Comparison of neutron capture cross sections obtained from two Hauser-Feshbach statistical models on a short-lived nucleus using experimentally constrained input REBECCA LEWIS, SEAN LIDDICK, ARTEMIS SPYROU, BENJAMIN CRIDER, ALEXANDER DOMBOS, FARHEEN NAQVI, CHRISTOPHER PROKOP, STEPHEN QUINN, NSCL/MSU, ANN-CECILIE LARSEN, LUCIA CRESPO CAMPO, MAGNE GUTTORMSEN, THERESE RENSTROM, SUNNIVA SIEM, University of Oslo, DARREN BLEUEL, LLNL, AARON COUTURE, SHEA MOSBY, LANL, GEORGE PERDIKAKIS, Central Michigan University — A majority of the abundance of the elements above iron are produced by neutron capture reactions, and, in explosive stellar processes, many of these reactions take place on unstable nuclei. Direct neutron capture experiments can only be performed on stable and long-lived nuclei, requiring indirect methods for the remaining isotopes. Statistical neutron capture can be described using the nuclear level density (NLD), the γ strength function (γSF), and an optical model. The NLD and γSF can be obtained using the β-Oslo method. The NLD and γSF were recently determined for ^{74}Zn using the β-Oslo method, and were used in both TALYS and CoH to calculate the ^{73}Zn(n,γ)^{74}Zn neutron capture cross section. The cross sections calculated in TALYS and CoH are expected to be identical if the inputs for both codes are the same, however, after a thorough investigation into the inputs for the ^{73}Zn(n,γ)^{74}Zn reaction there is still a factor of two discrepancy between the two codes.

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