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Studies of layout and cleaning performance for the FCC-ee collimation system

Monday, 8 May 2023 16:30 (2 hours)

The collimation system of the electron-positron Future Circular Collider (FCC-ee) will have two main tasks: protect equipment from the multi-MJ beams and mitigate detector backgrounds. An integrated collimation system layout is presented, including beam halo collimation system in one insertion and synchrotron radiation collimation around the experimental interaction points. The Z-production operating mode is considered, which has a beam energy of 45.6 GeV and a stored beam energy of 20.7 MJ, making it the most critical one for machine protection. The collimation insertion optics, aperture model, and collimation configuration for this mode are presented. The beam loss cleaning performance of the collimation system is studied for selected beam loss scenarios using a set of novel tools that enable multi-turn tracking simulations.

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Footnotes

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Yes

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