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Measurements of the time-structure of the current to a single injection kicker module and simulation of its effect on the transverse beam dynamics in SIS100

Wednesday, 22 May 2024 16:00 (2 hours)

Distortions in the SIS100 injection kicker's pulse time-form gives rise to beam emittance blow-up in the horizontal plane. Beam particle tracking simulations were carried out to try to predict the emittance at the end of the injection process for pbar and RIB operation. The RIB cycle's beam grew to just beyond the acceptance of the slow extraction separatrix at 27 Tm. During pbar operation with the longitudinal RF cavities set to bunch the beam at the 5th harmonic of the beam revolution frequency instead of the originally planned 10th harmonic, the beam ended up exceeding the halo collimator's acceptance resulting in a small loss.

Footnotes

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Europe

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