

Abstract Submitted
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Data acquisition system for the electron detector in Compton polarimeter¹ AMRENDRA NARAYAN, Mississippi State University, Q-WEAK COLLABORATION — The Q_{weak} experiment will use a new Compton polarimeter for the non-invasive continuous measurement of the electron beam polarization. The Compton polarimeter will use four planes of multi-strip diamond detectors to detect the Compton scattered electrons and a CsI crystal to detect the back-scattered photons. The diamond detectors will be read out using custom-built electronic modules that chain together a preamplifier, a shaper and a discriminator for each micro-strip. The digitized signal will be processed by a general purpose logic module based on field programmable gate arrays which can handle very high rates of up to 100kHz. The data acquisition will be handled by the CEBAF online data acquisition package. We have assembled a data acquisition setup for the electron detector, along with a complete electronic readout chain for the same. The logic modules have been programmed to collect data in both single event mode and accumulation mode. The diamond detectors and the complete data acquisition system are being tested with various electron sources and cosmic rays. We will show preliminary results from these tests.

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