

Abstract Submitted
for the DNP06 Meeting of
The American Physical Society

Studies of nuclei around proton drip-line at the HRIBF Recoil Mass Spectrometer using a rotating target CLARKE NELSON, Vanderbilt University — The investigations of nuclei around proton drip line allow us to verify nuclear structure models initially developed based on data obtained for the isotopes near a beta stability line. However, these exotic nuclei are very difficult to study, mainly because of very low production cross section. The fusion-evaporation reactions between heavy-ions and fragmentation of relativistic heavy-ions are preferred production methods for very proton rich nuclei. In both cases, the high intensity of primary beam helps to increase the amount of produced nuclei. This contribution analyses the yields of alpha and proton radioactivities produced in fusion-evaporation reactions and studied at the Recoil Mass Spectrometer at the Holifield Radioactive Ion Beam Facility (HRIBF). The recently commissioned rotating target device [1] allowing us a substantial increase in the primary beam current will be presented. In particular, the probability to reach doubly-magic nucleus ^{100}Sn in so far unobserved superallowed alpha decay chain $^{108}\text{Xe} \rightarrow ^{104}\text{Te} \rightarrow ^{100}\text{Sn}$ [2] will be discussed.

[1] J.Johnson et al., HRIBF, Oak Ridge, 2006

[2] S.Liddick et al., Phys. Rev. Letters, in press

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Date submitted: 28 Jul 2006

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