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Spectral Function Implementation in Neutrino Event Generator and Its Impact on Neutrino Oscillation Parameters CHUN-MIN JEN, Virginia Polytechnic Institute and State University, MICROBOONE COLLABORATION — The spectral function excels the Fermi Gas model in stating the lepton-nucleon interaction. In the first part of my talk, I will introduce the physics concept of the spectral function and related validation work using electron data collected over a broad range of kinematics conditions. The measured cross-sections, through conducting quasi-elastic electron scattering experiments, are determined by a set of well-controlled beam energies and scattering angles, and thus more reliable. We found the spectral function can better predicts the cross-section than the Fermi Gas model. As a result, the associated systematic uncertainty with the computed cross-section is greatly suppressed. In the second part of my talk, I will briefly describe what is the impact of using different nuclear models on the determination of neutrino oscillation parameters. An analysis is performed using GLoBES and shows that a 10% shift in Δm^2 is expected for a long-baseline experiment setup because of different nuclear models.

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