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QCD Global Analyses of Transverse Single-Spin Asymmetries: Single Hadron and Dihadron Observables

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I will report on recent QCD global analyses of single-spin asymmetries involving two different types of observables. On the one hand, measurements of the Sivers, Collins, and sin(phi_S) effects in SIDIS, Collins effect in electron-positron annihilation, Sivers effect in Drell-Yan, and A_N in single-inclusive proton-proton collisions, are sensitive to important TMDs and collinear twist-3 (quark-gluon-quark) functions. On the other hand, measurements where two hadrons are detected in the same parton-initiated jet in SIDIS, electron-positron annihilation, and proton-proton scattering provide information on novel dihadron fragmentation functions. The two different types of observables have overlap in that they both give access to the transversity function, which then can be used to calculate the tensor charges of the nucleon. I will discuss agreements and tensions between the transversity PDFs and tensor charges found from these two methods as well as those computed within lattice QCD.

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