



# 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:	Fluorine Chemistry / Matrix-Isolation Spectroscopy
Name of Supervisor:	Sebastian Hasenstab-Riedel
Number of open PhD pc	ositions: 2

Type of the PhD Study: Full-time

Project title:Novel fluorinated Molecules as Strong Oxidizers or LewisAcidsPhD Project description:

Fluorinated molecules with strong oxidizing properties are of significant interest in both industrial and scientific contexts due to their unique reactivity. The high electronegativity of fluorine enhances the electron-withdrawing effects, stabilizing highly oxidized species and increasing their oxidative potential. Examples include fluorinated compounds such as  $OF_{3^-}$ ,  $CF_3OOCF_3$ ,  $CF_3OF$ , or metal oxyfluorides which have been investigated in the recent years in our group.

In this project we aim for the investigation of new fluorinated main group or transition metal compounds which can either be prepared and investigated in bulk quantities or by matrix-isolation spectroscopy. Both experimental techniques go hand in hand with modern quantum-chemical calculations to investigate the nature of the chemical in bond in such novel and very interesting compounds.

### 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.