



Technische Universität Berlin offers an open position:

## Research Assistant - salary grade E13 TV-L Berliner Hochschulen

part-time employment may be possible

### Faculty III - Institute of Process Engineering / Mechanical Process Engineering and Solids Processing

**Reference number:** III-217/21 (starting at the earliest possible / for a period of 36 months / closing date for applications 30/04/21)

**Working field:** The coupling of numerical flow simulation (CFD) and the discrete element method (DEM) with the aid of coarse graining methods to CFD-CGDEM is a new, efficient numerical method for simulating combined particle/fluid flows. Based on the DEM, a freely selectable number of particles is combined into a representative parcel. This reduces the number of particles to be tracked, which shortens the calculation time accordingly and makes the method interesting for the calculation of industry-relevant problems.

The task to be fulfilled in the context of CFD-CGDEM, which calculates the trajectories of parcels using scaled contact and fluid interaction models, is to compare existing scaling approaches and to investigate which of the approaches delivers accurate results with increasing scaling factors that have previously caused difficulties. With the help of an adaptive coarse graining approach which allows the use of different scaling factors in geometrically narrow and wide areas, the extent to which such a method enables the use of CFD-CGDEM also in technically important systems with geometrically thigt fixtures is to be investigated.

#### Requirements:

- Successfully completed university degree (Master, Diplom or equivalent) in the field of energy and/or process engineering, computational engineering, mechanical engineering, natural sciences or the like; above-average results desired
- Previous knowledge (desired) and/or interest (required) in the field of mechanical process engineering and particulate processes
- Interest in engineering applied research work (required)
- Previous knowledge (desired) and/or interest (required) in the field of modeling with particle-based methods (for example the Discrete Element Method (DEM)) and/or CFD
- Basic programming skills in e.g. C, Fortran, Matlab (required)
- Very good command of spoken and written German and English (required)
- Teamwork, curiosity and creativity

Please send your application with the **reference number** and the usual documents (combined in a single pdf file, max 5 MB) **by email to Prof. Dr. Kruggel-Emden at sekretariat@mvta.tu-berlin.de**.

By submitting your application via email you consent to having your data electronically processed and saved. Please note that we do not provide a guaranty for the protection of your personal data when submitted as unprotected file. Please find our data protection notice acc. DSGVO (General Data Protection Regulation) at the TU staff department homepage: [https://www.abt2-t.tu-berlin.de/menue/themen\\_a\\_z/datenschutzerklaerung/](https://www.abt2-t.tu-berlin.de/menue/themen_a_z/datenschutzerklaerung/) or quick access 214041.

To ensure equal opportunities between women and men, applications by women with the required qualifications are explicitly desired. Qualified individuals with disabilities will be favored. The TU Berlin values the diversity of its members and is committed to the goals of equal opportunities.

Technische Universität Berlin - Der Präsident - Fakultät III, Institut für Prozess -und Verfahrenstechnik, FG Mechanische Verfahrenstechnik und Aufbereitung, Prof. Dr. Kruggel-Emden, Sekr. BH 11, Ernst-Reuter-Platz 1, 10587 Berlin

The vacancy is also available on the internet at <http://www.personalabteilung.tu-berlin.de/menue/jobs/>

