

Abstract Submitted  
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**Status of the Qweak Main Detector Construction** DAVID MACK, TJNAF, QWEAK COLLABORATION — Precision measurements of Standard Model-suppressed, weak-scale observables provide a window on potential new physics at the TeV scale. An attractive observable is the proton neutral weak charge,  $Q_{Weak}^p$ , which measures the coupling of the Standard Model Z boson to the proton and is proportional to the relatively small quantity  $1 - 4 \sin^2 \theta_W$ . The proton weak charge can now be calculated to very high precision in the Standard Model but has never been directly measured. Its value could be significantly shifted by new, parity-violating electron-quark interactions such as those found in leptoquark models or RPV SUSY models. The existence of new  $Z$ 's could also shift the observed value. By measuring the parity-violating asymmetry in elastic  $e + p$  scattering at low momentum transfer, the proton weak charge can be determined with hadronic ambiguities smaller than our projected error bar. After briefly overviewing the physics and our plans for a 4% measurement, the status of the detector construction effort will be summarized.

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