
The Ceramics group (Prof. Jürgen Rödel) at the Department of Materials and Earth Sciences at TU Darmstadt has an opening for a

Ph.D. student - Dislocation toughening of oxides

starting September 1st, 2021 for a duration of 3 years.

The ceramics group at the Department of Materials and Earth Sciences at TU Darmstadt founded the internationally now strongly expanding field of dislocation-tuned functionality in ceramics (e.g. Science, 372, 961-964 (2021) and Materials Horizons, 8, 1528-1537 (2021)). To this end we hired already ten qualified scientists and are now looking to hire a Ph.D. student from the areas of solid state physics or materials science.

Your tasks:

Our recent results suggest that high dislocation densities in oxides and semiconductors afford high damage resistance and fracture toughness depending on crystal structure and plane. Therefore we work towards the development of high-density dislocation structures by macroscopic and local mechanical quasistatic and cyclic loading (nanoindentation, micropillar compression), characterization with partners by TEM, X-ray dark field microscopy, as well as mechanical characterization by crack tip opening methods and instability criteria.

Your profile:

Essential requirements:

- Excellent university degree (Master) in Materials Science or Physics
- Strong interest in scientific research combined with a strong desire for international collaboration and ability to work in a team
- Very good knowledge of spoken and written English

Desired skills:

- Strong academic background in one or more of the following subjects: metal plasticity, solid state mechanics, crystallography
- Demonstrated ability for independent scientific research

We are offering a challenging environment with experts on structure determination, simulation, mechanics and semiconductor physics, but also room for your own initiative.

Opportunity for further qualification (doctoral dissertation) is given. The fulfillment of the duties likewise enables the scientific qualifications of the candidate.

The Technische Universität Darmstadt intends to increase the number of female employees and encourages female candidates to apply. In case of equal qualifications applicants with a degree of disability of at least 50 or equal will be given preference. Wages and salaries are according to the collective agreements on salary scales, which apply to the Technische Universität Darmstadt (TV-TU Darmstadt). Part-time employment is generally possible.

By submitting your application, you agree that your data may be stored and processed for the purpose of filling the vacancy. You can find our [privacy policy](#) on our webpage.

Applications should include scientific CV (including list of publications in peer-reviewed journals, if any), courses and grades, motivation letter and contact data from two references. Please direct specific inquiries to Prof. Jürgen Rödel and send applications to: apply@ceramics.tu-darmstadt.de

Code No. 371

Published on: June 28, 2021

Application deadline: ~~July 30, 2021~~

Aug. 15
