

## 2017 Helmholtz – OCPC – Programme for the involvement of postdocs in bilateral collaboration projects

### PART A

**Title of the project:** Supporting water purification strategies by size resolved elemental characterisation of suspended particles

**Helmholtz Centre and institute:**

Forschungszentrum Jülich, Central Institute for Engineering, Electronics and Analytics (ZEA-3)

**Project leader:** Dr. Volker Nischwitz

**Web-address:** [http://www.fz-juelich.de/zea/zea-3/EN/Home/home\\_node.html](http://www.fz-juelich.de/zea/zea-3/EN/Home/home_node.html)

### **Description of the project:**

The project is closely related to remediation of nutrients and pollutants in lakes, which is especially a problem for shallow lakes. Tai Hu in China is an important example of a shallow lake, where excessive growth of micro-algae occurs which may in part be caused by remobilization of nutrients from the sediment. The task of the advertised project will be the development and adaption of particle separation techniques (using field flow fractionation (FFF)) online with various detectors including inductively coupled plasma mass spectrometry (ICP-MS) for elemental characterization. The developed methods will be applied for detailed characterization of the suspended particulate matter in lake water. The goals will be on the one hand a better understanding of sedimentation and re-suspension processes on the availability of nutrients in the water and on the other hand the analytical evaluation and documentation of the efforts to implement novel water treatment and cleaning technology by the other partners of the project network. The hyphenation of FFF online with ICP-MS is frequently applied for nanoparticle characterization and will be extended for this project to cover natural particles from nanometer to low micrometer range.

### **Description of existing or sought Chinese collaboration partner institute:**

Our Institute collaborates within a Sino-German project with several partners both in China and Germany on improvement of water treatment and management strategies at Tai Hu. The project proposed in this bilateral Helmholtz Programme is closely related to the existing project focusing on better understanding of the role of suspended particles. For this goal we are looking for a Chinese PostDoc to develop novel analytical strategies in our lab in Germany and transfer them to collaborating institutes in China. Location near / relation to

Tai Hu area would be advantageous to organise sampling of water covering the seasonal and spatial variability. The partners might be interested in transferring the technology to China and might investigate further lakes to support restoration and/or decision processes for the improvement of drinking water source quality.

**Required qualification of the post-doc:**

- PhD in environmental or analytical chemistry
- Experience with elemental mass spectrometry (ICP-MS) and hyphenation with liquid based separation systems (preferably field flow fractionation)
- Additional high level English language skills, good communication and team working skills, motivation to work in Germany, ability to work systematically and independently on the proposed project

**PART B**

**Documents to be provided by the post-doc:**

- Detailed description of the interest in joining the project (motivation letter)
- Curriculum vitae, copies of degrees
- List of publications
- 2 letters of recommendation

**PART C**

**Additional requirements to be fulfilled by the post-doc:**

- Max. age of 35 years
- PhD degree not older than 5 years
- Very good command of the English language
- Strong ability to work independently and in a team