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Duality Based Vector and Axial Form Factors- Improved Modeling of Quasielastic and Inelastic Neutrino Cross Sections at all Energies

Abstract content

We present a re-analysis of all existing electron and neutrino elastic and quasielastic scattering data on nucleons. By using theoretical constraints from Quark-Hadron duality, we obtain new precise parametrizations of vector and axial nucleon form factors. These new parametrizations are used to improve the predictions for quasielastic neutrino-nucleon cross sections of GeV neutrinos in the atmosphere, thus reducing the errors on neutrino oscillations parameters extracted from present and future detectors for atmospheric neutrinos. We also present updated improvements in the Bodek-Yang model for inelastic neutrino, electron and muon scattering on nucleons, with a combined analysis of all neutrino, muon and electron scattering experiments at all energies.

If this papers is presented for a collaboration, please specify the collaboration

Summary

Reference

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