Memristive devices constitute an emerging memory technology that can be programmed in different resistance states. They cannot only be used as binary memory, but also for security and neuromorphic applications. The Institute of Electronic Materials (IWE2) of the RWTH Aachen University and the Peter Grünberg Institute – Electronic Materials (PGI-7) have a unique radio frequency (RF) setup, with which the writing times of memory devices can be measured at time scales down to 50 ps, which is the fastest writing time reported for memristive devices. In the near future, this setup will be used to test neuromorphic applications on memristive devices in the GHz regime.

We are looking to recruit a

Postdoc in the domain of ultrafast characterization of memristive devices

Your Job:
You will work together in a multi-disciplinary and international group with physicists, electrical engineers, chemists and material scientists within the DFG project SFB 917 “Nanoswitches” and the BMBF project NEUROTEC “Neuro-inspired technologies of artificial intelligence for future electronics. One objective is to extend the RF setup for different memristive devices. So far, it has been used for metal-oxide based device, but in future also electrochemical metallization and phase change based devices will be characterized with the RF setup. Another objective is to test the feasibility of neuromorphic applications on these devices in the GHz regime. To fulfil these objectives, new measurement equipment will be purchased, which you will integrate in the RF setup. Your specific tasks will be:
• Supervising doctoral students
• Designing and building extensions of the RF setup with new measurement devices.
• Extending a control software with interfaces for the new measurement devices.
• Conducting experiments on phase change and electrochemical metallization memory.
• Designing and conducting experiments to test neuromorphic applications.
• Sharing your findings with colleagues from simulation groups to explain your observations.

Your Profile:
• Master and Phd degree in physics, computer science, electrical engineering (digital electronics) or in a similar field.
• Two peer reviewed journal articles.
• Knowledge of an object-oriented programming language (Ideally Python).
• Basic knowledge of solid state physics, electrodynamics, circuit theory, electrical measurement concepts and memristive devices.
• Interest in experimental and multidisciplinary work in cross-disciplinary teams.
• High flexibility and great commitment.
• Good English and basic German skills.

Our Offer:
We work on the very latest issues that impact our society and are offering you the chance to actively help in shaping the change! We support you in your work with:
• A world-leading, interdisciplinary and international research environment, provided with state-of-the-art experimental equipment and versatile opportunities to grow as a curious researcher.
• An interdisciplinary and collaborative work environment including researchers at the following institutes: Peter Grünberg Institute - Electronic Materials (PGI-7) and the Institute of Electronic Materials (IWE2) at RWTH Aachen University
• Comprehensive training courses and individual opportunities for personal and professional further development
• Extensive company health management
• Flexible working hours in a full-time position with the option of slightly reduced working hours
• Flexible work (location) arrangements, e.g. remote work
• 30 days of annual leave and provision for days off between public holidays and weekends (e.g. between Christmas and New Year)
• Ideal conditions for balancing work and private life, as well as a family-friendly corporate policy
• Targeted services for international employees, e.g. through our International Advisory Service

We offer you an exciting and varied role in an international and interdisciplinary working environment. Limited until 30.11.2026. Salary and social benefits will conform to the provisions of the Collective Agreement for the Public Service (TVöD-Bund) depending on the applicant’s qualifications and the precise nature of the tasks assigned to them.

Place of employment: Jülich/Aachen

We welcome applications from people with diverse backgrounds, e.g. in terms of age, gender, disability, sexual orientation / identity, and social, ethnic and religious origin. A diverse and inclusive working environment with equal opportunities in which everyone can realize their potential is important to us.