

PhD Positions in Mainz, Germany

We are seeking PhD candidates for multiple fully funded projects, including:

Advanced Ion Trap development; MEMS, cleanroom experience favorable.

Advanced Vacuum Technologies and Scalable Ion Traps; Vacuum engineering experience favorable, German proficiency B2 level required.

Advanced Quantum Engineering; FPGA, VHDL, software and electronics experience favorable.

Operation of Quantum Processor; Software development experience favorable.

Implementation of quantum algorithms; Experience with quantum algorithms favorable, software development experience required.

Work within SFB 306 project; on mesoscopic 1D and 2D ion crystals.

Work with Rydberg Ions.

Our research group “Quantenbit AG” at the Johannes Gutenberg-University in Mainz makes use of Ca⁺ ion qubits trapped in micromachined/fabricated radio frequency traps to implement a variety of quantum optics and quantum information experiments. In our state-of-the-art quantum computer research labs, we operate several setups towards scalable and reproducible prototypes for a larger number of qubits (>50). Our team works on the implementation of useful quantum algorithms, especially in the field of quantum chemistry. We also have projects on the development of advanced vacuum and trap technologies and research projects with a stronger focus on fundamental physics ranging from single ion thermodynamics, Rydberg ions, vortex beam imaging and single ion sources.

We offer the chance to work independently in a leading quantum computing research group with well-funded state-of-the-art quantum computing labs. You'll be part of an experienced group of dedicated PhD and Post-doctoral researchers working on multiple projects, including a German quantum computing flagship project IQuAn, and multiple other projects funded by Germany (including SFB306), the European Union and USA. (Funding in accordance with German standard tariff starting TV-L E13 Grade 1 60%).

Requirements

You should have an excellent university degree (Master of Science or equivalent; general average of min 8.5) in physics or related fields (computer science, engineering, etc.). Previous experience in the field of experimental laser physics, quantum optics and/or quantum computing is favorable. English fluency required; English academic writing skills favorable. Some projects can require German B2 level, majority does not have any German requirements.

How to apply

For more detailed information please contact Ferdinand Schmidt-Kaler (JobsQuantum@uni-mainz.de) or visit www.quantenbit.physik.uni-mainz.de/.