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

Title of the project:

Software engineering for high-resolution 3D cameras

Helmholtz Centre, division/group:

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

Project leader:

Prof. Dr. Jochen Küpper

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http://controlled-molecule-imaging.org
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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)**:**

In current experiments we are starting to use 3D "cameras", event-controlled detectors with high spatial and temporal resolution (~1.5 ns) to get even better and more accurate information from the experiments. These timepix detectors are developed together with the DESY detector group and other partners. For our experiments in the laboratory and at free-electron lasers we have several working 3rd generation detectors, in about 1 year we expect to use working 4th generation detectors.

We are looking for support in further development and improvement of existing software for control, data acquisition, and visualization. Your task will be to improve the software and performance for processing larger amounts of data, to organize tests and builds, to optimize existing routines and program flows, to evaluate and implement new efficient algorithms for data analysis, and to integrate new hardware into our decentralized data acquisition system.

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

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Required qualification of the post-doc:

- PhD in physics, computer science, mathematics, or a related field
- Experience with Python, high-performance computing, data analysis
- Additional skills in graphical user interfaces, numerics, and parallel programming are advantageous
- Language requirement: fluency in spoken and written English