



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

Open PhD Position at Freie Universität Berlin, offered only to Chinese CSC scholarship candidates 2025

Department/Institute: Earth Sciences, Institute of Geological Sciences

Subject area: Geochemistry

Name of Supervisor: Prof. Dr. Harry Becker

Number of open PhD positions: 1

Type of the PhD Study: Full-time only, 4 years

<u>Project title:</u> Nucleosynthetic isotope heterogeneity in differentiated bodies of the solar system PhD Project description:

The solar system displays large-scale isotopic heterogeneity caused by mixing processes of isotopically variable dust during the dynamic evolution of the early protoplanetary disk. These isotopic variations are shown by undifferentiated and differentiated bodies which sample different solar system domains. Studies of undifferentiated meteorites also indicate substantial internal nucleosynthetic isotope heterogeneity of some of these objects. The details of the underlying processes are debated and include early transport and mixing of dust across the disk, heating and evaporation of dust, but also variable hydrothermal alteration of the parent bodies. In contrast, massindependent or nucleosynthetic isotope variations in differentiated bodies of the solar system like Earth, Mars or the Moon are much more homogeneous. Recent isotopic studies of differentiated meteorites which derive from small bodies display moderate isotopic heterogeneity, however, there are few such studies. This project aims to better constrain the extent of isotopic heterogeneity in smaller differentiated bodies, and if possible, the origin of accreted materials in early and late accretion processes by study of a range of lithologies of differentiated meteorites, which are thought to derive from the same body. like HED meteorites, aubrites and other groups of differentiated meteorites. The candidate will apply chemical separation methods in clean room environments and multi collector ICP spectrometry for nucleosynthetic isotopic measurements of titanium, chromium and other elements. The project involves method development for some element separation and MC-ICP-MS techniques but no field work.

Language requirements:

• IELTS: 6,5 oder TOEFL: 90 ibt

Academic requirements:

This research requires a M.Sc. degree in geology and a very good background in geochemistry (chemistry or clean lab and/or MC-ICPMS 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 (website, awards etc.):

https://www.geo.fuberlin.de/en/geol/fachrichtungen/geochemhydromin/geochemie/Overview_people/people_ne w/Professors/Becker/index.html

Please note:

In a first step, the complete application should be uploaded to the online portal (<u>https://fuberlin.moveon4.de/form/60acfece5d328710e40bdbd5/eng</u>) for evaluation by January 15th, 2025.