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Toward Mueller-Tang Jets at Next-to-Leading Orde

In the search for a clear signal of underlying BFKL dynamics in high-energy diffractive processes the Mueller-Tang jet observables have been proven to be a particularly fortunate choice. Muellet-Tang jet precesses are dijet events with no radiation recorded in the rapidity region between the jets.
Despite unperturbative effects that can affect the rapidity gap signature a color-singlet excess was observed and a fair agreement was found between the BFKL predictions and the Tevatron data.
The extent of the agreement was partially unexpected considering the modest energy available and the incomplete refinement of the BFKL predictions.
However, no conclusive connection between the observed excess and the BFKL predictions could be drawn.
%of the observed rapidity gap with a BFKL single exchange
Recently, CMS published the first analysis for M-T jets at 7 TeV and the analysis for the 13 TeV run is underway. Thus, the BFKL domain is within reach of the current experiments and a great deal of interest is pointed toward the color-singlet processes.
On the other hand, the theoretical analysis must be extended to complete the BFKL next-to-leading order. In particular, important contributions are expected to stem from the recently calculated NLO corrections to the jet vertex, which have never been included in a phenomenology analysis before.
The inclusion of the NLO vertex passes through the implementation of the momentum space BFKL eigenfunctions, which represents a novelty in this context, and introduces several technical complications that hinder the theoretical analysis.
We present progresses toward this goal, explaining the origin of such complications and the chosen solutions.

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