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Comparison of Predictions of Neutrino MC Generators (Run in Electron-Mode) to a Global Extraction of the ^{12}C Longitudinal and Transverse Nuclear Electromagnetic Response Functions from all Electron Scattering Measurements on Carbon

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We report on a global extraction of the ^{12}C Longitudinal (RL) and Transverse (RT) nuclear electromagnetic response functions from an analysis of all available electron scattering data on carbon. The response functions are extracted for a large range of energy transfer ν , spanning the nuclear excitation, quasielastic, and $\Delta(1232 \text{ MeV})$ region, over a large range of the square of the four-momentum transfer Q^2 . We extract RL and RT as a function of ν for both fixed values of Q^2 ($0 \leq Q^2 \leq 1.5 \text{ GeV}^2$), as well fixed values of momentum transfer $\mathbf{q}$. The data sample consists of more than 10,000 ^{12}C differential electron scattering and photo-absorption-cross section measurements. Since the extracted response functions cover a large range of Q^2 and ν , they can be readily used to validate both nuclear models as well Monte Carlo (MC) generators for electron and neutrino scattering experiments. *The extracted response functions are compared to the prediction of several theoretical models and to predictions of the electron-mode versions of the NuWro and GENIE neutrino MC generators.*

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