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Measured dynamic aperture and detuning of nonlinear integrable optics

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One of the most promising advantages of nonlinear integrable optics is strong amplitude dependent tune shift without degrading the dynamic aperture. The integrable optics test accelerator (IOTA) at Fermilab is constructed around nonlinear lattice elements of the elliptical type as described by Danilov and Nagaitsev. Detuning and dynamic aperture scans in IOTA were performed using a fast dipole kicker and a low emittance electron beam. The evolution of the dynamic aperture and detuning for different configurations of the integrable optics lattice are presented.

Footnotes

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Paper preparation format

LaTeX

Region represented

North America

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