

Abstract Submitted
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Nuclear Structure Decay Studies for Reactor Antineutrino Physics¹ E.A. MCCUTCHAN, S. ZHU, K. AURANEN, A.A. SONZOGNI, Brookhaven National Laboratory, K. KOLOS, N.D. SCIELZO, Lawrence Livermore National Laboratory, M.P. CARPENTER, G. SAVARD, J. CLARK, Argonne National Laboratory, A. GULA, Notre Dame University — There are several intriguing features involving recent measurements and calculations of reactor antineutrino spectra including a deficit in the total number of measured antineutrinos, a spectra distortion in the region of 5-7 MeV antineutrino energy, and a fine structure which can be attributed to the decay of just a few out of the total 800 fission fragments making up the spectra. A full understanding of these aspects requires a solid basis of the underlying nuclear physics, namely the beta-decay properties of fission fragments used as inputs to calculate the spectra. Using the CARIBU facility at Argonne National Laboratory, we have performed new measurements on several key isotopes including ^{92}Rb , ^{142}La , and ^{141}Cs . The decay of ^{92}Rb was studied with the SATURN array, while the decays of ^{142}La and ^{141}Cs were observed with the Gammasphere array. The results of these analyses will be presented and their impact on reactor antineutrino calculations will be discussed.

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