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Beta-delayed neutron emission of $^{70,71,72}\text{Co}$

Beta-decay strength measurements are required to constrain the nuclear models, which aim to predict nuclear lifetimes and decay branching ratios. Recently, this became an important research topic, especially for neutron-rich nuclei, relevant to the r-process. We studied beta delayed neutron emission of neutron-rich cobalt isotopes to ($Z=28$) nickel nuclei to complete the strength distribution measurements which previously used gamma-ray spectroscopy methods. The neutron emission was investigated with the VANDLE neutron time of flight detector array at NSCL. Neutron energy spectra and emission probabilities were obtained, and beta-n-gamma coincidences where they could be determined. The obtained beta-delayed neutron emission for the decays of the nuclei $\text{Co-}^{70,71,72}$ are interpreted using a newly developed framework that combines shell-model and statistical-model calculations.

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Primary authors: SIEGL, Kevin (University of Tennessee, Knoxville); Mr KEELER, Andrew (University of Tennessee); PAULAUSKAS, S. V. (University of Tennessee); Mr KING, T. T. (Oakridge National Laboratory); Dr XU, Zhengyu (University of Tennessee); Dr GRZYWACZ, Robert K. (University of Tennessee, USA)

Co-authors: Mr TAYLOR, S.Z. (University of Tennessee); Dr ZACHARY, Christopher J. (Vanderbilt University); Dr CRIDER, B. (NSCL, Michigan State Univ); BREWER, N. T. (U. Tennessee); Dr GO, S. (University of Tennessee); MADURGA, M. (University of Tennessee); Dr WANG, Enhong (Vanderbilt University); Dr FIJAŁKOWSKA, Aleksandra (University of Warsaw); Dr LIDDICK, Sean (Michigan State University (MSU)); RAJABALI, Mustafa (Tennessee Technological University); Dr HAMILTON, Joseph H. (Vanderbilt University); Dr O'MALLEY, P.D. (University of Notre Dame); Dr HALL, Matthew (ORNL); ILYUSHKIN, S. (Mississippi State University)

Presenter: SIEGL, Kevin (University of Tennessee, Knoxville)

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