

Abstract Submitted
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Beta-Delayed Neutron Spectroscopy of ^{72}Co with VANDLE¹ ANDREW KEELER, ROBERT GRZYWACZ, THOMAS KING, STEVEN TAYLOR, STANLEY PAULAUSKAS, University of Tennessee, Knoxville, CHRISTOPHER ZACHARY, Vanderbilt University, VANDLE COLLABORATION — Measurements of simple, closed-shell isotopes far from stability provide important benchmarks for nuclear models and are a key constraint in r-process calculations. In particular, r-process models are sensitive to beta decay lifetimes and branching ratios of these neutron-rich isotopes. In this experiment, the Versatile Array of Neutron Detectors at Low Energy (VANDLE) was used to observe decays of nuclei produced by the fragmentation of ^{82}Se at the National Superconducting Cyclotron Laboratory (NSCL). The neutron and gamma emissions of ^{72}Co were measured to map the beta strength distribution (S_{β}) above the neutron separation energy and infer the size of the $Z=28$ shell gap in the ^{78}Ni region. An implantation detector made of a radiation-hardened, inorganic scintillator was used to correlate implanted ions with beta decays as well as provide a start signal for the neutron Time of Flight measurement.

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