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Fri-Mo-Po.05-12: Status of the ESR D2 Dipole magnet for the Electron Ion Collider

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The Electron Ion Collider (EIC) currently in development at Brookhaven National Laboratory (BNL) will collide high energy and highly polarized hadron and electron beams with luminosities up to 10ˆ34 cmˆ-2 sˆ-1. Part of the EIC is the Electron Storage Ring (ESR), which will store and maintain the electron polarity of the EIC electron beam for collision energies up to 18 GeV. There are two main dipole types used in the arc cells of the ESR. The two dipoles types, named D1/D3 and D2, have been designed to meet the performance requirements. This paper discusses the design concept, simulation results and engineering concept for the D2 magnet.

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