Proton Form Factor Measurements Using Polarization Method: Beyond Born Approximation

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Significant theoretical and experimental efforts have been made over the past 7 years aiming to explain the discrepancy between the proton form factor ratio data obtained at JLab using the polarization method and the previous Rosenbluth measurements. Preliminary results from the first high precision polarization experiment dedicated to study effects beyond Born approximation will be presented. The ratio of the transferred polarization components and, separately, the longitudinal polarization in ep elastic scattering have been measured at a fixed Q^2 of 2.5 GeV^2 over a wide kinematical range. The two quantities impose constraints on the real part of the ep elastic amplitudes and thus on the possible theories that explain the discrepancy by two-photon Exchange effects.