



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

### Open PhD position for CSC scholarship candidates 2015

The PhD position is only offered to Chinese PhD candidates for application in the framework of the FU-CSC Program.

<b><u>Department/Institute:</u></b>	Institute of Chemistry and Biochemistry
<b><u>Subject area:</u></b>	Organometallic chemistry and catalysis
<b><u>Name of Supervisor:</u></b>	Prof. Biprajit Sarkar
<b><u>Number of open positions:</u></b>	1 (Full-time / 3-4 y. PhD study)
<b><u>Project title:</u></b>	Metal Complexes of Mesoionic Carbenes for Hydrogenation and Oxidation Catalysis

#### **Project description:**

This project will deal with the synthesis of strongly donating mesoionic carbene ligands and their transition metal complexes. The metal complexes will then be used as catalysts for the direct oxygenation of C-H bonds as well as for the hydrogenation of C=C, C=O and C=N bonds. Multidentate mesoionic carbene ligands will be used to generate polynuclear complexes to investigate cooperative effects in catalysis. Apart from organic and inorganic synthesis, this project will also have components of NMR spectroscopy, X-ray crystallography, mass spectrometry, gas chromatography and EPR spectroscopy. Such techniques will be utilized for studying the mechanisms of the catalytic reactions

#### **Language requirements:**

The doctoral thesis can be written in English. Basic knowledge of the German language will be helpful but is not necessary.

#### **Academic requirements:**

The candidate should have a strong background in organic and organometallic chemistry, coordination chemistry, and working with Schlenk lines and glovebox. He/She should also have attended lectures on spectroscopy and crystallography for characterizing organic compounds and metal complexes. A Master's degree will be more suitable for a full time doctorate program.

#### **Link to professor and further information:**

<http://www.bcp.fu-berlin.de/en/chemie/chemie/forschung/InorgChem/agsarkar/index.html>

#### **Please note:**

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