

Studying Neutral Current Elastic Scattering and the Strange Axial Form Factor in MicroBooNE

One of the least constrained contributions to the neutral current (NC) elastic neutrino-proton cross section is the strange axial form factor, which represents the strange quark spin contribution to the spin of the proton. Knowledge of this form factor is important for many areas of physics including sterile neutrino searches, spin-dependent dark matter searches, and supernova explosion mechanisms. The strange axial form factor can be determined by studying NC elastic scattering events in the MicroBooNE detector at low negative four-momentum transfer squared (Q^2). MicroBooNE's unique ability to detect low-energy protons is expected to allow the measurement of these events with a Q^2 as low as 0.10 GeV^2 . We present a selection of neutral current elastic events in a subset of MicroBooNE neutrino data, as well as our plan to extract the strange axial form factor from this selection in the full data set.

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