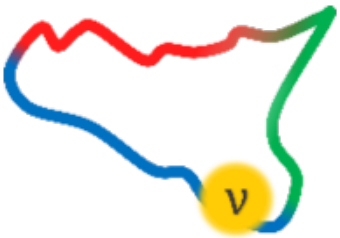

Contribution ID: **30** Type: **Poster & Mini-talk**

Studies for the selection of fully contained ν_μCC events in the ICARUS T600 detector at Fermilab

Tuesday, 24 June 2025 17:35 (7 minutes)

The ICARUS T600 LAr-TPC detector has started its new physics runs in June 2022 at Fermilab within the SBN program. This detector is recording neutrino interactions from the Booster BNB neutrino beam in order to definitively clarify the open questions related to the possible existence of sterile neutrinos, as suggested by numerous observed experimental anomalies. In addition the neutrinos events recorded from the NuMI off-axis beam are under study in order to perform neutrino-Argon cross section measurements.

At Fermilab, ICARUS is facing a challenging experimental condition: the detector is presently installed essentially at Earth surface where cosmic ray particles can become a serious source of background for the neutrino event search. This condition makes it necessary to deploy suitable automatic tools for the identification, selection, and measurement of the neutrino events among the millions of events triggered by cosmics.

In this contribution, two automatic selection procedures devoted to the identification of fully contained muon neutrino CC interactions in the BNB neutrino beam will be presented, together with the first results of their application on simulated and on recently recorded events in the T600 detector.

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