## Abstract Submitted for the DNP13 Meeting of The American Physical Society

 $\beta$ - $\gamma$  and  $\beta$ -neutron- $\gamma$  emission in mass A=137 Decay Chain Studied with the Modular Total Absorption Spectrometer  $(MTAS)^1$ CHARLES RASCO, Louisiana State University, ALEKSANDRA FIJAŁKOWSKA, MAREK KARNY, University of Warsaw, KRZYSZTOF RYKACZEWSKI, MARZENA WOLIŃSKA-CICHOCKA, Oak Ridge National Laboratory, ROBERT GRZYWACZ, University of Tennessee — The Modular Total Absorption Spectrometer (MTAS) is a detector made up of 19 separate hexagon modules of NaI which results in over a ton of NaI in the MTAS detector. MTAS was designed to capture as much of the electromagnetic energy release in  $\beta$ -decays as possible. MTAS was constructed at the Holifield Radioactive Ion Beam Facility and measured over 20 decay products of <sup>238</sup>U fission products in its inaugural measurement campaign in January 2012. The measurements were focused on nuclei identified as important for decay heat analysis of the nuclear fuel cycle. Silicon detectors placed at the center of MTAS to provide  $\beta$  triggers, make for extremely clean signals in MTAS. Preliminary results on the average electromagnetic energy release in the  $\beta$  decay of <sup>137</sup>Xe and <sup>137</sup>I isotopes will be presented. These isotopes are among the priority 1 cases listed by the NEA. The <sup>137</sup>I also has a *beta*-neutron decay branch that is detected in MTAS. Neutron detection in a large NaI detector will also be discussed.

<sup>1</sup>This work was supported by the US DOE by award no. DE-FG02-96ER40978 and by US DOE, Office of Nuclear Physics.

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Date submitted: 01 Jul 2013

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