Abstract Submitted
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Full Acceptance Interaction Region Design of JLEIC[1] V.S. MOROZOV, R. ENT, Y. FURLETOVA, B. GAMAGE, F. LIN, T. MICHALSKI, R. RAJPUT-GHOSHAL, M. WISEMAN, R. YOSHIDA, Y. ZHANG, Jefferson Lab, Newport News, VA 23606, Y. CAI, Y. NOSOCHKOV, M. SULLIVAN, SLAC, Menlo Park, CA, G.-L. SABBI, LBNL, Berkeley, CA — Nuclear physics experiments envisioned at a proposed future Electron-Ion Collider (EIC) require high luminosity of 10^{33}-10^{34} $\mathrm{cm}^{-2}\mathrm{s}^{-1}$ and a full-acceptance detector capable of reconstruction of a whole electron-ion collision event. The particles associated with the initial ion tend to go at very small angles and have small rigidity offsets with respect to the initial ion beam. They are detected after they pass through large apertures of the final focusing quadrupoles. To maximize the luminosity, the final focusing quadrupoles must be placed as close to the interaction point as possible. Together these requirements presents serious detection, optics and engineering design challenges. We present a design of a full-acceptance interaction region of Jefferson Lab Electron-Ion Collider (JLEIC). The talk presents how this design addresses the above requirements up to an ion momentum of 200 GeV/c. We summarize the magnet parameters, which are kept consistent with the Nb-Ti superconducting magnet technology.

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