MATTER AND TECHNOLOGIES

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AGIPD Detector for the HIBEF User Consortium

X-ray Free-Electron Lasers (XFELs) provide unique capabilities for time-resolved experiments and investigations of extreme states of matter such as, for instance, matter compressed to the Tera-Pascal pressure range or matter within magnetic fields of several 10s of Tesla. For the HIBEF user consortium (Helmholtz International Beamline for Extreme Fields) at the High-Energy Density (HED) scientific instrument at the European XFEL, the AGIPD detector will provide unique capabilities as a high-dynamic range, MHz-frame rate X-ray detector for time-resolved experiments at HED/HIBEF. AGIPD at HED/HIBEF will cover a range of experiments, involving pulsed-laser heating in diamond anvil cells (DACs), over dynamic compression studies with piezo-driven DACs, to X-ray diffraction studies in pulsed, high magnetic fields.

We will present the key features of AGIPD for HIBEF, the current state of the instrumentation and development of the detector as well as the road towards using highZ-sensors with AGIPD for higher photon energies.

Primary author: Dr STERN, Stephan (CFEL)

Presenter: Dr STERN, Stephan (CFEL)

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