Abstract Submitted
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Total Absorption Spectroscopy of the ^{137}Xe, ^{137}I, and ^{92}Rb β-Decays[1] B.C. RASCO, Louisiana State University, A. FIJAŁKOWSKA, M. KARNY, University of Warsaw, K.P. RYKACZEWSKI, Oak Ridge National Laboratory, M. WOLIŃSKA-CICHOCKA, University of Warsaw, K.C. GOETZ, R.K. GRZYWACZ, University of Tennessee, C.J. GROSS, Oak Ridge National Laboratory, K. MIERNIK, University of Warsaw, D. STRACENER, Oak Ridge National Laboratory — The NaI(Tl) based Modular Total Absorption Spectrometer (MTAS) was constructed to measure improved β-decay feeding patterns from neutron-rich nuclei. It is difficult to measure β-decay feeding intensities with high precision γ-ray measurements due to the low efficiency of high precision detectors. There are several important applications of improved measurements of β-decay feeding patterns by total absorption spectroscopy; improve understanding of elemental abundances in the universe, help with stockpile stewardship, contribute to understanding of underlying nuclear structure, and improve β-decay feeding measurements to calculate accurately the $\bar{\nu}_e$ spectra needed to evaluate precisely reactor neutrino measurements. We present β-decay feeding results for two "priority one" measurements, ^{137}Xe and ^{137}I, and for ^{92}Rb, which is a large individual contributor to the $\bar{\nu}_e$ uncertainty of the reactor anomaly. In addition to β-γ decays, ^{137}I has a β-neutron decay channel which is measurable in MTAS. We will demonstrate techniques for analyzing MTAS γ-decay data. We will also describe β and neutron spectroscopy in MTAS.

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