

Technische Universität Braunschweig - Institute of Building Materials, Concrete Construction and Fire Safety, Division of Building Materials,



With around 15,000 students and 3,800 employees, the Technische Universität Braunschweig is one of Germany's leading institutes of technology. It stands for strategic and performance-oriented thinking and acting, relevant research, committed teaching, and the successful transfer of knowledge and technologies to the economy and society. We consistently advocate for family friendliness and equal opportunities. Our research focuses are mobility, engineering for health, metrology, and city of the future. Strong engineering and natural sciences are our core disciplines. These are closely interconnected with economics, social and educational sciences and humanities. Our campus is located in the midst of one of the most research-intensive regions in Europe. We work successfully together with over 20 research institutions in our neighborhood as we do with our international partner universities. Starting from 1st October 2026 the Institute of Building Materials, Concrete Construction and Fire Safety, Division of Building Materials, is looking for a Research assistant (m/f/d) A fundamental model of coupled carbonation-hydration curing for optimal early-age performance of low CO₂ binders.

Research assistant (m/f/d)

A fundamental model of coupled carbonation-hydration curing for optimal early-age performance of low CO₂ binders

(EG 13 TV-L - full-time) The team of the Division of Building Materials at TU Braunschweig, focuses on understanding and predicting the hydration behaviour of eco-efficient binders. Within the working group of Microstructure and Thermodynamics of Sustainable Building Materials, we are looking for a talented individual to work on a project revolving around the investigation and quantification of the impact of carbonation curing on ongoing hydration in model cement systems with SCMs. This project aims to address the development of a generic workflow and mechanistic understanding for the valorisation of industrial wastes. To contribute to this challenge, we focus on the specific issue of coupled hydration-carbonation curing at early-age The research activity would span multiple lengths and time scales, utilizing laboratory experimental techniques (i.e., XRD, TGA, microscopy), as well as advanced synchrotron facilities. Thermodynamic modelling will also be used to predict phase composition. Besides structural investigations, dimensional stability will be assessed through variations in drying shrinkage. Carbonation progress of mortars/pastes as well as changes in the pore structure of samples subjected to wet and dry carbonation will be assessed. The researcher will be part of international, multi-disciplinary team of researchers at TU Braunschweig, and a larger networking team in Germany, within the framework of the SPP 2436 project. The position is initially limited to two years, with the aim of continuing employment for another one year. The position is an employee position and is funded by German Science Foundation (DFG). The fixed-term employment is within the scope of the fixed-term employment options provided for in the German Academic Fixed-Term Contract Act (Wissenschaftszeitvertragsgesetz).

City: Braunschweig; Starting date (earliest): 01/10/26; Duration: 2 Jahre;

Remuneration: EG 13 TV-L; Closing date: 15/08/26

Tasks

- Investigation of hydration and carbonation curing of a variability of raw materials, followed by detailed assessment of their, mineralogical, and microstructural properties that allows to compare the chemistry of hydration and carbonation
- Analysis of large sets of data obtained at synchrotron facilities
- Present research findings at national and international conferences
- Supervision of master student projects and potential contribution to teaching activities.

Requirements

- Completed Master's degree (or equivalent) in civil engineering or a related field (e.g., materials science, mineralogy, chemistry, physics)
- Prior knowledge of the microstructural evolution in hydrating eco-efficient cements is desirable but not essential
- Ideally, prior practical experience with microstructural characterization techniques such as XRD will be beneficial
- Excellent proficiency in English, both written and spoken
- Flexibility and willingness to collaborate in a dynamic and diverse team. An open approach to work across disciplines and the ability to communicate ideas constructively are essential.

What we offer

- Work on exciting future-oriented research topics in an inspiring and diverse work environment as part of the university community
- A vibrant campus life in an international atmosphere with lots of intercultural offers and international cooperations
- Pay is based on the assigned duties and fulfillment of personal requirements, up to Pay Grade 13 under the TV-L collective bargaining agreement
- Annual bonus, an employer-sponsored retirement plan comparable to a private-sector pension, and 30 days of annual leave
- Flexible working and part-time options and a family-friendly university culture, awarded the "Family-friendly university" audit since 2007
- Special continuing education programs for young scientists, a postdoc program, as well as other offerings from the Central Personnel Development Department and sports activities.

Application

We welcome applicants of all nationalities. At the same time, we encourage people with severe disabilities to apply. Applications from severely disabled persons will be given preference if they are equally qualified. Please attach a proof of disability to your application. We are also working on the fulfilment of the Central Equality Plan based on the Lower Saxony Equal Rights Act (Niedersächsisches Gleichberechtigungsgesetz—NGG) and strive to reduce under-representation in all areas and positions as defined by the NGG. Therefore, applications from women are particularly welcome in this case.

The personal data will be stored for the purpose of processing the application. By submitting your application, you agree that your data may be stored and processed electronically for application purposes in compliance with the provisions of data protection law. Further information on data protection can be found in our data protection regulations at <https://www.tu-braunschweig.de/datenschutzerklaerung-bewerbungen>.

Application costs cannot be reimbursed.

Questions and Answers

For more information, please contact Dr. Elsa Qoku, e.qoku@ibmb.tu-bs.de.

Deadline for applications is 15 August 2026

Interested candidates should submit electronic applications in English to baustoffe@ibmb.tu-bs.de including:

- Curriculum vitae (CV) detailing your research experience and additional relevant information (e.g., awards, internships, qualifications)
- Letter of motivation (maximum one page)
- Bachelor's and Master's degree certificates, including transcripts of academic
- Recommendation letter from a supervisor

More information at <https://stellenticket.de/205815/HAWK/>

Offer visible until 15/08/26

