

Exploring Timepix4: A Promising X-ray Detector for EuXFEL Applications

Thursday 7 September 2023 10:40 (10 minutes)

We present our findings on the characterization and performance evaluation of the Timepix3 X-ray detector in conjunction with a microchannel plate (MCP) and phosphor screen at the European X-ray Free Electron Laser (EuXFEL) facility. The tests conducted on the Timepix3 detector, with a pixel size of 55 μm , have yielded promising results, demonstrating its suitability for EuXFEL applications. The encouraging outcomes obtained from the Timepix3 tests have paved the way for the utilization of Timepix4, which features a similar pixel size but an extended area on all four sides and higher time resolution. In this poster, we showcase the characteristics of the Timepix detector and present the results of the performed tests, including the readout frequency compatibility with the EuXFEL pulsing rate and a spatial resolution of better than 50 μm . The impressive performance of Timepix3 and the anticipated advantages offered by Timepix4 present exciting prospects for enhancing X-ray imaging and spectroscopy at EuXFEL. The integration of Timepix4 in future experiments holds great potential for pushing the boundaries of scientific research at this state-of-the-art facility.

Your name

Mohammad Shokr

Institute

EuXFEL

Email address

mohammad.shokr@xfel.eu

Author: SHOKR, Mohamad (EuXFEL)

Co-authors: Mr SENFFTLEBEN, Björn (EuXFEL); Dr TURCATO, Monica (EuXFEL); Mr USENKO, Sergey (EuXFEL)

Presenter: SHOKR, Mohamad (EuXFEL)

Session Classification: Poster Session II

Track Classification: Detectors for Synchrotrons, FELS & other Advanced Light Sources