

The Collaborative Research Center / Transregio **TRR404 "Next Generation Electronics With Active Devices in Three Dimensions [Active-3D]"** between the TUD Dresden University of Technology (TUD) and the Rheinisch-Westfälische Technische Hochschule Aachen (RWTH Aachen) funded by Deutsche Forschungsgemeinschaft (DFG) aims at exploring a fundamentally new approach to microelectronics technology. It teams up material scientists, electrical engineers, and computer scientists of TUD, RWTH Aachen, Forschungszentrum Jülich, Gesellschaft für Angewandte Mikro- und Optoelektronik mbH (AMO) in Aachen, Max Planck Institute of Microstructure Physics Halle, Nanoelectronic Materials Laboratory gGmbH (NaMLab) in Dresden, and Ruhr-Universität Bochum.

Application deadline: 14.02.2025

Date of recruitment: 01.04.2025

Remuneration tariff: TV-L E13

Working hours: 75% FTE

Temporary contract: 36 months

Location:

Dresden Center for Nanoanalysis,
Technische Universität Dresden,
01062 Dresden, Germany

Contact:

Dr. Bernd Rellinghaus
bernd.rellinghaus@tu-dresden.de

For the initial funding phase (April 2025 – December 2028), the TRR404 offers several PhD and Postdoc positions starting from April 1, 2025 onwards.

For TUD, diversity is an essential concern and a quality criterion of an Excellence University. We welcome all applicants who would like to commit themselves, their enthusiasm and productivity to the success of the whole institution.

At TUD Dresden University of Technology, the TRR404 offers a position as

PhD Student (m/f/x)

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

starting April 1, 2025 or as soon as possible thereafter. The position is limited to 36 months. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz - WissZeitVG) and offers the chance to obtain further academic qualification (usually PhD).

Project: **A04 – 3D Racetrack Memory Devices**

Project Leader: **Dr. Bernd Rellinghaus** (Director, Dresden Center for Nanoanalysis)

Terms: 75% of the full-time weekly hours.

Tasks: The PhD student will analyze magnetic structures and switching processes in novel racetrack memory devices and device elements by transmission electron microscopy using Lorentz-TEM, electron holography, DPC, and in-situ electrical transport measurements. The work will be conducted in close cooperation with the group of Prof. Stuart S.P. Parkin at MPI Halle.

Requirements: Excellent university degree (master or comparable) in physics or electrical engineering. A strong background in solid state physics and knowledge of magnetism are required. Basic experience in experimental transmission electron microscopy is desired.

What we expect from you:

- Above-average degree achieved in short study period
- Willingness and ability to think beyond the boundaries of your field, to act in an international and diverse environment and to live an open and constructive communication
- Strong analytic and problem-solving skills, creativity
- An independent, target- and solution-driven work attitude
- Fluency in English, knowledge of German would be a plus

What you can expect from us:

A varied and challenging research task, embedded in a friendly, inclusive and supportive team of the TRR's Principal Investigators (i.e., project leaders and supervisors). We maintain an open and cooperative work attitude with maximum personal responsibility, mutual support with a solution-oriented approach, and flexible working hours where possible. As a PhD student you will be integrated in the TRR's Graduate School as well as becoming a member of the TU Dresden' Graduate Academy. Both will offer tailored educational programs and individual supervision agreements.

In addition, **TUD offers** employment in accordance with the provisions of the collective agreement for the public service of the Länder (TV-L); an individual assignment of the collective agreement experience level taking into account your previous professional experience; 30 days annual vacation and annual bonus payment (restrictions apply); additional pension scheme (VBL); very good accessibility by public transport; car parking facilities; state-of-the-art buildings with labs equipped to a high technical standard; a wide range of offers for health promotion and for the compatibility of family and career; numerous opportunities for further training, including language courses, IT courses and other courses.

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 and offers a Dual Career Service. 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 application including a motivation letter, CV, copy of degree certificate(s), transcript of grades (i.e., the official list of coursework including your grades) and proof of English language skills, by **February 14, 2025** (stamped arrival date of the university central mail service or 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 quoting the **reference number TRR404-TUD-A04** in the subject header to bernd.rellinghaus@tu-dresden.de or to: **TU Dresden, cfaed/TRR404, Frau Dr. Schneider, 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.



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>.