

Abstract Submitted
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A measurement of the parity conserving asymmetry in the neutron capture on ${}^3\text{He}$ at SNS. LATIFUL KABIR, University of Kentucky, THE N3HE COLLABORATION — The $n{}^3\text{He}$ experiment at the Spallation Neutron Source is motivated to measure the parity violating asymmetry of the recoil proton momentum k_p with respect to the neutron spin σ_n in the reaction $n+{}^3\text{He} \rightarrow p+T+765\text{ KeV}$. This is sensitive to isospin $\Delta I = 0$ and 1 components of the Hadronic Weak Interaction (HWI), and is expected to be extremely small (10^{-7}). There is an additional parity even nuclear asymmetry proportional to $\vec{k}_p \cdot \vec{\sigma}_n \times \vec{k}_n$ predicted by R-matrix analysis to be 1×10^{-6} at 5 meV [1]. We measured this asymmetry for the first time for verification of nuclear theory in this new observable and for confirmation of the sensitivity of our experiment to the parity violating asymmetry. I will present the measurement of the PC asymmetry and discuss on data analysis.
[1] G. Hale, Hadronic Parity Violation Workshop, Madison, WI, 2007.

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