**2017 Helmholtz – OCPC – Programme**

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

**PART A**

**Title of the project**: Structure-function relationship in chemical reactions using controlled molecules and cold ions

**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)**:**

**Structure-function relationship in chemical reactions using controlled molecules and cold ions:** We have investigated the structure-function relationship of conformer-selected complex molecules. Initially, we performed a pioneering benchmark experiment to investigate structure-dependent chemical reactivities and determined the conformer-specific rate constants for the reactions of cis- and trans-3-aminophenol with Ca+ ions in a so called Coulomb Crystal. These studies will be extended to the investigation of conformer specific reactivity studies of complex chemical reactions, such as cycloaddition / Diels-Alder reactions. This involves the experimental verification of relevant molecular properties in deflection and spectroscopy experiments, and the measurement of conformer specific reactivities.

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

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

Detailed analyses require some programming, simulations of the selection process, and quantum-chemical calculations. This project will require repeated travel to our collaborators at the University of Basel, Switzerland.

A successful candidate will have a background in physical chemistry, molecular physics, or a related field.

**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