

# CU Physics Department Particle Seminar

Wednesday, March 21, 2012 : 705 Pupin Hall 1:00 PM

## Observation of electron-antineutrino disappearance at Daya Bay

The Daya Bay Reactor Neutrino Experiment has measured a non-zero value for the neutrino mixing angle  $\theta_{13}$  with a significance of 5.2 standard deviations. Antineutrinos from six nuclear reactors were detected in six antineutrino detectors deployed in two near and one far underground experimental halls. With 55 days of data, 10416 (80376) electron antineutrino candidates were detected at the far hall (near halls). The ratio of the observed to expected number of antineutrinos at the far hall is  $R=0.940 \pm 0.011(\text{stat}) \pm 0.004(\text{syst})$ . A rate-only analysis finds  $\sin^2 2\theta_{13}=0.092 \pm 0.016(\text{stat}) \pm 0.005(\text{syst})$  in a three-neutrino framework.



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In this seminar we will discuss the first results of Daya Bay experiment.