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# Detection methods at reactor neutrino experiments

*Friday 15 February 2013 14:00 (45 minutes)*

In 2011 and 2012, the smallest neutrino mixing angle $\theta_{13}$ was determined to be unexpected large by reactor neutrino experiments Daya Bay, Double Chooz, and RENO, and accelerator experiments T2K and MINOS. The most precise measurement is $\sin^2 2\theta_{13} = 0.089 \pm 0.010(stat.) \pm 0.005(syst.)$, provided by Daya Bay. The measurement of $\theta_{13}$ opened the gateway to the mass hierarchy and CP phase measurements. It also marked the beginning of precision measurements in neutrino studies. With near-far relative measurement and improvements in detector design, the relative precision of neutrino detectors reached 0.2%. In this talk, detection methods for reactor neutrinos are reviewed. The highlighted techniques include gadolinium-doped liquid scintillator, three-layer detector, functionally identical detectors, reflective panel, background shielding, energy calibration, etc.

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