

On the interplay between the BFKL resummation and high-energy factorization in Mueller-Navelet dijet production

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We study the interplay between the high-energy resummation based on the BFKL equation [1] and initial state radiation effects, taken into account within the framework of the high-energy factorization [2-4] in the production of Mueller-Navelet dijets [5] at hadron colliders. We use the solution of the NLO BFKL equation built out of eigenfunctions perturbatively constructed up to NLO [6] to avoid the need for a special renormalization scale setting. We demonstrate that the various data sets from the FNAL Tevatron and CERN LHC can be described in this way and the both, initial state radiation effects of the high-energy factorization and NLL BFKL resummation, are crucial for the uniform description of the data across all values of rapidity difference between the jets.

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[2] L.V. Gribov, E.M. Levin, M.G. Ryskin, 1983.

[3] J.C. Collins, R.K. Ellis, 1991.

[4] S. Catani, M. Ciafaloni, F. Hautmann, 1991.

[5] A.H. Mueller, H. Navelet, 1987.

[6] G.A. Chirilli, Y.V. Kovchegov, 2013-14.

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