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IMPROVEMENTS TO THE LASER POLARIZATION MEASUREMENT INSIDE A FABRY-PEROT CAVITY

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The Compton polarimeter at Jefferson Lab's experimental Hall A provides a continuous, non-invasive measurement of electron beam polarization via electron-photon scattering. The electron beam passing through the polarimeter intercepts green laser light stored in a Fabry-Perot cavity. Scattered electrons are detected in an electron detector while back scattered photons are detected in a GSO crystal calorimeter. For an accurate beam polarization measurement, the laser polarization inside the Fabry-Perot cavity must be well known. We have performed studies to optimize the laser polarization inside the cavity and to know it precisely. I will discuss the methods and results from these investigations.

Summary

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