

Abstract Submitted  
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**Probing the Hadronic Weak Interaction using Polarized Slow Neutron Spin Rotation in L4He**<sup>1</sup> EAMON ANDERSON<sup>2</sup>, Indiana University Physics Department — The NSR collaboration proposes to search for parity violation in n-4He by searching for a rotation of the plane of polarization of transversely polarized neutrons moving through the liquid. This observable is sensitive to a linear combination of weak amplitudes in the hadronic weak interaction which is orthogonal to previous measurements. An earlier measurement conducted at NIST reported  $d\theta/dz = [+1.7 \pm 9.1(\text{stat}) \pm 1.4(\text{sys.})] \times 10^{-7} \sim \text{rad/m}$  [1]. We will briefly discuss progress towards a  $1 \times 10^{-8}$  sensitivity measurement.

[1] W.M. Snow et al, Phys. Rev. C **83** 2 2501 (2010).

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