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Search for sterile neutrino mixing at Daya Bay YASUHIRO NAKAJIMA, Lawrence Berkeley National Laboratory, DAYA BAY COLLABORATION
— The Daya Bay Reactor Neutrino Experiment is designed to measure the neutrino mixing angle θ_{13} with unprecedented precision. The experiment detects antineutrinos from Daya Bay reactor complex with eight functionally identical Antineutrino Detectors, which are distributed among three experimental halls. We started data taking in December 2011, and have collected more than one million reactor antineutrino interactions. This high-statistics of data allow us not only to make precise measurement of oscillation parameters, but also to search for new physical phenomena beyond the standard model such as sterile neutrino mixing. We have made the most precise measurements of $\sin^2 2\theta_{13}$ and the first direct measurement of the effective mass splitting, Δm^2_{ee}, from relative comparisons of antineutrino rate and spectra. A signature of sterile neutrino mixing would appear as an additional spectral distortion of a different frequency. In this talk, I will report the current status of our sterile neutrino search as well as oscillation parameter measurements.

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