

Abstract Submitted
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Beta-delayed neutron spectroscopy of the N=53 ^{84}Ga isotope with VANDLE MIGUEL MADURGA, ROBERT GRZYWACZ, STAN PAULAUSKAS, University of Tennessee, WILLIAM PETERS, Oak Ridge Associated Universities, DAN BARDAYAN, Oak Ridge National Laboratory, JEFF BLACKMON, Louisiana State University, JOLIE CIZEWSKI, Rutgers, FRED SARAZIN, Colorado School of Mines, VANDLE COLLABORATION — The advent of a new generation of radioactive ion beam facilities opens the study to experimentalists of neutron rich nuclei only found in stellar explosive nucleosynthesis. Interestingly, their decay properties are dominated by the large proton-neutron imbalances, giving rise to phenomena not seen close to stability. Theoretical calculations predict that in some cases the decay of deep core neutrons, the so-called Pigmy resonance, will dominate the decay strength. The Versatile Array of Neutron Detectors at Low Energy was developed at Oak Ridge National Laboratory/University of Tennessee as a high efficiency and low threshold neutron time-of-flight energy detector for β -decay studies. The beta-delayed neutron emission of thirty nuclei around doubly magic ^{78}Ni and ^{132}Sn was studied at the Holifield Radioactive Ion Beam Facility (ORNL). We will present preliminary results of the study of the ^{84}Ga delayed neutron emission. A clear signature of the predicted Pigmy resonance was observed in the neutron spectrum at large excitation energy of 2 MeV. This work was supported by the NNSA through DOE Cooperative Agreement DE-FG52-08NA28552.

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