Contribution ID: **1349** Contribution code: **THPB012** Type: **Poster Presentation**

Development and laboratory validation of a precise alignment setup for beam-based THz radiation generation at the STERN experimental area of the European XFEL

Thursday 5 June 2025 15:30 (2 hours)

We present the development and laboratory testing of a precise alignment setup for the STERN experimental area at the European XFEL, aimed at exploring beam-based THz radiation generation methods using Cherenkov waveguides. The setup employs an alignment laser to simulate the electron beam trajectory, enabling the accurate positioning of critical components, such as a copper block housing dielectric waveguides. The alignment process involves scintillator screens placed before and after the vacuum chamber to measure the electron beam trajectory, with the alignment laser subsequently adjusted to replicate this path. The experimental validation focused on the reproducibility of alignment under simulated operational conditions, testing the positioning and movement of mirrors, and ensuring the stability of the alignment system for the critical components.

Footnotes

Paper preparation format

LaTeX

Region represented

Europe

Funding Agency

Author: WERNSMANN, Juna (Deutsches Elektronen Synchrotron (DESY) and Center for Free Electron Science (CFEL))

Co-author: Dr LEMERY, Francois (Deutsches Elektronen-Synchrotron)

Presenter: WERNSMANN, Juna (Deutsches Elektronen Synchrotron (DESY) and Center for Free Electron Science (CFEL))

Session Classification: Thursday Poster Session

Track Classification: MC7: Accelerator Technology and Sustainability: MC7.T17 Alignment and Survey