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Se-68 rp-process waiting point and X-ray bursts M. DEL SANTO, H. SCHATZ, G. LORUSSO, H. CRAWFORD, G.F. GRINYER, Z. MEISEL, A. BECERRIL, F. MONTES, J. PEREIRA, K. SMITH, S. GEORGE, D. BAZIN, P. MANTICA, NSCL/MSU — The x-ray light curve of astrophysical X-ray bursts and the composition of their nuclear ashes are shaped by the effective half-life of Se-68, a rare neutron deficient isotope near the proton drip line and a waiting point in the rapid proton capture process (rp-process). We addressed the nuclear physics uncertainty in the Se-68 half-life by studying the beta-delayed particle emission of Kr-69. The experiment was performed at the National Superconducting Cyclotron Laboratory (NSCL). The rare isotope beam was produced by fragmentation of a Kr-78 primary beam, separated using the A1900 and Radio Frequency Fragment Separator, and sent to the Beta Counting Station (BCS). The remaining fragments were implanted into a 500 micron double-sided-Si-strip-detector (DSSD) to detect charged particles (fast electrons and protons) following beta decay. The measured decay curve and delayed proton spectrum will be presented and the possible implications on the energy production in X-ray bursts and mass flow along the rp-process path in the A$\sim$70 region will be discussed. This work was supported in part by the National Science Foundation.

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