

Abstract Submitted
for the DNP10 Meeting of
The American Physical Society

A search of an ϵ dependence of the proton form factor ratio using recoil polarization technique MEHDI MEZIANE, The College of William and Mary, THE JEFFERSON LAB HALL-C $GEP-2\gamma$ COLLABORATION — Intensive theoretical and experimental efforts have been made over the past decade aiming at explaining the discrepancy between the data for the proton form factor ratio, G_{Ep}/G_{Mp} , obtained at Jefferson Lab using polarization transfer technique, and the world data obtained by the Rosenbluth method based on cross section measurements. One possible explanation for this difference is a two-photon exchange contribution, where both photons share the momentum transfer about equally. In the Born approximation for a fixed Q^2 , the form factors do not depend upon the energy of the incident electron. We will report the results of the Jlab Hall-C $G_{Ep} - 2\gamma$ experiment which was designed to measure a possible kinematical variation of the ratio G_{Ep}/G_{Mp} with statistical uncertainties of ± 0.01 at $Q^2 = 2.5 GeV^2$, using the recoil polarization technique. Three kinematics were chosen, corresponding to values of the kinematic factor $\epsilon=0.15, 0.63$ and 0.77 . We will describe the new detectors built for both $G_{Ep} - 2\gamma$ and $G_{Ep} - III$ experiments, the electromagnetic calorimeter BigCal which detected the scattered electron, and the focal plane polarimeter (FPP) which measured the polarization of the recoil proton.

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Date submitted: 30 Jun 2010

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