PhD positions in Experimental Quantum Computing with Superconducting Circuits

Institut für Optik, Information und Photonik, Erlangen, TV-L E 13, Vollzeit, Befristete Anstellung, Bewerbungsschluss: 31.12.2026

Aufgaben

We are seeking highly motivated PhD candidates to join a rapidly growing research team, led by Christopher Eichler, which conducts state-of-the-art experimental research in quantum computing, quantum information science and quantum optics with superconducting circuits.As a successful candidate, you will get the unique opportunity to take part in setting up a state-of-the-art quantum-computing laboratory and to perform collaborative research contributing to the grand goal of building universal quantum computers. Based on your interests and skills you will engage with a set of specific research topics chosen from the following areas:

- Design and fabrication of next-generation multi-qubit quantum processors enabling hardware-efficient quantum error correction
- Exploration of Novel circuit QED components enabling fast and high-fidelity gates and measurements
- Development, fabrication and characterization of 3D-integrated multi-chip modules
- Research on elements for quantum communication and modular quantum computing
- Improvements to qubit coherence enabled by new materials, processes, and chip designs
- System integration and (real-time) system control enabled by machine learning
- Tune-up, operation and (algorithmic) benchmarking of quantum computing hardware

Your research will benefit from a stimulating academic environment offered by FAU and will be embedded in a rapidly evolving quantum ecosystem in Bavaria. You will have opportunities to interact with partners and collaborators in academia and industry as part of national and state-level initiatives such as the Munich Quantum Valley.

Qualifikationen

Notwendige Qualifikationen:

Your profile and qualification:

- You hold a Master's degree in Physics, Electrical Engineering, Quantum Engineering, Micro- and Nanotechnology, Chemistry, Computer Science, Mechanical Engineering or a related field.
- You have a strong interest in experimental realizations of quantum information processing systems.
- You are dedicated to pursuing a successful career in research, development or education either in academia or in industry.

Wünschenswerte Qualifikationen:

Ideally, you have experience in one or more of the following areas: quantum information processing e.g. with superconducting circuits, trapped ions, semiconductor quantum dots or color centers, experimental quantum optics and atomic physics, cavity quantum electrodynamics, micro- and Nano-scale electronic devices and their fabrication (cleanroom, deposition, lithography, etching techniques), mesoscopic solid-state physics, low-temperature physics, operation of dilution refrigerators, microwave electronics, digital electronics, FPGAs, instrumentation, and software development.

Ergänzende Hinweise

Befristetes Forschungsvorhaben

How to apply:

We look forward to receiving your application documents sent to quantum-office@fau.de as a single pdf-file. Application documents should include

- a motivation letter,
- a curriculum vitae,
- a list of publications,
- certificates and transcripts,

copies of bachelor and master theses (as available),

- contact information of two references.

Please arrange for two reference letters to be sent directly to Christopher Eichler. Applications will be considered immediately and until positions have been filled.

Interessiert?

Die vollständige Stellenausschreibung sowie alle Infos zum Bewerbungsverfahren finden Sie hier: