

Abstract Submitted
for the 4CF07 Meeting of
The American Physical Society

Cerenkov

Water-based

Anti-neutrino Detection WILLIAM FARMER, Lawrence Livermore National Laboratory, LAWRENCE LIVERMORE NATIONAL LABORATORY COLLABORATION — A group of researchers at Lawrence Livermore National Laboratory have designed and constructed a water-based anti-neutrino detector to be used in monitoring plutonium content of reactor cores. This detector has the advantages over previous detectors in that it has a reduced foot print near the reactor core and it will be neither toxic nor flammable as previous detectors have been. In order to reduce backgrounds, a muon-veto was constructed to increase the signal to noise ratio. In this experiment, the researcher characterized the Photo-multiplier tubes to be used in the muon-veto and the central detector. From these results, researchers are confident that the new detector will be able to resolve the anti-neutrino signal. The detector is currently deployed at San Onofre Nuclear Generating Station and is collecting data.

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Date submitted: 13 Sep 2007

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