

Abstract Submitted
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Test of the combined method for extracting spectroscopic factors in $N=50$ nuclei¹ DAVID WALTER, J.A. CIZEWSKI, T. BAUGHER, A. RATKIEWICZ, Rutgers University, S.D. PAIN, Oak Ridge National Laboratory, F.M. NUNES, S. AHN, National Superconducting Cyclotron Laboratory, G. CERIZZA, K.L. JONES, University of Tennessee - Knoxville, B. MANNING, Rutgers University, C. THORNSBERRY, University of Tennessee - Knoxville — The single-particle properties of nuclei near shell closures and r-process waiting points can be observed using single-nucleon transfer reactions with beams of rare isotopes. However, approximations have to be made about the final bound state to extract spectroscopic information. An approach to constrain the bound state potential has been proposed by Mukhamedzhanov and Nunes [1]. At peripheral reaction energies (~ 5 MeV/u), the ANC for the nucleus can be extracted, and is combined with the same reaction at higher energies (~ 40 MeV/u). These combined measurements can constrain the shape of the bound state potential, and the spectroscopic factor can be reliably extracted. To test this method, the $^{86}\text{Kr}(d, p)$ reaction was performed in inverse kinematics with a 35 MeV/u beam at the National Superconducting Cyclotron Laboratory (NSCL) with the ORRUBA and SIDAR arrays of silicon strip detectors coupled to the S800 spectrometer. Successful results supported the measurement of a radioactive ion beam of ^{84}Se at 45 MeV/u at the NSCL to be measured at the end of 2017. Results from the $^{86}\text{Kr}(d, p)$ measurement will be presented as well as preparations for the upcoming $^{84}\text{Se}(d, p)$ measurement. [1] A.M. Mukhamedzhanov and F.M. Nunes, Phys. Rev. C 72, 017602 (2005)

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