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Status of the second interaction region design for Electron-Ion Collider

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Provisions are being made in the Electron Ion Collider (EIC) design for future installation of a second Interaction Region (IR), in addition to the day-one primary IR [1]. The envisioned location for the second IR is the existing experimental hall at RHIC IP8. It is designed to work with the same beam energy combinations as the first IR, covering a full range of the center-of-mass energy of ~20 GeV to ~140 GeV. The goal of the second IR is to complement the first IR, and to improve the detection of scattered particles with magnetic rigidities similar to those of the ion beam. To achieve this, the second IR hadron beamline features a secondary focus in the forward ion direction. The design of the second IR is still evolving. This paper reports the current status of its parameters, magnet layout, and beam dynamics and discusses the ongoing improvements being made to ensure its optimal performance

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Footnotes

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