Abstract Submitted
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Isotope Separation and Decay Energy Calculation for LISA Commissioning Experiment[1] NATHANIEL TAYLOR, ALYSON BARKER, SIERRA GARRETT, WARREN F. ROGERS, Westmont College, MONA COLLABORATION — The commissioning experiment for the Large multi-Institutional Scintillator Array (LISA) was designed to investigate properties of neutron-unstable excited states of the ^{24}O. The array is located at the NSCL, MSU and is used in conjunction with the Modular Neutron Array (MoNA) and the Sweeper Magnet. Oxygen fragments produced by the ^{26}F secondary beam incident on a Be target are directed through the Sweeper Chamber which includes two tracking CRDC detectors, an ion chamber, and a thin and thick scintillator. Plotting the fragment's trajectory position vs. angle vs. time of flight allows for separation of the individual $^{22,23,and\,24}$O isotopes, necessary for the calculation of the decay properties of individual states. Anomalous features in the fragments' emittance distribution, believed to result from little understood issues with the tracking detectors, required that we adopt a slightly different approach than that developed recently by the collaboration. Once the isotopes are successfully separated, decay energies are calculated by applying mass-invariant decay spectroscopy by associating the fragment's precise trajectory (determined by inverse-tracking through the Sweeper Magnet) and energy with those of the emitted neutron.

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