

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 Process Engineering and Environmental Technology**, the **Chair of Chemical Process Engineering** offers, subject to the availability of resources, a position as

Research Associate / PhD Student (m/f/x)

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

starting **August 1, 2024**. The position is limited to 3 years and comprises 75% of the full-time 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 thesis).

Tasks: In the joint EFRE InfraProNet project "SmartPaste," we aim to advance a technology that produces hydrogen through the hydrolysis of magnesium hydride for decentralized applications. Therefore, suitable batch reactor designs shall be developed. To assess the impact of geometry and operating conditions on hydrogen development, reactor utilization, and heat removal, an Euler-CFD model incorporating Casson plasticity should be implemented. Consideration of gas development and kinetics through source terms and submodels is necessary. Model validation will be conducted, among other methods, through stirring mixing studies utilizing flow imaging techniques. The tasks also involve designing simplified cell models to derive an optimized thermal management. Effective collaboration within the team and with project partners is essential. The PhD project also requires the presentation of research findings in journals and at conferences.

Requirements: A very good university degree, preferably in engineering, ideally in chemical engineering, process engineering, or mechanical engineering; advanced knowledge in fluid mechanics and computational fluid dynamics; profound knowledge in reaction engineering and mixing technology as well as skills in process modeling and data analysis (e.g., MATLAB, Python); creativity and self-motivation; interest in new forms of team collaboration and knowledge transfer to students; a personality confident in communication and presentation, who works independently and systematically. Interest in engineering-related questions is a great advantage.

For more information call: +49 351 46334106.

TUD strives to employ more women in academia and research. We therefore expressly encourage women to apply. The University is a certified family-friendly university and offers a Dual Career Service. 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.

Please submit your detailed application with the usual documents, along with a detailed letter of motivation referencing the job advertisement text, by **May 22, 2024** (stamped arrival date of the university central mail service or the time stamp on the email server of TUD applies) to: **TU Dresden, Fakultät Maschinenwesen, Institut für Verfahrenstechnik und Umwelttechnik, Professur für Chemische Verfahrenstechnik, Herrn Prof. Dr.-Ing. Markus Schubert, Helmholtzstr. 10, 01069 Dresden, Germany** or via the TUD SecureMail Portal <https://securemail.tu-dresden.de> by sending it as a single PDF file to cvt@tu-dresden.de. Please submit copies only, as your application will not be returned to you. Expenses incurred in attending interviews cannot be reimbursed.

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>.