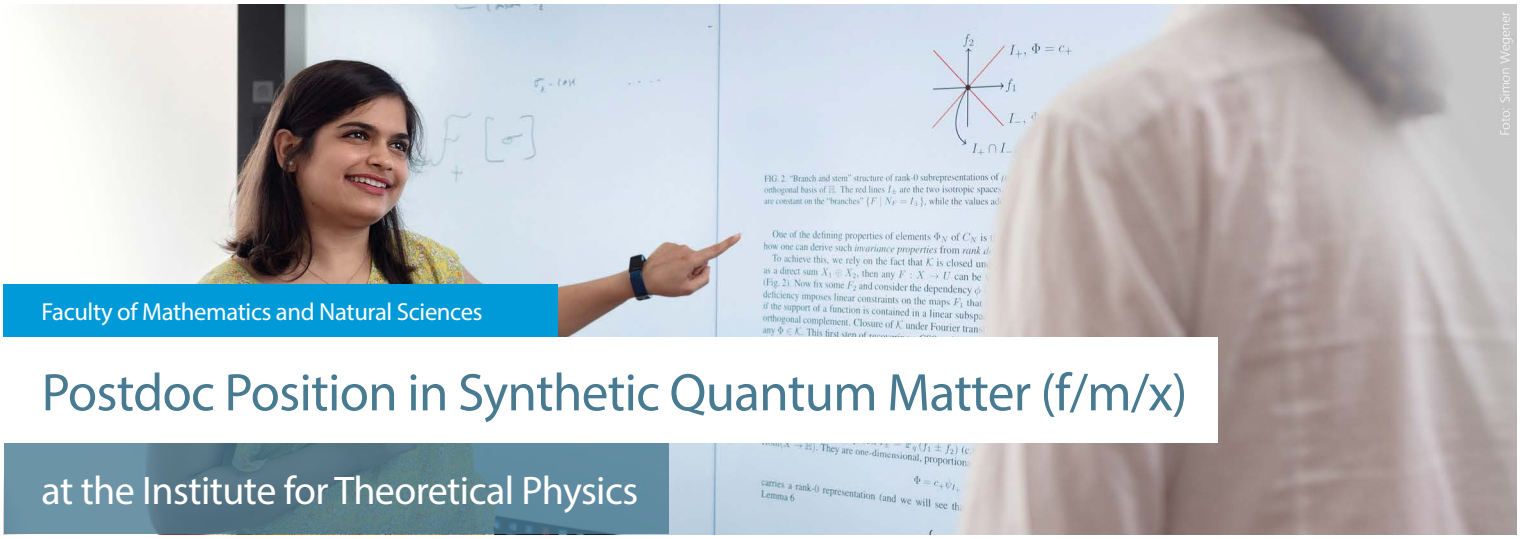

Faculty of Mathematics and Natural Sciences

Postdoc Position in Synthetic Quantum Matter (f/m/x)

at the Institute for Theoretical Physics

We are one of the largest and oldest universities in Europe and one of the most important employers in our region. Our broad range of subjects, the dynamic development of our main research areas and our central location in Cologne make us attractive for students and researchers from around the world. We offer a wide range of career opportunities in science, technology, and administration.

A postdoctoral position (f/m/x) is being opened under the guidance of Profs. T. Calarco and M. Rizzi across the Institute for Theoretical Physics at the University of Cologne and the Peter Grünberg Institute for Quantum Control (PGI-8) at the Forschungszentrum Jülich.

YOUR TASKS

- Contributing -- by also bringing your own ideas to the table -- to the recent research lines in the Synthetic Quantum Matter group led by M. Rizzi, like:
  - two-dimensional quantum many-body systems, with focus on frustration effects and entanglement properties
  - quantum simulation schemes, in- and out-of-equilibrium, not only for analogue platforms but also for circuit-based ones
  - development of tensor networks techniques at all levels, including automated exploration of phase diagrams
  - development of quantum optimal control schemes for many-body systems, in close collaboration with PGI-8
- Regularly interacting with theoretical and experimental partners inside the Institutes at UoC & FZJ, within the Collaborative Research Center 183 "Entangled States of Matter" and the Cluster of Excellence "ML4Q -- Matter & Light for Quantum Computing", and also within the extensive network of EU and German projects of the PGI-8
- Mentoring junior group members, participating to teaching activities and playing a leadership role in research directions
- Actively participating in research project writing and management processes

YOUR PROFILE

- A successful Master/Diploma and PhD in theoretical physics
- A solid background in some of the following fields: (1) tensor networks, (2) many-body lattice systems, (3) atomicmolecular-optics systems, (4) topological matter, (5) entanglement in cond-mat systems, (6) quantum circuits;
- A strong interest in developing analytical models and numerical optimization methods, and/or interest in working closely with experiments
- Programming experience is highly desirable
- Fluent command of written and spoken English
- Leadership and communication skills
- Ability to work autonomously and within a team, with the right amount of enthusiasm to develop and follow your own ideas, co-supervising younger colleagues along the path

WE OFFER

- Continuous mentoring by your scientific advisor, as well as an intense exposure to international collaborations and the possibility to travel to conferences
- Training and networking in quantum technologies, a field which currently faces (for the next decade at least) significant investment from private and governmental funding agencies
- Possibility of pursuing a German Habilitation
- A diverse working environment with equal opportunities
- Support in balancing work and family life
- Extensive advanced training opportunities
- Occupational health management offers
- Flexible working time models
- Opportunity to work remotely

The University of Cologne is committed to equal opportunities and diversity. Women are especially encouraged to apply and will be considered preferentially in accordance with the Gender Equality Act of the State of North Rhine-Westphalia (LGG NRW). We also expressly welcome people with disabilities/special needs or of equal status.

The position is available as soon as possible on a full-time basis (39,83 hours per week). It is initially limited to three years, with possibility for an extension. If the applicant meets the relevant wage requirements and personal qualifications, the salary will be based on remuneration group 13 TV-L of the pay scale for the German public sector.

Please apply online in English with proof of the required qualifications [a cover letter (statement of research), a full CV, academic certificates and transcripts (bachelor, master, PhD) and any other supporting certificates, as well as the contact details of professionals to whom we may ask a letter of reference] without a photo to: https://jobportal.uni-koeln.de. The reference number is Wiss2307-06. The application deadline is 30.09.2023.
For further inquiries, please contact Matteo Rizzi (matteo.rizzi@uni-koeln.de).

Universität zu Köln