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Very Forward Jets as A Probe for Low-x Parton Evolution

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Abstract

Jets in high energy hadron-hadron collisions emerge from the interaction of partons at high transverse momenta. The dynamic of hadron jets in proton-proton collisions provides essential information about Parton scattering. The studying of very forward dijet events is very important to enhance the sensitivity to very small-x Parton dynamics. Azimuthal angle decorrelation is a sensitive probe for details of QCD radiation in hard parton scattering. A study of azimuthal angle decorrelations of Mueller-Navelet and inclusive dijet cross-section in proton-proton collisions were performed for jets with $p_T > 5$ GeV and different values of pseudorapidity $\Delta\eta$ using different Monte Carlo generators samples at $\sqrt{s} = 13$ TeV. This work using various Monte-Carlo generators to make comparison that allows distinguishing among various Monte-Carlo generators and their tunes. Monte Carlo generator samples used are Pythia8 CUETP8M1, Pythia8 MBR and EPOS-LHC. For each value of pseudorapidity $\Delta\eta$, the dijet cross-section and $\Delta\phi$ distributions for MN dijets are measured.