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First look at injection backgrounds

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The electron-positron Future Circular Collider (FCC-ee) is a proposed high-energy lepton collider that aims to reach unprecedented luminosity and precision in the measurement of fundamental particles. To fully exploit this potential, it is crucial to keep machine-induced detector backgrounds under control to ensure safe operation and optimal detector performance. Due to the high stored beam energy and complex operational requirements (e.g. the top-up injection scheme), controlling these backgrounds to the physics experiments becomes more challenging. We present the studies of background produced during the injection process. The top-up injection scheme generates unavoidable losses at every cycle, originating from both the injected and circulating beams.

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