

## Helmholtz Call for Chinese Applicants Interested in Running for CSC 2021 Fellowship

**Helmholtz Centre:** Forschungszentrum Jülich GmbH – [www.fz-juelich.de](http://www.fz-juelich.de)  
**Department/Institute:** Institute of Bio- and Geosciences: Agrosphere (IBG-3)  
[https://fz-juelich.de/ibg/ibg-3/EN/Home/home\\_node.html](https://fz-juelich.de/ibg/ibg-3/EN/Home/home_node.html)  
**Supervising scientist:** Dr. Bei Wu  
**University for registration or for a future degree:** University of Bonn  
**Research Field:** Biogeochemistry  
**Position open for:** **PhD Student X** **Sandwich PhD Student**   
**Title of the research:** Quantification of potassium (K) use efficiency in modern agricultural ecosystems using K stable isotopes

### More description of research topic:

Sustainable soil management and agriculture requires balanced and highly efficient fertilization strategies. Potassium (K) fertilization is known to increase nitrogen (N) use efficiency, crop yields and quality, and crop's tolerance to pests, diseases and drought. The present study aims at using non-traditional stable isotope techniques at natural and near-natural abundance levels to evaluate K use efficiency in agricultural ecosystems. German and European long-term K fertilization trials will be examined with respect to the temporal and spatial variation of K isotope composition in soils and crops. Potassium isotope fractionation factors of relevant biogeochemical processes (e.g. plant uptake, leaching, transformation, etc.) in the ecosystems will be determined to provide fundamental knowledge on K cycling in these systems. The insight obtained will assist more sustainable K fertilization in the future.

### Specific requirements:

Master's degree in Soil Sciences, Geosciences, or related field. Excellent skills in inorganic analytical chemistry. Experiences in field work (sampling) and measurements by inductively coupled plasma mass spectrometry (ICP-MS and MC-ICP-MS).

**Working Place:** Forschungszentrum Jülich, Germany (near Cologne)

**Earliest Start:** October 2021

**Language Requirement:** Very good knowledge of English language, written and spoken. German language courses are organised in the context of our in-house training program and are free of charge.

### Name and Address of the Supervisor:

Dr. Bei Wu, Forschungszentrum Jülich GmbH, Institute of Bio- and Geosciences (IBG-3), 52425 Jülich, Germany; Email: [b.wu@fz-juelich.de](mailto:b.wu@fz-juelich.de)