

Searches for neutron-antineutron oscillations with Liquid Argon TPC experiments

Tuesday, 9 June 2015 14:00 (15 minutes)

Neutron to antineutron (nnbar) oscillation is a baryon number violating process, predicted by several classes of Grand Unified Theories. The planned Deep Underground Neutrino Experiment (DUNE) will utilise an underground 40kt Liquid Argon time projection chamber (LArTPC), uniquely equipped to carry out a low-background search for such oscillations of neutrons bound in the argon nucleus. There are several potential backgrounds for such a process, mainly from atmospheric neutrinos but also potentially from high energy cosmic ray muons interacting in the detector surroundings. The MicroBooNE LArTPC can be used to study such potential background signatures, and extrapolate corresponding background rate measurements to DUNE. This talk will discuss ongoing MicroBooNE cosmogenic background simulations, and the potential for an nnbar oscillation sensitivity estimate for DUNE.

Is this an abstract for a New Perspectives presentation?

Yes

Is this an abstract for a Users Meeting Poster?

No

Primary author: Mr HEWES, Jeremy (The University of Manchester)

Presenter: Mr HEWES, Jeremy (The University of Manchester)

Session Classification: Session 7 - Liquid Argon Experiments and Technology