Double Unintegrated Parton Distribution Functions

The study of particle structure is one of the most fundamental and challenging scientific topics that has always maintained its attractiveness among researchers. They have pursued this goal with the development of different tools and methods. One of these methods is by finding particle cross sections, which is accompanied by many complexities. Fortunately, the factorization theorem has made this path easier by providing a solution. In this theory, using collinear and k_t-factorization frameworks we can find the cross section of particle collisions. The k_t-factorization theorem is actually an extension of the collinear factorization theorem, which considers the transverse momentum of a parton in addition to its collinear component. Recently, another approach by extending the k_t-factorization framework is proposed, which is called the (z, k_t)-factorization. In this framework the kinematics of the last step emitted parton in contrast to the k_t-factorization theorem is completely considered, and this parton plays an important role in cross section calculations. In this poster, we investigate the (z, k_t)-factorization framework by considering various hadronic differential cross sections, and also double unintegrated parton distribution functions of different approaches.

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