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A Search for Physics beyond the Standard Model: Update on the Qweak Experiment

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The Qweak experiment aims to make a precision measurement of the proton's weak charge (Q^P_{weak}) using parity-violating elastic electron-proton scattering. The goal, a ±4% measurement of the proton's weak charge (Q^P_{weak} = *1 - 4*$sin^2\theta_W$), will allow for a ±0.3% determination of $sin^2\theta_W$ at low momentum transfers ($Q^2 \sim$ *0.026* GeV^2/c^2), and provide a measure of the running of $sin^2\theta_W$. Furthermore, since Q^P_{weak} is well-determined in the Standard Model, this experiment will be a sensitive test for physics beyond the Standard Model. The experiment, which scatters longitudinally polarized electrons off a 0.35m long liquid hydrogen target, is currently running in Hall C at the Thomas Jefferson National Accelerator Facility. At this time, only a fraction of the data required to reach the desired statistical uncertainties has been collected, with the bulk of the data-taking scheduled for late-2011 and 2012. The design and present status of the Qweak experiment will be summarized in this talk.