Abstract Submitted for the APR07 Meeting of The American Physical Society

Measurement of the <sup>134</sup>Te(d,p)<sup>135</sup>Te reaction in inverse kinematics S.D. PAIN, J.A. CIZEWSKI, R. HATARIK, P.D. O'MALLEY, T.P. SWAN, Rutgers University, D.W. BARDAYAN, J.C. BLACKMON, F. LIANG, C.D. NE-SARAJA, D. SHAPIRA, M.S. SMITH, ORNL, K.Y. CHAE, K.L. JONES, B.H. MOAZEN, University of Tennessee, R.L. KOZUB, J.F. SHRINER, JR., Tennessee Tech., C. MATEI, ORAU, K. CHIPPS, R.J. LIVESAY, Colorado School of Mines — The development of high quality radioactive beams, such as those at the Holifield Radioactive Ion Beam Facility (HRIBF) at Oak Ridge National Laboratory, along with new large solid-angle detector arrays such as ORRUBA, have made possible the performance of transfer reactions in inverse kinematics on unstable nuclei. The measurement of (d,p) reactions on neutron- rich fission fragments yield data on the development of nuclear structure away from stability, which is of astrophysical interest due to the proximity to suggested r-process paths. A campaign of (d,p) measurements on neutron-rich N~82 nuclei is underway at the HRIBF. The  ${}^{134}$ Te(d,p) ${}^{135}$ Te reaction has been measured in inverse kinematics at the HRIBF utilizing a beam of  $^{134}\mathrm{Te}$  at 643 MeV and a deuterated plastic target. Proton ejectiles were detected forward and backwards of  $\theta_{lab} = 90^{\circ}$  using an early implementation of the ORRUBA silicon detector array. Details of the experiment, and a report of the current stage of the analysis will be presented.

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Date submitted: 16 Jan 2007

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