

# The Science of the Accelerator Neutrino Neutron Interaction Experiment

*Friday, 21 June 2024 17:30 (2 hours)*

The Accelerator Neutrino Neutron Interaction Experiment (ANNIE) is a gadolinium-doped water Cherenkov neutrino detector located along the Booster Neutrino Beam (BNB) at the Fermi National Accelerator Laboratory (FNAL). Its primary physics goals are the measurement of the neutrino-nucleus interaction cross section in water, and the measurement of final-state neutron multiplicity from these interactions. Identifying neutrons is crucial for understanding uncertainties in energy reconstruction for oscillation measurements, as well as for the reduction of atmospheric neutrino backgrounds in searches for diffuse supernova neutrinos and proton decay. ANNIE is also used as a testbed for up-and-coming technologies for neutrino detectors. This poster will highlight the recent results of neutrino beam data analysis and examine the future potential of the ANNIE detector.

## Poster prize

Yes

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Accelerator Neutrino Neutron Interaction Experiment (ANNIE)

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