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Measuring the Spin-Polarizabilities of the Proton in Polarized Compton scattering at MAMI-Mainz RORY MISKIMEN, University of Massachusetts, A2 COLLABORATION — At $O(\omega^3)$ four new structure constants are present in the nucleon Compton scattering amplitude; these are the spin-polarizabilities γ_{E1E1}, γ_{M1M1}, γ_{E1M2}, and γ_{M1E2}. The most model independent way to determine the spin-polarizabilities is by measuring a double-polarized Compton scattering asymmetry with polarized target and circularly polarized photons, and by measuring an in-plane/transverse-plane Compton scattering asymmetry with linearly polarized photons (Σ_3). This talk will present new Compton scattering asymmetry data taken in the Δ region by the A2 Collaboration using the Crystal Ball at Mainz, with transverse polarized proton target and circularly polarized photons, the Σ_{2x} asymmetry (1). A dispersion model and an EFT calculation of Compton scattering are used to fit the four spin-polarizabilities to the new experimental data on Σ_{2x}, earlier results (2) on Σ_3, and previous determinations of γ_0 and γ_π. The results of the fits are compared with theoretical calculations.

[1] P. Martel, Ph.D. thesis, University of Massachusetts, unpublished (2012).
[2] G. Blanpied, et al., Phys. Rev. C, 64, 025203 (2001)

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