

Probing linearly polarized gluon distribution in J/ψ electroproduction at electron-ion collider

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We present a recent calculation of $\cos 2\phi$ asymmetry in J/ψ production, in an unpolarized electron-proton collision, using non-relativistic QCD (NRQCD) based color octet model. This can probe the linearly polarized gluon distribution in the unpolarized proton within the kinematical range of the planned Electron-Ion Collider (EIC). We calculate the asymmetry in the kinematical region $z < 1$, where the next-to-leading order (NLO), in α_s , subprocess $\gamma^* + g \rightarrow J/\psi + g$ gives the leading contribution. We present numerical estimates of the asymmetry using two different models for TMDs: (1) the Gaussian-type parameterization and (2) the McLerran-Venugopalan model at small x .

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