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A Measurement of g2p and the Longitudinal-Transverse Spin Polarizability MIN HUANG, Duke University, JEFFERSON LAB HALL A E08-027 COLLABORATION — The JLab Hall A E08-027 (g2p) experiment aims at measuring the proton structure function g_2 in the low Q^2 region ($0.02<Q^2<0.2$ GeV^2), which has never been explored. The measured g2p data also allow us to extract the longitudinal-transverse spin polarizability of the proton, which will provide a benchmark test of χPT calculations. The results from this experiment can be used to test the Burkhardt-Cottingham sum rule. As a fundamental property of the proton, the measured g_2^p will provide crucial inputs for precision studies involving the proton, such as the hydrogen hyperfine splitting and the proton charge radius measurements. The proton charge radius has been shown to be significantly different between electron-proton elastic scattering and hydrogen Lamb shift measurements, and that determined from the Lamb shift of muonic hydrogen. The g2p experiment took data in the spring of 2012. In this talk, I will present the physics motivation, followed by an overall introduction of the experiment and the status of the data analysis.

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