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 Electrical and Computer Engineering, Institute of Semiconductors and Microsystems, the Chair of Microsystems offers two positions as

**Research Associate (m/f/x)**

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

starting at the **earliest possible date**. The positions are limited until May 31, 2026. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz - WissZeitVG). The positions offer the chance to obtain further academic qualification (usually PhD/habilitation thesis).

**Tasks:** As part of an interdisciplinary Emmy Noether junior research group "MEITNER - Multifunctional dielectric elastomer electronics for next generation soft robotics" engineers, and biomedical scientists are working to develop novel concepts for flexible electronics based on dielectric elastomers as well as the required manufacturing technologies and materials, especially electrically conductive inks and to develop the next generation of bio-inspired flexible robots. Building on the preliminary work in the field of dielectric elastomer electronics from the first funding phase of the junior research group, novel DE electronic components and circuits are to be integrated into compliant robotic structures and autonomously drive or control them. Specifically, we focus on the design of multifunctional, bio-inspired robotic systems. We are working closely with scientists from various Dresden science institutions, clusters of excellence and startups, as well as the University of Auckland. Within the framework of the project, there is the possibility of short research stays in New Zealand.

For the MEITNER junior research group we are looking for two research associates to develop multifunctional, bioinspired components for the next generation of flexible robots and interactive human-machine interfaces. Your activities will include the following tasks:

- Identify suitable biological role models to demonstrate the potential of autonomous, bio-inspired, flexible robots and human-machine interfaces,
- Elaboration of the basic definition of the system architecture based on basic units consisting of dielectric elastomer actuators (DEAs), dielectric elastomer switches (DESs) and DE sensors,
- Perform development work to improve DES capabilities and analyze fundamental problems related to design, operation, and environmental sensing of multifunctional DE electronic components,
- Investigate the passive mechanical behavior of the designed elastomeric circuits in combination with flexible robotic or system components and the active system characteristics and transfer functions,
Investigation of possible future applications of the developed components in the fields of:
- collaborative robotics, industrial robotics, medical technology and for human-machine communication,
- design, realization, validation of demonstrators.

**Requirements:** above-average university and, if applicable, PhD degree in the fields of electrical engineering, Microsystems technology, materials science or related fields; ability and willingness to work independently, goal-oriented; high level of commitment; confident command of the English language. Experience in at least three of the fields of mechatronics, biomedical engineering, microtechnologies and soft robotics is desirable.

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 send your application with the usual documents by **August 18, 2023** (stamped arrival date of the university central mail services applies), preferably via the TU Dresden SecureMail Portal https://securemail.tu-dresden.de by sending it as a single pdf file to markus.henke@tu-dresden.de or to: TU Dresden, Fakultät Elektrotechnik und Informationstechnik, Institut für Halbleiter- und Mikrosystemtechnik, Herrn Prof. Dr. Andreas Richter, 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.