Abstract Submitted
for the APR20 Meeting of
The American Physical Society

Reactor anti-neutrino spectra from total absorption spectroscopy of fission products[1] KRZYSZTOF RYKACZEWSKI, Oak Ridge National Lab, BERTIS RASCO, JINPA/ORNL, MTAS TEAM — Fission process of heavy nuclei ^{235}U, ^{238}U, ^{239}Pu and ^{241}Pu generates energy in power reactors. A fraction of this energy and the anti-neutrino emission originate from the decay of fission products. Measurements performed with the Modular Total Absorption Spectrometer (MTAS) help to understand the energy release and emitted anti-neutrino properties. MTAS array of about 1 ton total weight constructed from 19 NaI(Tl) modules packed in a close geometry has been commissioned and used for the decay studies of nearly 80 fission products at ORNL and ANL Analysis of MTAS spectra resulted in the modification of beta-gamma decay schemes and following beta-strength distribution. It was found that the average beta and anti-neutrino energy per decay are substantially reduced and the average gamma energy is increased. The status of MTAS data and their impact on the reactor anti-neutrino spectra properties will be presented.

[1]supported by the US DOE Office of Nuclear Physics

Krzysztof Rykaczewski
Oak Ridge National Lab

Date submitted: 10 Jan 2020 Electronic form version 1.4