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

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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.

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## Footnotes

## I have read and accept the Privacy Policy Statement

Yes

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