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MiniBooNE Event Reconstruction and Particle Identification[1]
HAIJUN YANG, University of Michigan, Ann Arbor — The MiniBooNE experiment at Fermilab is designed to confirm or refute the evidence for $\nu_\mu \to \nu_e$ oscillation at $\Delta m^2 \sim 1eV^2/c^4$ found by the LSND experiment. It is a crucial experiment which may imply new physics beyond the standard model if the LSND signal is confirmed. This talk focus on event reconstruction, event identification and their performance based on two techniques, log-likelihood and boosted decision trees. For MiniBooNE event reconstruction, position resolution is about 23 cm, direction resolution is about 6^o, energy resolution is about 15%, reconstructed π^0 mass resolution is about 20 MeV/c^2. For MiniBooNE particle identification after preselection cuts, the electron efficiency is about 80% for background efficiency of 0.5%.

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