

Abstract Submitted  
for the DNP07 Meeting of  
The American Physical Society

**Determining Neutron Multiplicity in MoNA** J. GILLETTE, M. GARDNER, A. REED, W.F. ROGERS, Westmont College, S. MOSBY, NSCL, Michigan State University, MONA COLLABORATION — The Modular Neutron Array, located at the NSCL at Michigan State University, is used in conjunction with the MSU/FSU Sweeper Magnet to study the breakup of neutron-rich nuclei. Fragmentation reactions create particle-unstable nuclei near the neutron dripline which spontaneously breakup by the decay of one or two neutrons with energies that reflect the nuclear structure of unbound excited and ground states. The neutrons continue forward into MoNA where their position and time are recorded, and the charged fragments' position and energy are measured by the array of detectors following the Sweeper Magnet. The neutron decay energies can then be determined using kinematic reconstruction of the breakup. It is important to distinguish between one- and two-neutron decays in MoNA. We have therefore developed an algorithm that helps determine neutron multiplicity, based on energy and momentum conservation restrictions for single neutrons scattering multiple times in MoNA. Results of this approach to the analysis of  $^{12}\text{Be}$  and  $^{11}\text{Be}$  decay will be presented.

Warren F. Rogers  
Westmont College

Date submitted: 03 Aug 2007

Electronic form version 1.4