Abstract Submitted
for the DNP13 Meeting of
The American Physical Society

Converting VANDLE Data into ROOT for Merging with other Systems Z.J. BERGSTROM, R.L. KOZUB, Tennessee Technological University, W.A. PETERS, JIHIR and ORNL, R. IKEYAMA, UW-LaCrosse, S.V. PAULAUSKAS, S. AHN, UT-Knoxville, RIBENS COLLABORATION, MONA/LISA COLLABORATION, VANDLE COLLABORATION — During the rp-process in novae, nuclei rapidly capture protons to form heavier, proton-rich isotopes. Most of the rp-process reactions are believed to pass through the ^{56}Ni$(p,\gamma)^{57}$Cu(1106 keV) reaction which cannot be measured directly. In an experiment performed at the National Superconducting Cyclotron Laboratory (NSCL), the (d,n) proton transfer reaction in inverse kinematics at 35 MeV/nucleon was employed, primarily to determine the single particle strength of the 1106-keV $(1/2^-)$ level. In addition to their astrophysical significance, the measurements provide data for shell model calculations near doubly magic ^{56}Ni. Two arrays of plastic scintillators, VANDLE and MoNA/LISA, were coupled in order to detect a wide range of neutron energies via the time-of-flight technique. Charged particle detectors placed in the focal plane of the NSCL Sweeper System were used to identify coincident ^{57}Cu recoils, reducing random background events. VANDLE data from the experiment are being converted into ROOT trees so they can be merged with the charged particle data for analysis. Preliminary results and details of the (d,n) experimental setup will be presented. Research supported by the US DOE and NSF.

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Date submitted: 31 Jul 2013 Electronic form version 1.4