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Predictions of Double Parton Scattering at LHC Energies

Next-to-leading order predictions in perturbative QCD are presented of various differential distributions for $pp \to W b\bar{b}X \to \ell\nu b\bar{b}X$, and other processes at the CERN Large Hadron Collider. Included are the contributions from both single parton scattering and double parton scattering, as well as relevant backgrounds. Several kinematic variables are proposed for isolating the double parton contribution with the first 10 fb^{-1} of integrated luminosity. Smearing associated with next-to-leading order contributions is important for a proper description of some of the observables we compute. Under specified conditions, the double parton process can be identified and measured with signal over background significance $S/\sqrt{B} \sim 10$. (The presentation would be based on the work reported in Phys. Rev. D 84 (2011), 074021, arXiv:1107.3150, and subsequent investigations.)

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