Abstract Submitted
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Transverse momentum at work in high-energy scattering experiments ANDREA SIGNORI, Vrije Univ (Free Univ) — I will review some aspects of the definition and the phenomenology of Transverse-Momentum-Dependent distributions (TMDs) which are potentially interesting for the physics program at several current and future experimental facilities. First of all, I will review the definition of quark, gluon and Wilson loop TMDs based on gauge invariant hadronic matrix elements. Looking at the phenomenology of quarks, I will address the flavor dependence of the intrinsic transverse momentum in unpolarized TMDs, focusing on its extraction from Semi-Inclusive Deep-Inelastic Scattering. I will also present an estimate of its impact on the transverse momentum spectrum of W and Z bosons produced in unpolarized hadronic collisions and on the determination of the W boson mass. Moreover, the combined effect of the flavor dependence and the evolution of TMDs with the energy scale will be discussed for electron-positron annihilation. Concerning gluons, I will present from an effective theory point of view the TMD factorization theorem for the transverse momentum spectrum of pseudoscalar quarkonium produced in hadronic collisions. Relying on this, I will discuss the possibility of extracting precise information on (un)polarized gluon TMDs at a future Fixed Target Experiment at the LHC (AFTER@LHC).

Andrea Signori
Vrije Univ (Free Univ)

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