**2017 Helmholtz – OCPC – Programme**

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

**PART A**

**Title of the project**: Control of aerodynamically focussed beams of large molecules and nanoparticles

**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)**:**

**Control of aerodynamically focussed beams of large molecules and nanoparticles:** This project will develop strategies to transfer large molecules/particles into high-vacuum through the use of aerodynamic lenses and liquid-sample injectors. Methodologies to cool the produced beams will be implemented and beams thoroughly characterized (density, distribution, charge-state,...) and systems for controlling these beams developed, such as mass selection, isomer separation, angular alignment. The produced and well-controlled cold samples of large molecules/nanoparticles will be investigated using X-ray or electron diffraction experiments 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, nanoscience, physical chemistry, or a related field. Experience with lasers, vacuum equipment, aerosol technologies, or optical or x-ray imaging is highly desirable.

[*Opt. Exp.* **21**, 30492 (2013)](http://desy.cfel.de/cid/cmi/opportunities/projects/http%3E//dx.doi.org/10.1364/oe.21.030492)

[*Phys. Rev.* X **2**, 031002 (2012)](http://dx.doi.org/10.1103/PhysRevX.2.031002)

[*Aerosol Sci. Technol.* **22**, 314 (1995)](http://dx.doi.org/10.1080/02786829408959749)

**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