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Polarized Proton Target for the g2p Experiment MELISSA CUMMINGS, The College of William and Mary, JEFFERSON LAB HALL A E08-027 COLLABORATION — The g_2^p experiment was completed in Jefferson Lab's Hall A in the spring of 2012. These data will provide the first measurement of the proton's g_2 structure function in the region $0.02 < Q^2 < 0.2\ GeV^2$. A large scale installation was required for the g_2^p experiment, including a polarized ammonia (NH_3) target never before used in Hall A. Based on the principle of Dynamic Nuclear Polarization (DNP), microwave pumping is used to polarize irradiated ammonia in a high magnetic field at a temperature of 1K. In order to achieve the proposed kinematic range, the target magnet field was used at both 2.5 T and 5 T. Few studies of DNP have been done previously with a target field of 2.5 T, making these data of particular interest. In addition, an experiment to measure the proton form factor ratio (G_E/G_M) ran concurrently with the g_2^p experiment and required a different target polarization direction. Therefore, a rotatable target chamber was needed for transition between configurations. This talk will introduce the concept of DNP and describe the unique challenges faced in the design of the g_2^p target. Performance indicators such as polarization decay rate and anneal time will be presented along with preliminary polarimetry results.

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