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Calibration and energy reconstruction at Daya Bay

Daya Bay is an international experiment based in China. Its primary goal is the measurement of the neutrino mixing angle θ_{13} with unprecedented precision. In addition, it can address other topics in neutrino physics including sterile-neutrino searches, and high-statistics measurements of reactor anti-neutrinos. In Daya Bay, electron anti-neutrinos from 6 reactor cores are detected via the inverse beta-decay reaction in 4 near and 4 far liquid scintillator detectors with identical performance. A key feature of most of the physics done in Daya Bay is the relative measurements of physical quantities among detectors as a function of energy which is reconstructed based on the amount of detected light in the photo-multiplier tubes. To ensure energy is measured correctly, periodic calibration of the detectors with a number of radioactive sources and natural radioactivity in the liquid scintillator are performed. All aspects of energy calibration in Daya Bay will be briefly presented in this poster.

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