

Abstract Submitted
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Investigation of Neutron Scattering in the Modular Neutron Array (MoNA) MICHAEL GARDNER, WARREN F. ROGERS, Westmont College, MONA COLLABORATION — The MoNA Collaboration consists of scientists from several primarily undergraduate institutions and from MSU and FSU that investigate the properties of light neutron-rich nuclei in the vicinity of the neutron dripline. The MoNA array consists of 144 organic scintillator detectors stacked in 9 columns of 16 detectors each, used to determine the energy and trajectory of neutrons resulting from nuclear breakup reactions. When MoNA is used in conjunction with the Sweeper magnet kinematic reconstruction of the breakup is made possible. We are currently developing algorithms to enable MoNA to discriminate neutron multiplicity resulting from breakup. This process is significantly complicated by elastic and inelastic neutron scattering from carbon nuclei in the scintillator, which not only changes the neutron trajectories predominantly below the energy threshold of the detectors, but can also produce additional neutrons. By investigating the relative time and distance between multiplicity-two neutron events occurring in the first two layers of the array, we have been able to obtain slightly different signatures for data sets involving one- and two-neutron decays. Results will be presented.

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