

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

PART A (Info about the Position)

Helmholtz Centre and institute: DESY (Hamburg), FH-T

Title of the project: New physics opportunities at future HEP facilities

Project leader: Prof. Dr. Christophe Grojean

Web-address: <http://grojean.web.cern.ch/grojean/>

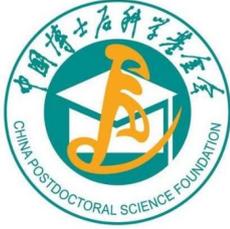
Description of the project (max. half page): After the Higgs boson discovery, the Standard Model provides a consistent description of the fundamental constituents of matter and their interactions that can be extrapolated to very high energy. Nonetheless, some key questions are left unanswered (nature of dark matter, origin of the matter-antimatter asymmetry, origin of the weak scale etc.) and new physics is expected to amend the standard model. The aim of this project is to study and compare the physics capabilities of possible future colliders like the International Linear Collider in Japan, the Future Circular Collider(s) at CERN, the Circular Electron-Positron Collider and the Circular Proton-Proton Collider in China. The recruited postdoc will be involved into a project devoted to a classification of all possible new physics effects in various sectors (deep-inelastic scattering, EW precision measurements, diboson and dijets data at the LHC, Higgs measurements). A special attention will be devoted to the synergy and the complementarity between these multiple measurements. In particular, for lepton collider projects, the study will be conducted to establish the importance of a run at the Z-pole or the benefit of polarized beams. The model-independent analyses, mostly performed in an effective field theory framework, will be then used to probe specific models and to infer some physical consequences on the relevant physics questions that the standard model fails to address. This project will be developed in the context of the platform for future facilities of the newly established Quantum Universe excellence cluster.

Required qualification of the post-doc:

- PhD in Theoretical Particle Physics
- Experience with Quantum Field Theory, LHC data, collider physics
- Additional skills in Phenomenology, Effective field theory, Monte Carlo simulations

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