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## Decay studies of exotic nuclei

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The introduction to the decay studies of neutron-rich nuclei at the Holifield Radioactive Ion Beam Facility at Oak Ridge National Laboratory (HRIBF, ORNL, Oak Ridge) will be made pointing to the selection methods used to obtain pure beams of fission products [1,2]. The spectroscopy experiments performed at the HRIBF included first measurements of beta-gamma decay properties for  $^{82}\text{Zn}$ ,  $^{83}\text{Zn}$ ,  $^{85}\text{Ga}$ ,  $^{86}\text{Ga}$  and  $^{86}\text{Ge}$  [3,4]. These new results triggered the further development and verification of fully microscopic model for beta decay process of neutron-rich nuclei followed by new analysis of r-process abundances [3]. High energy-resolution investigations of radiation emitted from fission products were recently complemented by total absorption measurements with newly commissioned Modular Total Absorption Spectrometer (MTAS). The 2200 pounds MTAS has 19 NaI(Tl) segments and is shielded by about 12,000 pounds of lead layers. The decay heat spectra were obtained for 22 fission products [5] and included seven decays of highest priority established by Nuclear Energy Agency of IAEA. MTAS results are showing the previously undetected substantial beta-feeding to highly excited states in daughter nuclei. ORNL has unique facilities producing rare actinide materials for the hot fusion experiments leading to the heaviest atomic nuclei [6-9]. The brief report on the recent results on super heavy nuclei obtained using  $^{249}\text{Bk}$  and  $^{243}\text{Am}$  targets will be given.

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