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Advancements in the development of beam dynamics software for CEPC

Tuesday, 21 May 2024 16:00 (2 hours)

The design and study of the Circular Electron Positron Collider (CEPC) present a significant challenge, requiring the proper modeling of various physical phenomena such as the crab-waist collision scheme with a large Piwinski angle, strong nonlinear effects, energy sawtooth, beam-beam interactions, and machine impedances. In response to this challenge, the APES software project was proposed in 2021 and received support from the IHEP Innovative Fund in 2022. This paper provides an overview of the progress made in the APES project, encompassing modeling for special cases, orbital and spin tracking with synchrotron radiation, optics and emittance calculation, particle tracking, and more. Additionally, the paper discusses future developments.

Footnotes

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Paper preparation format

Region represented

Asia

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