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Proton Structure at the LHC via double parton scattering

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We discuss double parton distribution functions (dPDFs), the main non perturbative ingredients appearing in the double parton scattering cross section (DPS) formula in hadronic collisions. By using recent calculations of dPDFs within Light-Front constituent quark models [1], we investigate the role of correlations induced by relativistic effects on dPDF evaluations [2]. Such distributions are then used to calculate DPS cross section for Same-sign W boson pairs production, a promising channel to look for signatures of double parton interactions at the LHC. We finally describe a connection between the so-called effective cross section, a quantity which encodes the experimental knowledge on DPS, and the mean transverse distance between the two partons active in a give DPS process [4].

References:

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- [4] M. Rinaldi and F. A. Ceccopieri, Phys. Rev. D97(2018) no.7, 071501

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