



Technische Universität Berlin



Research Assistant - salary grade E 13 TV-L Berliner Hochschulen

part-time employment may be possible

Faculty III - Process Sciences, Institute of Chemical and Process Engineering / Process Dynamics and Operations Group

Reference number: III-431/25 (starting at the earliest possible / limited until 30/09/2028 / closing date for applications 31/10/25)

Your responsibility:

As part of the project "Systematic experimental and theoretical investigation of the operating behavior of natural circulation evaporators at low operating pressures and temperature differences for multicomponent systems (Opti-NUV)," the use of natural circulation evaporators (NUV) at low driving temperature differences is researched in collaboration with the Technical University of Braunschweig.

While the Technical University of Braunschweig conducts the experimental investigations, the Technische Universität Berlin develops a dynamic, pressure-driven model of the apparatus, which, in addition to its dynamic behavior, shall describe static and dynamic instabilities in particular. Their occurrence and the operating point-dependent formation of two-phase flows require the implementation of smooth reformulations to enable dynamic simulation without equation switching.

The following tasks are to be addressed in the project:

- (1) Development of a dynamic pressure-driven NUV model based on the concept of a homogeneous pure substance with a special focus on static and dynamic instabilities
- (2) Extension of the model to multi-component systems and, if necessary, heterogeneous phase description
- (3) Close cooperation with the project partner TU Braunschweig for model validation based on the experiments performed
- (4) Sensitivity studies to investigate the influence of material and mixture properties on the instability behavior of NUV

You can find further information on the group at www.tu.berlin/dbta.

Your profile:

- a successfully completed scientific university degree (Master, Diploma or equivalent) in process engineering, chemical engineering, or comparable study programmes
- very good knowledge of dynamic modeling of chemical engineering processes
- very good numerical skills with regard to formulating and solving algebraic and differential algebra systems
- good knowledge of German and/or English or willingness to acquire the missing language skills
- modeling or experimental experience with natural circulation evaporators is an advantage
- experience with smooth reformulations of equation systems is an advantage

How to apply:

Please send your application **with the reference number** and the usual documents (CV, records/grades, application letter, all combined in a single pdf file, max. 5 MB) by email to **Prof. Dr.-Ing. habil. Jens-Uwe Repke** (sekr@dbta.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/.

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. Applications from people of all nationalities and with a migration background are very welcome.

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

