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Underground Physics with LBNE

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The Long-Baseline Neutrino Experiment plans a 34-kton (fiducial mass) liquid argon time projection chamber to be sited at 4850 ft depth at the Sanford Underground Research Facility in South Dakota. The significant overburden at this site gives LBNE significant physics reach for several non-beam physics topics. These include neutrino oscillation studies with atmospheric neutrinos, for which the LAr TPC enables precision reconstruction, baryon number violation searches, for which detection of kaon modes has particularly high efficiency, and detection of neutrino bursts from core-collapse supernovae, for which the electron-neutrino flavor sensitivity will be unprecedented. This talk will discuss the unique underground physics capabilities of LBNE.

Summary

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