

Abstract Submitted
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Precision Møller Polarimetry¹ WILLIAM HENRY, Temple University, JEFFERSON LAB HALL A COLLABORATION — Jefferson Labs cutting-edge parity-violating electron scattering program has increasingly stringent requirements for systematic errors. Beam polarimetry is often one of the dominant systematic errors in these experiments. A new Møller Polarimeter in Hall A of Jefferson Lab (JLab) was installed in 2015 and has taken first measurements for a polarized scattering experiment. Upcoming parity violation experiments in Hall A include CREX, PREX-II, MOLLER and SOLID with the latter two requiring <0.5% precision on beam polarization measurements. The polarimeter measures the Møller scattering rates of the polarized electron beam incident upon an iron target placed in a saturating magnetic field. The spectrometer consists of four focusing quadrupoles and one momentum selection dipole. The detector is designed to measure the scattered and knock out target electrons in coincidence. Beam polarization is extracted by constructing an asymmetry from the scattering rates when the incident electron spin is parallel and anti-parallel to the target electron spin. Initial data will be presented. Sources of systematic errors include target magnetization, spectrometer acceptance, the Levchuk effect, and radiative corrections which will be discussed.

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William Henry
Temple University

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