PhD Student/ Research Assistant (f/m/d)

Job description: We are offering a PhD position on superconducting quantum circuits in the group of Prof. Alexey Ustinov at Physikalisches Institut, http://www.phi.kit.edu/ustinov.php

The experimental physicist will study the origins of decoherence in superconducting qubits, working at the research frontier of superconducting quantum computers that are on the edge of technological breakthrough. The focus of the PhD work will be on interference from parasitic two-level-systems (TLS), which stem from microscopic material defects in the quantum circuit. For a review of this field, see Müller et al., https://arxiv.org/abs/1705.01108, and recent publications by J. Lisenfeld et al.

The main goal will be to design a so-called flux qubit and use it to study its material defects. This involves measurements on qubits and superconducting resonators at temperatures of a few milliKelvin, using a state-of-the-art setup comprising modern cryostats and top-notch microwave equipment. Typical software tools are Matlab and Python for automated measurements and data analysis, and finite-element simulators such as Ansys Maxwell and Sonnet to optimize the circuit design. The PhD candidate may also participate in the fabrication of the qubit chips in the clean-room if interested. Examples of a flux qubit and typical experiments can be found in Fei Yan et al., Nature Communications 7, 12964 (2016).

Qualification: The ideal candidate has interest in quantum physics, basic programming skills (ideally Matlab and Python), and a creative and adamant approach to problem solving. Knowledge of the English language is required for communication and presentation of results in talks and publications.

Salary: The remuneration occurs on the basis of the wage agreement of the civil service in TV-L E13.

Institute: Physikalisches Institut (PHI), AG Prof. Ustinov

Contract duration: 3 years

Starting date: As soon as possible

Application up to: 05.04.2021

Contact person in line-management: Dr. Jürgen Lisenfeld, mailto:juergen.lisenfeld@kit.edu
**Application:**

Please send your application including a cover letter, your CV, and all certificates/references in electronic form to:
Dr. Jürgen Lisenfeld, mailto:juergen.lisenfeld@kit.edu

We prefer to balance the number of female and male employees. Therefore, we kindly encourage female applicants to apply for this job.

Recognized severely disabled persons will be preferred if they are equally qualified.

KIT is certified as a family-friendly university (familienfreundliche Hochschule) and offers part-time employment, leaves for family-related reasons, dual career options, and individual coaching for family-work balance.