Abstract Submitted
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Investigating Nuclear Statistical Properties for Indirect Radiative Capture Cross Section Measurements[1] C.S. REINGOLD, A. SIMON, University of Notre Dame, N. COOPER, Univ. of Notre Dame, R.O. HUGHES, J.T. BURKE, LLNL, S.P. BURCHER, Univ. of Tennessee Knoxville, K.A. CHIPPS, ORNL, S. AHN, TAMU, D.T. BLANKSTEIN, Univ. of Notre Dame, J.A. CIZEWSKI, Rutgers Univ., M. HALL, Univ. of Notre Dame, S. OTA, A. SAASTAMOINEN, TAMU, K. SCHMIDT, MSU, NSCL, B. SCHROEDER, S. UPADHYAYULA, TAMU — Radiative capture reactions between neutrons and lanthanides are of particular importance to nuclear applications, stellar nucleosynthesis, and stockpile stewardship. Experimental constraints, however, can make direct measurements of these cross sections nontrivial. Therefore, it is essential to have a reliable method for predicting (n, γ) cross sections. One alternative to direct measurement over the relevant mass and energy regions is to calculate the relevant cross section in Hauser-Feshbach formalism, using experimentally constrained nuclear statistical properties. These statistical properties can be extracted from particle-γ coincidence data via the Oslo method. Indirect measurements for ^{145,146}Sm(n, γ) and ^{159,160}Dy(n, γ) have been conducted using the Hyperion detector array at Texas A&M University. Particle-γ coincidence data for (p, d) and (p, t) reactions on self-supporting ^{148}Sm and ^{162}Dy targets have been analyzed. Preliminary results will be presented.

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