

Abstract Submitted
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Development of a Large Scale Data Acquisition System for the Coordinate Detector KARA FERNER, Christopher Newport University — The Super BigBite Spectrometer (SBS) program is a series of experiments to measure electromagnetic nucleon form factors, to provide a better understanding of the fundamental structure of protons and neutrons. The SBS apparatus employs a series of tracking detectors, providing high resolution position and trajectory information of scattered charged particles. One of these detectors is the Coordinate Detector (CDet), which is a scintillator detector, utilizing wavelength-shifting optical fibers to collect the scintillation light and guide it to attached photomultiplier tubes (PMTs). The CDet is currently being commissioned to determine the optimal high voltage setting of each PMT for a given efficiency. The data acquisition system (DAQ) used with the CDet is now being upgraded to use a new VETROC based TDC (time-to-digital converter). Use of these flash-based TDCs will reduce the electronic deadtime in the DAQ during the experiments. Given the high rate environment during experiments, a fast DAQ with minimum deadtime is essential. This work is supported in part by NSF grant PHY-1812369.

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