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Informing Neutron-Capture Rates through (d,p) Reactions on Neutron-Rich Tin Isotopes[1] B. MANNING, J.A. CIZEWSKI, Rutgers University, R.L. KOZUB, Tennessee Tech University, S. AHN, University of Tennessee & Michigan State University, J.M. ALLMOND, ORNL, D.W. BARDAYAN, ORNL & Notre Dame, K.Y. CHAE, ORNL & SKU, K.A. CHIPPS, ORNL & University of Tennessee, M.E. HOWARD, Rutgers University, K.L. JONES, University of Tennessee, J.F. LIANG, ORNL, M. MATOS, Louisiana State University, F.M. NUNES, Michigan State University, C.D. NESARAJA, ORNL, P.D. O'MALLEY, Rutgers University, S.D. PAIN, ORNL, W.A. PETERS, ORNL & University of Tennessee, S.T. PITTMAN, University of Tennessee, A. RATKIEWICZ, Rutgers University, K.T. SCHMITT, University of Tennessee, D. SHAPIRA, M.S. SMITH, ORNL, L. TITUS, Michigan State University — Level energies and spectroscopic information for neutron-rich nuclei provide important input for r-process nucleosynthesis calculations; specifically, the location and strength of single-neutron $\ell = 1$ states when calculating neutron-capture rates. Surman and collaborators have performed sensitivity studies to show that varying neutron-capture rates can significantly alter final r-process abundances. However, there are many nuclei important to the r-process that cannot be studied. Extending studies to more neutron-rich nuclei will help constrain the nuclear shell-model in extrapolating to nuclei even further from stability. The (d,p) reaction has been measured with radioactive ion beams of ^{126}Sn and ^{128}Sn to complete the set of (d,p) studies on even mass tin isotopes from doubly-magic ^{132} to stable ^{124}Sn.

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