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Offline software for the Resistive Plate Chambers in the Daya Bay Antineutrino Experiment

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Neutrino flavor oscillation is characterized by three mixing angles. The Daya Bay reactor antineutrino experiment is designed to determine the last unknown mixing angle θ_{13}. The experiment is located in southern China, near the Daya Bay nuclear power plant. Eight identical liquid scintillator detectors are being installed in three experimental halls, to detect antineutrinos released in nuclear fission. The Water Cherenkov detector and the Resistive Plate Chambers (RPC) deployed in each experimental hall form a muon system to veto cosmic muons which are the main source of backgrounds. The combined muon veto efficiency is designed as 99.5% with 0.25% uncertainties. Offline software for the Daya Bay experiment is being developed in the framework of Gaudi. In this presentation, we will give a brief introduction to the Daya Bay experiment and the software framework. Then we will focus on the simulation, calibration and reconstruction of the Resistive Plate Chambers.

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