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Polarization Measurements of the Recoil Proton in $H(\vec{\gamma}, \vec{p})\pi^0$ reaction¹ WEI LUO, Lanzhou University and Jefferson Lab, MARK JONES, LUBOMIR PENTCHEV, Jefferson Lab, GEP-3 COLLABORATION, GEP-2 γ COLLABORATION — Perturbative QCD theory predicts that the polarization components of the proton above the baryon resonance region should have a smooth dependence of E_{γ} , and approach limits established by hadron helicity conservation in the $H(\vec{\gamma}, \vec{p})\pi^0$ reaction. Published data shows strong variation of the polarization variables above 2 GeV, which could be a sign of high-mass resonances. We present preliminary results for the π^0 photo-production from Jefferson Lab Hall C experiments E04-108, E04-019, E07-002 and Hall A experiment E99-114, which all measured the polarization observables of the recoil proton with high statistics. Our data extends the polarization measurements of π^0 photo-production up to $E_{\gamma} = 5.7$ GeV, with four momentum transfers up to 8.5 GeV². The results show consistency with published data up to 4.1 GeV. We will discuss the interpretation of these results.

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