



PhD Program between Freie Universität Berlin (FUB) and the China Scholarship Council (CSC)

**Open PhD Position at Freie Universität Berlin,
offered only to Chinese CSC scholarship candidates 2026**

Department/Institute: [Department of Physics/Institute of Experimental Physics]

Subject area: [Solid-State Physics]

Name of Supervisor: [Prof. Wolfgang Kuch]

Number of open PhD positions: [1]

Type of the PhD Study: [Full-time]

Project title: [Ultrafast spin dynamics in antiferromagnet/ferromagnet hybrid systems]

PhD Project description:

Ultrafast spin dynamics is a key research area with direct relevance to magnetic data processing and storage, where the ever-growing volume of digital information demands increasingly rapid handling. Antiferromagnetic (AFM) films are commonly employed to tailor the magnetic properties of adjacent ferromagnetic (FM) films, clusters, or adatoms. While AFM/FM bilayers have been extensively investigated in terms of their static magnetic interactions, their ultrafast magnetization dynamics remain far less understood. In this project, we explore the response of AFM/FM bilayers to ultrafast excitations using time-resolved resonant soft x-ray reflectivity following excitation with ultrashort laser pulses. By exploiting magnetic circular and linear dichroism, we will trace the transfer of energy, charge, spin, and angular momentum between the two layers on sub-100-femtosecond timescales. The results are expected to reveal pathways for designing layered magnetic systems optimized for the fastest and most efficient control of magnetic properties—paving the way toward next-generation electronic devices with significantly enhanced operation speeds.

Language requirements:

IELTS: 6,5 oder TOEFL: 95 ibt

Academic requirements:

Master of Science in Physics or related.

Information of the professor or research group leader (website, awards etc.):

<https://www.physik.fu-berlin.de/en/einrichtungen/ag/ag-kuch>
http://users.physik.fu-berlin.de/~kuch/pub_index.html

Please note:

In a first step, the complete application should be uploaded to the online portal (<https://fuberlin.moveon4.de/form/60acfece5d328710e40bdbd5/eng>) for evaluation by December 15th, 2025.