

# Post-doc position (f/m/d) - Dynamics of topological edge states

Matter and Light for Quantum Computing (ML4Q) | Group of Prof. Bocquillon

Foto: Thomas Josef

The University of Cologne is one of the largest and most research-intensive universities in Germany, offering a wide range of subjects. With its six faculties and its interfaculty centres, it offers a broad spectrum of scientific disciplines and internationally outstanding profile areas, supported by the administration with its services.

The Faculty of Mathematics and Natural Sciences comprises six departments with about 180 professors and 9,000 students and is one of the largest faculties in the country.

A position for a post-doctoral researcher (f/m/d) is available in the group of Prof. Erwann Bocquillon. The group is newly established in the frame of the Cluster of Excellence „Matter and Light for Quantum Computing“ and investigates quantum transport in topological insulators. For more information please look at our webpage:

<https://ph2.uni-koeln.de/arbeitsgruppen/bocquillon>

## YOUR TASKS

In recent years, topological insulators have revealed spectacular properties inherited from the topological properties of their band structures. The quantum anomalous Hall effect falls in this category, with a single edge state at zero magnetic field. The extraordinary properties of this material open prospects for exotic fundamental physics, and appear as a promising candidate platform for topological quantum computation.

You will be able to take part in one or several projects mostly exploring the transport of topological edge states of the quantum anomalous Hall effect. You will contribute to:

- » the fabrication of nano-scale devices
- » the development of setups for transport measurements from DC low to high frequencies (GHz)
- » the study of transport in topological edge states of the quantum anomalous Hall effect, and their coupling to superconductors or the physics of edge states at magnetic domain walls

## YOUR PROFILE

The candidate should have a PhD in experimental physics, and be experienced in a subset of the listed fields:

- » GHz/microwave techniques
- » cryogenic systems
- » transport measurements and instrumentation
- » nano-fabrication and clean-room techniques

## WE OFFER YOU

- » a diverse and fair working environment
- » support in reconciling work and family life
- » flexible working time models
- » extensive advanced training opportunities
- » occupational health management offers
- » local transport ticket at a discount for UoC employees

The position is available as soon as possible on a full-time basis. It is fully funded and initially limited to 2 years, with the possibility of extension. If the applicant meets the relevant wage requirements and personal qualifications, the salary is based on remuneration group 13 TV-L of the pay scale for the German public sector.

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 Equal Opportunities Act of North Rhine-Westphalia (Landesgleichstellungsgesetz – LGG NRW). We also expressly welcome applications from people with disabilities / special needs or of equal status.

Please apply online at: <https://jobportal.uni-koeln.de> with proof of the sought qualifications. The reference number is Wiss2112-07. The application deadline is 02.02.2022.

For more information about the projects, please contact Prof. Erwann Bocquillon via email: [bocquillon@ph2.uni-koeln.de](mailto:bocquillon@ph2.uni-koeln.de).