

Abstract Submitted
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The ANNIE Experiment at Fermilab EMRAH TIRAS, MATTHEW WETSTEIN, Iowa State University , ANNIE COLLABORATION — Measuring the final state neutron multiplicity from charged current neutrino-nucleus interactions is a promising method for separating between signal and background, and understanding many neutrino interaction processes. The Accelerator Neutrino Neutron Interaction Experiment (ANNIE), located at SciBooNE Hall along the Booster Neutrino Beam at Fermilab is aiming to measure neutron yield from neutrino interactions in a Gd-loaded water and deploy fast-timing and position-sensitive Large Area Picosecond Photodetectors (LAPPDs). The detector of ANNIE consists of a 23-ton water Cherenkov detector loaded with gadolinium, a muon range detector and a veto wall. ANNIE has recently completed Phase I and successfully measured background neutron events. The detector is currently undergoing an upgrade for Phase II and it will start taking data again at the end of 2018. We present the results of Phase I, the Phase II detector upgrade studies and the status of LAPPDs.

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