

Abstract Submitted  
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**Generic Neutrino Selection in the MicroBooNE LArTPC Using the WireCell Reconstruction Framework** LONDON COOPER-TROENDLE, Yale University, MICROBOONE COLLABORATION — MicroBooNE is a surface-based Liquid Argon Time Projection Chamber (LArTPC) situated in the path of the Booster Neutrino Beam at Fermilab. As a surface-based detector, the MicroBooNE LArTPC experiences a massive rate of background cosmic rays crossing the detector volume. Numerous techniques are used to reject these background events in order to achieve a high-efficiency, high-purity neutrino event selection. The WireCell analysis is a reconstruction framework that attempts to leverage all of the detector information available to aid in reconstructing neutrino information and removing background sources. The two most notable background-removal algorithms are a charge-light matching algorithm that leverages the precision flash timing to remove backgrounds, and a trajectory fitting algorithm that allows high quality calorimetric measurements to be made. These algorithms and others allow for an initial neutrino-signal-to-cosmic-ray-background ratio of 1:20,000 to be improved to 6:1 while maintaining an inclusive neutrino selection efficiency of over 80%. This generic neutrino selection serves as a strong foundation for further oscillation and cross section analyses within Wire-Cell.

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