

Abstract Submitted
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Pion Asymmetries due to Hyperon Decays in the Qweak Experiment JACOB ELLEDGE, The College of William And Mary — The Qweak experiment took place at the Thomas Jefferson National Accelerator Facility between 2010 and 2012. In the experiment an electron beam was directed onto a liquid hydrogen target. The purpose of the Qweak experiment is to investigate the weak interaction between the proton and the electron. The experiment determined the protons weak charge by measuring the asymmetry in elastic scattering when changing the helicity of the incoming electron beam 960 times per second. Under different kinematic conditions the experiment investigated inelastic scattering with pions in the final state, a background for the elastic scattering measurement. In this inelastic measurement, a false asymmetry due to parity-violating hyperon decays must be determined. Using the results of a simulation written in Geant4, I have been able to isolate the cross sections for samples of opposite helicities. By combining this cross section with the signal of detected pions from hyperon decay, I was able to isolate the expected false asymmetry.

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