



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

Open PhD position at FUB for CSC scholarship candidates 2016

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>	Fachbereich Physik / Institut für Experimentalphysik
<u>Subject area:</u>	Photovoltaics / Magnetic Resonance Spectroscopy
<u>Name of Supervisor:</u>	Prof. Dr. Jan BEHRENDTS (Mr.)
<u>Number of open PhD positions:</u>	1
<u>Type of the PhD Study:</u>	Full-time or Sandwich-Model
<u>Project title:</u>	Identification of Degradation Mechanisms in Organic Solar Cells

PhD Project description:

Project description

- Participation in a research project within the framework of the Berlin Joint EPR Lab (junior research group “EPR spectroscopy in photovoltaics”)
- Development and application of spin-sensitive techniques for the analysis of degradation processes in organic semiconductors
- Fabrication of organic solar cells
- Investigation of the influence of paramagnetic defect states on charge transport in solar cells
- Analysis of the defect generation kinetics in disordered semiconductors using EPR-based techniques in combination with time-resolved optical spectroscopy

Language requirements:

PhD study in English is possible

Academic requirements:

Requirements

- Master’s degree in physics or chemistry (Bachelor’s degree is not sufficient)
- Strong knowledge base in the field of electron paramagnetic resonance spectroscopy
- Preferably previous experience with electrical and optical characterisation of solar cells and/or semiconductors

Information of the professor or research group leader:

Jan Behrends is Juniorprofessor at the physics department and head of the junior research group “**EPR spectroscopy in photovoltaics**”. His group focuses on improving our understanding of fundamental processes in solar cells on a microscopic level. Techniques based on **Electron Paramagnetic Resonance (EPR) spectroscopy** are used for this purpose.

The main activities include studying charge transport in **organic solar cells** as well as **hybrid solar cells** made from organic and inorganic semiconductors. The aim is the identification of efficiency-limiting loss mechanisms and the development of strategies for the fabrication of future solar cells with improved efficiencies.

The junior research group is part of the **Berlin Joint EPR Lab** (BeJEL), which was founded in 2013 and links the EPR research activities at the FUB and the Helmholtz-Zentrum Berlin für Materialien und Energie.

Website: <http://www.physik.fu-berlin.de/en/einrichtungen/ag/ag-behrends/index.html>

Please note:

In a first step the complete application should submit to the Beijing Office for evaluation by January 4th, 2016. Please don't contact the professor before. He/She will get in contact with you after having received the complete application in January.