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Status and Perspectives for FCC-ee Detector Background Studies

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The Future Circular Collider electron-positron (FCC-ee) is a proposed high-energy lepton collider that aims to reach unprecedented precision in the measurements of fundamental particles. However, several beam related processes produce particles in the Machine-Detector Interface (MDI) region, which can adversely affect the measurements' accuracy. This contribution presents a study of the beam-induced backgrounds at FCC-ee. The study uses the turnkey software Key4HEP to estimate the occupancy levels induced by beam-beam interactions, beam losses due to failure scenarios, and the Synchrotron Radiation (SR) in the CLIC-Like Detector (CLD). Dedicated softwares are used to produce the primary particles for each of these processes: GuineaPig++ for the beam-beam interactions, X-suite for the beam losses coming from particle transport, and BDSIM for the SR photons.

Collaboration / Activity

FCC-ee (INFN-LNF)

Primary author: CIARMA, Andrea (INFN-LNF)

Presenter: CIARMA, Andrea (INFN-LNF)

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