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Recent Results from the Daya Bay Reactor Antineutrino Experiment

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The Daya Bay experiment is designed to measure the smallest neutrino mixing angle θ_{13} precisely using reactor anti-neutrinos. It is located at the Daya Bay Nuclear Power Complex in southern China, and consists of eight antineutrino detectors deployed in three underground experimental halls at different baselines from three clusters of nuclear reactors. Low-energy electron anti-neutrinos emitted from the cores are detected, and a value of $\sin^2(2\theta_{13})$ is determined by comparing the observed rate in the far detectors with the predicted one based on the measured rates obtained from the near detectors. This kind of relative measurement can reduce the systematic uncertainties significantly. Daya Bay began physics data taking since Dec 24, 2011, and reported the first discovery of a non-zero value for $\sin^2(\theta_{13})$ with more than five standard deviations in March 2012. The recent results and prospects of Daya Bay will be presented in this talk.

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Classification de Session: Neutrinos

Classification de thématique: Experiment