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The Study of Neutrino-Nucleus Interaction Using The Fermi Gas and The Modified Fermi Gas Models

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This study explores the Relativistic Fermi Gas Model (RFG) and the Modified Fermi Gas Model (MFG), which have been widely used to characterize quasi-elastic neutrino-nucleus interactions. The RFG considers nucleons as a gas of free particles within the nucleus; nevertheless, it is limited in its ability to account for nuclear correlations and binding energies. The MFG improves the RFG by integrating adjustments for these correlations and delivering a more precise spectral function. Comparisons between these models and experimental data are performed to enhance the understanding of neutrino interactions and the reconstruction of their energy.

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