Abstract Submitted
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The ground state mass of ^{73}Rb from the β-delayed proton emission of ^{73}Sr D.E.M. HOFF, A.M. ROGERS, P.C. BENDER, E.R. DOUCET, C.J. LISTER, C. MORSE, S. WANIGANETHTHI, UML, K. CHILDERS, A.C. DOMBOS, S. JIN, R. LEWIS, S.N. LIDDICK, H. SCHATZ, K. SCHMIDT, S.M. WANG, NSCL, K. BRANDENBURG, Z. MEISEL, D. SOLTESZ, S.K. SUBEDI, OU, J.A. CLARK, ANL — Nuclear structure along the proton dripline has a significant impact on the rapid-proton capture process. In particular, the nuclear flow is heavily influenced by waiting-points, e.g. ^{72}Kr, where proton captures are limited by the proton-unbound daughter nucleus. To determine the proton separation energy of ^{73}Rb, and thus the strength of the ^{72}Kr waiting point, the beta-delayed proton emission of ^{73}Sr was studied. ^{73}Sr was produced by the fragmentation of a ^{92}Mo primary beam on a Be target and subsequent decays measured via ion implantation-decay correlations at the NSCL. Improvements in the analysis have reduced the low-energy charged-particle background and with a Bayesian analysis the proton separation energy of ^{73}Rb was determined to be $S_p = -640(40)$ keV. With previous ^{73}Rb non-observation measurements constraining the mass, our measurement provides a firm determination of S_p.

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