

## Position Profile for Chinese Applicants running for 2019 Helmholtz – OCPC – Program

### **PART A (Info about the Position)**

#### **Helmholtz Centre and institute:**

DESY, Photon Science

#### **Title of the project:**

Terapascal static high-pressure experiments: Submicron focusing and diffraction at high x-ray energies in the double stage Diamond Anvil Cell (dsDAC) using compound reflective lenses (CRL) and phase plates

#### **Project leader:**

Dr. H. P. Liermann

#### **Web-address:**

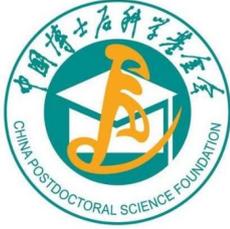
[http://photon-science.desy.de/facilities/petra\\_iii/beamlines/p022\\_extreme\\_conditions\\_beamline/index\\_eng.html](http://photon-science.desy.de/facilities/petra_iii/beamlines/p022_extreme_conditions_beamline/index_eng.html)

#### **Description of the project (max. half page):**

The Extreme Conditions Beamline (ECB, P02.2) at PETRA III has recently established submicron focus using Compound Reflective Lenses at high x-ray energies. While the focus is used to conduct powder and single crystal diffraction experiments at multi megabar pressures, the tail originating from the dispersion of the CRL is creating significant parasitic scattering. The project goal is to reduce the lorentzian part of the focused x-ray beam responsible for the tail through the application of phase plates and its application to double stage Diamond Anvil Technology (dsDAC) in order to conduct single crystal diffraction experiment above 2 Megabar and powder diffraction experiments at pressures larger than 4 Megabar. At the outcome of the project the ECB will have established procedures to create tail free, submicron, high energy x-ray beams (also essential for PETRA IV) while the potential candidate will be well trained in setting up submicron focusing scheme at high x-ray energies that will be essential for performing super high-pressure diffraction experiments at Diffraction Limited Light Source such as the High Energy Photon Source (HEPS) currently under development in Beijing, China.

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

- PhD in Physics, Geophysics, Mineralogy



- Experience with 3<sup>rd</sup> generation light sources and micron focusing in particular at high-pressure diffraction beamlines
- Additional skills in preparation and assembly of double stage or toroidal Diamond Anvil Cells

### **PART B (Materials and Procedures)**

The applicants shall submit the following documents to a Chinese postdoc station affiliated to a research institution or a university, after passing through the internal selection, the qualified application shall be forwarded to OCPC, and then to Helmholtz for evaluation:

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

### **PART C (General Conditions)**

#### **Additional requirements on the postdoctoral fellows:**

- Chinese citizenship from Mainland China (allows application while staying abroad)
- Max. age of 35 years, PhD degree not more than 5 years by submission of application
- Very good command of English language
- Strong ability to work independently and in a team