Abstract Submitted
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**Preparation for MoNA/LISA VANDLE $^{56}$Ni$(d,n)$ Experiment at the NSCL**[1] Z.J. BERGSTROM, R.L. KOZUB, TTU, W.A. PETERS, ORAU, J. A. CIZEWSKI, M.E. HOWARD, Rutgers, D.W. BARDAYAN, ORNL, R. IKEYAMA, UW-La Crosse, S.V. PAULAUSKAS, M. MADURGA, R. GRZYWACZ, UTK, P.A. DEYOUNG, Hope College, T. BAUMANN, J. SMITH, M. THOENNESSEN, MSU/NSCL — The rp-process is the explosive nucleosynthesis process in novae by which ions rapidly capture hydrogen nuclei, forming heavy, proton-rich nuclei. Most of the rp-process reactions are believed to pass through the $^{56}$Ni$(p,\gamma)^{57}$Cu reaction which cannot presently be measured directly. An experiment to be performed at the NSCL employs the method of $(d,n)$ proton transfer reactions in inverse kinematics to determine pertinent properties of this reaction via $^{56}$Ni$(d,n)^{57}$Cu at 30 MeV/nucleon. The experiment will be carried out using two neutron detector arrays of plastic scintillator bars. The Versatile Array of Neutron Detectors at Low Energy (VANDLE) is able to detect neutrons in the 100 keV to 20 MeV range; however, when used in conjunction with MONA/LISA and the Sweeper detectors at the NSCL, the combined arrays allow for the detection of a wider range of neutron energies. Recently, the trigger logic was tested for the VANDLE-Sweeper coincidences and for the left-right coincidence trigger for MoNA/LISA. Results from these tests will be presented along with details of the approved $(d,n)$ experimental setup.

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