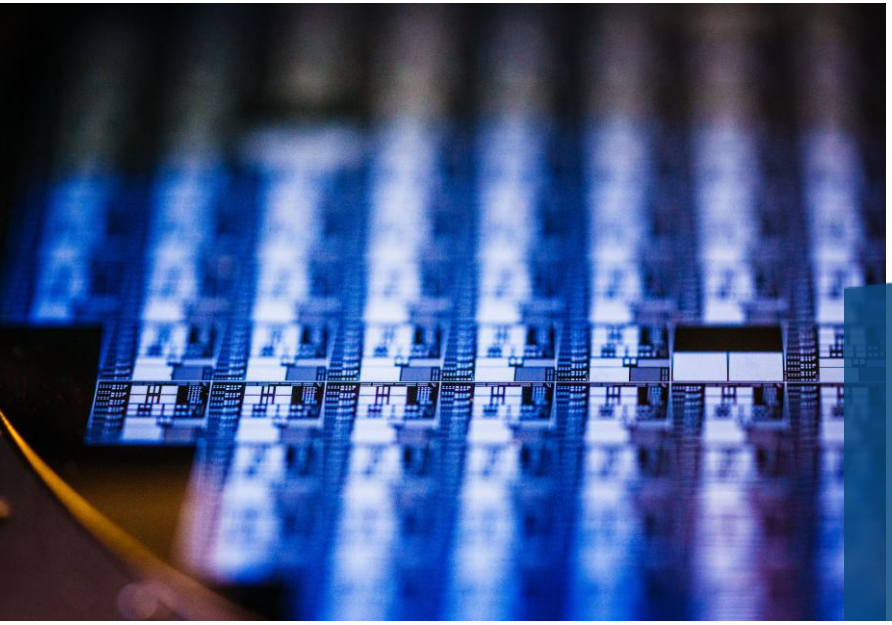


TUBAF
Die Ressourcenuniversität.
Seit 1765.

Research Associate (m/w/d)

reference number 185-E/2026

Institute of Applied Physics

Pay grade:	E13 TV-L
Hours:	0,75 FTE
Contract type:	3 years
Starting:	February 1, 2027

At the Faculty of Chemistry, Physics and Biosciences, Institute of Applied Physics – Heisenberg Professorship for the Physics of Quantum Materials – the position Research Associate will be available starting February 1, 2027 to be filled on a temporary basis as part of a third-party funded research project.

In the DFG project "Modulation Acceptor Doping of SiO_2 as a Novel Doping Method for Silicon Nanowires (MADSiNano-II)", a new p-type doping concept for silicon nanowire transistors will be further developed and investigated. Instead of using conventional impurity dopants, the conductivity of the silicon nanowires is established through modulation doping of their dielectric shell. This approach promises to circumvent many of the scaling challenges associated with doping ultra-small nanowires (<10 nm) and is intended for testing in devices such as junctionless nanowire transistors (JNTs). The project is being conducted in collaboration with the Nanoelectronic Materials Laboratory (NaMLab) in Dresden, along with other national and international partners.

Your tasks are:

- Fabrication and functionalization of Si nanostructures, including the use of electron-beam lithography
- Process optimization for atomic layer deposition (ALD) and rapid thermal processing (RTP)
- Characterization of modulation-doped SiO2 layers using capacitance-voltage (C-V), Hall effect, and deep-level transient spectroscopy (DLTS) measurements
- Characterization and optimization of Si/SiO2 interface defects
- Collaboration with project partners

What we expect from you:

- A university diploma or master's degree with a focus on physics, electrical engineering, materials science or Applied Natural Science
- In-depth knowledge in the field of solid-state physics, as well as experience with semiconductor devices, the deposition and patterning of dielectrics/semiconductors, and electrical characterization
- Ability to work in a team, flexibility, and experimental skills for laboratory and cleanroom work
- Good proficiency in German and English (spoken and written) is desirable

What you can expect from us:

- Working at a family-friendly university with flexible working hours
- Remuneration according to the provisions of the collective bargaining agreement for the public service of the federal states in accordance with personal requirements
- Attractive fringe benefits, e.g. asset-based benefits (VL), company pension schemes (VBL), health management
- Opportunities for professional and personal development
- discounted job ticket

Your application:

Please send your application with the usual documents, quoting the reference number **(185-E/2026) by 06.12.2026 by e-mail** to:

bewerbungen@tu-freiberg.de

or to:
TU Bergakademie Freiberg
Department of Personnel Affairs -
09596 Freiberg

For further information, please contact
Herr Prof. Dr. Daniel Hiller
Phone: 03731 39 2212
daniel.hiller@physik.tu-freiberg.de **available.**
Please also inform yourself on our website: https://tu-freiberg.de/fakultaet2/angph

Note on data protection:
We have provided you with the rights you have and the purpose for which your data is processed, as well as further information on data protection, on our website:

Applicants (m/f/d) must meet the employment requirements for concluding employment contracts for a certain period of time in accordance with the WissZeitVG. Severely disabled or equivalent persons (m/f/d) will be given preference if they have the same aptitude, performance and ability. Please attach proof. TU Bergakademie Freiberg specifically promotes the proportion of women and expressly invites qualified women to apply.

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