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FCC-ee Interaction point optics correction with alignment errors using local tuning knobs

Monday 2 June 2025 16:00 (2 hours)

Optics tuning and correction in the Interaction Point (IP) region of the FCC-ee is critical for achieving the target luminosity. By utilizing dedicated IP tuning knobs, lattice errors at multiple IP's are corrected to restore the design optics, enabling dynamic aperture studies on the fully corrected lattice. These studies, conducted using the pyAT optics code, assess the impact of corrections and the effectiveness of various tuning knobs in mitigating beam size growth at the IP's while maintaining beam stability. Benchmarking of pyAT results with the Xsuite framework ensures the reliability and robustness of the analysis. This approach provides valuable insights into the precision of IP optics tuning and its role in optimizing the collider's operational performance.

Footnotes

Paper preparation format

LaTeX

Region represented

Europe

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