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Highlights from the ANNIE experiment

Tuesday 6 September 2022 11:20 (20 minutes)

The Accelerator Neutrino Neutron Interaction Experiment (ANNIE) is a Gadolinium-loaded water Cherenkov detector in the path of the Fermilab Booster Neutrino Beam. ANNIE seeks to measure the final state neutron abundance from neutrino-nucleus interactions, as a function of outgoing lepton kinematics. Such a measurement can be used to constrain or reduce systematic uncertainties and biases in future neutrino experiments. ANNIE is also a testbed for innovative new detection technologies, from photosensors to detection media. A particular highlight is the recent installation in ANNIE of Large Area Picosecond Photodetectors (LAPPDs), novel micro-channel-plate-based devices which offer large detection area combined with ˜100 ps time resolution. The first of five LAPPDs was installed in the ANNIE detector in March 2022, the first time one of these devices has ever been operated submerged in a liquid detection medium. We will review the overall status of ANNIE, including the installation of the remaining four LAPPDs, and discuss what the recent ANNIE beam run has taught us about LAPPD performance in an experimental context and the impact of LAPPDs on ANNIE science. We will also cover future R&D efforts related to the novel detection medium of water-based liquid scintillator (WbLS).

Is this abstract from experiment?

Yes

Name of experiment and experimental site

ANNIE, FNAL

Is the speaker for that presentation defined?

Yes

Details

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Internet talk

Maybe

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