Abstract Submitted
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**Radioactive Ion Beam Production from the Fission of Thorium Oxide Targets**[1] HAKAN ARMAGAN, Oak Ridge National Laboratory/Department of Energy, H.K. CARTER, D.W. STRACENER, E.H. SPEJEWSKI, A. KRONENBERG, Oak Ridge National Laboratory — Hollifield Radioactive Ion Beam Facility (HRIBF) at Oak Ridge National Laboratory is one of the few facilities in the world that provides radioactive ion beams (RIB), crucial for nuclear astrophysics, nuclear structure, and stewardship science. Neutron-rich beams are produced by proton-induced nuclear fission of actinide compounds such as uranium carbide or thorium oxide. The goal of this project has two folds. First, compare the beam yield produced from both a low density and a high-density $ThO_2$ target. Second, find the relation the 40 MeV proton beam that drives the RIB production is fully stopped in the high density, $\sim$8 g/cm$^3$ $ThO_2$, but not in the low-density 0.8 g/cm$^3$ ThO$^2$. The low-density target does not use all of the beam intensity. In this particular experiment, the production yields from 40MeV and 30MeV protons have been measured on the low-density target. The comparison of the calculated production yields of 40 MeV and 30 MeV protons shows a factor of two between these different energies. The experiment was conducted using an on-line mass separator, and specific masses of the RIB were collected onto a tape. This allows a direct comparison of the low and high density $ThO_2$ target. Release data from the high and low-density targets will be shown and discussed.

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