Contribution ID: **66** Type: **Poster**

Reconstruction of 6D phase space using machine learning techniques at FLASH

Detailed phase space reconstruction of electron bunches is essential for optimal free-electron laser performance. Conventional techniques become increasingly inefficient for full six-dimensional phase space reconstruction. This project explores the use of Generative Phase Space Reconstruction (GPSR) technique to reconstruct the full 6D phase space of electrons at the FLASH2 beamline from 2D screen images. The proposed method utilizes focusing quadrupoles, a scanning quadrupole, two PolarixTDS cavities, and a dipole magnet to obtain screen images. Reconstruction from synthetically generated screen projections is being explored and measurements at FLASH are planned for future.

Primary author: JANOVCIK, Roman (MSK (Strahlkontrollen))

Presenter: JANOVCIK, Roman (MSK (Strahlkontrollen))

Session Classification: Poster Presentations