Abstract Submitted
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Measurement of the dressed spin effects of ^{3}He[1] PINGHAN CHU, ANDREA ESLER, DOUGLAS BECK, JEN-CHIEH PENG, STEVE WILLIAMSON, JACOB YODER, University of Illinois at Urbana-Champaign — A new experiment to search for neutron electric dipole moment (EDM) will use ultracold neutrons produced in superfluid helium. Polarized ^{3}He will be utilized as a comagnetometer to detect the precession frequency of polarized ultracold neutron. An RF magnetic field will be applied to modify the effective magnetic moments of neutron and ^{3}He. This dressed- spin technique, proposed by Golub and Lamoreaux, aims at a reduction of the systematic uncertainty of the EDM measurement. Using a polarized ^{3}He cell prepared with the meta-stability exchange technique, we have studied the dressed spin effects for ^{3}He for a variety of dressing field configurations. Results from this measurement will be presented and compared with theoretical calculations. Implications of this study on the neutron EDM experiment will also be discussed.

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