



## 2020 HGF – OCPC – Programme for the involvement of postdocs in bilateral collaboration projects

**Title of the project:**

Laser-induced alignment of nanoparticles and macromolecules

**Helmholtz Centre, division/group:**

DESY, CFEL Controlled Molecule Imaging (FS-CFEL-CMI)

**Project leader:**

Prof. Dr. Jochen Küpper

**Contact Information of Project Supervisor: (Email, telephone)**

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**Web-address:**

<http://controlled-molecule-imaging.org>

<https://www.desy.de>

**Department/Group: (at the Helmholtz centre or Institute)**

Center for Free Electron Laser Science (CFEL)

Controlled Molecule Imaging Group

**Programme Coordinator (Email, telephone and telefax)**

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

We are exploring, computationally and experimentally, the control of nanoparticles and biological macromolecules using strong laser fields. Here, special emphasize is on the fixing of the molecules and particles in space for advanced atomic-scale ultrafast imaging experiments.

This project involves the rigorous description of the interaction of the molecule with the control laser fields, the simulation of observables based on experimental approaches, and the implementation of the control and imaging schemes in our laboratory, collaboratively with the experimental COMOTION team in our group.

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

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

- PhD in physics or a related field
- Experience with ultrashort-pulse lasers, optics, programming, high-performance computing



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- Additional skills in Python, numerics, and imaging detectors are advantageous
  - Language requirement: fluency in spoken and written English