Abstract Submitted
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Three-body photodisintegration of ^{3}He using a longitudinally polarized target and a circularly polarized γ beam at 12.8 and 14.7 MeV[1] GEORGIOS LASKARIS, Triangle Universities Nuclear Laboratory and Physics Department of Duke University, POLARIZED ^{3}HE COLLABORATION AT HIGS/TUNL TEAM — We report on the first measurement of the three-body photodisintegration of longitudinally polarized ^{3}He using a circularly polarized γ-ray beam at incident photon energies 12.8 MeV and 14.7 MeV. The experiment was carried out at the High Intensity γ-ray Source facility located at the Triangle Universities Nuclear Laboratory.A high-pressure ^{3}He target, polarized via spin exchange optical pumping with alkali metals, was employed. The neutrons from the three-body photo-disintegration were detected using ten liquid scintillators positioned in the reaction plane at five different angles between 75° and 165°. Results on the spin-dependent double- and single- differential cross sections, the spin-dependent total cross sections, as well as the asymmetries will be presented and compared with the state-of-the-art three-body calculations for both energies. The first data points below pion production threshold of the three-body photodisintegration part of the GDH sum rule integrand will be also presented. Contributions from three-body photodisintegration at the photon energies of this work to the ^{3}He GDH integrand below the pion production threshold will also be presented for the first time.

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