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Matching the Beam from AGS to the EIC Hadron Storage Ring with Excellent Emittance Preservation

Tuesday 12 August 2025 16:00 (2 hours)

The Electron-Ion Collider (EIC), a next-generation accelerator facility, is being jointly developed by Brookhaven National Laboratory (BNL) and Jefferson Lab (JLab), and will be constructed at BNL. The EIC design builds upon the existing RHIC heavy-ion infrastructure, transforming the RHIC rings into the Hadron Storage Ring (HSR) with necessary modifications. To ensure optimal performance, it is critical to accurately match the beam from the injectors to the HSR in six-dimensional phase space, in addition to the match of positions and angles. Inadequate matching can lead to emittance growth, which negatively impacts the achievable luminosity of the collider. This report outlines the key constraints involved in the matching process and presents a systematic approach to achieving high-fidelity beam matching while preserving emittance quality.

Please consider my poster for contributed oral presentation

No

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

Yes

Footnotes

Funding Agency

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I have read and accept the Privacy Policy Statement

Yes

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