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Phenomenology of unpolarized TMDs from Semi-Inclusive DIS data

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The analysis of experimental data on unpolarized Semi-Inclusive Deep-Inelastic Scattering (SIDIS) allows the extraction of information on the unpolarized transverse-momentum-dependent distribution functions (TMD PDFs) and fragmentation functions (TMD FFs). For the first time we investigate the flavor dependence of the partonic transverse momentum. Assuming Gaussian behavior in the transverse momentum plane, there are good indications for flavor dependence in the transverse momentum dependence of fragmentation functions, whereas the evidences are weaker for the distribution functions. We explore the impact of QCD evolution on the phenomenological description of SIDIS data, distinguishing the contributions to the evolution kernel related to intrinsic and perturbative transverse momentum.

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