Contribution ID: **46** Type: **not specified**

Factorization for the Transverse Momentum Distributions in SIDIS at Subleading Power

Tuesday, 16 November 2021 14:20 (20 minutes)

Fully differential measurements of the Semi-Inclusive DIS process with polarized beams provide important information on the three-dimensional structure of hadrons. In particular, azimuthal asymmetries of the fragmenting hadron probe interesting new correlations between partons in the hadronic system through novel hadronic distribution functions. In the framework of factorization for transverse momentum distributions (TMDs) some key asymmetries start at subleading order in the power expansion, where the formalism needed to fully relate observables and distributions is not yet under control, being primarily at tree level in the parton model. In this talk I utilize the soft collinear effective theory formalism to answer a few open questions, including providing generalized definitions of the distribution functions that are valid beyond tree level, giving a proof of completeness of the basis of functions, and providing a description of soft dynamical effects. These results enable a QCD description of SIDIS azimuthal asymmetries beyond tree level, and hence provide a framework for systematically improvable relations to the underlying distributions.

Primary authors: GAO, Anjie (Massachusetts Institute of Technology); Prof. STEWART, Iain (Massachusetts Institute of Technology); EBERT, Markus (Max-Planck-Institut für Physik)

Presenter: GAO, Anjie (Massachusetts Institute of Technology)

Session Classification: TMDs