

Abstract Submitted
for the APR14 Meeting of
The American Physical Society

Effective Spectral Function for Neutrino Quasielastic Scattering Event Generators BRIAN COOPERSMITH, ARIE BODEK, University of Rochester, M. ERIC CHRISTY, Hampton University — The spectral functions that are used in modeling of quasi elastic scattering in neutrino event generators such as GENIE, NEUT, NUANCE and NUWRO event generators include (Global) Fermi gas, local Fermi gas, Bodek-Ritche Fermi gas with high momentum tail, and the Benhar Fantoni spectral function. We find that these spectral functions do not agree with the prediction of ψ' superscaling functions that are extracted from electron quasi elastic scattering data on nuclear targets. It is known that spectral functions do not fully describe quasi elastic scattering because they only model the initial state. Final state interactions distort the shape of the quasi elastic peak, reduce the cross section at the peak and increase the cross section at the tail of the distribution for large energy transfer to final state nucleons. We show that an “effective spectral function” can be constructed to reliably reproduce the kinematic distributions predicted by the ψ' super scaling formalism.

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Date submitted: 22 Jan 2014

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