

☒ Cosmogenic background suppression for the ICARUS detector using a concrete overburden

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The ICARUS detector will search for LSND like neutrino oscillations exposed at shallow depth to the FNAL BNB beam in the context of the SBN program. In the approved FNAL SBN experiment the impact of cosmic rays is mitigated by a 4π Cosmic Ray Tagger (CRT) detector encapsulating the TPCs inside the pit and by a ~ 3 m concrete overburden both for the near and the far detectors. Cosmic backgrounds rejection is particularly relevant for the ICARUS detector. Due to its larger size and distance from target compared to SBND, in ICARUS the neutrino signal/cosmic background ratio is 40 times more unfavorable with in addition a greater than 3 times larger out-of-spill comics rate. In this talk, I will be addressing the question of a problematic background to genuine neutrino events especially into the electron neutrino appearance analysis by a detailed MonteCarlo calculation of the cosmic rays crossing the ICARUS detector.

Reference to paper (DOI or arXiv)

Your gender (free text)

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