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Simulated performance of FCC-ee IP tuning knobs

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The Future Circular electron-positron Collider (FCC-ee) is a proposed accelerator with 91 kilometres circumference that should serve as a Higgs and electroweak factory, with unprecedented luminosity. Unavoidable misalignments and field errors will generate optics errors at the interaction point (IP), whose effect will be amplified by the beam-beam collisions, which will make it challenging for the collider to reach its intended luminosity goals. Hence, there is a need for correction tools that will enable the precise correction of the optics at the IP, such as linear coupling parameters and spurious dispersion. This will be essential both for FCC-ee commissioning and during routine operation. This paper describes the construction, simulated effectiveness, and constraints of IP tuning tools.

Footnotes

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