

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 **Center for Advancing Electronics Dresden (cfaed)** offers a position as

Research Associate / Postdoc (m/f/x)

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

starting **as soon as possible**. The position is limited until December 31, 2024. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz-WissZeitVG). Balancing family and career is an important issue. The position is generally suitable for candidates seeking part-time employment. Please indicate your request in your application. The position aims at obtaining further academic qualification.

Position: Due to the way conventional CMOS-based architectures operate, they are ultimately limited by the Neumann bottleneck which makes them slow and energy-inefficient at certain tasks (vectorizable, highly parallel information processing). On the other hand, the human brain is an example for an architecture capable of massively parallel processing of information through each synaptic event only consumes about 1–100 fJ. Recent developments have shown that thin film neuromorphic devices can be very competitive in this new field. With this research projects we want to explore novel device and circuit architectures that enable neuromorphic circuit functionality.

Tasks: The successful candidate will

- collaborate with a circuit design group in the project MemTrap that is part of the DFG priority program “Memristive Devices Toward Smart Technical Systems” (SPP 2262);
- fabricate thin film transistor devices and electric circuits that contain transistor devices - these can be oxide-based or organic – and memory devices based on neuromorphic circuit designs;
- characterize the resulting devices and circuits both morphologically and electrically, the latter including techniques such as I-V, C-V, C-f.

Requirements:

- minimum an outstanding university and PhD degree in physics, electronics, materials science or related field of physical sciences;
- previous experience in fabrication of thin film electronic devices using photolithography or other lithographic structuring techniques;
- basic knowledge in device physics/semiconductor physics;
- very good interpersonal and communication skills, in particular, the ability to effectively work in collaborative research efforts;
- an independent, target- and solution-driven work attitude;
- inter- and multidisciplinary thinking;

- strong motivation and interest to join one of the most ambitious interdisciplinary research clusters;
- fluency in English - written and oral.
- Ideally also prior experience with circuit fabrication.

What we offer: You will join a team of enthusiastic scientists who pursue creatively their individual research agenda inspired by the cluster's innovative approach and support. Your research will be fostered by the cfaed philosophy to promote aspiring researchers, which includes:

- access to state-of-the-art research of leading academic institutes;
- promotion of gender equality and family-friendly work environment.

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.

Your application (**in English only**) should include: motivation letter, CV, copy of degree certificate, transcript of grades and proof of English language skills. Please submit your comprehensive application by **April 14, 2023** (stamped arrival date of the university central mail service applies) preferably via the TU Dresden SecureMail Portal <https://securemail.tu-dresden.de> by sending it as a single pdf-document to recruiting.cfaed@tu-dresden.de quoting the reference number **PD2302_MemTrap** in the subject header or to: **TU Dresden, cfaed, Professur für Organische Bauelemente, z. Hd. Anne Schulze, 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>.