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Collective effects: Challenges and solutions for the EIC Project

Thursday 14 August 2025 11:00 (30 minutes)

The Electron-Ion Collider (EIC) project at Brookhaven National Laboratory aims to deliver groundbreaking insights into the fundamental structure of matter through high-energy collisions involving electrons, ions, protons, or helium-3 nuclei. Achieving the desired luminosity and maintaining stability in this complex accelerator environment pose significant challenges, particularly concerning impedance and collective effects. One such challenge is ensuring beam stability during electron cooling at the injection energy in the Hadron Storage Ring (HSR) to effectively mitigate proton emittance growth. Potential solutions include advanced simulation techniques using the ELEGANT code and applying the Haissinski solution for the proton beam to determine single-bunch instability thresholds, both with and without a second harmonic cavity.

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

Funding Agency

I have read and accept the Privacy Policy Statement

Yes

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