

Abstract Submitted
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Dressed Helium Comagnetometry for the Neutron EDM Experiment A. ESLER, J.C. PENG, University of Illinois at Urbana-Champaign, S.K. LAMOREAUX, C.Y. LIU, J. TORGERSON, Los Alamos National Laboratory, NEUTRON EDM COLLABORATION — The electric dipole moment (EDM) of the neutron provides a unique window into CP-violating processes in the light-quark baryon sector. A new experiment with ultracold neutrons aims to measure the neutron EDM with a sensitivity of 10^{-27} e-cm. The experiment will use a novel direct comagnetometry technique with polarized ^3He “dressed” by a RF magnetic field, to match its effective magnetic moment to that of the neutron. This method allows a sensitive measurement of the neutron precession rate relative to the ^3He . We have studied the dressed ^3He spin system experimentally using a polarized ^3He source at Los Alamos. Results of this first measurement of spin dressing effects on the ^3He magnetic moment will be presented.

Andrea Esler
University of Illinois at Urbana-Champaign

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