



## 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.*

<b><u>Department/Institute:</u></b>	Institute for Chemistry and Biochemistry
<b><u>Subject area:</u></b>	Physical Chemistry
<b><u>Name of Supervisor:</u></b>	Prof. Dr. Thomas RISSE (Mr.)
<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>	Model studies on selective hydrogenation reactions

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

Understanding the molecular mechanism of heterogeneous catalysts is a very important problem towards a rational design of new catalyst. Within this thesis model systems containing of single crystalline oxide surfaces with deposited metal nano particles will be investigated under well-defined conditions using a combination of molecular beam techniques and spectroscopy to characterize the steady state as well as the transient kinetics of the reaction and simultaneously probe the chemical nature of surface species present under reaction conditions.

The project aims at the investigation of partial hydrogenation reactions such as the hydrogenation of butadiene to butene. The hydrogenation is a facial reaction on Pd catalysts, but partial hydrogenation is more challenging. To this end the effect of alloying the Pd particle with a second metal component shall be investigated to elucidate the possibility to tune the selectivity of the catalysts.

#### **Language requirements:**

very good proficiency of the English language

#### **Academic requirements:**

A master degree in chemistry, physics or similar fields.

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

Prof. Dr. Thomas Risse  
Physical and Theoretical Chemistry  
Institute of Chemistry and Biochemistry  
Freie Universität Berlin

Web-page: <http://www.bcp.fu-berlin.de/en/chemie/chemie/forschung/PhysTheoChem/agrisse/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>, 2016. Please don't contact the professor before. He/She will get in contact with you after having received the complete application in January.