

Abstract Submitted
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Diamond multi-strip electron detector and readout for Compton polarimetry¹ AMRENDRA NARAYAN, Mississippi State University, QWEAK 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. We have assembled a complete electronic readout chain and data acquisition system for the diamond micro-strip detector. The logic modules have been programmed to collect data in both single event mode and accumulation mode. The diamond micro-strip detectors along with the complete data acquisition system is being tested with various electron sources and cosmic rays. We will show the results from these tests and the preliminary data collected with the Compton polarimeter.

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