

ANNIE: Phase II Detector Design and Construction

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The Accelerator Neutrino Neutron Interaction Experiment (ANNIE) is a gadolinium-loaded water Cherenkov detector located on the Booster Neutrino Beam at Fermilab. The experiment seeks to better understand neutrino-nucleus interactions by studying the number of final state neutrons produced in charged current interactions. It will be the first experiment testing Large Area Picosecond Photodetectors (LAPPDs), and the first application of gadolinium-loaded water in a neutrino beam. The ANNIE detector is currently undergoing an upgrade for its main physics measurement and a rigorous detector R&D work is ongoing alongside. This presentation will give an overview of the detector R&D studies and detector design and construction of the ANNIE Phase II.

Primary author: Dr TIRAS, Emrah (Iowa State University)

Presenter: Dr TIRAS, Emrah (Iowa State University)

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