Abstract Submitted
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Identification of Multinucleon Transfer Products with Short-Lived Daughter Nuclei[1] A. HOOD, J. GAUTHIER, K. HAGEL, A. JEDELE, Y.-W. LUI, A. MCINTOSH, L. MCINTOSH, Z. TOBIN, R. WADA, A. WAKHLE, S. YENNELLO, Cyclotron Institute, Texas AM University, College Station, TX 77840 — Multinucleon transfer (MNT) reactions may offer a way to produce new neutron-rich isotopes of known and yet-to-be discovered elements in the heavy and super-heavy mass regimes. Despite decades of study, many open questions remain about MNT reactions. For example, the mechanisms of multinucleon transfers in low-energy collisions of very heavy ions are not well understood. Experimental data are imperative to verify and refine theoretical models. We have used an active catcher array, developed at Texas A&M University [1], to study short-lived MNT products of the reaction ^{208}Pb + ^{208}Pb with a pulsed beam. While the beam is on, the products are implanted in scintillators coupled to photomultiplier tubes. When the beam is off, subsequent α-decays are detected and 2μs-long waveforms are recorded using digitizers. To identify specific MNT products, we performed a search of single digitized waveforms for correlated α-decays of parent and daughter nuclei, where the daughter has a short half-life ($t_{1/2} < 0.4\mu$s). The preliminary results of this analysis will be discussed. [1] Wuenschel, S., et al., PRC 90, 011601 (2014).

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