Relativistic Descriptions of Final-State Interactions in Quasielastic Electron and Neutrino-Nucleus Scattering

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An analysis of inclusive quasielastic electron and neutrino scattering is presented using different descriptions of the final state interactions within the framework of the relativistic impulse approximation. The relativistic Green's function approach is compared with calculations based on the use of relativistic purely real mean field potentials in the final state. Both approaches lead to a redistribution of the strength but conserving the total flux. Results for the differential cross sections in different kinematics are presented. The scaling properties of the models are also analyzed and discussed. The results of the different models are compared with the double-differential charged-current neutrino cross sections recently measured by the MiniBooNE collaboration using a carbon target.