

Next-to-Leading Order corrections to the Next-to-Eikonal DIS structure functions

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I will introduce the high-energy limit of collision events in QCD, as formulated within the Color Glass Condensate (CGC) effective field theory, which provides the established framework for such studies. In this framework, scattering processes are typically described using the eikonal approximation, in which highly energetic partons propagate along straight-line trajectories through the target background field, interacting without deflection. I will then give details on how to achieve the next-to-eikonal (NEik) accuracy, which incorporates the first subleading corrections in energy beyond the eikonal approximation.

I will then present a computation of deep inelastic scattering (DIS) at next-to-eikonal accuracy. In this computation, we obtain the next-to-leading order (NLO) corrections to the next-to-eikonal quark-background DIS structure function. In particular, we show that quark-background corrections to the NEik DIS transverse structure function exhibit rapidity and ultraviolet (UV) divergences. The origins of these divergences are discussed, and finite NEik corrections are presented.

The presentation is based on the work done in [arXiv:2512.16788 [hep-ph]] by, T. Altinoluk, G. Beuf, M. Fucilla and myself.

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