



Contribution ID: 225

Type: Poster

Cosmogenic Background Rejection at the Short-Baseline Neutrino Program Far Detector Using the Cosmic Ray Tagging System

As the SBN far-detector, the ICARUS liquid argon time-projection chamber will operate at shallow depth and therefore be exposed to the full surface flux of cosmic rays. This poses a problematic background to the electron neutrino appearance analysis. A direct way to reject this background is to surround the cryostat with a detector capable of tagging incident cosmic muons with high efficiency, the Cosmic Ray Tagging System (CRT), which has been partially commissioned. I present a novel method for cosmogenic background removal utilizing the CRT and Photon Detection System in a time-of-flight measurement. Results from a simulation based study informed by CRT data demonstrate the power of the technique in rejecting cosmogenic events without adverse impact on the neutrino sample.

Mini-abstract

Cosmic background suppression using combined Cosmic Ray Tagger and Photon Detection System in ICARUS

Experiment/Collaboration

ICARUS

Primary author: Mr HILGENBERG, Christopher (Colorado State University)

Presenter: Mr HILGENBERG, Christopher (Colorado State University)

Session Classification: Poster Session 1