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Production of dijets with large rapidity separation: Mueller-Navalet mechanism versus double-parton scattering

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We discuss production of four-jet final state in the $pp \to jjjX$ reaction at the LHC through the mechanism of double-parton scattering (DPS) [1].
Each step of the DPS is calculated within the so-called factorized Ansatz in the LO collinear approximation. The LO pQCD calculations are shown to give a reasonably good descritption of the recent CMS and ATLAS data on inclusive jet production.
Relative contribution of DPS is growing at large rapidity distance between jets.
This is consistent with our experience from previous studies of double-parton scattering effects in the case of open and hidden charm production.
The calculated differential cross sections as a function of rapidity distance between the most distant jets are compared with recent results of LL and NLL BFKL calculations for Mueller-Navalet (MN) jet production at $\sqrt{s} = 7$ TeV.
The DPS contribution to the production of large rapidity distant jets is carefully studied also at the nominal LHC energy and in different jets transverse momenta range.
The differential cross section as a function of dijet transverse momenta as well as two-dimmensional ($p_T^{min} \times p_T^{max}$)-plane correlations for the DPS mechanism are also presented. Some ideas how the DPS effects could be studied in the case of double dijet production are suggested.

[1] R. Maciula and A. Szczurek, a paper in preparation.

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