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Neutrino-Argon Cross-Section Measurements Using the NuMI Neutrino Beam at ICARUS

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The ICARUS experiment, employing a LAr TPC, has been installed at Fermilab in Chicago, Illinois after its original run in Italy and subsequent refurbishment and is now in a stage of advanced commissioning and preparation for analyses. While a main goal of the detector is to serve as the far detector of the Short Baseline Neutrino program searching for sterile neutrino signatures, ICARUS has a broader physics program –for example beyond standard model searches and cross-section measurements. In particular, ICARUS is situated off-axis of the NuMI beam and will be sensitive to a large amount of muon and electron neutrinos produced in the range of a few hundred MeV to a few GeV. These interactions can provide the basis for important neutrino-LAr cross-section measurements and tests of models in an energy range that overlaps with both the SBN oscillation search and part of the DUNE spectrum. This talk will discuss aspects and goals of NuMI cross-section measurements with ICARUS and will highlight some of the status and plans of the effort, for example, reconstruction, selection, and analysis.

Author: Dr DOLAN, Stephen (CERN)

Presenter: Dr DOLAN, Stephen (CERN)

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