



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

### Open PhD position at FUB for CSC scholarship candidates 2018

*Please note: the PhD position is only offered to Chinese PhD candidates for application in the framework of the FUB-CSC PhD Program.*

<b><u>Department/Institute:</u></b>	Department of Physics/Institute of Experimental Physics
<b><u>Subject area:</u></b>	Solid State Physics/Surface Physics
<b><u>Name of Supervisor:</u></b>	Prof. Dr. Wolfgang Kuch
<b><u>Number of open PhD positions:</u></b>	1
<b><u>Type of the PhD Study:</u></b>	Full-time
<b><u>Project title:</u></b>	Magnetic molecules at solid surfaces

#### **PhD Project description:**

Organic molecules have a great potential for the continuing miniaturization of all kind of electronic devices. They can be considered as the smallest building blocks for organic electronics, data storage devices, or sensor applications. If the molecules possess a magnetic moment, additional functionalities like sensing or defining the spin of electrons, logic operations, or data storage may be at hand. To take advantage of magnetic molecules for such devices, they need to be immobilized and contacted. This involves the interaction with a solid surface.

In the project, the magnetic properties of molecules adsorbed on single-crystal surfaces will be explored and how they can be reversibly manipulated by external parameters. Samples are prepared under ultrahigh vacuum conditions and examined by x-ray spectroscopy in the university lab and at the Berlin synchrotron radiation source BESSY II in a new superconducting magnet set-up that allows measurements at high magnetic fields and low temperatures. The aim is to control in a defined way the magnetism of the adsorbed molecules by temperature, light illumination, or coadsorbates. To this end, a thorough characterization of the interaction between molecules and the substrate is indispensable. The project is embedded in a rapidly progressing field of actual research that receives currently great attention due to its relevance for the further miniaturization of nanoscale devices.

#### **Language requirements:**

IELTS: 6.5 or TOEFL: 95 ibt.

#### **Academic requirements:**

Master in physics with a master thesis in experimental physics.

#### **Information of the professor or research group leader:**

<http://www.physik.fu-berlin.de/einrichtungen/ag/ag-kuch/>

[http://users.physik.fu-berlin.de/~kuch/pub\\_index.html](http://users.physik.fu-berlin.de/~kuch/pub_index.html)

**Please note:** In a first step, the complete application must be submitted to the Beijing Office for evaluation by January 4<sup>th</sup>, 2018. Please do not contact the professor before. He/She will get in contact with you after having received the complete application via the Beijing Office in January.