

The ANNIE Experiment: Overview and Status

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The Accelerator Neutrino Neutron Interaction Experiment (ANNIE) is a 26-ton gadolinium loaded water Cherenkov detector installed on the Booster Neutrino Beam (BNB) line at Fermilab. ANNIE physics goals include measuring the neutron multiplicity in neutrino-nucleus interactions and the charged current cross-section of muon neutrino interactions with water. In addition, ANNIE serves as a platform for the development and testing of new detector technologies. The first of these technologies is the Large Area Picosecond Photodetector (LAPPD), a light detector with an outstanding time resolution that can enhance the reconstruction of neutrino interactions. The second technology is the Water-based Liquid Scintillator (WbLS), which is a target material that is capable of producing Cherenkov and scintillation light simultaneously, allowing for better energy resolution and particle identification. In this talk, I will provide an overview of the ANNIE experiment, its recent developments in LAPPD data reconstruction, and the analysis of the most recent neutrino beam data.

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