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Comparison of Predictions of Neutrino MC Generators (Run in Electron-Mode) to a Global Extraction of the 12C and 40Ca Longitudinal and Transverse Nuclear Electromagnetic Response Functions

We report on comparison of the predictions of neutrino event generators (run in electron scattering mode) to a recent global extraction of the 12C and 40Ca Longitudinal (RL) and Transverse (RT) nuclear electromagnetic response functions from an analysis of all available electron scattering dats on carbon and calcium. The response functions are extracted for a large range of energy transfer ν, spanning the nuclear excitation, quasielastic, resonance and inelastic continuum over a large range of the square of the four-momentum transfer Q2. We extract RL and RT as a function of ν for both fixed values of Q2 ($0 \leq Q2 \leq 3.5$ GeV2), and also for fixed values of 3-momentum transfer q ($0.1 \leq q \leq 3.75$ GeV). The comparisons are made to the predictions of NuWRo (Neutrino WRoclaw event generator), ACHILLES (A CHIcago Land Lepton Event Simulator), GENIE (Generated Event Neutrino Interaction Experiments) and CFG (Correlated Fermi Gas).
(Presented by Giulia-Maria Bulugean at Nufact 2024, the 25th International Workshop on Neutrinos from Accelerators, September 16-21, 2024 Argonne National Lab, https://indico.fnal.gov/event/63406/)

Working Group

WG 2: Neutrino Scattering Physics

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