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Measuring neutrino-induced neutrons in the MicroBooNE LArTPC

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Neutrons produced in neutrino interactions tend to represent considerable missing energy, leading to biases in neutrino energy estimates, which in turn can produce biases in measured oscillation parameters. However measuring neutron production in neutrino interactions is challenging. In this poster we present a method for identifying neutrons produced in neutrino interactions in the MicroBooNE liquid argon time projection chamber, leveraging the low thresholds and precise tracking and calorimetry to produce a pure sample of neutrino-induced neutrons with which we can constrain the contributions of neutrons to missing energy. The methods presented would be directly applicable to other liquid argon detectors in the SBN program and DUNE.

Poster prize

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