

Machine learning-based non-destructive measurement of bunch length at FRIB

Tuesday 27 August 2024 16:00 (2 hours)

A machine learning-based virtual diagnostic method for measuring the longitudinal phase space is proposed. Utilizing multiple measurements of bunch length from the Facility for Rare Isotope Beams (FRIB) accelerator, beam parameters are fitted with a concrete simulation model. A neural network model is trained to learn the correlations between the signals from beam position monitors (BPMs) and the bunch length. This model enables the rapid prediction of bunch length at BPM locations without compromising beam quality.

Footnotes

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Primary authors: WAN, Jinyu (Facility for Rare Isotope Beams); PLASTUN, Alexander (Facility for Rare Isotope Beams, Michigan State University); OSTROUMOV, Peter (Facility for Rare Isotope Beams, Michigan State University)

Presenter: WAN, Jinyu (Facility for Rare Isotope Beams)

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