

Abstract Submitted
for the DNP15 Meeting of
The American Physical Society

Extraction of the Light-Cone Momentum Distributions of the Deuteron and their Application to the Analysis of eD Scattering at EIC¹

WERNER BOEGLIN, MISAK SARGSIAN, Dept. of Physics, Florida International University — The possibility of having polarized deuteron beams at EIC creates a unique opportunity for studies of different aspects of QCD. These include the partonic structure of the bound neutron, tagged structure functions, the dynamics of final state interaction in DIS etc. However the analysis of DIS processes off the neutron requires a reliable knowledge of the different components of the deuteron's light-cone momentum distribution. We present first results of an extraction of the unpolarized deuteron light-cone momentum distribution from recent high energy and momentum transfer electro-disintegration data. We demonstrate that the high energy nature of the reaction allows a clear separation of the longitudinal and transverse dynamics of the scattering processes allowing an access to the light-cone momentum distribution of the deuteron which is minimally influenced by final state interaction effects. We also discuss the prospects of extracting the light-cone momentum distribution functions for tensor and vector polarized deuteron targets and their use in the analysis of DIS processes at EIC.

¹This work was supported in part by the Department of Energy under contracts DE-SC00-13620 and DE-FG02-01ER41172.

Werner Boeglin
Dept. of Physics, Florida International University

Date submitted: 01 Jul 2015

Electronic form version 1.4