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The NLO photon impact factor for Deep Inelastic Scattering: analytic result

To study the high-energy amplitudes, the T-product of two currents can be expanded in terms of coefficient functions (impact factors) and matrix elements of composite color dipoles" made of Wilson line operators with rapidity cutoff preserving conformal invariance. In the leading order, the high-energy evolution of color dipoles is governed by the non-linear Balitsky-Kovchegov (BK) equation.
To describe the high-energy amplitudes in the next-to-leading order (NLO) one needs to know the coefficient function (impact factor") and the evolution of corresponding Wilson-line operators. Using the high-energy OPE, we find the next-to-leading order (NLO) correction to the BK equation and calculate the impact factor for virtual photons in deep inelastic scattering.

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