



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

**Open PhD Position at Freie Universität Berlin,
offered only to Chinese CSC scholarship candidates 2025**

Department/Institute: Department of Physics/Institute of Experimental Physics

Subject area: Magnetism/Surface Physics

Name of Supervisor: Prof. Wolfgang Kuch

Number of open PhD positions: 1

Type of the PhD Study: Full-time

Project title: Molecular spintronics

PhD Project description:

In view of the increasing energy demand of digital technologies, interest nowadays focuses on the development of spintronics, the use of the electron's spin for storing and processing information rather than its charge, which avoids energy dissipation from charge transport. In this respect, organic magnetic molecules have a great potential.

The aim of the project is to explore possibilities for molecular spintronics at solid surfaces. It is embedded in a rapidly progressing field of actual research that receives currently great attention. Molecules, synthesized by collaborating chemistry groups, are deposited on solid surfaces in ultrahigh vacuum by various deposition techniques. Magnetic elements are either linked by the molecules on the surface to form ordered two-dimensional structures or are already contained in the molecules. The resulting surface structures are characterized by standard surface-science techniques. Their magnetic properties like intermolecular interactions, cooperative or spin-switching behavior, magnetic long-range order, are explored by x-ray absorption spectroscopy at the Berlin synchrotron radiation source BESSY II, where the university runs a superconducting magnet set-up that allows measurements at high magnetic fields and lowest temperatures. Results will demonstrate the capability of metal-organic surface structures for inclusion in molecular spintronics.

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 January 15th, 2025.