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Plans for Precision Møller Polarimetry in Hall A at Jefferson Lab

JIM NAPOLITANO[1], Temple University — Møller scattering has long been a useful tool for measuring high energy electron beam polarization, because the cross section and analyzing power are perfectly calculable in QED. High permeability ferromagnetic foils targets are historically used as polarized electron targets, but germane magnetic properties of the alloy limit the ultimate precision to a few percent. Pure iron targets have been used, however, to increase precision. This talk will describe plans for "high field" pure iron polarimetry in Hall A at JLab. The system includes a target mechanism that allows us to demonstrate iron saturation behavior and a spectrometer system for separating backgrounds and reducing sensitivity to the Levchuk Effect.

[1]The author is a collaborator on PREX and CREX at JLab, but the instrumentation described in this submission is general purpose.

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