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Wakefield effects on dynamic aperture during RCS bunch merges

Wednesday 4 June 2025 16:00 (2 hours)

In order to achieve the necessary bunch charge, the Rapid Cycling Synchrotron utilizes bunch merging. The altered longitudinal motion during merges has the potential to reduce dynamic aperture and cause emittance growth. Tools for analyzing the effects of merging have been developed for the AGS using Bmad and a simplified tracking code in Julia. These tools are applied to the merges of the RCS, altered to include the important effects of wakefields. In this paper, dynamic aperture and emittance growth for current RCS merge parameters and their effective operational limits are analyzed.

Footnotes

Paper preparation format

LaTeX

Region represented

America

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