Abstract Submitted
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Dissecting Reactor Antineutrino Flux Calculations[1] E.A. MCCUTCHAN, A.A. SONZOGNI, Brookhaven National Laboratory, M.N. NINO, Pennsylvania State University, A.C. HAYES, Los Alamos National Laboratory — Predictions of the antineutrino flux and spectrum from a nuclear reactor make use of a numerical method to convert experimental aggregate electron spectra into corresponding antineutrino spectra. Based on these predictions, a systematic deficit in the total number of measured antineutrinos (the so-called reactor antineutrino anomaly) and a spectra distortion in the 5-7 MeV region (the so-called bump) has been observed. Recent measurements of the time evolution of the antineutrino flux by the Daya Bay collaboration has suggested that only ^{235}U exhibits the anomaly, while ^{239}Pu agrees with the current theoretical predictions. In the present work, we perform a quantitative investigation into the assumptions and approximations used in the conversion method. By simultaneously fitting the aggregate electron spectra and the Daya Bay antineutrino spectra, we explore if any correction terms can account for both the anomaly and the bump. Furthermore, we analyze the time evolution flux data from Daya Bay using a revised conversion method. Results from this analysis will be presented.

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