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A Diamond Micro-strip Electron Detector for Compton Polarimetry¹ AMRENDRA NARAYAN, Mississippi State University, VLADAS TVASKIS, University of Winnipeg, DIPANGKAR DUTTA, Mississippi State University, JEFFERY MARTIN, University of Winnipeg — The Qweak experiment in Hall C at Jefferson Lab aims to measure the weak charge of the proton with a precision of 4.1% by measuring the parity violating asymmetry in polarized electron-proton elastic scattering. Beam polarimetry is the largest experimental contribution to the error budget. A new Compton polarimeter was installed for a non-invasive and continuous monitoring of the electron beam polarization with a goal of 1% systematic and 1% per hour statistical precision. The Compton-scattered electrons are detected in four planes of diamond micro-strip detectors. These detectors are read out using custom built electronic modules that include a pre-amplifier, a pulse shaping amplifier and a discriminator for each detector micro-strip. We use Field Programmable Gate Array based general purpose logic modules for event selection and histogramming. The polarimeter was commissioned during the first run period of the Qweak experiment. We will show the preliminary results from the electron detector obtained during the first run period of Qweak experiment.

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