

Abstract Submitted
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An Integrating Method for Compton Photon Polarimetry at Jefferson Lab DIANA PARNO, Carnegie Mellon University, HALL A COLLABORATION — We present a method for measuring the polarization of an electron beam from an asymmetry in the integrated signal of Compton-scattered photons detected in a GSO crystal. We will discuss the design of our data-acquisition system, which integrates the signal by summing FADC samples; compare our simulation results to our test measurements; and show preliminary electron beam polarization data for the d_2^m and HAPPEX-III experiments conducted in 2009. Our method allows improved precision at beam energies as low as 1 GeV, and our data show high stability over months of running and good agreement with other electron beam polarimetry methods. Our work is part of an upgrade to the Compton polarimeter in Hall A of Jefferson Lab; high-precision Compton polarimetry is vital to an extensive experimental program that explores issues ranging from nucleon form factors to the distribution of neutrons in heavy nuclei.

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