

Abstract Submitted
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Using $^{171,173}\text{Yb}(d,p\gamma)$ to benchmark a surrogate reaction for neutron capture¹ R. HATARIK, J.A. CIZEWSKI, T. SWAN, S.D. PAIN, P.D. O'MALLEY, Rutgers University, D.W. BARDAYAN, Oak Ridge National Laboratory, L.A. BERNSTEIN, J.T. BURKE, F.S. DIETRICH, J.E. ESCHER, M.S. JOHNSON, Lawrence Livermore National Laboratory, J. GIBELIN, L. PHAIR, Lawrence Berkeley National Laboratory, R.L. KOZUB, Tennessee Tech University, A. KRONENBERG, Oak Ridge Associated Universities — An indirect approach to measure neutron capture cross sections on unstable nuclei is the surrogate reaction method, which makes it possible to relate the desired cross section to a cross section of an alternate reaction that proceeds through the same compound nucleus. To test the feasibility of using a $(d,p\gamma)$ reaction as a surrogate, a benchmark experiment has been carried out with the goal to reproduce the known neutron capture cross section ratio of ^{171}Yb and ^{173}Yb . The $^{171,173}\text{Yb}(d,p\gamma)$ reactions were measured using an 18.5 MeV deuteron beam from the 88-Inch Cyclotron at LBNL. Reaction protons were detected using the Si detector array STARS and 6 Clover detectors (LIBERACE) were used to measure coincident γ -rays. Preliminary results of this measurement will be presented.

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