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Issues in Neutrino-Nucleus Scattering ($0.3 < E_\nu < 3.0$ **GeV**) GERRY GARVEY, Los Alamos National Lab, MINIBOONE COLLABORATION — Recently published differential cross sections for $\mu_\nu + {}^{12}$C charged current quasi-elastic scattering (CCQE) by the MiniBooNE collaboration are $\sim$40% larger than typical impulse approximations calculations of CCQE. Some of the difference is due to poor communication between the theorists and experimentalists as to the definition of CCQE scattering. More fundamentally, the observed cross section appears to be larger than the CCQE cross section on 6 free neutrons. Some earlier work on electron quasi-elastic scattering demonstrated that short-range correlations plus two-body currents greatly enhance the nuclear transverse-vector response in agreement with experiment. Extending this approach to neutrino CCQE is necessary. A direct consequence of the approach is that the assigned incident neutrino energy is more uncertain than previously realized which can influence the interpretation of neutrino oscillation experiments.

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