Technische Universität Dresden

TUD Dresden University of Technology, as a University of Excellence, is one of the leading and most dynamic research institutions in the country. 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 **Dresden Center for Nanoanalysis (DCN)** offers a position as

Research Associate (m/f/x)

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

starting **March 1, 2027** or **as soon as possible.** The position comprises 75% of the fulltime weekly hours and is limited to a period of 36 months**.** 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).

Altermagnets are a new class of magnetic materials, and their properties depend strongly on crystal structure. This project studies how atomic defects and strain affect the formation of magnetic domains and domain walls in altermagnetic single crystals such as MnTe and Fe_2O_3. The work combines advanced electron microscopy with magnetic imaging techniques. Within the SPP 2558 "Unconventional Magnetism: Beyond the S-Wave Magnetism Paradigm" and in strong collaboration with the group of Prof. Claire Donnelly (ETH Zürich), the successful candidate will help build a comprehensive picture of how structure and magnetism interact across different length.

Tasks:

- acquire and analyze aberration-corrected HR-(S)TEM images and determine local chemical compositions using EDS and EELS
- perform large-field-of-view strain measurements with 4D-STEM and correlate strain and defect maps with XMCD imaging
- develop and apply STEM-EMCD and vortex-EMCD techniques and apply them to altermagnets
- collaborate with a PhD student of Prof. Claire Donnelly (Co-PI, responsible for XMCD)
- publish and present results in peer-reviewed journals and at (inter)national conferences

Requirements:

- a very good university degree (e. g. Master) in physics (preferred), materials science, nanotechnology, or a related field
- a profound background in solid state physics in general, and of crystal structures, crystalline defects, magnetism and the mechanics of materials, including stress, strain, and deformation in particular
- experience with transmission electron microscopy or another advanced characterization method
- strong analytical and quantitative skills, and an interest in computational data analysis (e.g., Python)
- good written and spoken English

Desirable:

- experience with electron microscopy of magnetic materials, EMCD, or electron holography
- familiarity with magnetism, particularly antiferromagnetism or altermagnetism
- experience with electron-diffraction-based strain analysis
- interest in simulation of electron scattering

We offer:

- access to aberration-corrected TEM and advanced electron microscopy facilities
- supervision and training in state-of-the-art techniques
- the opportunity for engaging and independent work within a flat hierarchy, in an open-minded team and supportive atmosphere
- flexible arrangements for work hours to support a good work-life balance

- 30 days of vacation per year (based on a 5-day workweek)
- extensive opportunities for professional development and continuing education
- health care and sports programs offered by TUD
- a discounted job ticket (also available as a Deutschlandticket)
- participation in the supplementary pension scheme for employees in the public sector via VBL (Federal and State Government Employees Retirement Fund)

TUD strives to employ more women in academia and research. We therefore expressly encourage women to apply. The university is a 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.

Application: Please submit your detailed application with the usual documents by **January 4, 2027** (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 **recruiting-dcn@tu-dresden.de** or to:

TU Dresden, Dresden Center for Nanoanalysis, Dr. Darius Pohl,
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.

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.