

Abstract Submitted  
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**Using (d,p $\gamma$ ) as a Surrogate for Neutron Capture with  $^{75}\text{As}$** <sup>1</sup> W.A. PETERS, J.A. CIZEWSKI, R. HATARIK, P. O'MALLEY, Rutgers, D.J. VIEIRA, M. JANDEL, J.B. WILHELMY, LANL, C. MATEI, ORAU, D.W. BARDAYAN, M.S. SMITH, S.D. PAIN, ORNL, K.L. JONES, B.H. MOAZEN, K.Y. CHAE, Univ. of Tenn., R.L. KOZUB, J. SHRINER, TTU, J.C. BLACKMON, LSU — Arsenic is used as a radiochemical neutron fluence detector for nuclear reactions and other applications. The abundances of the residual isotopes  $^{73,74}\text{As}$  allow one to calculate the total neutron activity through (n,2n) or (n, $\gamma$ ) reactions along the isotopic network chain. The neutron capture reaction cross sections used for these calculations cannot be directly measured for the radioactive isotopes, but the (d,p $\gamma$ ) reaction as a surrogate for the (n, $\gamma$ ) reaction can be measured. An experiment at Oak Ridge National Laboratory using As beams in inverse kinematics and a deuterated target will first measure the  $^{75}\text{As}(\text{d},\text{p}\gamma)$  reaction with stable beam to test the efficacy of our surrogate experimental techniques. With a tight geometry, eight ORRUBA silicon-strip detectors will detect recoil protons in coincidence with  $\gamma$ -rays detected by four high-purity segmented Ge clover detectors. Status and future goals for the As(d,p $\gamma$ ) surrogate campaign will be presented.

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