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Lepton-nucleus scattering and effects of MEC: CCQE-like neutrino cross-sections at energies of the NOvA experiment.

The scattering of leptons on carbon and calcium targets are analyzed using an approach that incorporates the contributions to the nuclear response functions from the quasi-elastic (QE), inelastic process (RES), and two-particle and two-hole meson exchange current (2p-2h MEC). This RDWIA+MEC+RES approach is successfully tested against 12 C(e,e') and 40 Ca(e,e') scattering data. A fit of the RDWIA+MEC approach to the MiniBooNE neutrino data is performed and the best fit value of nucleon axial mass M A = 1.2 GeV is obtained. The flux-integrated CCQE-like differential cross sections for neutrino scattering at energies of the NOvA experiment are estimated.

Mini-abstract

The RDWIA+MEC+RES model is able to reproduce the (e,e') data and the MiniBooNE data with M_A=1

Experiment/Collaboration

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