

Gil Paz – HEP Seminar – April 22, 2025
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Nuclear physics or nucleon physics? Separating nuclear and nucleon effects in neutrino-nucleus interactions

The neutrino research program in the coming decades will require improved precision. A major source of uncertainty is the interaction of neutrinos with nuclei that serve as a target of many such experiments. Broadly speaking, this interaction often depends, e.g., for Charge-Current Quasi-Elastic (CCQE) scattering, on the combination of “nucleon physics” expressed by form factors and “nuclear physics” expressed by a nuclear model. It is important to get a good handle on both.

This talk presents a fully analytic implementation of the Correlated Fermi Gas (CFG) Model for CCQE electron-nuclei and neutrino-nuclei scattering. The implementation is used to compare separately form factors and nuclear model effects for both electron-carbon and neutrino-carbon scattering data.