Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Gamma-ray spectroscopy of the β-decay of ^{141}Ba into ^{141}La for antineutrino spectrum calculations[1] JAVIER RUFINO, JR, Brookhaven National Laboratory, M. ALCORTA, P. BERTONE, M. CARPENTER, J. CLARK, C. HOFFMAN, R. JANSSENS, F. KONDEV, T. LAURITSEN, C. LISTER, Argonne National Laboratory, E. MCCUTCHAN, Brookhaven National Laboratory, R. PARDO, A. ROGERS, G. SAVARD, D. SEWERYNIAK, R. VONDRASEK, Argonne National Laboratory, S. ZHU, Brookhaven National Laboratory — The antineutrino spectrum from a reactor is composed of spectra from nearly 800 fission fragments. Despite this large number of isotopes, antineutrino summation calculations have demonstrated that fluctuations in the spectrum shape can be attributed to just a few nuclei, those strongly produced in fission and with specific decay properties the so-called fine structure. This work aims to provide improved nuclear data on strongly produced isotopes, in order to better quantify the fine structure and determine its impact on new reactor antineutrino experiments. The experiment was performed at Argonne National Laboratory where a beam of ^{141}Cs was produced at the CARIBU facility and implanted into the center of Gammasphere. We studied the β decay of the daughter, ^{141}Ba and precisely determined the γ-ray energies and intensities. A significant revision to the level scheme of ^{141}La over the literature was obtained. The new level scheme as well as the impact on antineutrino spectrum calculations will be presented.

[1]Research sponsored by Office of Nuclear Physics, Office of Science, US Department of Energy, under contract DE-AC02-98CH10946

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Date submitted: 08 Jan 2021 Electronic form version 1.4