



Contribution ID: 977 Contribution code: TUBD1

Type: Contributed Oral Presentation

From RHIC to EIC hadron storage ring –overview of the engineering challenges

Tuesday, 21 May 2024 11:30 (20 minutes)

The Electron Ion Collider (EIC) Hadron Storage Ring (HSR) will reuse most of the existing hardware from the RHIC rings. However, extensive modifications will have to be performed in preparation for the new accelerator parameters and performance required by EIC. The beam vacuum chamber will have to be upgraded and new beam position monitors (BPM) implemented to account for the higher beam intensity and shorter EIC hadron bunches. The RF system will also need to be upgraded and include new cavities to drive the new bunch parameters. In some straight sections, existing superconducting magnets will have to be reshuffled and their cold powering scheme modified to accommodate the new accelerator lattice. The hadron injection scheme will also be modified to accommodate three time more bunches and the machine protection system will need to include new collimators. This paper aims to give an overview of the engineering modifications required to turn RHIC into the EIC HSR.

Footnotes

Funding Agency

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

Paper preparation format

Word

Region represented

North America

Primary author: MICOLON, Frederic (Brookhaven National Laboratory (BNL))

Co-authors: XIAO, Binping (Brookhaven National Laboratory); HETZEL, Charles (Brookhaven National Laboratory (BNL)); LIU, Chuyu (Brookhaven National Laboratory); GASSNER, David (Brookhaven National Laboratory (BNL)); BRUNO, Donald (Brookhaven National Laboratory); HOLMES, Douglas (Brookhaven National Laboratory); TUOZZOLO, Joseph (Brookhaven National Laboratory); SMITH, Kevin (Brookhaven National Laboratory); DREES, Kirsten (Brookhaven National Laboratory); TSOUFAS, Nicholas (Brookhaven National Laboratory (BNL)); VERDU-ANDRES, Silvia (Brookhaven National Laboratory (BNL)); PTITSYN, Vadim (Brookhaven National Laboratory (BNL))

Presenter: MICOLON, Frederic (Brookhaven National Laboratory (BNL))

Session Classification: TUBD: Colliders and other Particle and Nuclear Physics Accelerators (Contributed)

Track Classification: MC1: Colliders and other Particle and Nuclear and Physics Accelerators:
MC1.A04 Circular Accelerators