JÜLICH
Forschungszentrum

Conducting research for a changing society: This is what drives us at Forschungszentrum Jülich. As a member of the Helmholtz Association, we aim to tackle the grand societal challenges of our time and conduct research into the possibilities of a digitized society, a climate-friendly energy system, and a resource-efficient economy. Work together with around 7,400 employees in one of Europe's biggest research centres and help us to shape change!

The mission of the Institute for Functional Quantum Systems (PGI-13) is to create the technological scientific basis to make quantum computing usable. We focus on developing quantum devices, improving their coherence an materials, and implementing quantum gates, algorithms and architectures. We use superconducting qubis that operate at temperatures close to absolute zero and are controlled by high-speed signals. A key requirement is to preserve high quality quantum operations as we scale. Overcoming these exciting challenges lies at the interface between scientific research an engineering.

Check out our lab opening here:
https://blogs.helmholtz.de/research-field-information/en/2023/10/27/julich-research-center-opens-quantum-computer-laboratory/

and us hosting a summer school here:
https://www.youtube.com/watch?v=Itm2hrlSXIU

We are looking to recruit a

PhD-Position - Development of scalable superconducting quantum systems

Your Job:
This position focuses on building, operating, and testing superconducting quantum devices. Your tasks in detail are:

- Design and fabrication of superconducting quantum circuits
- Setting up experimental systems for cryogenic measurements
- Development of a microwave quantum control & readout stack
- Development of Python code to operate quantum systems
- Detailed experimental characterization of superconducting qubits to quantify performance and identify limiting physical mechanisms
- Perform quantum device calibrations, benchmarking, and run quantum algorithms
- Presenting and publishing the research on an international stage

The job will be advertised until the position has been successfully filled. You should therefore submit your application as soon as possible. We look forward to receiving your application via our **Online-Recruitment-System!**

Questions about the vacancy?
Get in touch with us by using **our contact form.**
Please note that for technical reasons we cannot accept applications via email.
www.fz-juelich.de

To apply, please submit a complete CV, letter of motivation, university degree records (both Bachelor`s and Master`s degree),

Your Profile:
As part of our experimental team, you will regularly work in state-of-the-art laboratories and clean rooms. The role involves working in a cryogenic laboratory environment and following specific clean room protocols

- Master`s degree in physics or electrical engineering
- Willingness to work in laboratory and cleanroom environments
- Ideally, initial experience in a technical or scientific environment (e.g. cleanroom, laboratory)
- Knowledge of solid state physics and/or quantum information
- Experience with programming, preferably with Python
- Fluent speaking and writing skils in English
- Team-oriented and highly motivated to work in an experimental laboratory
- A background in quantum computing as well as experience with cryogenics, signal delivery, microfabrication, materials optimization, and microwave control are highly preferred qualifications

Please feel free to apply for the position even if you do not have all the required skills and knowledge. We may be able to teach you missing skills during your induction.

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 offer ideal conditions for you to complete your doctoral degree:

- A large research campus with green spaces, offering the best possible means for networking with colleagues and pursuing sports alongside work
- Comprehensive training courses and individual opportunities for personal and professional further development
- Extensive company health management
- Ideal conditions for balancing work and private life, as well as a family-friendly corporate policy
- Flexible work (location) arrangements, e.g. remote work
- Flexible working hours in a full-time position with the option of slightly reduced working hours (https://go.fzj.de/near-full-time)
- 30 days of annual leave and provision for days off between public holidays and weekends (e.g. between Christmas and New Year)
- Further development of your personal strengths, e.g. through an extensive range of training courses; a structured program of continuing education and networking opportunities specifically for doctoral researchers via JuDocS, the Jülich Center for Doctoral Researchers and Supervisors: https://www.fz-juelich.de/en/judocs
- Targeted services for international employees, e.g. through our International Advisory Service

In addition to exciting tasks and a collaborative working atmosphere at Jülich, we have a lot more to offer: https://go.fzj.de/benefits

The position is for a fixed term of 3,5 years, with possible long-term prospects. Pay in line with 75 %% of pay group 13 of the Collective Agreement for the Public Service (TVöD-Bund) and additionally 60 % of a monthly salary as special payment („Christmas bonus“). Pay higher than the basic pay may be possible. The monthly salaries in euros

can be found on page 66 of the PDF download: https://go.fzj.de/bmi.tvoed Further information on doctoral degrees at Forschungszentrum Jülich including our other locations is available at: https://www.fz-juelich.de/gp/Careers_Docs

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.