The mobility of people and goods is a central foundation of our modern society with increasingly global and diversely networked processes. It enables an efficient economy and represents a valuable asset that must be preserved and further developed. Mobility, especially with regard to road mobility and to road traffic, is currently confronted with global challenges, which urgently require fundamental solutions.

In the planned SFB/TRR 339, a spatially as well as temporally multidimensional, model of vehicle, tire and road surface (concrete and asphalt) will be developed and researched, taking into account the road pavements. The model combines all available and relevant information about the "road of the future" system from physical investigations and modeling as well as from informational and traffic-related data (sensor data, data models etc.). The approach enables and requires the interaction between the physical-engineering and the informational-traffic design levels. This interactive model in space and time is referred to as the digital twin of the road, subject to analysis, control and prediction of the physical road by means of common interfaces.


At the Faculty of Civil Engineering, Institute of Urban and Pavement Engineering, the Chair of Pavement Engineering offers in Subproject A06, subject to resources being available, a project position as Research Associate (m/f/x) (subject to personal qualification employees are remunerated according to salary group E 13 TV-L) starting January 1, 2022 initially to be filled by December 31, 2025, with the option of extension. The period of employment is governed by § 2 (2) Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz - WissZeitVG).

Tasks: scientific tasks in research and development of high-performance road materials; design, execution and evaluation of conventional and new laboratory experiments on high-performance road materials; investigation of the short- and long-term material behavior of high-performance asphalt and concrete as well as studies on material optimization; creation of test data for the preparation and implementation of material formulations for high-performance road materials, knowledge for the development of meso models and KNN; cooperation in the identification of material parameters based on experimental data; further development of artificial neural networks (KNN) to reduce the experimental effort; interdisciplinary collaboration with the other subprojects; publication of findings and insights of international conferences and journals.

Requirements: very good university degree in civil engineering, mechanical engineering, computational engineering or another comparable engineering science or natural science; knowledge to develop meso models and KNN as well as in the field of conducting laboratory tests on asphalt; knowledge; high amount of self-reliance, involvement and team spirit; very good scientific writing and speaking skills in English. Programming skills in Fortran and Python are an advantage.

Applications from women are particularly welcome. The same applies to people with disabilities.

Please submit your comprehensive application including the usual documents and the specification of the sub-project number A06 by December 16, 2021 (stamped arrival date of the university central mail service applies) by mail to: TU Dresden, Fakultät Bauingenieurwesen, Institut für Statik und Dynamik der Tragwerke, Prof. Kaliske -persönlich-, Helmholtzstr. 10, 01069 Dresden, Germany. or via the SecureMail portal of the TU Dresden https://securemail.tu-dresden.de as a PDF document Bewerbung_SFB_339@tu-dresden.de.
submit copies only, as your application will not be returned to you. Expenses incurred in attending interviews cannot be reimbursed.

Reference to data protection: Your data protection rights, the purpose for which your data will be processed, as well as further information about data protection is available to you on the website: https://tu-dresden.de/karriere/datenschutzhinweis