

APR05-2005-000760

Abstract for an Invited Paper
for the APR05 Meeting of
the American Physical Society

What Have We Learned from the Nucleon Spin Structure?

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Since the 1980s, the development of polarized electron sources and polarized target techniques has brought the experimental study of the nucleon into a new era. The spin structure of the nucleon has been explored with polarized electron scattering. Now twenty years have passed. What have we learned from the data? Do they agree with predictions from quantum chromo-dynamics (QCD), the theory for strong interactions? And what about predictions from constituent quark models? I will start from a brief introduction to the study of hadron structure using lepton deep inelastic scattering, and give an overview of world data and what we have already learned about nucleon structure. Then I will present results from a precision experiment completed at Jefferson Lab on the study of the neutron spin in the valence quark region, and discuss the surprising implication of these results.

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