



## 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>	Earth Sciences, Institute of Geological Sciences
<b><u>Subject area:</u></b>	Geochemistry/Cosmochemistry
<b><u>Name of Supervisor:</u></b>	Prof. Dr. Harry BECKER (Mr.)
<b><u>Number of open PhD positions:</u></b>	1
<b><u>Type of the PhD Study:</u></b>	Full-time (4 years)
<b><u>Project title:</u></b>	Origin of volatile element fractionation in components of primitive meteorites

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

Primitive meteorites (chondrites) and their parent bodies from the main asteroid belt have not undergone large-scale planetary differentiation. Variations in volatile element compositions (e.g., H, C, S, but also volatile metals like K and Zn) between different groups of chondrites are known, however, their detailed origin is unclear. These chemical variations may reflect processes in the solar nebula, thermal metamorphism and aqueous alteration on the parent bodies, and, in some cases terrestrial weathering. Understanding the effects of these different processes on abundances and abundance ratios of volatile elements is critical to understand the primary volatile element fractionation processes in the solar nebular such as early fractional condensation and evaporation, but also later processes such as metal-sulfide-silicate fractionation and evaporation during chondrule formation. In this project, we will study abundances and element ratios of metal-loving volatile elements (e.g., Cu, Ag, Cd, In, Tl, Zn and others) in mechanically separated components of chondrites in order to understand the influence of different chemical fractionation processes on the components and on the whole rocks. This work also will apply isotopic tracers (Sr, S). Because chondritic materials have been assumed to represent the building materials of the terrestrial planets, this research will also provide constraints to verify the latter hypothesis. In the project, state of the art methods such as isotope dilution, ICP-MS and TIMS will be applied. All work will be conducted in clean lab and mass spectrometry labs (no field work).

#### **Language requirements:**

English minimum requirement: IELTS 7.0, TOEFL 100

**Academic requirements:**

This research requires a M.Sc. degree in geology and a very good background in geochemistry (chemistry lab experience would be beneficial). In exceptional cases (experience in ion exchange chromatography applications in inorganic chemistry and/or mass spectrometry, willingness to learn basics in geology and cosmochemistry) we also accept interested candidates with a M.Sc. in chemistry.

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

<http://www.geo.fu-berlin.de/en/geol/fachrichtungen/geochemhydromin/geochemie/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.