



Contribution ID: 159

Type: not specified

Double parton effects for jets with large rapidity separation

Sunday, 14 September 2014 12:00 (20 minutes)

We discuss production of four-jet final state $pp \rightarrow jjjjX$ in proton-proton collisions at the LHC through the mechanism of double-parton scattering (DPS) in the context of jets with large rapidity separation.

The DPS contributions are calculated within the so-called factorized Ansatz and each step of DPS is calculated in the LO collinear approximation.

The LO pQCD calculations are shown to give a reasonably good description of recent CMS and ATLAS data on inclusive jet production and therefore this formalism can be used to reliably estimate the DPS effects.

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 remote in rapidity jets are compared with recent results of LL and NLL BFKL calculations for Mueller-Navelet (MN) jet production at $\sqrt{s} = 7$ TeV. The DPS contribution to

the production of jets widely separated in rapidity is carefully studied for the present energy

$\sqrt{s} = 7$ TeV and also at the nominal LHC energy $\sqrt{s} = 14$ TeV and in different ranges of jet transverse momenta. The $d\sigma/dp_T(y_{\min})dp_T(y_{\max})$ -plane correlations for DPS mechanism

are also presented. Some ideas how the DPS effects could be studied in the case of double dijet production are suggested.

This research was published recently [1].

[1] R. Maciula and A. Szczurek,
Phys. Rev. D90, 014022 (2014).

Primary author: SZCZUREK, Antoni (Institute of Nuclear Physics, Krakow and Rzeszow University, Rzeszow)

Presenter: SZCZUREK, Antoni (Institute of Nuclear Physics, Krakow and Rzeszow University, Rzeszow)

Session Classification: Progress in QCD (II)

Track Classification: Progress in QCD