

Abstract Submitted
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Parity-Violating Asymmetry in the $N \rightarrow \Delta$ Transition¹ ANNA LEE, Virginia Polytechnic Institute, QWEAK COLLABORATION — The primary focus of the recently completed Q_{weak} experiment at Jefferson Lab is the determination of the proton's weak charge. To properly make corrections to the measured asymmetry, dedicated measurements were made of the parity-violating asymmetry at low Q^2 in inelastic \bar{e} -p scattering at the $N \rightarrow \Delta$ transition for two different beam energies. The asymmetries are used to extract an additional physics result, the low energy constant d_Δ , which is responsible for the Siegert term that causes the asymmetry to be non-zero even at the photon point ($Q^2=0$). The d_Δ term is a measure of the hadronic parity violation in this transition. It has been shown to be related to some puzzles in radiative hyperon decays. These analyses suggest potential values of d_Δ much larger than its natural scale. The measurements described here were done at beam energies of 877 MeV ($Q^2 = 0.011 \text{ GeV}^2$) and 1165 MeV ($Q^2 = 0.021 \text{ GeV}^2$) using the Q_{weak} apparatus. An overview of the motivations for the measurement, the experimental approach, and the status of the analysis will be presented.

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