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Møller Polarimetry for the Qweak Experiment JOSHUA MAGEE, College of William and Mary, QWEAK COLLABORATION — The Standard Model of particle physics has been extremely successful in describing particle interactions in a wide-ranging regime of energy scales. Low-energy, parity-violating experiments enable high-precision experimental tests of Standard Model predictions. Currently, Jefferson Lab is performing one such investigation to determine the weak charge of the proton, Qweak, to 4% precision using ep scattering. By making a precise measurement of the weak charge, this experiment will provide tighter constraints on some classes of "new physics" at 2 TeV or higher. To calculate the parity-violating asymmetry and determine Qweak one needs precise knowledge of the incoming electron beam polarization. The Qweak experiment, which is underway in Jefferson Lab's Hall C, uses both Møller and Compton polarimetry to determine the 1 GeV beam polarization. The Hall C Møller polarimeter is particularly relevant as it uses a superconducting magnet to saturate thin, pure iron, foils out of plane. This provides precise measurements of beam polarization to within 1% uncertainty. Since the addition of the Compton device the Møller polarimeter has undergone a re-commissioning phase, followed by myriad studies to reduce the systematic errors to the 0.57% level required by Qweak. A brief overview of the Hall C Møller device, followed by preliminary results of these studies and of the Spring 2011 experiment run, will be provided.

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