



MEETING OF THE AMERICAN PHYSICAL SOCIETY DIVISION OF PARTICLES AND FIELDS

Contribution ID: 279

Type: **Poster**

An overview of the ANNIE experiment at Fermilab

Monday, 31 July 2017 18:36 (1 minute)

The Accelerator Neutrino Neutron Interaction Experiment (ANNIE) is located at SciBooNE Hall along the Booster Neutrino Beam at Fermilab. It consists of a 23-ton water Cherenkov detector loaded with gadolinium, muon range detector and a veto wall. The main goal of the experiment is to measure the final state neutron multiplicity from charged current neutrino-nucleus interactions within the gadolinium-loaded water. Currently, ANNIE is running in Phase-I and it will be upgraded to Phase-II in the summer, by installing Large Area Picosecond Photodetectors (LAPPDs) in the detector. LAPPDs are a novel photodetector technology with single photoelectron time resolutions less than 100 picoseconds, and spatial imaging capabilities to within a single centimeter. They will play a crucial role to separate events of charged-current quasi-elastic (CCQE) interactions and inelastic multi-track charged current interactions. In this talk, we discuss the current status and future plans of the experiment.

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Session Classification: Poster Session and Reception

Track Classification: Neutrino Physics