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Study of the Sensitivity of the Daya Bay Reactor Neutrino Experiment to $\sin^2 2\theta_{13}$ Using GLoBES KARSTEN HEEGER, University of Wisconsin, PATRICK HUBER, Virginia Tech, CHRISTINE LEWIS, MICHAEL MCFARLANE, WEI WANG, University of Wisconsin — We study the sensitivity and discovery potential of the Daya Bay reactor neutrino experiment to the yet unknown neutrino mixing angle θ_{13} using the GLoBES framework and evaluate the sensitivity and discovery reach of the experiment for various running times, detector systematics, and uncertainties in the reactor antineutrino flux. The Daya Bay experiment is a next-generation reactor experiment under construction at the Daya Bay Nuclear Power Plant in China to measure the oscillation of reactor antineutrinos over a baseline of $\sim$2 km. The Daya Bay experiment will utilize eight identical, 20-ton detectors, distributed over three experimental sites to measure $\sin^2 2\theta_{13}$ with a sensitivity of 0.01 at 90% C.L. The discovery of non-zero $\sin^2 2\theta_{13}$ above 0.01 will be key for guiding future accelerated-based, long-baseline neutrino experiments in the next decade.

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