

Abstract Submitted
for the DNP10 Meeting of
The American Physical Society

Feasibility of a Spin Light Polarimeter at 12 GeV JLab¹ DI-PANGKAR DUTTA, Mississippi State University — The future 12 GeV program at JLab includes several key high precision experiments that aim to use parity violation in electro-weak interactions to search for Physics beyond the standard model. These include the ultra precise Møller experiment and the parity violating deep inelastic scattering experiment. These experiments will all rely on precision electron polarimetry with uncertainty of $\sim 0.4\%$. This ambitious goals can be achieved if several independent and high precision polarimeters are used simultaneously. In addition to being precise, the polarimeters must be non-destructive and must achieve the desired statistical precision in the shortest time possible. A complimentary polarimetry technique based on the spin dependence of synchrotron radiation referred to as “spin light,” is often overlooked. We have explored the feasibility of a spin light polarimeter at JLab for the 12 GeV era. We will present some of these results of the feasibility study and the conceptual design of a spin light polarimeter. Such a device promises to be a high precision, fast and continuous relative polarimeter. A R&D proposal to develop a spin light polarimeter at JLab will also be discussed.

¹This work is supported by the U.S. Department of Energy under contract number DE-FG02-07ER41528.

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Date submitted: 30 Jun 2010

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