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β-decay studies of Co isotopes using total absorption spectroscopy

S. LYONS, National Superconducting Cyclotron Laboratory, A. SPYROU, R. LEWIS, S. LIDDICK, Michigan State Univ, D. BLEUEL, Lawrence Livermore National Laboratory, K. CHILDERS, Michigan State Univ, B.P. CRIDER, Mississippi State Univ., A. C. DOMBOS, C. HARRIS, Michigan State Univ, M. GUTTORMSEN, A.C. LARSEN, University of Oslo, A. PALMISANO, D. RICHMAN, Michigan State Univ, N. SCIELZO, Lawrence Livermore National Laboratory, A. SIMON, University of Notre Dame, M.K. SMITH, National Superconducting Cyclotron Laboratory, A. TORODE, Michigan State Univ, A. SWEET, UC Berkeley, R. ZEGERS, Michigan State Univ — Approximately half of the elements heavier than iron are thought to be produced in the r process. Recent insights into the astrophysical site of this critical process highlight the need for experimental data on short-lived neutron-rich nuclei. R-process nucleosynthesis sensitivity studies show that the final abundance distributions of r-process nuclei are greatly impacted by β-decay properties, such as half-lives and β-delayed neutron-emission probabilities. To inform the global models used to calculate these properties in calculations, we have measured the β-decay strengths for several neutron-rich Co isotopes using the technique of total absorption spectroscopy with the Summing NaI (SuN) detector at the NSCL. The resultant β-decay intensities and deduced Gamow-Teller strengths are compared to QRPA calculations. Results for ^{66,68}Co decay will be presented along with a look at the systematics for this region.

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