



Contribution ID: 1620 Contribution code: THPB016

Type: **Poster Presentation**

Data fusion based on the symmetric dual-path laser uncertainty weighting method

Thursday 5 June 2025 15:30 (2 hours)

The construction of fourth-generation accelerators, represented by free-electron lasers and diffraction-limited storage rings, is increasingly popular, which sets higher standards for the installation precision of insertion devices. Large-scale insertion devices are installed using two laser trackers, but a rigorous system has not been established. To enhance installation accuracy, we propose a symmetric uncertainty weighting fusion method. This method integrates the data from two laser trackers with uncertainty weighting through symmetric coordinate transformation, thereby establishing a dual-route laser system. According to actual measurement and simulation results, it has been proven that this method can effectively improve the precision of coordinate system recovery, reduce deviations from theoretical values, and thereby enhance installation precision.

Footnotes

Paper preparation format

Word

Region represented

Asia

Funding Agency

Author: DING, Ting (University of Science and Technology of China)

Co-authors: WANG, Wei (University of Science and Technology of China); HE, Xiaoye (University of Science and Technology of China)

Presenter: DING, Ting (University of Science and Technology of China)

Session Classification: Thursday Poster Session

Track Classification: MC7: Accelerator Technology and Sustainability: MC7.T19 Collimation