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Adiabatic capture in high-intensity, high-power rings

Monday 2 June 2025 16:00 (2 hours)

Finding the optimal RF voltage ramp to capture coasting beams in high intensity rings has been the subject of ongoing study for many decades. We are motivated to revisit the topic with a view to capturing coasting, stacked beams in a future high intensity, high power FFA. However, the results have general applicability. We compare various voltage laws including linear, bi-linear and iso-adiabatic through simulation and experimentally, making use of the ISIS synchrotron. Making use of longitudinal tomography, we seek to establish the voltage program that minimises the captured beam emittance.

Footnotes

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