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Adiabatic capture in the FETS-FFA ring

Tuesday, 9 May 2023 16:30 (2 hours)

Adiabatic capture of a coasting beam can be used to minimise the emittance of the resulting bunched beam –for example to capture the injected beam at the start of the acceleration cycle. In some cases, the voltage follows the so-called iso-adiabatic voltage law in order maintain the same adiabaticity throughout capture. Here we show that a linear evolution can result in a smaller final emittance than an iso-adiabatic scheme. This is shown by tracking a distribution through various capture schemes, taking as our example capture at injection in the FETS-FFA proton ring. We include preliminary results on the effects of longitudinal space charge which can be significant in this ring.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Yes

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