



The Faculty of Mechanical, Process and Energy Engineering, Institute of Mechanics and Fluid Dynamics, Chair of Applied Mechanics – Solid Mechanics (Prof. Björn Kiefer, Ph.D.) is seeking applications for two temporary positions, with starting date 01.07.2019, as



**Research Assistant /Wissenschaftlichen Mitarbeiter (m/f/d) – Reference Number 117-1/2019**

Provided continued funding is granted by the German Research Foundation, this project is embedded into the Collaborative Research Center 920 „Multi-Functional Filters for Metal Melt Filtration – A Contribution Towards Zero Defect Materials“.



**Vergütung (compensation):** Entgeltgruppe 13 TV-L  
**Stellenumfang (full-time percentage):** 1,0 VZÄ (This job can also be carried out as a part-time position.)  
**Befristung (time limit):** 30.06.2023

Project B05 „Modelling and Evaluation of the Thermomechanical Behaviour of Filter Materials and Filter Structures“ comprises the following tasks (shared between the two Research Assistants):

- Development of appropriate constitutive models for the description of the temperature-dependent viscoplastic deformation behavior under consideration of relevant damage mechanisms in ceramic filter materials and coatings
- Quantification of the influence of the filter strut hollowness on their strength and fracture mechanical properties
- Quantification of the benefit of coatings on the thermomechanical properties of the meso-structure regarding thermal shock resistance and strength
- Homogenization of the deformation and failure properties of filter structures based on generalized continuum formulations
- Development of a simulation tool for the description of the thermo-chemo-mechanically driven in-situ layer formation caused by reactions between filter, coating and metal melt, based on the phase-field method
- **What we offer:**
- A family friendly work environment and flexible hours
- Guidance and support provided by experienced senior level researchers
- Opportunities for on-the-job training and professional development
- Standard wages and attractive benefits

**What we expect:**

- A university diploma or M.Sc. degree (or equivalent) in mechanical engineering, applied mathematics, physics or related fields
- Fluency in spoken and written English and/or German
- A strong background, interest and practical experience in computational continuum mechanics and material modeling

The willingness to pursue a doctoral degree is assumed.

For more information, please do not hesitate to contact Prof. Kiefer ([Bjoern.Kiefer@imfd.tu-freiberg.de](mailto:Bjoern.Kiefer@imfd.tu-freiberg.de)).

Kindly send your application documents (letter of motivation, cv, certificates, letters of recommendation or references; copies, no original documents) no later than **31 May 2019**. Please include the **reference number (117-1/2019)** on your application and address it to:

**TU Bergakademie Freiberg - Dezernat für Personalangelegenheiten -09596 Freiberg**

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