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Dynamic aperture evaluation for the EIC Hadron storage ring with two interaction regions

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The Electron-Ion Collider (EIC) presently under construction at Brookhaven National Laboratory will collide polarized high energy electron beams with hadron beams with luminosities up to 10^34cm^{-2}s^{-1} in the center mass energy range of 20-140 GeV. Besides high luminosity and high polarization, it is also recommended for the EIC design to incorporate a possible second interaction region (IR). In this article, we evaluate the dynamic aperture of the Hadron Storage Ring (HSR) design lattice with two IRs. The large nonlinear chromaticities from the two IRs will be compensated with multiple arc sextupole families. The tolerances of IR magnetic field errors are to be determined.

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Footnotes

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