

Abstract Submitted
for the APR10 Meeting of
The American Physical Society

Qweak: A Low Noise Experiment¹ BUDDHINI WAIDYAWANSA,
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TION — The Q_{Weak} experiment at Jefferson Lab will make a measurement of the
weak charge of the proton with a 4% combined statistical and systematic errors
using parity-violating elastic e p scattering. The main technical challenge in this
precision measurement arises from the extraction of the experimental asymmetry of
0.25 ppm from the scattering rates. The primary source of error comes from the
counting statistics. Strategies will be used by the collaboration to minimize the
effect of other random noise that are generated by the target density fluctuations,
60Hz pick up and the electronic modules. Custom low noise electronics built for us
by TRIUMF includes an 18-bit, 500kHz sampling ADC and low noise preamplifier.
Performance in realistic tests will be presented.

¹This work is funded by NSF grant 0653422.

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Date submitted: 26 Oct 2009

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