

NuMI @ ICARUS: Flux, Cross Section, and BSM Physics

Friday 19 July 2024 09:15 (15 minutes)

The ICARUS experiment combines a 760-ton LArTPC with the Fermilab BNB and NuMI neutrino sources to search for sterile neutrinos. While the main goal of ICARUS is to serve as the far detector of the FNAL SBN Program, there is a broader set of physics goals that including searches for BSM physics and ν -Ar cross-section measurements. ICARUS is situated 5.7 degrees off-axis of the NuMI beam, where a significant flux of muon and electron neutrinos in the hundred MeV to a few GeV range are incident on the detector. This flux enables a cross-section measurement program that will test models relevant to the SBN sterile search and DUNE oscillation physics measurements. ICARUS has collected $3E20$ POT of NuMI beam exposure and is finalizing its first round of cross section measurements and BSM search results. This talk will review the characterization of the NuMI beam (and related uncertainties) at the ICARUS detector position, along with the latest news on the forthcoming analyses.

Alternate track

I read the instructions above

Yes

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