

Stability of non-linear integrable accelerator

I. Batalov (Moscow, MIPT), A. Valishev (Fermilab)

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The stability of non-linear Integrable Optics Test Accelerator (IOTA) model was tested. The area of the stable region in transverse coordinates and the maximum attainable tune spread were found as a function of non-linear lens strength. Particle loss as a function of turn number was analyzed to determine whether a dynamic aperture limitation present in the system. The system was also tested with sextupoles included in the machine for chromaticity compensation. A method of evaluation of the beam size in the linear part of the accelerator was proposed.

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