

eeFACT 2025 - 70th ICFA Advanced Beam Dynamics Workshop on High Luminosity Circular e+e-Colliders



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FCC-ee injector: Single and multibunch instability

The Future Circular Collider electron-positron (FCC-ee) injector linacs and positron source are critical components for delivering high-quality beams to the collider. This work presents studies on key dynamic effects influencing beam stability, including single- and multi-bunch instabilities. A detailed analysis of multi-bunch beam loading is conducted, considering trains of arbitrary bunch charge distribution to assess their impact on beam dynamics and energy spread. Additionally, beam-based alignment correction methods are explored to mitigate static imperfections, such as installation misalignments, ensuring optimal beam transport and injection efficiency. These studies contribute to the robust design and performance optimization of the FCC-ee injector complex.

Footnotes

Funding Agency

I have read and accept the Privacy Policy Statement

Yes

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