



Contribution ID: 143

Type: **Presentation**

Searches for Neutron-Antineutron Oscillation in DUNE

Thursday, August 3, 2017 11:01 AM (16 minutes)

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 $\Delta B=2$ six-quark operator which allows for the generation of $n\bar{n}$ from n .

Using n bound in Ar, DUNE currently plans to include $n\bar{n}$ events in their nucleon decay searches. Using GENIE, modeling is underway on intranuclear interactions mimicking $n\bar{n}$ annihilation in Ar nuclei. Eliminating atmospheric ν background from such events will be a challenge for liquid Ar TPCs at DUNE, so simulation work must be considered for ν interactions in Ar nuclei, which produce similar signals to $n\bar{n}$ annihilation. Key to understanding possible experimental signals will be the integration of these two for a proper robust analysis, which will determine the viability of any detection of this process above background levels.

Primary author: Mr BARROW, Joshua (The University of Tennessee)

Co-authors: Dr RYBOLT, Ben (University of Tennessee); Prof. KAMYSHKOV, Yuri (University of Tennessee)

Presenter: Mr BARROW, Joshua (The University of Tennessee)

Session Classification: Beyond Standard Model

Track Classification: Beyond Standard Model