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A study of systematic uncertainties in the Daya Bay Neutrino **Experiment** ERIC BLANSHAN, UCLA/University of Chicago — The Daya Bay Experiment is designed to set a precise upper limit for, if not pin-point, the value of the  $\theta_{13}$  neutrino oscillation parameter. As shown in the parameterized PMNS matrix, accurate knowledge of  $\theta_{13}$  will enable the study of CP violation in the lepton sector, in addition to supporting the theory of neutrino oscillation. This experiment seeks great precision by utilizing four detector sites; each site will house two Galaced liquid scintillator anti-neutrino detectors which first measure a prompt signal from the electron-positron annihilation following the inverse beta decay of antineutrinos, and second, identify a delay signal created by the subsequent neutron capture. This method, and the interchangeability of the detectors, greatly decreases the systematic uncertainty; however, the critical nature of systematics in reactor neutrino experiments warrants careful study. This poster will examine Daya Bay from a systematics perspective, producing a comparison with the Double Chooz experiment and setting a precision level for measurements of  $\theta_{13}$  as a function of run-time and mass, as well as for a variety of active detector combinations. This preliminary work, using GloBES, will serve as a starting point for a more thorough analysis of Daya Bay's sensitivity limit.

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