

Abstract Submitted  
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**Characterization of a Compact Cylindrically Symmetric Micro-Mott Polarimeter** NATHAN CLAYBURN, EVAN BRUNKOW, University of Nebraska - Lincoln, GEORGE RUTHERFORD, Illinois State University, TIMOTHY GAY, University of Nebraska - Lincoln — A Mott polarimeter measures electron spin by determining the left-right counting rate asymmetry,  $A$ , for Mott scattering from a high-Z target. This value of  $A$  is non-zero for spin states perpendicular to the electron scattering plane. Recently, a variety of small, spherically symmetric polarimeters of the “concentric” electrode design using energies of  $\sim 20$  keV have been designed and constructed [1]. The geometry of these polarimeters causes inelastic scattering events to be largely eliminated electrostatically which results in a resolution higher than that obtainable with energy-sensitive detectors alone [2]. A small quasi-cylindrically-symmetric polarimeter, simpler in conception and construction than its spherical counterparts, has been designed and built [3]. Using a new negative electron affinity GaAs polarized electron source, this compact Mott polarimeter’s efficiency has been determined and its Sherman function has been estimated.

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