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

PART A (Info about the Position)
Helmholtz Centre and institute: DESY

Title of the project: A high precision Silicon Strip tracker for the DESY testbeam

Project leader: Ties Behnke

Web-address: www.desy.de

Description of the project (max. half page)**:**
The DESY II Test Beam Facility is a user facility open to external and internal users. The facility provides electron beams of energy of up to 6 GeV to four experimental stations. The facility is heavily used by groups developing detectors for particle and nuclear physics.

The facility is equipped with several pieces of infrastructure. One beamline is equipped with a superconducting 1 T magnet. The magnet which is operated off a local cryogenic plant features very thin walls, so that the beam can pass through the magnet. It has a useable volume of 60cm diameter and about 1 m in length. It is used mostly by groups testing tracking detectors for particle physics and nuclear physics experiments. Recent users include groups from Belle II, ATLAS and ALICE, or for experiments at future high energy colliders.

As part of the continuing upgrade of the facility we are currently constructing a large area strip telescope, which should be placed inside the magnet. The telescope will provide six measurement stations, three located close to the beam entry and three close to the beam exit, all inside the magnet. In between enough space remains to place large test detectors.

The telescope is based on a Hamamatsu strip tracker chip, and features integrated pitch adapters and a readout ASIC mounted directly onto the chip. A very ambitious resolution goal of better than 10micron per layer has been defined. Currently tests are ongoing of a first prototype module.

The purpose of the project will be to commission the fully completed detector, with all six layers, align the system, and participate in first measurements with a high resolution tracking detector inside the telescope stations. A high resolution time projection chamber as a potential first test detector is available. The person will be involved in the planning, the setup, the operation and the analysis of the test beam effort.

Required qualification of the post-doc:

- PhD in experimental particle physics/ nuclear physics
- Experience with modern experimental methods, semiconductor detectors, modern readout ASICS
- Additional skills in programming in C++, Python, experience in ROOT would be an advantage

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