Institut für Bioprozess- und Analysenmesstechnik e.V.
Forschungseinrichtung des Freistaates Thüringen · An-Institut der Technischen Universität Ilmenau

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The Institute for Bioprocessing and Analytical Measurement Techniques (iba) is a non-university research institute of the Free State of Thuringia and an affiliated institute of the TU Ilmenau. As part of the research profile "Biotechniques at Interfaces", topics of application-oriented research for the development of technical systems for the life sciences are dealt with. The central research focus is on the engineering of molecular and cellular processes for disease modeling and therapeutic approaches for patient-specific medicine. The investigation, modification and application of interfaces and interface effects aims at the optimization of high-throughput methods as well as other processes, systems and products for medicine, biotechnology and related areas.

The Department of Analytical Measurement Techniques (AMT) is seeking a motivated and qualified candidate for a

Postdoctoral Researcher (m/f/d) – Biomaterials and Surface Engineering
Chiffre number: 2026-14_PD-THN-H

on the topic:

Development of Multifunctional Nanostructured Surfaces for Improved Blood-Contacting Devices

Platelet transfusions are essential in modern healthcare, but improving platelet storage, blood compatibility and the safety of blood-contacting devices remains a significant challenge. Innovative material and surface-engineering strategies are needed to improve device performance, preserve platelet function and reduce risks associated with conventional medical polymers. This project aims to develop multifunctional hydrogel-based nanostructured surfaces for advanced blood storage systems and blood-contacting medical devices. It will combine hydrogel engineering, surface functionalization and micro-/nanostructuring to investigate how material properties influence blood–material interactions. The overall goal is to establish innovative and scalable hydrogel-based surface technologies that improve haemocompatibility, material stability and safety for biomedical applications.

Your tasks

- Plan and conduct scientific experiments independently.
- Develop, characterize and optimize hydrogel-based materials and functional surfaces.
- Investigate material properties and material–biological interactions using appropriate analytical methods.
- Analyze and interpret experimental data, prepare scientific publications and present results at conferences.
- Contribute to collaborative research projects and the preparation of scientific proposals.
- Co-supervise Masters' students in collaboration with the principal investigator (PI).
- Support the planning and coordination of research activities within the team.

Your Profile:

- postdoctoral researcher with a strong background in one or more of the following fields:
  - Materials science, polymer chemistry, or biomaterials engineering
  - Hydrogel synthesis, functionalization, or composite-material development
  - Surface engineering, micro-/nanofabrication, or surface modification
  - Biomedical engineering, biophysics, or biointerface science
  - Blood compatibility, platelet biology, or haemocompatible biomaterials

We expect:

- PhD in materials science, chemistry, polymer science, biomedical engineering, biophysics, or a closely related discipline.
- Experience in experimental research involving materials, surfaces, hydrogels, or polymeric systems.
- Strong analytical skills and the ability to design experiments, interpret data, and work independently.

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- Excellent scientific writing and communication skills.
- Ability to collaborate effectively within an interdisciplinary research team. Plan and conduct scientific experiments independently.
- Develop, characterize and optimize hydrogel-based materials and functional surfaces.

Desirable qualifications:

- Experience with surface and material characterization techniques, such as atomic force microscopy (AFM), surface zeta-potential analysis, nanoindentation, and microscopy.
- Familiarity with the physicochemical characterization of biomaterials, polymers, hydrogels, nanoparticles, or drug-containing materials.
- Experience with material functionalization, surface modification, drug loading or release, or micro-/nanostructuring.
- Knowledge of biological or functional testing of materials and formulations for biomedical applications.
- Practical experience with cell culture, bacterial culture, or microbiological testing.
- Experience with blood-contacting materials, haemocompatibility testing, platelet assays, or antimicrobial material characterization would be an advantage.

Candidates with complementary expertise are encouraged to apply. We particularly welcome applicants interested in bridging materials engineering with quantitative analysis of biological responses.

We offer

- a varied, promising and self-responsible field of activity in an interdisciplinary and internationally networked research institute
- open and collegial research landscape with a wide range of professional and personal development opportunities
- highly motivated team of scientists from various disciplines.
- professional equality and supports the compatibility of family and career, including flexible working hours within the scope of official possibilities.
- a 2-year fixed-term position
- compensation is based on the TV-L collective bargaining agreement.
- The position will start from **01.02.2027**.

If candidates have equal qualifications and meet the above requirements, preference will be given to applicants with a recognized disability in accordance with Section 2 of SGB IX. Travel and lodging expenses related to job interviews will not be reimbursed.

Please send your detailed application with the usual documents (cover letter, CV, evidence, certificates, relevant degree certificates, 2 academic referees) in one PDF document with the reference number provided to following e-mail address until **30.11.2026**:

bewerbung@iba-heiligenstadt.de

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