

Effect of flavor-dependent partonic transverse momentum on the determination of the W mass at hadron colliders

Within the framework of transverse-momentum-dependent factorization, we investigate for the first time the impact of a flavor-dependent intrinsic transverse momentum of quarks on the production of W bosons in hadronic collisions. We study the transverse-mass, lepton transverse momentum, and missing transverse momentum distributions of the W-decay products by means of a template-fit technique and we estimate the shift in the W boson mass induced by different choices of flavor-dependent parameters for the intrinsic quark transverse momentum. Our findings call for more detailed investigations of flavor-dependent non-perturbative effects linked to the proton structure at hadron colliders.

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