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Evolutions of longitudinal structure function F_L from QCD Evolution equation upto next-to-leading orders at small-x

The calculation of longitudinal structure function F_L from Quantum Chromodynamics (QCD) evolution equation in next-to-leading order (NLO) at small-x is presented. The calculation of F_L is important for the phenomenological study of gluon distribution function inside the nucleon at small values of Bjorken variable x. Here we use Taylor Series Expansion method to solve the evolution equation for small-x and thus obtain the t- and x-evolution of F_L structure function. The calculated results are compared with H1 and ZEUS data and results of MRST parameterization, Block and Donnachie-Landshoff (DL) models.

Primary author: Ms BARUAH, nomita (tezpur university)

Co-author: Prof. SARMA, jayanta kumar (tezpur university)

Presenter: Ms BARUAH, nomita (tezpur university)