

Accelerator Physics and Technology Seminar

Third Order Resonances in the Recycler Ring: Resonance Driving Terms

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Date: Tuesday, March 11

When: 4:00 pm CST

Where: One West (WH1W) and Zoom

Abstract: As the Fermilab Accelerator Complex transitions into operations at higher intensities starting with the Proton Improvement Plan II (PIP-II), addressing the negative impacts of third-order resonance becomes crucial for the Recycler Ring (RR). To counteract these effects, both normal and skew sextupoles have been strategically deployed. By utilizing the response matrix method to minimize the global Resonance Driving Terms (RDTs), it is possible to mitigate the detrimental effect of resonance lines. This compensation scheme has been characterized at low intensities, i.e., in the single-particle regime. In order to evaluate the effectiveness of this compensation scheme at higher intensities, this study looks at dynamic and static tune scans and different space charge tune shifts.