



The Faculty of Mechanical, Process and Energy Engineering at Technische Universität Bergakademie Freiberg invites applications for a full professorship

(W2) Micromechanical Material Modeling
[Mikromechanische Materialmodellierung] – position number 262/2020

to start with the winter term 2021/22.

Here, we address researchers in theoretical solid mechanics, applied physics or modeling-oriented materials science. The applicant is expected to cover several of the following areas of expertise in research as well as teaching:

- Micromechanics, as an important link of scale-bridging modeling approaches— complementing the macroscopic solid mechanics point of view—, which spans the spectrum from microstructure to the engineering component. Relevant areas of application that are of particular interest to the Faculty of Mechanical, Process and Energy Engineering (Faculty 4) include structural design engineering, additive manufacturing as well as refractory technology,
- Theoretical and simulation-supported investigation of structure-property relations for metallic and ceramic high-performance materials, glass, building materials, functional materials and their composites,
- Numerical simulation of micromechanical processes of structure formation and evolution, of deformation and of failure,
- Modeling of material behavior at the microscopic scale, employing molecular dynamics, discrete and continuous dislocation dynamics, and continuum mechanics-based crystal plasticity and/or phase-field modeling,
- Data-driven approaches of micro- and multi-scale material modeling in connection with methods of machine learning and model reduction.

The research profile of TU Bergakademie Freiberg focuses on Geological, Materials, Energy and Environmental Sciences.

Teaching responsibilities mainly comprise courses in the International Master's Program „Computational Materials Science (CMS)“ and include supporting and mentoring CMS students as well as organizational tasks. This unique study program combines modeling on the macroscopic (continuum mechanics), micro-mechanical and atomic scales in an interdisciplinary approach. CMS classes are exclusively taught in English. If desired, the chair of this professorship will additionally be given the opportunity to offer courses within other study programs (German and/or English) of Faculty 4.

In research, we expect strong and fruitful interdisciplinary collaboration with our other institutes, particularly in the context of the topics and application areas mentioned above. Furthermore, many additional opportunities exist for successful collaboration at TU BAF, as the research of many institutes in other faculties is concerned with the development, characterization and application of modern high-tech, functional, and nanostructured materials and composites. Examples are Materials Science and Technology, the Natural Sciences and—especially regarding modeling methods—Mathematics and Computer Science. The candidate is expected and will be given the chance to contribute her/his expertise to large, cross-faculty research initiatives.

The Faculty of Mechanical, Process and Energy Engineering is interested in candidates, who have already demonstrated proficiency in publishing their work in high-ranking scientific journals, acquiring third-party funding as well as teaching in English and German.

The applicant must fulfil the general criteria for an appointment as a professor according to §58 of the "Sächsisches Hochschulfreiheitsgesetz" (Higher Education Act of Saxony) dated January 15, 2013, in its currently valid and applicable version. Essential requirements include a university degree, a PhD degree, and additional proof of qualification for a professorship, typically fulfilled by a habilitation degree (post-doc years), a tenure as professor, or an equivalent excellent research record.

The University supports candidates in finding adequate childcare and in providing information regarding local job positions for partners or spouses. The TU Freiberg is committed to increasing the ratio of women in teaching and research positions. Qualified female candidates are especially encouraged to apply. Equally qualified candidates with disabilities will receive preferential consideration.

Written applications accompanied by supporting documentation (curriculum vitae, scientific career, copies of certificates, list of publications, teaching record and evaluations, statement of future research, along with a certified copy of the highest academic degree) should be sent with mention of the position number (262/2020) no later than 28.02.2021 via email to bewerbungen@tu-freiberg.de or via postal letter to:

**TU Bergakademie Freiberg
Dezernat für Personalangelegenheiten
09596 Freiberg, Germany**

For further inquiries, please contact the head of the faculty search committee Prof. Björn Kiefer (bjorn.kiefer@imfd.tu-freiberg.de).