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Reducing Ambiguities in Spectroscopic Factors and the 86Kr(d,p) Reaction at 35 MeV/u D. WALTER, J.A. CIZEWSKI, T. BAUGHER, A. RATKIEWICZ, B. MANNING, S.J. LONSDALE, S. BURCHER, Rutgers, S.D. PAIN, K.A. CHIPPS, ORNL, F.M. NUNES, S. AHN, MSU, P. THOMPSON, G. CERIZZA, C. THORNSBERRY, K.L. JONES, UT-Knox, D.W. BARDAYAN, P.D. O'MALLEY, Notre Dame, R.L. KOZUB, Tenn. Tech., S. OTA, JAEA — Spectroscopic information for neutron-rich nuclei near the N=50 shell closure is important for understanding nuclear structure far from stability. The standard method of extracting spectroscopic factors suffers from serious ambiguities. Mukhamedzhanov and Nunes [1] have proposed that measuring a transfer reaction at both low (peripheral reaction) and higher (less-peripheral) energies should enable spectroscopic factors to be more reliably deduced, with uncertainties dominated by the experimental cross-sections rather than uncertainties in the bound-state potential. We have measured 86Kr(d,p) at 35MeV/u in inverse kinematics at the NSCL using the ORRUBA and SIDAR arrays of position-sensitive silicon strip detectors. The differential cross-section measurements will be combined with the published measurements at 5.5MeV/u [2] to extract spectroscopic factors for low-lying states in 87Kr, and to test the efficacy of this method. Preliminary results will be presented as well as plans to extend this approach to studies with radioactive ion beams. This work is supported in part by the NSF and the U.S. DOE.

[1] A.M. Mukhamedzhanov and F.M. Nunes, Phys. Rev. C 72, 017602 (2005).
[2] K. Haravu et al., Phys. Rev C 1,938 (1970).

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