Abstract Submitted
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Unravelling the ^{3}He Electromagnetic Form Factors[1] SCOTT BARCUS, The Thomas Jefferson National Accelerator Facility — New global fits of the ^{3}He elastic cross section world data will be presented along with extractions of both electric and magnetic form factors and charge densities. The updated ^{3}He fits were motivated by new high Q^2 data. The resultant ^{3}He first magnetic form factor minimum is found to have shifted up in Q^2 by several fm^{-2}. Further, large discrepancies exist between theory predictions of the magnetic form factor and those determined by elastic electron scattering. To address this discrepancy a new experiment has been proposed for Jefferson Lab's Hall C to measure the double-polarization asymmetry of ^{3}He. This would be the first extraction of ^{3}He form factors using polarization observables. The advantage of this double-polarization measurement is that, unlike traditional Rosenbluth methods, the extraction is sensitive to the signs of the form factors. As a result, the sign of the asymmetry flips at each form factor minima. Double-polarization experiments have found large disagreement, particularly at high Q^2, between proton form factors extracted via polarization observables and unpolarized Rosenbluth separations. This experiment will determine if such a disagreement exists for ^{3}He, while also allowing for hypothesis testing of theoretical models.

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