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Latest Results From Daya Bay

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The Daya Bay Reactor Neutrino Experiment is designed to provide a precise measurement of the smallest neutrino-mixing angle, θ_{13} . It is located at the Daya Bay Nuclear Power Complex in southern China. Eight antineutrino detectors with identical design, each with a 20-t gadolinium-doped liquid-scintillator target, are deployed in three underground experimental halls at different distances from six nuclear reactors for detecting the low-energy electron antineutrinos emitted from the cores. Mixing angles and mass-squared differences are determined by comparing the observed rates and spectra of antineutrinos in the far detectors with the predicted one based on the corresponding measurements obtained from the near detectors. This kind of relative measurement can reduce systematic uncertainties significantly. Using this approach, Daya Bay provides precise determination of θ_{13} and $|\Delta m_{232}|$. With a few million reactor antineutrino events collected, Daya Bay can also perform other precision measurements and sensitive searches. Some of the recent results and prospects of Daya Bay will be presented in this talk.

Presenter: LUK, Kam-Biu (UC Berkeley/LBNL)

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