



At the Faculty of Materials Science and Materials Engineering, Institute of Materials Science,
an open position of a



Research Associate (m/f/d) – reference number 125-E/2022

is available within the DFG Research Training Group “Refractory Recycling: A contribution for raw material-, energy- and climate-efficiency in high temperature processes”, PhD project P8 “Microstructure design of composite materials using FAST/SPS”.

Pay grade: according to German pay grade E13 TV-L
Hours: 1,0 FTE (part-time possible)
Contract type: fixed-term for 48 months

The focus of the Research Training Group 2802 is an interdisciplinary education of PhD students. The PhD students should acquire the abilities to explore the spectrum of materials properties as well as the limitations of a new generation of high-temperature materials based on refractory recyclates with specific thermo-mechanical, chemical and functional properties in high temperature processing in the metallurgy, and to develop new ideas accompanied by new scientific fields. Thereby, a material oriented CO₂-reduction shall be achieved via refractory material recycling.

The aim of the PhD project P8 is to explore diffusion processes, phase reactions, phase formation, grain growth, formation and annihilation of microstructure defects in a spark plasma sintering (SPS/FAST) process, and their capability to be utilized for targeted microstructure design of composite materials made from refractory recyclates. This subproject should contribute substantially to the clarification of the influence of selected microstructure features, e.g., of the distribution and microstructure of individual phases, on the thermal conductivity and the electrical conductivity at high temperatures.

Job description:

- working on a multidisciplinary scientific topic in the field of recycling of refractory materials
- readiness and ability to complete a PhD thesis
- planning and performing experiments associated with the production of refractory composite materials in a FAST/SPS process
- analysis of the microstructure of the FAST/SPS samples using diffraction techniques, electron microscopy, and X-ray spectroscopy; analysis of experimental data, interpretation of results
- cooperation and discussion of results within an interdisciplinary research team
- writing of project reports
- writing and submitting of scientific publications in peer-reviewed journals
- presentation of research results at national and international scientific conferences

What you can expect from us:

- employment at a family-friendly university with flexible working hours
- salary according to the collective bargaining agreement and personal requirements
- attractive fringe benefits, e.g. Asset-based benefits (VL), company pension schemes (VBL), health management, “Job-Ticket”
- Supervision through experienced staff members; advanced professional training
- networking, mentoring and development opportunities
- focused research programme and a structured training strategy

What we expect from you:

- university diploma or master’s degree in Materials Science, Physics, Mineralogy or related disciplines
- outstanding theoretical knowledge and practical skills in the fields of microstructure and/or solid state analytics
- an aptitude for experimental research work
- good team-working and communication skills
- advanced German and English skills
- readiness and ability to complete a PhD thesis

A three-stage, weighted process is used to select the best suited and highly motivated PhD candidates.

For more information, see:

GRK 2802 website: <https://tu-freiberg.de/forschung/grk2802/stellenangebote>

**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) and a summary of the thesis, should be submitted by **June 30th, 2022** stating **reference number (125-E/ 2022)** 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 <http://tu-freiberg.de/wirtschaft/karriere/stellenausschreibungen>