



Contribution ID: 1603 Contribution code: MOPL008

Type: **Poster Presentation**

Lattice optimization for Electron Ion Collider Hadron storage ring injection

Monday, 8 May 2023 16:30 (2 hours)

The Electron Ion Collider (EIC) Hadron Storage Ring (HSR) will utilize the Relativistic Heavy Ion Collider (RHIC) arcs and modified straight sections. Due to these modifications in the straight section of the on project electron Proton Ion Collider (ePIC) experiment, a new injection system needed to be built one arc downstream of the existing RHIC injection system. The new injection system will have capability of injecting 290 bunches with a maximum rigidity of $\sim 81 \text{ Tm}$. In addition to the new injection system, the hydrogen jet (HJET) and proton-carbon (pC) polarimeters will be located in the straight section downstream of injection. This paper will report the modifications required to the lattice, optics, and magnets.

Funding Agency

Work supported by Brookhaven Science Associates, LLC under Contract No. DE-SC0012704 with the U.S. Department of Energy.

Footnotes

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Session Classification: Monday Poster Session

Track Classification: MC1: Colliders and other Particle Physics Accelerators: MC1.A01: Hadron Colliders