Abstract Submitted
for the DNP16 Meeting of
The American Physical Society

Constraints on the 72Kr rp-process waiting point[1] A.M. 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 - Saint Louis, Z. CHAJECKI, Dept. of Physics, WMU, J. LEE, Dept. of Physics, Univ. of Hong Kong — Weakly-bound or proton-unbound nuclei near the rp-process waiting points 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 due to its relatively long β-decay half life and inhibited proton capture. The ^{72}Kr waiting point, however, may be bypassed by sequential 2p-capture through ^{73}Rb – a reaction which is extremely sensitive to the ^{73}Rb proton separation energy, S_{p}. While recent measurements of ^{65}As and ^{69}Br have reduced uncertainties in the reaction sequence, the ^{72}Kr waiting point still remains unconstrained. 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 determine S_{p}(^{73}Rb) directly for the first time. Results from our recent ^{73}Rb decay experiment will be presented.

[1]This work is supported by the U.S. DOE Office of Nuclear Physics, Contract No. DE-FG02-94ER40848.

Andrew Rogers
Univ of Mass - Lowell

Date submitted: 01 Jul 2016 Electronic form version 1.4