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Measuring ^{84}Se(d,p) at 45 MeV/A to reduce uncertainties in spectroscopic factors of states in ^{85}Se[1] HARRISON SIMS, JOLIE CIZEWSKI, ALEXANDRE LEPAILLEUR, DAVID WALTER, Rutgers University, SUNGHOON AHN, TAMU, STEVEN PAIN, ORNL, ANDREW RATKIEWICZ, LLNL, ORRUBA - S800 COLLABORATION — Neutron-transfer reactions with radioactive ion beams (RIBs) probe the single-neutron components of the wave function of nuclei. This is crucial to our understanding of the direct component of neutron capture. With (d,p) reactions, spectroscopic factors can be extracted through a normalization of the differential cross section calculated using ADWA theory to that observed through experiment. They are, therefore, heavily dependent on the parameters chosen to model the final bound state nucleus. A combined method using high and low energy RIBs allows for both a peripheral and more central probe of the nucleus, thereby constraining the bound state parameters and reducing the uncertainties on the extracted spectroscopic factors. Using this method for the first time with heavy, neutron rich RIBs, the spectroscopic factors of low lying states in ^{85}Se are being studied through ^{84}Se(d,p). With the low-energy measurement at 4.5 MeV/A already completed [1], the high-energy measurement at 45 MeV/A was performed at the NSCL. ORRUBA and SIDAR were used to detect reaction protons in coincidence with heavy ion recoils using the S800 spectrograph. Preliminary results, including spectroscopic factors will be presented. [1] J.S. Thomas et al., Phys. Rev. C 76, 044302 (2007)

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