

Research Associate / Doctoral Candidate (m/w/d) in the field of sustainable concrete structures (E13, 100%)

About us

The Chair of Concrete and Masonry Structures at the Technical University of Munich (TUM) is a leading research institute in the field of reinforced concrete, prestressed concrete, and masonry structures. Its research activities span a wide range of topics related to innovative construction and materials, tunnel, bridge, and masonry construction, connection and reinforcement technology, additive manufacturing, and monitoring, evaluation, maintenance, conversion, and reuse of existing concrete structures. Located in Maxvorstadt, in the heart of Munich, the institute has a large test laboratory with high-performance equipment, measurement technology and special test facilities.

Combining excellent research with excellent teaching is our goal at TUM. TUM is once again a “University of Excellence” and the only technical university to have held this title continuously since 2006. The award is part of the Excellence Strategy of the German Federal and State Governments, which aims to strategically support German research at the highest international level. As one of the largest engineering departments at the TUM School of Engineering and Design, we actively contribute to this success through innovative research with interdisciplinary approaches and practice-oriented teaching.

Join our young and dedicated team and immerse yourself in the exciting world of concrete and masonry research and teaching!

Our research

In addition to the traditional issues of concrete construction, issues of environmental responsibility and sustainability are becoming increasingly important. The many advantages of reinforced concrete are offset by the CO₂ emissions associated with the production of cement and reinforcing steel. In recent years, promising concepts such as calcined clays, BCSA cements, celitement, powdered grain admixtures, and high-strength fibers have been explored. These approaches can be used to significantly reduce emissions while avoiding the limited availability of by-products from energy-intensive industries such as fly ash, granulated blast-furnace slag, or silica fume. High-strength concretes, known for their resource-efficient construction, offer excellent strength and durability properties due to their density, but they also show a particularly formulation- and temperature-dependent material behavior. In a new research project, the temperature-dependent degradation of low-carbon concretes will be investigated in more detail and guidelines, recommendations and material descriptions will be developed. We are looking for dedicated support for our team who will contribute to the success of the project with passion and expertise.

Eligibility requirements

- An above-average university degree (diploma or master's degree) in civil engineering, materials science or a related field
- An affinity for experimental research and continuous learning
- In-depth knowledge of concrete construction and materials science
- Determination, independent and structured work style, strong teamwork and communication skills
- Confidence in writing long technical texts with complex content in English (preferably also in German)

Responsibilities

- Independent work on the above research project
- Supervision of lectures in the field of concrete and masonry structures
- Guidance and support for students in the preparation of student projects and theses
- Supervision, operation and further development of scientific equipment, test rigs and measurement technology
- Laboratory work and experimental investigations in the field of concrete and masonry structures

We offer

We offer a full-time position as a Research Associate (m/f/d) in an exciting research and working environment in the midst of a young, dedicated team. There are opportunities for doctoral studies and further professional and personal development. Payment will be based on qualifications up to pay grade TV-L E13.

TUM strives to raise the proportion of women in its workforce and explicitly encourages applications from qualified women. Applicants with disabilities will be given preference in the event of equal qualifications. We look forward to receiving your application for the position and your interest in the Technical University of Munich

Application

We look forward to receiving your detailed application documents by October 20th, 2024.

Please send them by email to: johannes.froese@tum.de

You have provided us with personal data with your application. Please note our data protection information in accordance with Article 13 of the General Data Protection Regulation (GDPR) on the collection and processing of personal data as part of your application, available at <https://portal.mytum.de/kompass/datenschutz/Bewerbung/>.

Technical University of Munich

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