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Diffractive structure function in the dipole approach

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We calculate [1] the contribution from the $q\bar{q}g$ state to the small-x diffractive cross section in deep inelastic scattering in the saturation regime. The obtained cross section is finite by itself and a part of the full next-to-leading order result for the diffractive structure function. We perform the calculation in exact kinematics in the eikonal limit, and show that the previously known high Q^2 and large M_X^2 results for the structure functions can be extracted from our results in the appropriate limits. We furthermore discuss the steps required to obtain the full next-to-leading order results for the structure functions.

[1] G. Beuf, H. Hänninen, T. Lappi, Y. Mulian and H. Mäntysaari,
"Diffractive deep inelastic scattering at NLO in the dipole picture: the $q\bar{q}g$ contribution," [arXiv:2206.13161 [hep-ph]].

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