

Abstract Submitted
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Measurement in progress of the parity-violating neutron spin-rotation in liquid ^4He ¹ D.M. MARKOFF, NC Central Univ./TUNL, C.D. BASS, J.M. DAWKINS, T.D. FINLEY, J.C. HORTON, C.R. HUFFER, D. LUO, M.G. SARSOUR, W.M. SNOW, Indiana Univ./IUCF, K. GAN, A.K. OPPER, The George Washington Univ., A.M. MICHERDZINSKA, The Univ. of Winnipeg, B.R. HECKEL, H.E. SWANSON, Univ. of Washington, H.P. MUMM, J.S. NICO, NIST, B.E. CRAWFORD, Gettysburg College, E.I. SHARAPOV, JINR — As part of a program to characterize the low-energy, weak hadronic interaction, an experiment is in progress at the NIST Center for Neutron Research to measure the parity-violating neutron spin-rotation observable in the $n\text{-}\alpha$ system. The apparatus is designed to measure the rotation of the transverse polarization vector of long-wavelength neutrons as they traverse the helium target with a sensitivity of 3×10^{-7} rad/m. To reach this goal, we have worked towards reducing systematic effects from background magnetic fields and neutron scattering and through understanding the apparatus and beam. We developed the helium target system to reduce the effects of neutron scattering and to increase operational reliability. We initiated a series of measurements in solid targets with known large or negligible parity-violating signals to study systematics from the polarimeter. The apparatus and experiment status will be presented.

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