Abstract Submitted
for the APR18 Meeting of
The American Physical Society

Nucleon axial current form factors in a light-front quark model with a pion cloud[1] XILIN ZHANG, GERALD A. MILLER, TIMOTHY HOBBS, Univ of Washington — Improving modeling of neutrino–nucleus interactions in the GeV energy range has critical importance to the success of next generation neutrino oscillation experiments. One key ingredient in the modeling is nucleon axial current form factors, which however have not been satisfactorily understood. In most studies, both form factors have been assumed to be proportional to a dipole form with one single tunable parameter, known as axial mass (or radius). However, such dipole parameterization has not been (un)justified based on any microscopic model. In this talk, I will present our recent study of these form factors based on a light-front quark model with a pion cloud included. The model is constrained by the data on nucleon EM form factors. I will also discuss our results impact on modeling neutrinonucleus scattering.

[1]The work is supported by the U.S. Department of Energy under grant No. DEFG02-97ER-41014

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Date submitted: 12 Jan 2018 Electronic form version 1.4