

Double Parton Scattering in Ultraperipheral Collisions

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Double Parton Scattering (DPS) is an important way for which we can investigate the parton distributions of the proton and the nucleus. Although, we know that such scatterings should occur in high energy collisions, the formalism to describe it lacks answers to questions like — is there a universal effective cross section? In order to explore such questions, we investigate DPS in ultraperipheral collision (UPC) where the effective cross section is not a constant as usually is in the central collisions, as we point in our results. Furthermore, once we allow the nucleus to break in a ultraperipheral proton–nucleus collision, we provide insights concerning the photon distribution of the nucleus. Also, as the effective cross section has a complex dependence with the longitudinal fraction energy carried by the photon in the initial state, we evaluate cross sections with photon and gluons in the initial state producing quark–antiquark pairs or dilepton and quark–antiquark in the final state.

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