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Measurement of ^{34}Ar(,p)^{37}K using the JENSA Gas Jet Target[1]
JUSTIN BROWNE, Michigan State University, KELLY CHIPPS, Oak Ridge National Laboratory, HENDRIK SCHATZ, Michigan State University, KONRAD SCHMIDT, National Superconducting Cyclotron Laboratory, JENSA COLLABORATION COLLABORATION — X-ray bursts are very luminous thermonuclear explosions that occur in binary star systems. In these systems, a neutron star accreting matter from a companion star undergoes increased thermonuclear burning, which causes a breakout from the hot CNO cycle into the p-process. The rates of (,p) reactions can significantly impact the lightcurve and elemental abundances resulting from the X-ray burst. Using a radioactive ion beam at the National Superconducting Cyclotron Laboratory (NSCL), the Jet Experiments in Nuclear Structure and Astrophysics (JENSA) gas jet target is used to directly measure (,p) reactions. The ^{34}Ar(,p)^{37}K reaction rate was measured by detecting reaction products in the Super-ORRUBA silicon detector array and a position-sensitive ionization chamber, while -rays were detected in the HAGRiD $LaBr_3$ detector array. Preliminary results from this experiment will be presented.

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