

Abstract Submitted
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A Prototype Diamond Multistrip Detector for the JLab Hall C Compton Polarimeter¹ AMRENDRA NARAYAN, Mississippi State University, JLAB COMPTON POLARIMETER ELECTRON DETECTOR COLLABORATION — A Compton Polarimeter is essential for any precision polarization experiment. The QWeak experiment at JLab will use parity violating electron scattering from the proton to perform a precision measurement of the weak charge of the proton (Q_{Weak}^P). This experiment requires the knowledge of the electron beam polarization at a level of $\sim 1\%$. To achieve this, a Compton Polarimeter is under construction in JLab Hall C. The Polarimeter includes a recoil electron detector. The QWeak experiment plans to use a $180 \mu\text{A}$ polarized electron beam, in order to get the highest luminosity possible at JLab. At these luminosities, the typically used silicon detectors are rendered unsuitable due to rapid radiation damage. We have hence proposed a Chemical Vapor Deposition (CVD) diamond multi-strip detector for this Polarimeter. CVD Diamond detectors are well known for their radiation hardness. A prototype diamond multi-strip detector is being characterized at Mississippi State University. We will present preliminary spectra obtained from this detector. Based on the results of this study, a full scale diamond multi-strip detector is being constructed.

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