

Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

Geant4 simulations for the Versatile Array of Neutron Detectors at Low Energies (VANDLE) F. RAIOLA, F. SARAZIN, Colorado School of Mines, D.W. BARDAYAN, Oak Ridge National Laboratory, J.C. BLACKMON, Louisiana State University, J.A. CIZEWSKI, Rutgers University, R.K. GRZYWACZ, M. MADURGA, University of Tennessee, P. O'MALLEY, Rutgers University, C. MATEI, Oak Ridge Associated Universities, S. PALAUSKAS, University of Tennessee, W.A. PETERS, Rutgers University, B.C. RASCO, Oak Ridge Associated Universities — The Versatile Array of Neutron Detectors at Low Energies (VANDLE) (E_n *circa* 100keV - 10 MeV) has been proposed to study the structure of exotic nuclei with low-energy radioactive ion beams from the Holifield Radioactive Ion Beam Facility (HRIBF) at the Oak Ridge National Laboratory (ORNL). The VANDLE array is highly modular based on bars of scintillator allowing the configuration of the individual elements to be optimized for particular experimental requirements. Proposed experiments include (d,n) reactions and beta-delayed neutron emission studies relevant to nuclear astrophysics. Simulations performed using the GEANT4 toolkit are in progress in order to achieve the best configuration: to cover a large solid angle, to have an optimal position resolution and high efficiency. The GEANT4 simulations are presently being compared with neutron efficiency data obtained at the Edwards Accelerator Laboratory at Ohio University, as well as with cosmic-ray data acquired at Louisiana State University. This work is supported in part by the U.S. Department of Energy.

F. Raiola
Department of Physics, Colorado School of Mines

Date submitted: 06 Jul 2009

Electronic form version 1.4