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Minimizing the fluctuations of storage ring resonance driving terms using the step-by-step chromaticity compensation method

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Our recent studies showed that reducing the fluctuations of resonance driving terms (RDTs) can enlarge the dynamic aperture (DA) of a storage ring very effectively. In this paper, we use the step-by-step chromaticity compensation method to minimize RDT fluctuations for DA optimization. For the minimization of third-order RDT fluctuations, this method yields the same optimization result as evolutionary algorithms. Crucially, however, this method exhibits faster convergence than evolutionary algorithms.

Footnotes

Funding Agency

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Yes

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