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Precision Results on θ_{13} from Daya Bay JIM NAPOLITANO, Temple University, DAYA BAY COLLABORATION — The Daya Bay Reactor Neutrino Experiment measures the neutrino mixing angle θ_{13} with high sensitivity, using functionally identical detectors at appropriate distances from the cores of a nuclear power plant. We have analyzed 217 days of data with six detectors, and 404 days with the full complement of eight detectors, obtaining a sample of over two million $\bar{\nu}_e p \to e^+ n$ events. Combining rate and spectral shape information, we find $\sin^2 2\theta_{13} = 0.084 \pm 0.005$ and $\Delta m^2_{ee} = \left(2.44^{+0.10}_{-0.11}\right) \times 10^{-3}$ eV^2 for events where the neutron captures on gadolinium. Also, using the six detector data set and a rate analysis based on np capture, we find $\sin^2 2\theta_{13} = 0.083 \pm 0.018$. We will present details of these results, including a discussion of backgrounds and systematic uncertainties.

Jim Napolitano
Temple University

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