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Cross calibration of the JLab, Hall C, Compton and Møller polarimeters and a study of systematic uncertainties of the Compton electron detector[1] AMRENDRA NARAYAN, Mississippi State University, HALL C COMPTON TEAM — A Compton polarimeter was commissioned at Jefferson Lab, Hall C, for continuous non-invasive measurement of the electron beam polarization. It uses $\sim 1.5\ kW$ of green light for the $\vec{e}-\vec{\gamma}$ scattering. The polarimeter has several planes of diamond micro-strip detectors to detect the Compton scattered electrons and a $PbWO_4$ crystal for detecting back-scattered photons. It was successfully used to measure the electron beam polarization along with periodic polarization measurements by the standard Moller polarimeter. The diamond micro-strip electron detector provided a standalone measurement of the beam polarization with $< 1\%$ statistical uncertainty per hour, for a 1.16 GeV, 180 μA electron beam. The systematic uncertainties are projected to be better than 1%. We will discuss the various contributions to the systematic uncertainties for the electron detector. We also collected data at low current for a Moller-Compton cross calibration. The preliminary results from the analysis of these data will be presented.

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