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Conceptual Design of the EIC Electron Storage Ring Beam Abort Systems

Tuesday 12 August 2025 16:00 (2 hours)

Two types of beam abort mechanisms, namely, the External Abort System and the Internal Abort System for the Electron Ion Collider (EIC) Electron Storage Ring (ESR) are devised, designed and compared. Both mechanisms will be located in the Interaction region 2 (IR2). The External Abort System utilizes the ISABELLE Spectrometer tunnel to facilitate an extraction beamline and a beam dump, and the Internal Abort System generates a local orbit bump within the storage ring lattice to guide the electron beam into the beam dump. This article discusses the design of both systems, including the orbit bump design and ESR lattice modification, the resonant AC dipole design for the Internal Abort System, lattice simulation, the beam dump design and simulations using FLUKA, beampipe vacuum and impedance considerations near the beam dump.

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No

Would you like to submit this poster in student poster session on Sunday (August 10th)

No

Footnotes

Funding Agency

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Yes

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