



Contribution ID: 1586 Contribution code: MOPA056

Type: **Poster Presentation**

Transition jump system of the hadron storage ring of the electron ion collider

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

Matched first order transition crossing in the Relativistic Heavy Ion Collider (RHIC) is performed by using two families of jump quadrupoles when ramping species through transition to storage energy. The jump quadrupole families control γ transition and the working point of the accelerator by compensating for the tune shift from the jump and minimizing optical distortions. After transition, amplitude and phase of the RF cavities need to be rematched to maintain constant acceleration. This configuration has proven to be effective in maintaining beam quality and reducing beam loss. The Hadron Storage Ring (HSR) retains the arcs and most of the insertion regions of RHIC. This paper discusses the gamma transition crossing of the HSR by the implementation of a matched first order transition jump.

Funding Agency

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

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary author: LOVELACE III, Henry (Brookhaven National Laboratory)

Co-authors: BERG, J. (Brookhaven National Laboratory); PEGGS, Steve (Brookhaven National Laboratory); PTITSYN, Vadim (Brookhaven National Laboratory); POLIZZO, Salvatore (Brookhaven National Laboratory); ROBERT-DE-MOLAIZE, Guillaume (Brookhaven National Laboratory)

Presenters: LOVELACE III, Henry (Brookhaven National Laboratory); BERG, J. (Brookhaven National Laboratory); PEGGS, Steve (Brookhaven National Laboratory); PTITSYN, Vadim (Brookhaven National Laboratory)

Session Classification: Monday Poster Session

Track Classification: MC1: Colliders and other Particle Physics Accelerators: MC1.A24: Accelerators and Storage Rings, Other