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Effects of beam conditions on achieving compact longitudinal de-chirping using transverse deflecting cavities

Wednesday 13 August 2025 14:50 (20 minutes)

It has been shown that a transverse deflecting cavity (TDC)-based de-chirper can be made by altering the drift sections in a TDC-based chirper to form negative drifts. While five appropriately configured quadrupole magnets can implement such negative drifts, this approach is limited by spatial and experimental constraints. In this study, we investigate an alternative configuration that uses three quadrupole magnets to form a negative identity transport section between the TDCs instead of a negative drift. To assess the robustness of this proposed design, a computational study has been conducted on initial beam conditions to determine the operational limitations. This includes the effects of space charge and initial transverse beam conditions, such as beam size and divergence, on the resulting transverse emittance.

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No

Would you like to submit this poster in student poster session on Sunday (August 10th)

Yes

Footnotes

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Yes

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