Calculating gluon distribution function with AdS/QCD correspondence

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Abstract

At small Bjorken scaling variable x, dominant Glouns in a hadronic process becomes a color glass condensate (CGC) and the most important principle in this subject is existence of a saturation scale. We can then describe unintegrated gluon distribution function according to the saturation scale. In this study, we calculate gluon distribution function with respect to AdS/CFT correspondence. This way, by using fourier transform of diploe scattering amplitude, we can extract an analytical formula for unintegrated gluon distribution function that is derived from AdS/CFT correspondences. Using this formula we calculate gluon distribution function and compare the results of this distribution function with other parameterized modes.

Keywords: AdS/CFT correspondence, unintegrated gluon distribution function, Saturation scale, Color Dipole Model

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