection is available to you on the website: https://tu-dresden.de/karriere/datenschutzhinweis.