

Abstract Submitted
for the DNP10 Meeting of
The American Physical Society

Study of the Helicity Dependent Parton Densities for the Electron-Ion Collider CAITLIN HARPER, Muhlenberg College, EIC COLLABORATION — The Electron-Ion Collider (EIC) is currently being designed and one potential location could be Brookhaven National Laboratory through adding an electron beam to the Relativistic Heavy Ion Collider. One of the ultimate goals of the EIC is to look into the inner workings of quantum chromodynamics (QCD), the theory of strong interactions. The force that supplies the internal binding of strongly interacting particles is mediated by the exchange of gluons. Since gluons have colored charge they have the ability to interact among themselves, a unique feature of QCD. Upon completion, the EIC will allow us to study momentum and space-time distribution of gluons in nuclei. One specific key measurement at the EIC is to reveal the individual contributions of quarks and gluons to the spin of the proton at lower momentum fractions than have ever been measured at previous experiments. These factors are represented by the spin-dependent structure function $g_1(x, Q^2)$, which covers a wide range in energy-scale, Q^2 , and low momentum fractions, x . Further knowledge is attained through the study of deep inelastic scattering and their asymmetries.

Caitlin Harper
Muhlenberg College

Date submitted: 28 Jul 2010

Electronic form version 1.4