Technische Universität Dresden

TUD Dresden University of Technology, as a University of Excellence, is one of the leading and most dynamic research institutions in the country. Founded in 1828, today it is a globally oriented, regionally anchored top university as it focuses on the grand challenges of the 21st century. It develops innovative solutions for the world's most pressing issues. In research and academic programs, the university unites the natural and engineering sciences with the humanities, social sciences and medicine. This wide range of disciplines is a special feature, facilitating interdisciplinarity and transfer of science to society. As a modern employer, it offers attractive working conditions to all employees in teaching, research, technology and administration. The goal is to promote and develop their individual abilities while empowering everyone to reach their full potential. TUD embodies a university culture that is characterized by cosmopolitanism, mutual appreciation, thriving innovation and active participation. For TUD diversity is an essential feature and a quality criterion of an excellent university. Accordingly, we welcome all applicants who would like to commit themselves, their achievements and productivity to the success of the whole institution.

At the **Faculty of Mechanical Science and Engineering, Institute of Power Engineering**, the **Chair of Process Diagnostics for Energy and Process Engineering** offers a position as

Research Associate (m/f/x)

Advanced experimental and numerical study of bubble dynamics in the injection zone of pool scrubbing

(subject to personal qualification, employees are remunerated according to salary group E 13 TV-L)

starting **October 1, 2026**. The position is limited until June 30, 2029 and entails 75 % of the fulltime weekly hours. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz-WissZeitVG). The position offers the chance to obtain further academic qualification (usually PhD).

Tasks: Investigation of bubble size evolution in the injection and transition zone of pool scrubbing. The following tasks are to be carried out in detail:

- design and setup of an experimental facility for investigating gas injection and globule/bubble size evolution using ultrafast X-ray computed tomography (ROFEX)
- systematic experimental study and comparative evaluation of different gas flow rates and nozzle geometries
- development and application of morphology-adaptive two-fluid simulations using OpenFOAM
- provision of bubble size distributions in the swarm flow regime for project partners
- investigation of the influence of the injection zone on overall scrubbing efficiency

Requirements:

- excellent university degree (Diploma or Master's) in Mechanical Engineering, Chemical and Process Engineering, Nuclear Engineering, Computational Science, or a related field
- strong interdisciplinary mindset, combined with practical experimental and numerical skills; ability to actively communicate and collaborate with project partners and team members are essential for successful project execution
- very good fundamental knowledge of mathematics and physics is desirable
- ability to quickly familiarize yourself with new topics, combined with a results-oriented, independent, and team-oriented working style
- proficiency in English for scientific communication (written and spoken)

TUD strives to employ more women in academia and research. We therefore expressly encourage women to apply. The university is a family-friendly university. We welcome applications from candidates with disabilities. If multiple candidates prove to be equally qualified, those with disabilities or with equivalent status pursuant to the German Social Code IX (SGB IX) will receive priority for employment.

Application: Please submit your detailed application with the usual documents by **July 31, 2026** (stamped arrival date of the university central mail service or the time stamp on the email server of TUD applies), preferably via the TUD SecureMail Portal https://securemail.tu-dresden.de by sending it as a single pdf file to **uwe.hampel@tu-dresden.de** or to:

TU Dresden, Chair of Process Diagnostics for Energy and Process Engineering,
Prof. Dr.-Ing. habil. Dr. h. c. Uwe Hampel, Helmholtzstr. 10, 01069 Dresden, Germany.

Please submit copies only, as your application will not be returned to you. Expenses incurred in attending interviews cannot be reimbursed.

TUD is a founding partner in the DRESDEN-concept alliance.

DRESDEN concept

Reference to data protection: Your data protection rights, the purpose for which your data will be processed, as well as further information about data protection is available to you on the website: https://tu-dresden.de/karriere/datenschutzhinweis.