



At the TU Bergakademie Freiberg, Faculty of Chemistry and Physics, Institute of Theoretical Physics, is from 01.01.2023 an open position of a



Research Associate (m/f/d) – reference number 186-E/2022

within the DFG Research Training Group "Refractory Recycling: A contribution for raw material-, energy- and climate-efficiency in high temperature processes" (GRK 2802), PhD project P9 "Raman spectroscopic and electrical characterization of functionalized recycle-based materials"

is available.

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

The focus of the Research Training Group 2802 is an interdisciplinary education of PhD students in order to be able to acquire the abilities to explore the material property spectrum as well as the limitations of a new generation of high temperature materials on the basis of 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 P9 is to elucidate fundamental pyrolysis processes in the coking of environmentally friendly binders for refractory recyclates as a function of temperature by Raman spectroscopy. In-situ RS as a function of temperature will be used to detect phase transitions as well as identify intermediates or by-products. The characterization of carbon-bonded materials by Raman spectroscopy and in particular an understanding of the reactions during the coking of the environmentally friendly gelatin-based binders as a function of temperature is an essential task.

Job description:

- working on a multidisciplinary scientific topic in the field of recycling of refractory materials
- planning and performing Raman spectroscopy (RS) measurements, in-situ high temperature RS measurements, and RS mappings on recyclates and carbon-bonded materials
- analysis of experimental data, interpretation of results
- discussion of results within an interdisciplinary research team
- writing of reports and preparing presentations
- writing and submission of scientific publications to peer-reviewed journals in English language
- presentation of results at national and international conferences

What you can expect from us:

- working at a family-friendly university with flexible working hours
- attractive fringe benefits, e.g. asset-based benefits (VL), company pension schemes (VBL), health management, "Job-Ticket"
- induction by long-standing employees, opportunities for further training
- a wide range of networking, mentoring and development opportunities
- a focused research programme and a structured training strategy

What we expect from you:

- university diploma or master's degree in Natural Science, Physics, Materials Science, Material Engineering or related disciplines
- knowledge and practical experience in the field of optical spectroscopies with focus on Raman spectroscopy is an advantage
- high personal commitment, initiative and experimental skills
- 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/en/forschung/grk2802/job-offers>

**For further information please contact Prof. Dr. Jens Kortus
(phone: +49-3731 39-4008, e-mail: kortus@physik.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 **September 15th, 2022** stating **reference number (186-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>