Technische Universität Dresden (TUD), 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.

The Boysen-TU Dresden Research Training Group for young researchers from Engineering, Social Sciences, Arts, and Humanities, co-financed by the Friedrich and Elisabeth Boysen Foundation and the Technische Universität Dresden, is offering a doctoral scholarship from March 1, 2023, for a maximum of 3 years, subject to available funding. The interdisciplinary Research Training Group, in what is its fourth generation, is conducting research on the overarching topic Hydrogen Economy – Strategic element of a future GreenGas deal. It consists of four clusters. Cluster H: Techno-economic modeling of hydrogen value-added networks combines four sub-projects (SP). A suitable person (m/f/x) is being sought to work on the topic SP H1: Mathematical optimization models for the design and analysis of cross-sectoral hydrogen value networks and regional transformation. The Junior Professorship in Business Administration esp. Management Science at the Faculty of Business and Economics at TU Dresden is responsible for the supervision. The interdisciplinary supervision takes place in the common rooms of the Research Training Group.

Abstract: The aim of this project is to develop cross-sectoral mathematical optimization models in order to analyze the structure of future hydrogen supply chains considering various scenarios, and to gain valuable insights into beneficial network structures of hydrogen supply chains for decision makers from industry and politics. In particular, the distribution of the limited resources to produce green hydrogen across the different application areas will be investigated. The main focus is the distribution of green hydrogen across application areas in order to achieve the greatest possible reduction in greenhouse gas emissions. Based on the results of the structure of future transnational hydrogen supply chains, it is planned to investigate the effects of the long-term establishment of international hydrogen supply chains within the medium-term regional transformation until 2030, using the region of southern Germany as a case study.

Applicants are expected to have an above-average academic degree in Business Administration, Industrial Engineering and Management, Computer Science, (Business) Mathematics, or similar. We expect skills in operations research and mathematical optimization as well as a high degree of willingness to engage in interdisciplinary work and research. Accepting the scholarship obliges your presence in the research group’s offices in Dresden on three fixed core days per week. Participation in the college’s teaching program is compulsory (24 ETCS in 3 years).

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

1 The amount of the scholarship is based on the basic amount according to DFG criteria: https://www.dfg.de/foerderung/programme/einzelfoerderung/forschungsstipendien/stipendienrechner/
equally qualified, those with disabilities or with equivalent status pursuant to the German Social Code IX (SGB IX) will receive priority for employment.

Please send your compelling application including a letter of motivation, curriculum vitae, copies of academic certificates or other relevant qualifications (language certificates, further training), and a max. 10-page sample text (e.g. final thesis, term paper, or publication) until January 10, 2023 (stamped arrival date of the university central mail service applies) with the subject “SP H1: Mathematical optimization models for the design and analysis of cross-sectoral hydrogen value networks and regional transformation”, preferably via the SecureMail Portal of the TU Dresden https://securemail.tu-dresden.de as one PDF document to tristan.becker@tu-dresden.de. Alternatively, applications can also be sent to the following address: TU Dresden, Boysen-TU Dresden-Graduiertenkolleg, Frau Dr. Anna Martius, 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.

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