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High Energy Physics - Phenomenology

The nucleon axial mass and the MiniBooNE Quasielastic Neutrino-Nucleus Scattering problem

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The charged-current double differential neutrino cross section, measured by the MiniBooNE Collaboration, has been analyzed using a microscopical model that accounts for, among other nuclear effects, long range nuclear (RPA) correlations and multinucleon scattering. We find that MiniBooNE data are fully compatible with the world average of the nucleon axial mass in contrast with several previous analyses which have suggested an anomalously large value. We also discuss the reliability of the algorithm used to estimate the neutrino energy.

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