

Improved Neutrino Energy Estimation in Neutral Current Interactions with Liquid Argon Time Projection Chambers

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Large liquid argon time projection chambers (LAr TPCs) at SBN and DUNE will provide an unprecedented amount of information about GeV-scale neutrino interactions. By taking advantage of the excellent tracking and calorimetric performance of LAr TPCs, we present a novel method for estimating the neutrino energy in neutral current interactions that significantly improves upon conventional methods in terms of energy resolution and bias. We present a toy study exploring the application of this new method to the sterile neutrino search at SBN under a 3+1 model.

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