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Correlations in Double Parton Scattering

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Abstract:

Double parton scattering is a background for new physics searches at the LHC and has already been observed at Atlas. I will discuss how the corresponding cross section may be calculated in terms of double parton distribution functions (dPDFs), using double Drell-Yan production as an example. Spin and color correlations, and parton-exchange interference terms contribute, even for unpolarized protons. The field-theoretic definition of the quark dPDF and some of its basic properties will be discussed. In particular, I will consider its renormalization group evolution, which implies that color correlation and interference effects are Sudakov suppressed. This greatly reduces the number of dPDFs needed to describe double parton scattering at high energy experiments.

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