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Reducing Ambiguities in Spectroscopic Factors with Combined Measurements and the ^{86}Kr(d,p) Reaction at 35MeV/u D. WALTER, J.A. CIZEWSKI, T. BAUGHER, A. RATKIEWICZ, B. MANNING, S.J. LONSDALE, S. BURCHER, Rutgers University, S.D. PAIN, K.A. CHIPPS, ORNL, F.M. NUNES, S. AHN, T. BAUMANN, D. BAZIN, J. PEREIRA, S. WILLIAMS, MSU, P. THOMPSON, G. CERIZZA, C. THORNSBERRY, K.L. JONES, UT-Knoxville, D.W. BARDAYAN, P.D. O'MALLEY, Notre Dame, R.L. KOZUB, Tenn.Tech., S. OTA, JAEA
— Spectroscopic information for low-lying states above shell closures depends on the shape of the bound-state potential, which greatly affects the extracted spectroscopic factors. To mitigate this uncertainty, Mukhamedzhanov and Nunes [1] have proposed a combined method; the external portion is fixed with a peripheral reaction, and is combined with a higher energy measurement with a larger contribution from the interior. This will constrain the single-particle ANC, and should enable spectroscopic factors to be deduced with uncertainties dominated by cross-section measurements rather than the bound-state potential. Published measurements of ^{86}Kr(d,p) at 5.5MeV/u [2] were used for the external contribution of this reaction. An ANC analysis shows that the reaction is peripheral at this energy and the ANC has been extracted. At less-peripheral energies, ^{86}Kr(d,p) at 35MeV/u has been measured in inverse kinematics at the NSCL using the ORRUBA and SIDAR arrays of silicon strip detectors. Results of the ANC analysis and preliminary results from ^{86}Kr(d,p) at 35MeV/u will be presented. This work is supported in part by the NSF and the U.S. DOE. [1] Phys.Rev.C 72, 017602 (2005) [2] Phys.Rev.C 1,938 (1970)

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