

Abstract Submitted  
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**Precise timing calibration for MoNA and LISA detectors**<sup>1</sup> SIERRA GARRETT, ALYSON BARKER, NATHANIEL TAYLOR, WARREN F. ROGERS, Westmont College, MONA COLLABORATION — The Modular Neutron Array (MoNA) and the Large multi-Institutional Scintillator Array (LISA), working in conjunction with the Sweeper Magnet and Detector Chamber at the NSCL, MSU, are used to determine the properties of neutron-unbound ground and excited states of neutron-rich nuclei. In order to determine the decay energy, precise energy and trajectory for both the charged fragment and the neutron need to be determined. This requires very precise time calibration for each of the 288 scintillator detectors in the two neutron arrays. Initial timing calibrations for all bars in a vertical layer are achieved using muons passing through all 16 detectors, taking into account the muon transit time from bar to bar. Vertical layers are then “tied” to one another using the arrival times of gamma rays originating from the target during production runs. In the LISA commissioning experiment, prompt gamma rays from the contaminant beam  $^{29}\text{Na}$  were used instead of those from the  $^{26}\text{F}$  production beam since they constituted 98% of the beam intensity (compared with the  $^{26}\text{F}$  production beam). Results for the LISA commissioning experiment will be presented.

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