Contribution ID: **183** Contribution code: **THP031** Type: **Poster Presentation**

Evaluating a transition-jump system for the Fermilab Main Injector using Xsuite

Thursday 14 August 2025 16:00 (2 hours)

We describe the development of a MADX-to-Xsuite simulation framework for the Fermilab Main Injector (MI) along with the subsequent evaluation of transition-crossing behaviors in the accelerator. In particular, we studied the introduction of quadrupole magnets into the lattice as part of a transition-jump system that will be implemented in the machine through the Second Proton Improvement Plan (PIP-II). Simulated beam losses spurred by transition-induced instabilities were assessed under several systematic effects, including MI quad errors, magnet-to-magnet variability in the jump magnets, emulated power supply errors, and timing jitter.

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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