



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

Open PhD position at FUB for CSC scholarship candidates 2017

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

<u>Department/Institute:</u>	Department of Physics/Institute of Experimental Physics
<u>Subject area:</u>	Ultrafast spectroscopy, vibrational dynamics
<u>Name of Supervisor:</u>	Prof. Dr. Karsten HEYNE (Mr.)
<u>Number of open PhD positions:</u>	1
<u>Type of the PhD Study:</u>	Full-time
<u>Project title:</u>	Femtosecond polarization resolved Vis pump – IR probe spectroscopy on biological relevant systems

PhD Project description:

Dynamics of photoreactions provide essential information on reaction pathways, quantum yield and structure-function relationship of the reacting molecule. We investigate molecules in solution and bound to proteins to understand biological relevant photoreceptors, and how photoreactions are optimized by the protein. Interactions such as hydrogen bondings, ionic and sterical interactions play a vital role in altering properties of the ultrafast photodynamics. We use polarization resolved pump – probe spectroscopy in the visible and mid-IR spectral region to track electronic and vibrational changes. Structural information are accessible by angle determination between different transition dipole moments within the molecules. The project is based on nonlinear optical effects applied to biological relevant systems. It provides unique information on the biological system to understand how dynamics can be governed by various interactions.

The PhD project comprises working with high intensity lasers, nonlinear optical processes to generate different wavelengths, preparation of biological samples, performing pump – probe experiments, analysis of transient datasets, and interpretation of the complex results.

Language requirements:

English: IELTS 6.5 or TOEFL 95 ibt.

Academic requirements:

Master of physics; master of physical electronics; master of optoelectronics

Information of the professor or research group leader:

Prof. Karsten Heyne,
homepage <http://www.physik.fu-berlin.de/einrichtungen/ag/ag-heyne/index.html>

Please note:

In a first step the complete application should be submitted to the Beijing Office for evaluation by January 4th, 2017. Please don't contact the professor before. He/She will get in contact with you after having received the complete application in January.