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Single-neutron levels near the N=82 shell gap B. MANNING, J.A. CIZEWSKI, S. HARDY, M.E. HOWARD, P.D. O'MALLEY, Rutgers University, S.H. AHN, K.Y. CHAE, K.L. JONES, S.T. PITTMAN, University of Tennessee, D.W. BARDAYAN, C.D. NESARAJA, S.D. PAIN, M.S. SMITH, Oak Ridge National Laboratory, R.L. KOZUB, Tennessee Technological University, K.A. CHIPPS, Colorado School of Mines, W.A. PETERS, Oak Ridge Associated Universities, M. MATOS, Louisiana State University — Nuclei with a few nucleons above and below shell closures are of particular importance to informing the evolution of single-particle structure, which is critical to the benchmarking of nuclear models. Due to increasingly intense beams of radioactive nuclei, studies around the doubly-magic ^{132}Sn shell closure are now possible. While the single-neutron states in tin nuclei in immediate proximity to the N=82 shell gap have recently been verified to be highly pure, fragmentation of the single-neutron strengths in the tellurium isotopes has been observed. The nature of this fragmentation provides a stringent test of shell model effective interactions. In order to study the fragmentation in nuclei close to the N=82 shell gap, a series of (d,p) measurements is being undertaken at the Holifield Radioactive Ion Beam Facility at Oak Ridge National Laboratory, utilizing the superORRUBA silicon detector array. Motivation, experimental details and preliminary data will be presented. Work supported in part by U.S. Department of Energy and National Science Foundation.

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