

Forward dijets in proton-nucleus collisions at next-to-leading order

Using the CGC effective theory together with the hybrid factorisation, we study forward dijet production in proton-nucleus collisions beyond leading order. In this paper, we compute the “real” next-to-leading order (NLO) corrections, i.e. the radiative corrections associated with a three-parton final state, out of which only two are being measured. To that aim, we start by revisiting our previous results for the three-parton cross-section presented in our previous paper. After some reshuffling of terms, we deduce new expressions for these results, which not only look considerably simpler, but are also physically more transparent. We also correct several errors in this process. The real NLO corrections to inclusive dijet production are then obtained by integrating out the kinematics of any of the three final partons. We explicitly work out the interesting limits where the unmeasured parton is either a soft gluon, or the product of a collinear splitting. We find the expected results in both limits: the B-JIMWLK evolution of the leading-order dijet cross-section in the first case (soft gluon) and, respectively, the DGLAP evolution of the initial and final states in the second case (collinear splitting).

Quick summery:

https://www.youtube.com/watch?v=yBjd2HA51yE&ab_channel=DIS2021

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