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Measurement of Transfer Reactions on Z=50 Fission Fragments in Inverse Kinematics S.D. PAIN, Rutgers University, D.W. BARDAYAN, J.C. BLACKMON, ORNL, J.A. CIZEWSKI, Rutgers University, M.S. JOHNSON, ORAU, K.L. JONES, Rutgers University, R.L. KOZUB, Tennessee Tech., R.J. LIVESAY, Colorado School of Mines, B.H. MOAZEN, C.D. NESARAJA, University of Tennessee, M.S. SMITH, ORNL, J.S. THOMAS, Rutgers University — The development of high quality radioactive beams, such as those at the HRIBF at Oak Ridge National Laboratory, has made possible the performance of transfer reactions in inverse kinematics on unstable nuclei. Measurement of (d,p) reactions on neutron-rich nuclei yield data on the development of nuclear structure away from stability, and are of astrophysical interest due to the proximity to suggested r-process paths. Experimentally, (d,p) reactions on heavy (Z=50) fission fragments are complicated by the strongly inverse kinematics, and the relatively low beam intensities. Consequently, ejectile detection with high resolution in position and energy, a high dynamic range and a high solid angular coverage is required. A proof of principle experiment has been performed on ^{124}Sn (d,p) in inverse kinematics [1] demonstrating successfully the technique, and the first experiments using radioactive beams (^{130,132}Sn(d,p)) are due to be performed in 2005. The Oak Ridge Rutgers University Barrel Array (ORRUBA), a Si detector array with a high solid angular coverage around 90°, is currently under development to facilitate future measurements. 1. K.L. Jones *et al.*, Phys. Rev. C 70 067602 (2004)

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