



## 2020 HGF – OCPC – Programme

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

**Title of the project:**

Beam dynamics simulations for high brightness electron beams

**Helmholtz Centre, division/group:**

DESY, AP/PITZ

**Project leader:**

Frank Stephan

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

DESY is one of the world's leading research centres for photon science, particle and astroparticle physics as well as accelerator physics. More than 2400 employees work at our two locations Hamburg and Zeuthen in science, technology and administration. The Photo Injector Test facility at DESY in Zeuthen (PITZ) develops high brightness electron sources for Free-Electron Lasers (FELs) like FLASH and European XFEL.

The successful candidate will work on state of the art electron beam dynamics simulations of high brightness electron beams. One focus can be on optimizing a low energy ( $\sim 6.5$  MeV/c) diagnostic beamline for longitudinal phase space measurement, especially slice energy spread from the photocathode RF gun. Another focus can be on optimizing a beamline for transport and diagnostics of picosecond beams for radiation biology applications. In the first stage this would be done for about 22 MeV beam energy and later this also has to be done for 250 MeV electron beams.

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

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Existing partners:

IHEP: Institute of high energy physics, CAS

IMP: Institute of modern physics, CAS

Tsinghua University

Sought partner:

All Chinese institutes that are interested in this project.

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

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- PhD in accelerator physics.
- Experience with beam dynamics simulations, experiment experience with electron accelerators and beam is of advantage.
- Good command of English, knowledge of German is of advantage.
- Excellent teamwork spirit in an international working environment for one of the world-leading teams on high brightness photo injectors.