



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:	BCP, Anorganische Chemie
Subject area:	Inorganic Chemistry / Ionic Liquids
Name of Supervisor:	Sebastian Hasenstab-Riedel

Number of open PhD positions:1Type of the PhD Study:1

Project title: Development of new reactive ionic liquids PhD Project description:

The capture of gases by ionic liquids (ILs) is a cutting-edge approach in the field of gas separation and storage due to the unique properties of ILs, such as their negligible vapor pressure, high thermal stability, and tunable physicochemical characteristics. ILs consist of a combination of organic cations and inorganic or organic anions, allowing customization to target specific gases. These liquids are particularly effective in capturing CO₂, SO₂, and other industrially significant gases due to their ability to form reversible chemical bonds or physical interactions. The high selectivity, coupled with the potential for recyclability, makes ILs an environmentally friendly alternative to conventional solvents in applications like carbon capture, gas purification, and natural gas processing. In this project we will develop new modern ionic liquids as reactive materials not only to capture gases we will also activate and react these gases within the ionic liquid.

Language requirements:

• IELTS: 6,5 oder TOEFL: 95 ibt

Academic requirements:

A master's degree in chemistry is required. Experience with quantum chemical calculations can be helpful as well as working under inert conditions.

Information of the professor or research group leader (website, awards etc.):

The Riedel group is an internationally outstanding and leading workgroup in the field of halogen chemistry and modern molecular spectroscopy at cryogenic conditions. Especially the very broad knowledge in synthetic halogen chemistry which includes even the handling of elemental fluorine combined with special analytic techniques like matrix-isolation spectroscopy in conjunction with quantum-chemical methods underlines the broad interest of the group. The chemistry is not only of interest for the academia but also for applied research as exemplified by his vast number of more than 22 patents and some industry cooperations.

For more details like the group, topics and awards, see: www.fu-berlin.de/chemie/riedel.de

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.