

Abstract Submitted
for the DNP13 Meeting of
The American Physical Society

Q^2 dependence of Two Photon Exchange Effects at $\epsilon = 0.884$ DI-PAK RIMAL, BRIAN RAUE, PUNEET KHETARPAL, Florida International University, DASUNI ADIKARAM, LAWRENCE WEINSTEIN, ROBERT BENNETT, Old Dominion University, CLAS COLLABORATION — A large discrepancy has been observed between proton electromagnetic form factor ratios G_E^p/G_M^p measured by Rosenbluth separation and polarization transfer experiments. One possible source of this discrepancy is effects due to two-photon exchange (TPE) not being properly accounted for in radiative corrections. We have used a mixed beam of electrons and positrons elastically scattered from a liquid hydrogen target in the CLAS detector at Jefferson Lab to determine the cross section ratio $R = \sigma(e^+p)/\sigma(e^-p)$. This ratio provides a model-independent method of determining the TPE effects in elastic electron scattering. This talk will present the motivation for this measurement and the experimental method used to extract R . We will present for the first time results showing the Q^2 dependence of R at an average $\epsilon = 0.884$ for $0.3 \leq Q^2 \leq 1.25$ GeV². The implications of the results will be discussed.

Brian Raue
Florida International University

Date submitted: 28 Jun 2013

Electronic form version 1.4