



Contribution ID: 1627 Contribution code: MOPL156

Type: **Poster Presentation**

Lattice design for the hadron storage ring of the Electron-Ion Collider

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

The electron-ion collider will utilize a major portion of the existing RHIC rings for its hadron storage ring (HSR). This paper describes the lattice design of the HSR. Presently, RHIC consists of two rings, each of which contains 6 straight sections, and between those straights are arcs, each consisting of 11 FODO cells. The HSR uses 7 of the existing RHIC arcs which are unmodified, other than powering changes to allow the beam to travel opposite to its direction in RHIC in selected arcs. We select the arc in one sextant to keep the orbit period of the HSR the same as that of the new electron storage ring, depending on whether we are operating at hadron energies around 41 GeV/u or in the range of 100 GeV/u to 275 GeV/u. We describe the purpose and lattice design of the 6 straight sections of the HSR.

Funding Agency

This manuscript has been authored by employees of Brookhaven Science Associates, LLC and Jefferson Science Associates, LLC under U.S. DOE Contract Nos. DE-SC0012704 and DE-AC05-06OR23177.

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary authors: BERG, J. (Brookhaven National Laboratory); GAMAGE, Bamunuvita (Thomas Jefferson National Accelerator Facility); LIU, Chuyu (Brookhaven National Laboratory); LOVELACE III, Henry (Brookhaven National Laboratory); PEGGS, Steve (Brookhaven National Laboratory); ROBERT-DEMOLAIZE, Guillaume (Brookhaven National Laboratory); TSOUFAS, Nikolaos (Brookhaven National Laboratory (BNL)); XU, Derong (Brookhaven National Laboratory)

Presenter: BERG, J. (Brookhaven National Laboratory)

Session Classification: Monday Poster Session

Track Classification: MC1: Colliders and other Particle Physics Accelerators: MC1.A19: Electron-Hadron Colliders