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Current Status of the electron transport line from RCS to ESR: RTE line

Tuesday 12 August 2025 16:00 (2 hours)

The electron injection system of the U.S. Electron-Ion Collider (EIC) is located outside of the RHIC tunnel. Electrons beams accelerated by the Rapid Cycling Synchrotron (RCS) must be transported to the Electron Storage Ring (ESR), which resides within the RHIC tunnel. To accomplish this, a dedicated beam transport line, referred to as RTE (RCS-to-ESR) line is being designed. The proposed conceptual design comprises three main sections; RCS extraction, a vertical bend and dispersion suppression region, and ESR injection matching. The extraction section uses pulsed kickers and septum magnets to achieve a total deflection angle of 3 degrees. To align the injection section with ESR, the beamline must provide a vertical elevation of 1.68 m, and an array of FODO cells is used to suppress the vertical dispersion. The total length of the RTE line is approximately 133 m, and this paper presents the current design status and considerations for this transport line.

Please consider my poster for contributed oral presentation

No

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

No

Footnotes

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Yes

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