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On gauge invariance of transverse momentum dependent distributions at small x

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The interplay between the small x limit of QCD amplitudes and QCD factorization at moderate x has been studied extensively in recent years. It was finally shown that semiclassical formulations of small x physics can have the form of an infinite twist framework involving Transverse Momentum Dependent (TMD) distributions in the eikonal limit. In this work, we demonstrate that small x distributions can be formulated in terms of transverse gauge links. This allows in particular for direct and efficient decompositions of observables into subamplitudes involving gauge invariant suboperators which span parton distributions. The application to Dijet production in eA collisions will be discussed beyond the correlation limit as well as a strategy to compute finite energy corrections.

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