Log #DNP20-2020-000294

Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

Sorting Category: 10. (E)

Measuring the Neutron Spin Asymmetry A_1^n in the Valence Quark Region in Hall C at Jefferson Lab MELANIE REHFUSS, Temple Univ, A1N/D2N COLLABORATION — The "spin crisis" ushered in by the measurements on the integral of the proton polarized structure function g_1^p conducted at SLAC and CERN, which revealed that the spin contribution of the valence and sea quarks comprised only a small fraction of the total proton spin, has inspired immense theoretical and experimental activity on nucleon spin structure. The extent to which quark (and gluon) angular momentum plays in forming the nucleon spin is still a mystery. Since QCD has a non-perturbative nature, the valence domain (x_{bj} >0.5) is an ideal region to explore nucleon spin structure because it's considered to be a perturbative region, where the valence quarks dominate, and so is the only region where pQCD and many other models can make absolute predictions for structure function ratios. The neutron spin asymmetry A_1^n was measured in the deep inelastic scattering region of 0.3 <x <0.77 and 3 <Q^2 <10 (GeV/c)^2 in Hall C at Jefferson Lab using an 10.4 GeV longitudinally polarized electron beam, upgraded polarized ^{3}He target, and the High Momentum Spectrometer (HMS) and Super High Momentum Spectrometer (SHMS). The wide Q^2 range will explore possible Q^2 dependence on A_1^n, provide the first precision data in the valence quark region above x = 0.61, and therefore test various predictions from the relativistic constituent quark model and perturbative QCD.

[X] Prefer Oral Session
[ ] Prefer Poster Session

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Date submitted: 25 Jun 2020 Electronic form version 1.4