Contribution ID: **210** Contribution code: **TUP065** Type: **Poster Presentation**

Measurements of the beam longitudinal properties in the Fermilab Linac

Tuesday 12 August 2025 16:00 (2 hours)

The Fermilab Linac delivers 400 MeV, 25 mA H^- beam to a rapid cycling synchrotron called the Booster. Parameters of the Linac beam affect Booster performance and therefore quantifying them is important. The longitudinal bunch parameters are reconstructed using a Bunch Shape Monitor (BSM) installed in the middle of the Linac. For that, the bunch length is measured as a function of the phase of an upstream cavity and fitted to simulations. The cavity gradient and its phase with respect to the beam are recovered from readings of Beam Position Monitors. Since the cavity provides a significant transverse defocusing, the BSM measurements are correlated with transverse beam size measurements by a wire scanner. Simulations connect these three types of measurements, allowing to deduce the longitudinal emittance and Courant-Snyder parameters.

Please consider my poster for contributed oral presentation

Yes

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

No

Footnotes

Funding Agency

I have read and accept the Privacy Policy Statement

Yes

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