

The logo for DPF-PHENO 2024 features the text "DPF-PHENO 2024" in a bold, sans-serif font. The text is white and set against a blue rectangular background that has a subtle, light-colored cloud-like pattern.

Contribution ID: 569

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## **ANNIE with Large Area Picosecond Photodetector**

*Thursday 16 May 2024 16:30 (15 minutes)*

The Accelerator Neutrino Neutron Interaction Experiment (ANNIE) is a 26-ton water Cherenkov experiment with the Large Area Picosecond Photodetector (LAPPD), operating on the Booster Neutrino Beamline at Fermilab. ANNIE aims to measure the neutron yield from neutrino-nucleus interactions as a function of lepton kinematics to reduce systematic uncertainties in future long baseline neutrino oscillation experiments. ANNIE is also a test bed for novel detector technologies, including LAPPDs, whose precision timing and imaging capabilities are expected to improve the reconstruction of the lepton and the neutrino interaction vertex. ANNIE has achieved the first successful detection of muon neutrino interactions using an LAPPD. We show early results from these data. In particular, by studying the photon arrival gradient across a LAPPD for selected neutrino events, we illustrate the LAPPD's imaging and track reconstruction capabilities.

### **Mini Symposia (Invited Talks Only)**

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