

Unified treatment of the inclusive lepton-nucleus scattering within the Spectral Function formalism

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ABSTRACT

It has been argued that the large excess of CCQE neutrino-Carbon cross section observed by the MiniBooNE collaboration may be ascribed to the excitation of two particle-two hole nuclear final states, not taken into account in Monte Carlo simulations for data analysis. I will analyze the different mechanisms leading to the appearance of these final states, and illustrate their significance through the results of accurate calculations of the inclusive electron-carbon cross section and transverse response, showing that the inclusion of processes involving two-nucleon currents appreciably improves the agreement between theory and data in the dip region, between the quasi elastic and Δ -production peaks. The implications for the analysis of neutrino-nucleus cross sections will be discussed.