

Abstract Submitted  
for the DNP10 Meeting of  
The American Physical Society

**Characterization and Efficiency of the Versatile Array of Neutron Detectors at Low Energy (VANDLE)**<sup>1</sup> WILLIAM PETERS, C. MATEI, I. SPASSOVA, ORAU, D.W. BARDAYAN, ORNL, J.C. BLACKMON, LSU, J.A. CIZEWSKI, P.D. O'MALLEY, B. MANNING, E. MERINO, Rutgers, T. MASSEY, C. BRUNE, Ohio U., R.K. GRZYWACZ, M. MADUGA, S. PAULAUSKAS, U. Tenn., F. SARAZIN, F. RAIOLA, D. WALTER, Col. Sch. Mines — The Versatile Array of Neutron Detectors at Low Energy (VANDLE) is a new array of plastic scintillator bars being developed at the Holifield Radioactive Ion Beam Facility (HRIBF) at Oak Ridge National Laboratory (ORNL). The modular design enables optimization of different configurations for particular experiments, such as (d,n) and beta-delayed neutron-decay experiments, with rare ion beams. Twenty prototype modules, of two different sizes, have been put together and characterized for dynamic range and scintillator attenuation. Proof-of-principle experiments have been performed for both beta-delayed neutron-decay and (d,n) reactions. In addition, we plan to measure the absolute efficiency of a few modules using a calibrated <sup>27</sup>Al(d,n) reaction at the Edwards Accelerator Laboratory at Ohio University. We also have access to a sealed <sup>252</sup>Cf source to measure relative efficiencies and for use with experiment setup design. Results from the characterization and efficiency tests of the modules and preliminary results from the proof-of-principle experiments will be presented.

<sup>1</sup>This work is support by the US Department of Energy and the National Science Foundation.

William Peters  
ORAU

Date submitted: 01 Jul 2010

Electronic form version 1.4