Saarland University is a campus university that is internationally recognized for its strong research programmes. Fostering young academic talent and creating ideal conditions for teaching and research are a core part of the university's mission. As part of the University of the Greater Region, Saarland University enables students and staff to share and exchange knowledge and ideas between disciplines, between universities and across borders. With over 17,000 national and international students, studying more than a hundred different academic disciplines, Saarland University is a diverse and dynamic learning environment. Saarland University is officially recognized as one of Germany's family-friendly higher-education institutions and with a combined workforce of more than 4,000 it is one of the largest employers in the region.

The Quantum Information and Matter Group headed by Prof. Peter P. Orth in the Department of Physics is inviting applications for the following position commencing 01 April 2026. An earlier (or later) starting date is also possible.

Academic research assistant (m/f/x)

Reference number W2728, salary in accordance with the German TV-L salary scale[1], pay grade: E13 TV- L, duration of employment: initial appointment is for 2 years with a possible extension by another year, volume of employment: 100 % of standard working time.

Workplace/Department:

Department of Physics, Faculty of Natural Sciences

Job requirements and responsibilities:

We are seeking a highly motivated postdoctoral researcher with a Ph.D. in Physics (or a related field) to join the Quantum Information and Matter Group led by Prof. Peter P. Orth. Our group is part of the recently established Quantum Technology Center (QuTe) at Saarland University—a dynamic, interdisciplinary research hub uniting expertise in computer science, mathematics, engineering, chemistry, and physics. Through our close partnership with the Helmholtz Forschungszentrum Jülich, we offer unique opportunities for joint projects, networking, and access to cutting-edge HPC and quantum computing resources. Potential research directions include: Quantum algorithms for simulating many-body systems, quantum field theories, and combinatorial optimization. Implementation and end-to-end resource cost estimation of quantum algorithms on current and near-term early fault-tolerant quantum hardware. Development and application of quantum error mitigation and error correction protocols. Join us to shape the future of quantum!

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[1] TV-L = collective agreement on remuneration of public sector employees in the German *Länder*
The pay grade assigned to an employee depends on their professional qualifications and the number of years of service. Each pay grade is further subdivided into levels. Entry-level employees with no previous experience will initially be assigned a level 1 rating. After one year at level 1 of the E10 pay grade, an employee will move up to level 2. After a further two years, the employee will move to level 3, etc.

Your academic qualifications:

- Doctoral degree / PhD Physics (or a related field)
- Language skills (according to GER): German -C2 or English -C2

The successful candidate will also be expected to have:

- Proven research experience in one or more of the following areas: quantum information science, quantum computing/simulation, quantum error correction, or quantum many-body theory.
- Strong publication record in relevant areas.
- Excellent verbal and written communication skills in English or German.
- Ability to communicate complex ideas effectively to diverse audiences.
- Strong teamwork skills and a willingness to collaborate closely with other QuTe members.

Preferred skills:

- Experience with quantum algorithms and their implementation on quantum hardware.
- Familiarity with quantum error mitigation and error correction techniques.
- Strong analytical and/or numerical skills, with expertise in techniques suited for studying quantum many-body systems.
- Proficiency in programming languages such as Python, Julia, or C++, and experience with quantum computing frameworks (e.g., Qiskit, Cirq).
- Background in high-performance computing (HPC) or large-scale numerical simulations.

Why join us:

- Work on cutting-edge problems at the intersection of quantum information and physics
- Join a collaborative and dynamic research group within an interdisciplinary environment
- Access modern computational resources and benefit from a strong academic network
- Contribute to research that addresses fundamental questions and emerging quantum technologies

What we can offer:

- A flexible work schedule allowing you to balance work and family, among other things the possibility of teleworking
- Secure and future-oriented employment with attractive conditions
- A broad range of further education and professional development programmes (for example language courses)
- An occupational health management model with numerous attractive options, such as our university sports programme
- Supplementary pension scheme (RZVK)
- Discounted tickets on local public transport services ('Job-Ticket Plus' of the saarVV)

We look forward to receiving your **meaningful online application** (in a PDF file) by **03.11.2025** to **peter.orth@uni-saarland.de**. Please include the reference number **W2728** in the subject line of the e-mail.

If you have any **questions**, please contact us for assistance. Your contact:
Prof. Dr. Peter P. Orth
Quantum Information and Matter Group
Department of Physics
Phone: +49 (0)681/302-4960

Pay grade classification is based on the particular details of the position held and the extent to which the applicant meets the requirements of the pay grade within the TV-L salary scale. Part-time employment is generally possible.

If you have obtained a foreign university degree, a proof of the equivalence of this degree with a German degree by the Zentralstelle für ausländisches Bildungswesen (ZAB) is needed before hiring. If necessary, please apply for this in time. You can find more information at https://www.kmk.org/zeugnisbewertung.

Unfortunately, neither costs for attending an interview at Saarland University nor costs for any certificate evaluation by the ZAB can be reimbursed in principle.

We welcome applications regardless of gender, nationality, ethnic and social origin, religion/belief, disability, age, and sexual orientation and identity. In accordance with its policy of increasing the proportion of women, the University actively encourages applications from women. Applications from severely disabled persons will be given preferential consideration in the event of equal suitability.

When you submit a job application to Saarland University you will be transmitting personal data. Please refer to our privacy notice for information on how we collect and process personal data in accordance with Art. 13 of the Datenschutz-Grundverordnung. By submitting your application you confirm that you have taken note of the information in the Saarland University privacy notice.