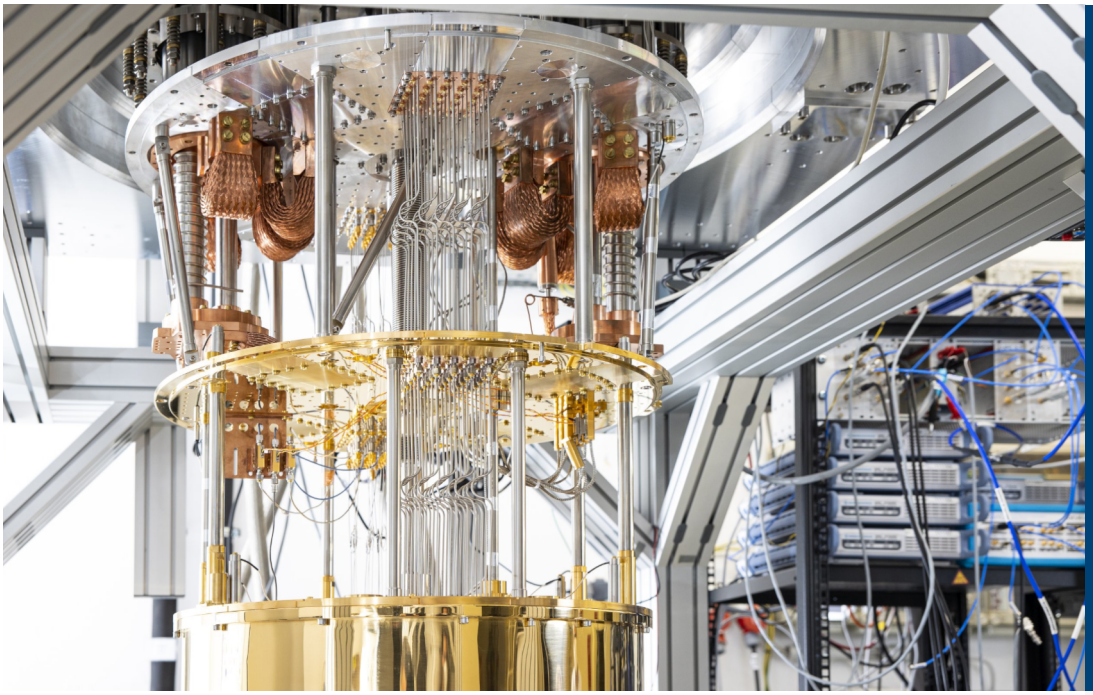
JÜLICH
Forschungszentrum



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 7,500 employees in one of Europe's biggest research centres and help us to shape change!

Who will be linking renewable energy technologies and quantum computers?

The Peter Grünberg Institute - Quantum Computing Analytics (PGI-12) and the Institute of Energy Technologies - Theory and Computation of Energy Materials (IET-3) are looking for an enthusiastic candidate for a PhD thesis in the development of quantum algorithms for the simulation of materials for battery technologies. The mission of the Institute for Quantum Computing Analytics (PGI-12) is to model and improve quantum computing systems on multiple levels, from optimal control of the hardware, over error mitigation and compilation, to application specific quantum algorithms. At the Institute for Theory and Computation of Energy Materials (IET-3), we contribute to fundamental understanding of electrochemical phenomena, development and characterization of tailored materials solutions, and testing and optimization of new energy technologies. In our research, we use and test cutting-edge technologies of high-performance computing, including exascale supercomputers and quantum computers.

PGI-12 and IET-3 are offering an interesting

PhD Position – Quantum Computing Methods for the Simulation of Battery Materials

Your Job:
Quantum computers will play a crucial role in the development and optimization of battery materials in the future.

- In this project, you will develop innovative quantum algorithms for the accurate calculation of materials properties.
- You will combine methods from quantum informatics and solid-state physics to describe the complex electronic and ionic processes in battery materials.
- New quantum algorithms will be tested for addressing topical questions in materials development for next-generation batteries.

We look forward to receiving your application until 26.10.2025 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

In this project, you will benefit from the combined expertise in quantum algorithms and materials simulations at the institutes PGI-12 and IET-3. Thereby, Forschungszentrum Jülich will provide you with an ideal environment for your project with unique possibilities to access the latest hardware of quantum computers—directly on campus!

Your Profile:

- Master in physics or comparable degree that permits to pursue a doctorate
- Very good knowledge of quantum theory and solid-state physics
- Experience and interest in computer programming
- Pronounced organizational and communication skills
- Self-organized and independent work style
- Motivation to cooperate in interdisciplinary teams
- Very good written and spoken English language skills
- Ideally good German language skills, both written and spoken

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:

- Supervision and support by highly qualified scientists at PGI-12 und IET-3
- Possibility for a doctorate from the Faculty of Georesources and Materials Engineering of RWTH Aachen University or the Faculty of Natural Sciences and Technology of Saarland University
- Comprehensive training offers and individual opportunities for personal and professional development (e.g., within the HITEC Graduate School and JuDocS, the Jülich Center for Doctoral Researchers and Supervisors: https://www.fz-juelich.de/en/judocs)
- Network with globally leading academic and industrial partners
- Optimal conditions for balancing work and private life, and a family-conscious corporate policy
- Possibility of time- and location-flexible working models
- Large research campus in the countryside, which offers ideal opportunities for networking with colleagues and sporting activities.
- Targeted services for international employees, e.g. through our International Advisory Service.

We offer you an exciting employment in an international and interdisciplinary working environment and a dynamic technology sector. The position is initially limited to 3 years. 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“). The monthly salaries in euro can be found on the BMI website: https://go.fzj.de/bmi.tvoed.entgelt Further information on doctoral degrees at Forschungszentrum Jülich (including its various branch offices) is available at https://www.fz-juelich.de/en/careers/phd

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

Further information on diversity and equal opportunities: https://go.fzj.de/equality and on specific support options: https://go.fzj.de/womens-job-journey

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.