Abstract Submitted
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Neutron-Capture Cross Section Constraints for i-process Nucleosynthesis[1] ANDREA L. RICHARD, SEAN N. LIDDICK, ARTEMIS SPYROU, National Superconducting Cyclotron Laboratory, MSU, ALEXANDER C. DOMBOS, University of Notre Dame, E12001 COLLABORATION — Neutron-capture nucleosynthesis occurs via a variety of processes depending on the astrophysical sites and conditions. Recent observations and stellar evolution models suggest that an intermediate process, known as the i-process, exists between the s- and r-processes, and is necessary to explain abundances in the Ge-Te region. The abundance patterns of i-process nuclei are greatly impacted by neutron-capture rates. Direct neutron-capture measurements are only feasible for long-lived nuclei, while for short-lived nuclei, indirect techniques are required. One such technique is the β-Oslo method in which the nuclear level density (NLD) and γ-strength function (γSF) are extracted following the β-decay of a neutron-rich parent and are used in a statistical reaction model to constrain the neutron-capture cross section. In this work, ^{103,104}Mo were studied at the NSCL via the β-decay of ^{103,104}Nb and detected using the Summing NaI (SuN) detector. Results on the NLD, γSF, neutron-capture cross sections, and reaction rates of ^{102}Mo(n,γ)^{103}Mo and ^{103}Mo(n,γ)^{104}Mo using the β-Oslo method, and i-process network calculations from the Nucleosynthesis Grid (NuGrid) Collaboration will be presented.

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