**2017 Helmholtz – OCPC – Programme**

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

**PART A**

**Title of the project:**

**Ultrafast Optics and X-ray Sources / High Energy Terahertz Generation**

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

**Project leader: Prof. Dr. Franz Kärtner**

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**Description of the project:**

High energy Terahertz (THz) pulses in the multi-mJ range open up new applications such as the study of strong-field effects in gases, liquids, solids and nanostructures as well as compact electron acceleration. We have developed several schemes based on difference frequency generation and cascade optical parametric amplification to enhance the efficiency of laser based THz generation both in the single- as well as multicycle regime. The interested candidate is expected to implement new generation approaches and use the high energy THz source in the above applications.

**Description of existing or sought Chinese collaboration partner institute:**

The group has already good contacts to School of Physics and Optoelectronic Engineering at Xidian University, Xi’an 710071, China.

A candidate from that institute would be preferred and we are encouraging our partners to make proposals.

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

The postdoctoral candidate has a PhD in physics, electrical engineering or a related field, has experience in the set-up of laser oscillators, amplifiers at high energies free space nonlinear optics experiments. Experience with numerical methods for analyzing thermal, optical and mechanical performance of systems is helpful. An excellent background in

nonlinear optics as well as experimental experience in optical parametric amplifiers, oscillators or THz generation and its applications is expected.

We are looking for a team-oriented and enthusiastic candidate who can interact well with the other team members in the laser development group as well as application groups.

**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