Workshop on *"TMD Studies: from JLab to EIC"*

The motivation:

The studies of 3D structure of the nucleon using SIDIS to access partonic Transverse Momentum Dependent Parton Distribution Functions (TMD PDFs, or simply TMDs), have been a major driving force, both for JLab and the EIC. The complementarity between JLab 12 GeV measurements and the EIC has to be fully exploited, and the ongoing and planned JLab experiments can play an essential part in this endeavor. The main goal of the workshop will be to evaluate the SIDIS program as a whole in the context of the latest developments in theory and experiments. At this workshop we will discuss the existing theoretical approaches, future measurements worldwide and data analyses, focusing on different issues in theoretical interpretations and possible limitations from experimental capabilities. The workshop aims to help define a clear path for realistic evaluation of possible interpretations of data and planning for future measurements. We plan to focus on the kinematic region with large enough x ($x>0.02$), where spin-orbit correlations are significant enough to be measured.

The crucial items for evaluation of TMD studies in SIDIS, required to address include:

1) The status of the theory, different factorizations for SIDIS process and their applicability in different kinematic regions, and validation/test by data.

2) Projections for any kind of future measurements, with clear systematics due to unknown behavior in the kinematics, where the parameterizations are not constrained by data.

3) Experimental limitations, in particular phase space limitations.

4) Understanding of the impact of unknown fragmentation functions and the associated systematics in the extraction of TMDs, in particular their P_T-dependence, and the role of vector mesons produced in hadronization of quarks.

5) Development of a framework for evaluation of systematics of different extraction procedures, due to experimental uncertainties, limited phase space coverage, various assumptions and approximations used in phenomenology for extraction of TMDs from the existing and future data sets, in particular in kinematic regions not covered by data.

6) Development of realistic and versatile generators allowing for the implementation of different frameworks and phenomenology, which will be crucial for simulations of realistic "pseudo-data", and can be used in validation of various extraction frameworks. Such generators should also allow for the study of model dependence in extracting TMDs.

7) The EIC measurements at large x, including coverage, resolutions, large Q^2 behavior of SSAs, complementarity with JLab

8) Lattice calculations: input in phenomenology and MC simulations

9) QED contribution to SIDIS and its impact on the extraction of TMDs and 3D structure.

10) There have been discussions about possible energy upgrade of CEBAF beyond 12-GeV. What a realistic energy upgrade to CEBAF could add to studies of 3D structure, and the role of non-perturbative sea in understanding the spin-orbit correlations?