



UNIVERSITY
OF COLOGNE

Faculty of Mathematics and Natural Sciences



Foto: Simon Wegener

Doctoral position (f/m/x) Ultrafast Optical Control of Spins in Antiferromagnet–TMDC Heterostructures

Institute of Physics II

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.

The position is available within the Optical Condensed Matter Science group at the University of Cologne (<https://ph2.uni-koeln.de/arbeitsgruppen/loosdrecht>). The successful candidate will work on ultrafast optical control of spins in antiferromagnet–TMDC heterostructures as part of the DFG Project No. 563196881 which is affiliated with the Priority Programme on 2D Materials (SPP 2244). The preferred starting date is as soon as possible.

YOUR TASKS

- » Perform exfoliation and fabrication of heterostructures, followed by optical characterization
- » Conduct experimental research on the out-of-equilibrium properties of 2D materials and van der Waals heterostructures
- » Analyse and model the obtained data using advanced methods
- » Prepare and present results in international conferences and publish in peer-reviewed journals

YOUR PROFILE

- » Master's degree in Physics, Materials Science, or a related field
- » Hands-on experience with exfoliation of van der Waals materials and fabrication of heterostructures
- » Strong interest and experience in ultrafast spectroscopy, magneto-optics, or Raman spectroscopy
- » Familiarity with photoluminescence spectroscopy and time-resolved photoluminescence (TRPL)
- » Programming skills (Python, MATLAB, LabView, Origin) desirable
- » Excellent command of written and spoken English

WE OFFER

- » A diverse working environment with equal opportunities
- » Support in balancing work and family life
- » Flexible working time models
- » Extensive advanced training opportunities
- » Occupational health management offers

The University of Cologne promotes equal opportunities and diversity. Women will be considered preferentially in accordance with the Equal Opportunities Act of North Rhine-Westphalia (Landesgleichstellungsgesetz – LGG NRW). We also expressly welcome applications from all suitable candidates regardless of their gender, nationality, ethnic and social origin, religion, disability, age, sexual orientation and identity.

The position is available immediately on a part-time basis (29,87 hours per week). It is limited for 36 months. 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.

Please apply online with proof of the required qualifications without a photo under: <https://jobportal.uni-koeln.de>. The reference number is Wiss2509-08. The application deadline is 12 October 2025.

For further inquiries, please contact Dr Hamoon Hedayat (hedayat@ph2.uni-koeln.de) or Professor van Loosdrecht (pvl@ph2.uni-koeln.de) and take a look at our [FAQs](#).



HR EXCELLENCE IN RESEARCH