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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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