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First Use of a Longitudinally Polarized Target with CLAS12

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A new dynamically polarized target of irradiated ammonia (NH_3 and ND_3) has been constructed for use with the CLAS12 spectrometer system in Hall B at Jefferson Lab. The new target is used to polarize protons and deuterons in the longitudinal orientation at a temperature of 1 K and a field of 5 T. Its first use with CLAS12 includes measurements of spin structure functions via deep inelastic scattering, transverse momentum distribution functions via semi-inclusive deep inelastic scattering, and generalized parton distribution functions of protons and neutrons via deeply virtual Compton scattering. In this presentation, the target's design, operation, and first results with electron beams of 5-10 nA in Hall B will be given.

Category

Polarized Targets

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