The Faculty of Materials Science and Technology, Institute of Metal Forming, is seeking to fill the position of

Research assistant (m/f/d) - job reference 36/2024_MagZyk

as part of the DFG-funded project: "Cyclic deformation and macroscopic material structure of textured magnesium structures under multiaxial loading considering microstructural deformation mechanisms" to be filled on a temporary basis from July 1, 2024.

Remuneration: Pay group 13 TV-L
Job scope: 1.0 FTE (40 hours/week; part-time possible)
Time limit: 36 months

The main objective of the research project is to develop a comprehensive 3D continuum mechanical material model for the cyclic loading of textured AZ31 wrought magnesium alloys. The focus is on the analysis of the micromechanical deformation processes and the cyclic, anisotropic hardening behavior. A core aspect of the project is the implementation of 3D crystal plasticity simulations with the DAMASK software to obtain detailed data from the micromechanical model. To increase efficiency and optimize data processing, Bash scripting and Python programming will be used extensively to automate the simulations and post-process the results. This methodical approach enables precise modeling and provides deep insights into the behavior of the investigated alloys under cyclic loading.

These are your tasks:
As a research assistant (m/f/d) you will be responsible for the planning, organization and processing of tasks and the documentation of all results obtained within the framework of the project in accordance with scientific standards. In addition, you will be expected to prepare and write publications and papers and present them at conferences, workshops etc. as well as reporting. Further specific tasks are

- Working on a multidisciplinary scientific topic in the field of multiscale material modeling using crystal plasticity approaches.
- Willingness and ability to write a PhD thesis.
- Conceptualization and execution of FE simulations using crystal plasticity models in the context of the development of flow maps of magnesium alloys under different pre-processing conditions.
- Ability to handle and store data using best practices, processing the obtained simulation data to gain interesting insights.
- Analysis of experimental data, interpretation of results
- Discussion of results in an interdisciplinary research team

What you can expect from us:

- Working at a family-friendly university with flexible working hours
- Remuneration in accordance with the provisions of the collective agreement for the public service of the federal states in line with personal requirements
- Attractive additional benefits, e.g. capital-forming benefits (VL), company pension scheme (VBL), health management, job ticket
- A wide range of networking, mentoring and development opportunities
- A targeted research program and a structured training strategy

What we expect from you:

- A university diploma or master's degree (or possibly soon) in the field of forming technology or mechanical engineering or materials engineering or a comparable degree.
- Excellent theoretical knowledge and practical skills in the field of crystal plasticity based multiscale material modeling and material properties.
- Good knowledge of Linux scripting and programming language with emphasis on processing repetitive tasks and data visualization.

- Aptitude for experimental research work
- Good teamwork and communication skills
- Excellent spoken and written English and adequate German language skills

For further information, please contact Dr.-Ing. Faisal Qayyum (Tel. +49 3731 39-4073; e-mail: faisal.qayyum@imf.tu-freiberg.de).

Applicants (m/f/d) must fulfill the recruitment requirements for the conclusion of employment contracts for a fixed term in accordance with the WissZeitVG. Severely disabled or equivalent applicants (m/f/d) with equal aptitude, performance and qualifications will be given preferential consideration. For appropriate consideration, please enclose proof of severe disability/equal status with your application documents. The TU Bergakademie Freiberg aims to increase the proportion of women in teaching and research and is therefore particularly interested in applications from qualified women.

Written applications with CV, letter of motivation and copies of all relevant qualification certificates (certificates, diplomas) as well as a summary of the final thesis (Master's thesis, diploma thesis) or, if applicable, the dissertation should be sent to the following address **by April 15, 2024, quoting the advertisement reference number (36-E/2024__MagZyk):**

TU Bergakademie Freiberg - Department of Human Resources - 09599 Freiberg
E-mail: bewerbungen@tu-freiberg.de

as well as a digital copy directly to the Institute of Metal Forming
jobs@imf.tu-freiberg.de

Your application documents will not be returned, please submit only copies. The TU Bergakademie Freiberg is always looking for scientific staff from various disciplines. Further information can be found at http://tu-freiberg.de and at https://tu-freiberg.de/fakult5/imf.