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Global Analysis of Quark-Gluon Correlations in Hadrons DANIEL PITONYAK, Lebanon Valley College, JUSTIN CAMMAROTA, Lebanon Valley College/College of William and Mary, LEONARD GAMBERG, Penn State Berks, ZHONGBO KANG, UCLA, JOSHUA MILLER, Lebanon Valley College, ALEXEI PROKUDIN, Penn State Berks/Jefferson Lab, NOBUO SATO, Jefferson Lab/Old Dominion University — The internal, 3D structure of hadrons are often encoded in transverse momentum dependent (TMD) parton distribution functions (PDFs) and fragmentation functions (FFs). There has been intense research from both theory and experiment on observables that give access to these objects, especially those that depend on the transverse spin of particles. For example, the Sivers and Collins effects in semi-inclusive deep-inelastic scattering (SIDIS) and the Collins effect in electron-positron annihilation have been widely investigated over many years. In addition, collinear twist-3 observables involving transverse spin, like A_N in proton-proton collisions, are of interest due to their sensitivity to quark-gluon correlations in hadrons. In this talk, I will report on the first attempt to achieve a global analysis of TMD and collinear transverse-spin data using an iterative Monte Carlo procedure. I will discuss the results of our analysis and also explore avenues for future research.

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