Abstract Submitted
for the DNP19 Meeting of
The American Physical Society

Antineutrino Spectra and Decay Heat Measurements with the Modular Total Absorption Spectrometer BERTIS RASCO, Oak Ridge National Laboratory, MTAS COLLABORATION — Nuclear reactors are the largest man-made source of $\bar{\nu}$s and as such they are excellent sources to directly measure $\bar{\nu}$s. The predicted $\bar{\nu}$ flux from nuclear reactors is not precisely known. One way to predict the $\bar{\nu}$ flux, the summation method, requires precise knowledge of the β decays of the many fission products. Because all reactor antineutrinos are created from β-decaying fission products it is imperative to experimentally measure these β decays. In addition to producing a precise prediction of the $\bar{\nu}$ flux, a proper understanding of the β decay of fission products produced in nuclear reactors is important in order to understand how the decay heat energy is shared between γ rays, β rays, neutrons, and $\bar{\nu}$s. The improved β decay information influences reactor safety, and the decay back to stability of the r process. In this talk we present an overview of the latest results from the Modular Total Absorption Spectrometer Collaboration and its impact on the predicted $\bar{\nu}$ flux from nuclear reactors.

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Date submitted: 01 Jul 2019 Electronic form version 1.4