IPAC '23

Contribution ID: **2839** Contribution code: **SUPM085**   Type: **Poster Presentation**

Machine learning-based reconstruction of electron radiation spectra

Sunday, 7 May 2023 16:00 (2 hours)

The photon flux resulting from a high energy electron beam's interaction with a target, such as in the upcoming FACET-II experiments at SLAC National Accelerator Laboratory, should yield, through its spectral and angular characteristics, information about the electron beam's underlying dynamics at the interaction point. This project utilizes data from simulated plasma wakefield acceleration-derived betatron radiation experiments and high-field laser-electron-based radiation production to determine which methods could most reliably reconstruct these key properties. The data from these two cases provide a large range of photon energies; this variation of photon characteristics increases confidence in each analysis method. This work aims to compare several reconstruction methods and determine which best predicts original energy distributions based on simulated spectra.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Yes

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Session Classification: Student Poster Session