

Pauli Blocking, Nuclear Excitations and the Coulomb Sum Rule in Electron and Neutrino Scattering on Nuclei

Reliable modeling of quasielastic lepton scattering on nuclei is of great interest to neutrino oscillations experiments, especially at low values of momentum transfer Q . We use the Coulomb Sum Rule (in conjunction with electron scattering data including nuclear elastic form factors, nuclear excitation form factors and quasielastic scattering) at low values of Q to determine the suppression of the quasielastic cross section from all sources in a model independent way. The Coulomb Sum Rule (CSM) accounts for Pauli blocking contribution as well as all other sources of suppression. We compare the results to three models: (1) An analytic calculation of the average Pauli blocking suppression for a Relativistic Fermi Gas (RFG). (2) The average Pauli suppression from the genie v2 Monte Carlo (MC) generator, and (3) a calculation of Pauli suppression using a superscaling model.

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