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Understanding the Limits of the Statistical Model: Indirect Probes of 96Zr(n,gamma) JACK WINKELBAUER, SHEA MOSBY, AARON COUTURE, HYE YOUNG LEE, Los Alamos National Laboratory, SEAN KUVIN, University of Connecticut, CALEM HOFFMAN, Argonne National Laboratory, JOHN ULLMANN, Los Alamos National Laboratory, ARTEMIS SPYROU, SEAN LIDDICK, Michigan State University, ANN-CECILIE LARSEN, University of Oslo, BIRGER BACK, MELINA AVILA, Argonne National Laboratory, VINCENT KHESWA, THERESE RENSTROEM, GRY TVETEN, University of Oslo, RASHI TALWAR, Argonne National Laboratory, DANIEL SANTIAGO-GONZALES, Louisiana State University — A major barrier in the study of neutron-induced nuclear reactions is the impossibility of direct measurements with short-lived radioactive isotopes. For these exotic nuclei, theoretical inputs such as the Photon Strength Function (PSF) are poorly constrained. Recently, a program to investigate the PSF for medium-mass nuclei has begun as a collaboration between Los Alamos National Laboratory (LANL) and Argonne National Laboratory (ANL). At LANL, The Detector for Advanced Neutron Capture Experiments (DANCE) provides direct measurements of gamma ray cascades following neutron capture reactions on stable or long-lived radioactive nuclei. At ANL, single neutron transfer reactions in inverse kinematics provides complementary data on short-lived radioactive nuclei. As a test case for this research program, the 96Zr(n,γ) reaction was measured using DANCE and the 96Zr(d,p) reaction was measured using HELIOS+APOLLO. Results from the 96Zr(d,p) and 96Zr(n,γ) measurements will presented.

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