**2018 Helmholtz – OCPC – Program**

**for the involvement of postdocs in bilateral collaboration projects**

**DESY\_OCPC\_2018-09**

**PART A**

**Title of the project: Role of Precision Timing for Detectors at Future e+e- Colliders**

**Helmholtz Centre and Research Group: DESY**

**Project leader: Jenny List**

**Web-address:** http://flc.desy.de/

**Description of the project** (max. 1 page)**:**

The goal of this project is a comprehensive evaluation of the role precision timing information could play in detector concepts for future e+e- colliders like CEPC, FCC-ee, CLIC or ILC. The use of timing information has not been in the focus of the detector design until recently, but with time resolutions below 100 ps becoming feasible for some of the relevant detector technologies, a coherent evaluation of the potential benefits could provide strong motivation for targeted R&D and eventually become important input to technology choices to be made. The potential use-cases for timing information range from background suppression via particle identification to assistance in clustering for particle flow reconstruction. Especially for the latter, significant algorithmic developments in the reconstruction software are needed. For each of the use-cases requirements on the timing resolutions needed to achieve a substantial benefit for event reconstruction will be derived. Thereby, the time structures and background conditions of the different accelerators will be considered.

**Description of existing or sought Chinese collaboration partner institute** (max. half page)**:**

An ideal collaboration partner for this project would be IHEP, continuing a fruitful existing collaboration, but other, new collaboration partners with a strong experience in collider based particle physics are welcome as well.

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

* PhD in experimental particle physics
* Experience with data analysis or development of reconstruction algorithms
* Basic knowledge of modern detector technologies

**PART B**

**Documents to be provided by the post-doc, necessary for an application to OCPC via a postdoc-station:**

* + 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**

**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