Contribution ID: **559** Contribution code: **SUP064** Type: **Poster Presentation**

Electro-Optic Sampling Beam Positioning Monitor for Relativistic Electron Beams

Sunday 10 August 2025 15:00 (3 hours)

Non-destructive diagnostics able to resolve transverse offsets and longitudinal separation of ultra-relativistic, two-bunch electron beams are necessary for a variety of applications including the ion channel laser (ICL) and other plasma wakefield (PWFA) experiments. A prototype electro-optic beam positioning monitor (EOS-BPM) utilizing two independent laser pulses traveling through a pair of EO crystals has been installed at the SLAC National Accelerator Laboratory FACET-II facility. This system is capable of order 10 fs temporal resolution and order 100 μm transverse position resolution. To achieve better transverse resolution we introduce a new design using an axicon lens to create a donut beam and a multi-crystal structure placed around the axis of propagation of the electron beam. Experimental results of the prototype EOS-BPM along with the simulated response of the new EOS-BPM design to the ultra-relativistic, two-bunch electron beam used for PWFA experiments at FACET-II will be presented.

Please consider my poster for contributed oral presentation

Yes

Would you like to submit this poster in student poster session on Sunday (August 10th)

Yes

Footnotes

Funding Agency

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I have read and accept the Privacy Policy Statement

Yes

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