

At the TU Bergakademie Freiberg, Faculty of Materials Science and Material Engineering, Institute of Materials Science a temporary position of a



Research Associate (m/f/d) – reference number 284-E/2023

is available at the earliest possible date. This position is funded by the Dr. Erich Krüger Foundation within the research project "optGaN – Gallium nitride with improved structural properties".

Pay grade: according to German pay grade E13 TV-L
Hours: 1,0 FTE (40 hours/week; part-time possible)
Contract type: fixed-term for 24 months

The main aim of the research project is to improve the quality of single-crystalline GaN layers produced via high-temperature gas-phase epitaxy by applying the defect engineering approach. The tasks of the project are the description of the interactions between threading dislocations, stacking faults and internal interface in structured GaN layers, and the utilization of these interactions for dislocation bunching and for reduction of the dislocation density in the GaN single crystals.

Job description:

- Analysis of the crystal structure defects and their interaction with other microstructure features in GaN layers using X-ray diffraction (reciprocal space mapping), electron diffraction (SAED, CBED) and high-resolution transmission electron microscopy
- Development of physical models for description of the microstructure of the GaN layers and for a quantification of the interaction between the crystal structure defects and the microstructure features
- Description of the relationship between the artificial structuring of the GaN layers and their properties
- Contribution to a targeted design of a deposition process capable of growing GaN crystals with specific structural properties
- Cooperation and discussion of results within an interdisciplinary research team
- Writing of project reports
- Presentation of research results at national and international scientific conferences
- Writing and submitting of scientific publications in peer-reviewed journals

What you can expect from us:

- working at a family-friendly university with flexible working hours
- Remuneration according to the provisions of the collective agreement for the public service of the German federal states in accordance with the personal requirements
- attractive fringe benefits, e.g. Asset-based benefits (VL), company pension schemes (VBL), health management, "Job-Ticket"
- a wide range of networking, mentoring and development opportunities

What we expect from you:

- PhD or university diploma or master's degree (distinction) in Physics, Materials Science or related disciplines
- Outstanding theoretical knowledge and practical skills in the fields of microstructure analytics, characterization of materials properties and materials modelling
- An aptitude for independent, goal-oriented and interdisciplinary research work
- Good team-working and communication skills
- Excellent German and/or English skills

For further information please contact Prof. Dr. David Rafaja
(Phone: +49-3731 39-2299, e-mail: rafaja@iww.tu-freiberg.de).

The applicant (m/f/d) must meet the hiring requirements for fixed-term employment contracts according to the WissZeitVG. Applicants with disabilities will receive preferential consideration, provided they possess equal qualifications. For consideration, we ask you to submit proof of your disabled status together with your application documents. TU Bergakademie is committed to increasing the number of women in teaching and research positions, hence qualified female candidates are especially encouraged to apply. Written applications, including a CV, motivation letter and copies of all relevant qualifications documents (certificates, diplomas) as well as and a summary of the thesis, should be submitted by **February 16th, 2024** stating **reference number (284-E/2023)** to the following address:

TU Bergakademie Freiberg, Dezernat für Personalangelegenheiten, 09596 Freiberg or e-mail:
bewerbungen@tu-freiberg.de

Your application documents will not be returned, please only submit copies. TU Bergakademie Freiberg is always looking for scientific personnel from various disciplines. Further information can be found at : <https://tu-freiberg.de/stellenangebote>