



Contribution ID: 56

Type: **not specified**

Diamond XBPM Detector System for the HEPS(High Energy Photon Source ,China)

Thursday, 7 September 2023 11:20 (20 minutes)

High Energy Photon Source (HEPS) is a high-performance and high-energy synchrotron radiation light source with a beam energy of 6GeV and an ultra-low emittance of better than 0.06nm.rad. HEPS will be the first high-energy synchrotron radiation light source in China. It will make many contributions to the development of science and technology in China. This light source can provide essential support for the breakthroughs in technological and industrial innovation. In the mean time, HEPS provides a state-of-the-art and multi-disciplinary experimental platform for basic science researchers.

The XBPM detector based on a single crystal diamond is used to detect the position of the X-ray beam, to provide accurate position feedback information for optical control system. The dynamic range of the detector is from nA to mA in the linear range and the position resolution ranges from microns to tens of nanometers. The diamond sensor is 50 μ m thick to ensure the samll absorption. The electronic system includes a weak current transfer and the data acquisition.The sampling rate is from 4MHz to 1Hz and the signal noise is processed by digital filtering algorithm inside the FPGA. The XBPM system will installed in the HEPS beamlines in 2024.

Primary authors: Dr LI, Zhenjie (Institute of High Energy Physics,CAS); Mr HE, Jingkui (Institute of High Energy Physics,CAS); Ms LIU, Monan (Institute of High Energy Physics,CAS); Prof. LIU, Peng (Institute of High Energy Physics,CAS); Ms BAO, Ziyu (Institute of High Energy Physics,CAS); Ms LIU, yaoguang (Institute of High Energy Physics,CAS)

Presenter: Dr LI, Zhenjie (Institute of High Energy Physics,CAS)

Session Classification: F4