Abstract Submitted
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Proton decay of ^{73}Rb[1] ANDREW ROGERS, Dept. of Physics, UMass Lowell, C. ANDERSON, J. BARNEY, J. ESTEE, W.G. LYNCH, J. MANFREDI, H. SETIAWAN, R.H. SHOWALTER, S. SWEANY, S. TANGWANCHAROEN, M.B. TSANG, J.R. WINKELBAUER, NSCL, Michigan State University, K.W. BROWN, J.M. ELSON, C. PRUITT, L.G. SOBOTKA, Dept. of Chemistry and Physics, WashU, Z. CHAJECKI, Dept. of Physics, WMU, J. LEE, Dept. of Physics, Univ. of Hong Kong — Properties of nuclei beyond the proton drip-line are important for mass models, nuclear structure, and astrophysics. Weakly-bound or proton-unbound nuclei near the rp-process waiting points, such as the unbound $T_z = -\frac{1}{2}$ nucleus ^{73}Rb, play a critical role in constraining calculations and observations of type I x-ray bursts. For instance, the rp process is greatly slowed near ^{72}Kr ($N = Z$) due to its relatively long β-decay half life and inhibited proton capture. This waiting point, however, may be bypassed by sequential 2p-capture through ^{73}Rb — a reaction which is sensitive to the ^{73}Rb proton separation energy, $S_{\rm p}$. Using invariant-mass spectroscopy, we have performed an experiment at NSCL to measure the decay of ^{73}Rb$\rightarrow$p+^{72}Kr in an attempt to directly determine $S_{\rm p}(^{73}{\rm Rb})$. Analysis of reconstructed proton-emission spectra and decay signatures will be discussed.

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