**2017 Helmholtz – OCPC – Programme**

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

**PART A**

**Title of the project: Cryogenic buffer-gas cooling of large molecules**

**Helmholtz Centre and institute: DESY**

### Project leader: Prof. Dr. Jochen Küpper; FRSC

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**Web-address:** <https://www.controlled-molecule-imaging.org/>

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

**Cryogenic buffer-gas cooling of large molecules:** This project will develop strategies to cryogenically shock-freeze large molecules and nanoparticles, ranging from model peptides to whole viruses. This involves the setup of a cryogenic buffer gas cell and its coupling to various vaporization sources available or in development in our group. The resulting cold samples will be thoroughly characterized (density, distribution, charge-state,...) and systems for controlling (mass selection, isomer separation, alignment) these beams developed.

The produced and well-controlled cold samples of large molecules/nanoparticles will be investigated using X-ray or electron diffraction in laboratory experiments, as well as at Free-Electron lasers.

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

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

The successful candidate will have a Ph.D. in experimental physics, physical chemistry, or a related field. Experience with cryogenics (<10 K) and vacuum equipment is highly desirable.

**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