

Abstract Submitted
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Focal Plane Scanning Detector for Qweak LAURA COBUS, University of Winnipeg, QWEAK COLLABORATION — The Qweak experiment at Thomas Jefferson National Accelerator Facility will precisely measure the weak charge of the proton through parity-violating electron-proton scattering. Large-area Čerenkov detectors will be operated in integrating mode to sense the scattered electrons. Tracking studies such as Q^2 determination and physics backgrounds will be performed at beam currents below 100nA, where tracking detectors are operable. However, the parity-violation experiment must be conducted at $180\mu\text{A}$ in order to achieve the statistical goal of the experiment. We are constructing a scanning detector with small fiducial area to facilitate the extrapolation from low to high beam currents. The scanning detector will use two light guide tubes in coincidence to eliminate background. To scan in the focal plane, the scanner will be mounted on a robotic 2D motion assembly. Background and accidental coincidence rates on the detector were simulated, and a laser position detection system for the robotic assembly was designed and constructed. The results of these projects and the current status of the scanner will be discussed.

Laura Cobus
University of Winnipeg

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