



Contribution ID: 819 Contribution code: WEPL112

Type: **Poster Presentation**

Simultaneous Compensation of Third-Order Resonances at the FNAL Recycler Ring

Wednesday, 10 May 2023 16:30 (2 hours)

Third-order resonance lines will have a detrimental effect on the high-intensity operation of the Recycler Ring (RR), under the current Proton Improvement Plan (PIP-II) for the Fermilab Accelerator Complex. Increasing intensity will increase space charge effects, leading to the excitation of normal and skew sextupole lines. Dedicated normal and skew sextupoles have been installed in order to mitigate the effect of these resonance lines. By measuring the response matrix of the third-order Resonance Driving Terms (RDTs) to the currents of these dedicated elements, this study shows how several resonance lines can be compensated simultaneously. Resonance compensation is experimentally verified through loss maps and emittance growth measurements using the Ion Profile Monitor (IPM) system in the Recycler.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary authors: GONZALEZ-ORTIZ, Cristhian (Michigan State University); OSTROUMOV, Peter (Facility for Rare Isotope Beams, Michigan State University); AINSWORTH, Robert (Fermilab)

Presenter: GONZALEZ-ORTIZ, Cristhian (Michigan State University)

Session Classification: Wednesday Poster Session

Track Classification: MC5: Beam Dynamics and EM Fields: MC5.D02: Non linear Single Particle Dynamics Resonances, Tracking, Higher Order, Dynamic Aperture, Code Deve