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Analysis of an Experiment on Neutron-rich Isotopes S. ASH, M. WARREN, N. FRANK, Augustana College, G. CHRISTIAN, A. GADE, A. SPYROU, M. THOENNESSEN, NSCL/MSU, T. BAUMANN, G.F. GRINYER, D. WEISSHAAR, NSCL, P.A. DEYOUNG, Hope College, MONA COLLABORATION
— The structure of neutron-rich nuclei far from stability is of particular interest in evaluating theoretical models of the nucleus. Recently the neutron-unbound nucleus of ^{28}F was produced via one-proton stripping from a ^{29}Ne beam at the National Superconducting Cyclotron Laboratory at Michigan State University; this nucleus is one neutron away from the magic number N=20. In addition to ^{28}F, other isotopes were produced from secondary fragmentation of ^{32}Mg, the primary beam contaminant. Since ^{28}F is neutron-unbound in its ground state, it immediately decays in to a neutron and ^{27}F. The CAESAR CsI array surrounded the ^{9}Be reaction target to measure gamma-rays emitted from ^{27}F in a bound excited state. The outgoing charged particle and decay neutron were measured in coincidence. The neutrons were detected by the MoNA, and the charged fragments were swept by a magnet into a series of charged particle detectors. The analysis requires separation and identification of both charged particles and neutrons. The isotope identification for charged particles is obtained from time-of-flight measurements after correction up to the fourth order for dispersive angle and position after the magnet. This isotope separation technique and current analysis status will be presented.

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