



A position is available at the Faculty of Chemistry and Physics, Institute of Applied Physics, Heisenberg Professorship for the Physics of Quantum Materials for a



**Research Associate (m/w/d) – reference number 304-E/2021**

to be filled at the earliest possible time.

**Salary:** Pay group 13 TV-L  
**Job size:** 0,75 FTE  
**Start of work:** 3 years (with extension for max. 12 months)

**Job description:**

Within the DFG-project “Modulation-Acceptor Doping of SiO<sub>2</sub> as Novel Doping Method for Silicon Nanowires (MADSiNano)” we want to investigate and develop a novel doping concept for Si-nanowire transistors. The conductivity of the Si-nanowires is not caused by conventional impurity doping but via a modulation doping of the dielectric shell. This approach allows to circumvent many of the scaling problems of the doping of ultra-small nanowires (<10 nm) and will be tested e.g. in junctionless-nanowire-transistors (JNTs). The project is carried out in cooperation with the Nanoelectronic Materials Laboratory (NaMLab) in Dresden and other (inter-)national cooperation partners.

**Your tasks are:**

- Process development of atomic layer deposition (ALD) and rapid thermal oxidation / annealing (RTO / RTA)
- Structural, chemical and electrical characterization of various ALD metal oxide materials
- Functionalization, contacting and characterization of 1- and 2-dimensional Si nanostructures
- Cooperation with project partners

**What we offer:**

- 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
- Training at the start of your work by experienced colleagues

**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 (specializations microelectronics or photovoltaics and semiconductor technology)
- Advanced knowledge in solid-state physics
- Ability to work in a team, flexibility, and experimental skills for working a lab and a cleanroom
- Experience with semiconductor devices, deposition and structuring of semiconductors/dielectrics as well as their characterization are highly appreciated
- Fluent English language skills (verbal and written); at least basic German language skills are advantageous

**For further questions on the content of the individual topics, please contact Prof. Dr. Daniel Hiller,  
Phone: 03731 39-2212, E-Mail: [Daniel.Hiller@physik.tu.freiberg.de](mailto:Daniel.Hiller@physik.tu.freiberg.de)  
Please also see our website: <https://tu-freiberg.de/fakultaet2/angph>**

The applicant 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.

Please send your application with the usual documents and quoting the **advertisement code (304-E/2021)** by **31.12.2021** (the postmark of the ZPS of the TU Bergakademie Freiberg applies) to:

**TU Bergakademie Freiberg - Dezernat für Personalangelegenheiten - 09596 Freiberg  
E-Mail: [bewerbungen@tu-freiberg.de](mailto:bewerbungen@tu-freiberg.de)**

Your application materials will not be returned; please submit copies only. Interview costs will not be covered. The TU Bergakademie Freiberg is also looking for scientific personnel from different disciplines. Information under: <http://tu-freiberg.de/wirtschaft/karriere/stellenausschreibungen>