

Spin observable measurements from pseudo scalar-meson polarized photoproduction using polarized neutrons in solid HD

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Abstract

The g14/E06-101 experiment was carried out to study the missing resonances which have been predicted by the quark models but not experimentally observed. These missing resonance states are expected to have broad widths and overlap each other; detailed partial wave analyses are required. For this purpose, the experiment aims to measure complete 16 spin observables for neutrons. While $I = 3/2$ Δ amplitudes can be determined from proton or neutron targets alone, $I = 1/2$ N^* ones require both of proton and neutron data; neutron data are very sparse. The experiment was performed with circularly and linearly polarized photon beams, frozen spin solid Hydrogen Deuterium (HD) as longitudinally polarized neutron targets and CLAS in Hall B at Thomas Jefferson National accelerator facility from December 2011 through May 2012. Preliminary analyses for double-spin asymmetries on the neutron, such as $\gamma + n(p) \rightarrow \pi^- + p(p)$, selecting quasi free neutron kinematics will be discussed. CLAS calibrations are ongoing and the analyses cover broad ranges of W .