**2017 Helmholtz – OCPC – Programme**

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

**PART A**

**Title of the project:**  Investigation of ion motion in beam-driven plasma accelerators

**Helmholtz Centre and institute:** Deutsches Elektronen-Synchrotron DESY, Hamburg

**Project leader: Jens Osterhoff (DESY) co-PI: Carl B. Schroeder (LBNL)**

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**Description of the project** (max. 1 page)**:** Research will be performed in the area of beam-driven plasma accelerators. A high current particle beam can drive a plasma wakefield with ultra-high gradients enabling accelerators, many orders of magnitude more compact than possible with conventional radiofrequency technology. In addition to the accelerating fields, the plasma supports strong focusing fields. These transverse fields can focus the beam to extremely high densities, much greater than the background plasma density, resulting in ion motion on the time scale of the beam duration. The goal of this study is to investigate the effects of ion motion on the dynamics of the beam and design an experiment to measure these effects on the FLASHForward Facility at DESY. The project will be executed in close collaboration with Dr. Carl B. Schroeder of Lawrence Berkeley National Laboratory, United States, who is acting as co-principal investigator.

**Description of existing or sought Chinese collaboration partner institute** (max. half page)**:** There is no active collaboration with a Chinese partner. The prospective institution should run a theoretical or experimental group/program in plasma wakefield acceleration at an internationally competitive level. There are many examples of such internationally visible Chinese research groups, e.g. the group of Prof. Wei Lu at the Department of Engineering Physics at Tsinghua University, Beijing, or the Key Laboratory for Laser Plasmas,  
Department of Physics and Astronomy at Shanghai Jiao Tong University.

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

* PhD in Physics or a related field
* Experience with plasma wakefield accelerators (experiment or theory)
* Additional skills: -

**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