

## **Qweak – A Search for New Physics \***

John Leckey<sup>1</sup> (for the Qweak Collaboration)

<sup>1</sup>Physics Department, William and Mary, Williamsburg VA, 23188 USA

Qweak is a currently running experiment at the Thomas Jefferson National Accelerator Lab that will use parity-violating elastic electron-proton scattering to measure the weak charge of the proton ( $Q_{\text{weak}}^{\text{P}}$ ). This experiment will be a sensitive test for physics beyond the Standard Model, as  $Q_{\text{weak}}^{\text{P}}$  is well predicted in the Standard Model. Longitudinally polarized electrons scatter off a liquid hydrogen target and pass through a toroidal-field magnetic spectrometer. In order to perform a 4 % measurement of  $Q_{\text{weak}}^{\text{P}}$ , we will need to measure the momentum transfer ( $Q^2$ ) to 0.5 %. The  $Q^2$  will be measured using a tracking system consisting of two gas electron multipliers (GEM), four horizontal drift chambers (HDC), and four vertical drift chambers (VDC). In this talk I will outline the design of the full apparatus and discuss the details of the  $Q^2$  and  $Q_{\text{weak}}^{\text{P}}$  measurements that will be complete in 2012 and present any results thus far in the experiment's progress.

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