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3D beam tracking studies including intrabeam scattering

Sunday, 19 May 2024 16:00 (2 hours)

Particle tracking serves as a computational technique for determining the mean field of dynamically tracked charged macroparticles of a particle beam within an accelerator. Conventional solver tend to neglect collisionality, resulting in loss of relevant information (particle and momentum redistribution). In this study, macro-particle collisions are incorporated into a 3D Poisson solver. In the previous studies, identifying close particles have been performed in a static condition (IPAC23-Macroparticle collisionality in PIC solver). The requirement to uphold energy momentum within a dynamic tracking is initiated in simple lattices and the results are presented. A comparison with analytic model of the Bjorken-Mtingwa or Conte-Martini is included to verify.

Footnotes

Funding Agency

Paper preparation format

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Europe

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