Abstract Submitted
for the APR18 Meeting of
The American Physical Society

Steps Toward Proper Neutron-Antineutron and Atmospheric Neutrino Simulation in DUNE.[1] JOSHUA BARROW[2], YURI KAMYSHKOV[3], Univ of Tennessee, Knoxville, DEEP UNDERGROUND NEUTRINO EXPERIMENT COLLABORATION — Babu et al. have recently proposed a model of post-sphaleron baryogenesis following the electroweak phase transition. Their theory naturally gives rise to a plausible baryon abundance, and a ΔB=2 six-quark operator which allows for the transformation of a neutron (n) into an antineutron (nbar). Using n bound in Ar, DUNE currently plans to include n-nbar oscillation events in their nucleon decay searches. Using refined physics inputs in GENIE and group-developed generators (and others), modeling is underway on intranuclear interactions mimicking n-nbar annihilation and atmospheric ν in Ar nuclei. Eliminating ν background is challenging for liquid Ar TPCs at DUNE, so analysis of multiple generators becomes important to asses MC uncertainties, hopefully improving statistics and oscillation time limits. Assessing such uncertainties is a work in progress.

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Date submitted: 03 Nov 2017 Electronic form version 1.4