

Abstract Submitted
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The n-³He experiment at the SNS CHRISTOPHER CRAWFORD, University of Kentucky, N-3HE COLLABORATION — The n-³He experiment will measure the parity violating proton asymmetry with longitudinally polarized neutrons in the reaction $\vec{n} + {}^3\text{He} \rightarrow {}^3\text{H} + \text{p}$. As part of an ongoing program to experimentally characterize the hadronic weak interaction (HWI), this experiment is approved to run at the Fundamental Neutron Physics Beamline (FnPB) at the SNS following the NPDGamma experiment in 2011. Components being constructed for this experiment include an innovative resonant spin rotator for longitudinally polarized neutrons; and a ³He gas target which also functions as an ion chamber to detect the proton asymmetry. Preliminary calculations indicate that this experiment will provide one of the most sensitive measurements of a hadronic parity violating observable in a few-body system.

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