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Antineutrino Detectors for a High-Precision Measurement of θ_{13} at Daya Bay

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The Daya Bay reactor neutrino experiment is designed to measure the last unknown neutrino mixing angle θ_{13} with a sensitivity of $\sin^2 2\theta_{13} < 0.01$. The experiment will use eight identical liquid scintillator detectors with 20-ton target mass installed at three underground sites to measure the flux and spectrum of reactor antineutrinos from the Daya Bay nuclear power plant and search for subdominant neutrino oscillation. Control of the relative detector systematics to $< 0.4\%$ is critical for the experiment's sensitivity. We will describe the design, construction, and performance of the Daya Bay antineutrino detectors.

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