

Abstract Submitted
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Update of Neutron Spin-Transport Simulations for NSR Collaboration¹ ZHAOZHI YE, Gettysburg College, NSR COLLABORATION — The Neutron Spin Rotation (NSR) collaboration has developed an apparatus to analyze the rotation of the plane of polarization of a polarized slow neutron beam passing through matter. The apparatus has been used to study the parity-odd weak interaction with unpolarized targets and a sensitivity capable of detecting a rotary power in the $10\text{E-}7\text{rad/m}$ range. Previous results support the prediction by the standard model. This poster summarizes updates done to nSpinSim, a fortran program that simulates the neutron polarimeter apparatus to be implemented in NIST in the updated version of the experiment. nSpinSim is a Monte-Carlo transport code aiming to help researchers understand the resolution in the high-precision measurements by studying systematic errors. Modifications include incorporation of realistic magnetic field maps, updating beam line components, and changing the implementation of how the code chooses neutron parameters from phase-space distributions.

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