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Experimental overview of Transverse Momentum Distributions and Momentum Effects

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In the last decade, new Transverse Momentum Dependent parton distributions and fragmentation functions have been introduced to account for the complexity of the hadron structure, taking into account the parton transverse degrees of freedom. In parallel, new channels of investigation have been developed such as, in DIS, the study of semi-inclusive deep-inelastic-scattering reactions, where hadrons from the struck quark are observed in conjunction with the scattered lepton, or, in polarized hadron interactions, the study of the lepton distributions from Drell-Yan reactions as well as vector bosons and jet productions. Such measurements have become possible by the parallel evolution of the experimental apparatuses. Studies of the parton distribution functions which encode transverse momentum information are currently driving the upgrades of several existing facilities (Jefferson Lab, COMPASS and RHIC), and having an important role in the design and construction of new facilities worldwide (EIC, FAIR, NICA and JPARC).

Here I will present a selection of the available observations obtained both with electromagnetic and hadronic probes and show perspective for the upcoming measurements at ongoing or planned experiments.

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