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Full TPC Signal and Noise Simulation

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MicroBooNE is an 89-ton Liquid Argon Time Projection Chamber (LArTPC) and the first of a trio of LArTPCs in the Short Baseline Neutrino (SBN) program which will search for a light sterile neutrino and measure neutrino-argon interaction cross sections. Located in the Booster neutrino beam at Fermi National Accelerator Laboratory, MicroBooNE has taken neutrino data since October 2015. This poster outlines the intricacies of a full TPC noise and signal simulation. More specifically, this poster will detail the noise simulation based on measurement in the data and summarize the ramifications of induced current from nearest neighboring wires and other effects unique to LArTPC technology. The implementation of the full TPC signal and noise simulation is crucial to understanding the detector response for this technology.

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