

Abstract Submitted
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Neutrino Energy Resolution Difficulties due to Neutrons in the Deep Underground Neutrino Experiment JAMES FRISBY, University of Dallas — The Deep Underground Neutrino Experiment (DUNE) will be a long baseline neutrino oscillation experiment to measure elements of the PMNS matrix θ_{13} , θ_{23} , and δ_{CP} as well as Δm_{32}^2 . These measurements rely on an accurate energy reconstruction of the interacting neutrino. This talk discusses degradation of neutrino energy resolution caused by an inability to reconstruct neutrons in the DUNE detectors. Simulations of the far detector muon neutrino interactions predict 5.4 neutrons per interaction with a combined energy and standard deviation of 350 MeV and 400 MeV, respectively. This presents a significant challenge to DUNE's scientific objectives.

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