## Bundesanstalt für Materialforschung und -prüfung - Bundesoberbehörde

**BAM**
Bundesanstalt für
Materialforschung
und -prüfung

The Bundesanstalt für Materialforschung und -prüfung (BAM) is a materials research organization in Germany. Our mission is to ensure safety in technology and chemistry. We perform research and testing in materials science, materials engineering and chemistry to improve the safety of products and processes. At BAM we do research that matters. Our work covers a broad array of topics in the focus areas of energy, infrastructure, environment, materials, and analytical sciences.

# Undergraduate Assistant (m/f/d)

in the field of study Mechanical Engineering, Computational Science, Applied Mathematics, Physics, or a related field

City: Berlin; Starting date (earliest): At the earliest possible; Duration: until 31.12.2025; Remuneration: 14,32 Euro per hour; Reference number: 136/25-7.7; Closing date: 05/08/25

**Working field**

In numerical simulations of extreme loading scenarios on concrete structures, it is crucial to ensure that the results accurately reflect real-world physics. To achieve this, complex material models such as the RHT model, which involve a large number of parameters, are used to capture intricate material behavior. However, determining the appropriate material parameters remains a significant challenge. In this project, you will analyze the RHT model under high strain-rate loading conditions to assess the influence of different parameters on simulation results using statistical methods. Additionally, you will calibrate model parameters based on experimental data to improve the accuracy and reliability of the simulations.

Your responsibilities include:
-Implement a numerical experiment in LS-DYNA to study material behavior under extreme loading
-Automate simulations in Python using workflow tools such as pydoit or Snakemake to streamline large-scale analyses
-Perform sensitivity analysis of model parameters by computing Sobol' indices to quantify their influence on simulation results
-Determine model parameters using Bayesian inference, integrating experimental data to improve model accuracy

**Requirements**

-Enrolled student in Mechanical Engineering, Computational Science, Applied Mathematics, Physics, or a related field
-Solid understanding of finite element methods (FEM) and numerical modeling
-Knowledge of basic statistical methods

-Proficiency in Python for data analysis and scripting
-Experience with LS-DYNA or other FEM software is a plus

**What we offer**

-Interdisciplinary research at the interface of politics, economics and society
-Work in national and international networks with universities, research institutes and industrial companies
-Outstanding facilities and infrastructure
-Flexible working hours and mobile working

**Application**

You are enrolled at a German university for the period of employment.
The maximum working time with a part-time job is 80 monthly hours.

Your application: We welcome applications via the online application form by 05.08.2025. Alternatively, you can also send your application by post, quoting the reference number 136/25-7.7 to:

Bundesanstalt für Materialforschung und -prüfung
Referat Z.3 - Personal
Unter den Eichen 87
12205 Berlin
GERMANY
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Mr Unger will be glad to answer any specific questions you may have. Please get in touch via the telephone number +49 30 8104-3787 and/or by email to Joerg.Unger@bam.de.

BAM promotes professional equality between women and men. We therefore particularly welcome applications from women. At the same time, we strive to reflect social diversity. Every application is therefore welcome, regardless of gender, cultural or social background, religion, ideology or sexual identity.

In addition, BAM has set itself the goal of promoting the professional participation of people with severe disabilities. The fulfillment of the job requirements is considered on an individual basis. Severely disabled persons or persons of equal status will be given preferential consideration if they are equally qualified.

The advertised position requires a low level of physical aptitude.

More information at https://stellenticket.de/196307/HTWB/
Offer visible until 14/08/25