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.

For many years, the Chair of Electrical Power Supply at the Institute of Electrical Power Systems and High Voltage Engineering (IEEH) works on public funded projects as well as joint research projects with industry partners and network operators in the areas of selective protection, power quality, smart grids, instrument transformers as well as grid planning and operation. The Power Quality research group is led by Prof. Dr.-Ing. habil. Jan Meyer and has more than 40 years of experience on the measurement, analysis and evaluation of power quality disturbances in low, medium and high voltage networks. Major topics are conducted low and higher frequency distortion (i.e. harmonics and suprarahmonics) in distribution and transmission networks, design aspects of large measurement campaigns including big data analysis, as well as accuracy verification of instrument transformers and Power Quality monitoring instruments. The research group counts at the moment with 8 scientific researchers and works on different projects funded by government, network operators and industry, publishes regular papers at conferences and in journals and has a close collaboration with other universities all over the world.

At the Faculty of Electrical and Computer Engineering, Institute of Electrical Power Systems and High Voltage Engineering, the Chair of Electrical Power Supply offers within the Power Quality research group a
doctoral scholarship\(^1\)

starting at the earliest possible date limited to a maximum of 3 years.

**Tasks:** The doctoral scholarship is dedicated to research on harmonic analysis in modern transmission systems, with focus on the development of a methodology for the validation of the equivalent circuits parameters of network system components based on measurements.

You will become an integral member of the Power Quality research group, contributing to an innovative research project focused on the application and improvement of the Harmonic State Estimation (HSE) method for identifying harmonic sources within transmission systems. The HSE method is designed to estimate the harmonic power flows of the transmission system at a given time, utilizing real-time measurements from various busbars and lines within the system. To ensure the accuracy and reliability of the HSE method, it is crucial to have precise models of network system components that take into account their inherent frequency-dependent impedance characteristics. The primary goal of this doctoral thesis is to develop a methodology for validating network system components based on measurements.

\(^1\) The amount of the scholarship in the first year is 1.800,00 Euro/month.
**Requirements:** We seek candidates with a university degree (Diploma/Master) in Electrical Engineering, Electronics Engineering, or a related field. Ideal candidates should possess a profound understanding of power systems and experience in modeling and simulating power systems. We seek individuals who are self-motivated, goal-oriented, and possess an aptitude for finding innovative solutions. Teamwork and strong communication and interpersonal skills are equally essential. Fluency in written and spoken English is mandatory. Knowledge in the domain of power quality is highly regarded. A history of outstanding academic performance and some prior research experience is highly desirable.

**What we offer:** You will join a friendly, inclusive, and supportive team. Our work culture encourages open collaboration, personal responsibility, mutual support, and a solutions-driven mindset. We offer flexibility in work hours. You will engage closely with project partners from academia and industry, and your research results will have the opportunity to be presented at international conferences and workshops as well as published in recognized journals. While our multicultural team predominantly communicates in English, we encourage and support the learning of the German language. As a PhD student, you'll enjoy all the advantages provided by TUD, including access to a wide array of scientific resources, discounts at the university's dining facilities, a transportation ticket for travel within Germany, numerous opportunities for additional training such as language courses and IT training, as well as options for professional development. You can also partake in the university's wide range of sports and cultural activities, among other benefits.

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 (cover letter, CV, copies of academic certificates and names of 2 referees) by **January 31, 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 Elektrotechnik und Informationstechnik, Institut für Elektrische Energieversorgung und Hochspannungstechnik, Professur für Elektroenergieversorgung, Herrn Prof. Dr.-Ing. Jan Meyer, Helmholtzstr. 10, 01069 Dresden, Germany** or via the TUD SecureMail Portal [https://securemail.tu-dresden.de](https://securemail.tu-dresden.de) by sending it as a single pdf file (with the subject heading: Doctoral_Scholarship_PQ_HSE) to jan.meyer@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](https://tu-dresden.de/karriere/datenschutzhinweis).