

Abstract Submitted
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Analysis Needs for Parity-Violation Experiment ALANA LAJOIE-O'MALLEY, University of Winnipeg — The G0 experiment at Jefferson Lab measures parity violating asymmetries in elastic electron-nucleon scattering to separately determine the electric and magnetic strange form factors over a broad range of Q^2 . The next phase of the G0 experiment, performed at backward angles, will use two arrays of plastic scintillators, and aerogel Cherenkov counters to detect elastically scattered electrons. Two arrays are required in order to perform tracking and hence to differentiate between elastic and inelastic electrons. Fast scaler counting coincidences are read and cleared at the helicity reversal rate, giving rise to “helicity-reversal” events. In addition, “detector-checkout” events are acquired periodically to digitize pulse heights and timing spectra from the detectors. The detector-checkout events are essential for monitoring the performance of the detectors as well as individual photomultiplier tube (PMT) rates. For example, efficiency for electron detection and contaminations from backgrounds can be estimated using these events. In addition, aging of the detectors due to radiation damage is monitored. The most important aspect of the detector-checkout events will be that they will allow characterizing the success of the detectors to reject backgrounds. A custom C++ code converts raw data files into data summary files. The data summary files are analyzed using custom analysis tools (developed using the ROOT toolkit). The G0 analysis scheme will be discussed, with particular emphasis on detector-checkout events.

Alana Lajoie-O'Malley
University of Winnipeg

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