

Abstract Submitted  
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**Spectroscopy of neutron-unbound fluorine isotopes** G. CHRISTIAN, NSCL/MSU, N. FRANK, S. ASH, M. WARREN, Augustana College, A. GADE, A. SPYROU, M. THOENNESSEN, NSCL/MSU, T. BAUMANN, G.F. GRINYER, D. WEISSHAAR, NSCL, P.A. DEYOUNG, Hope College, MONA COLLABORATION — Knockout reactions from a beam of  $^{29}\text{Ne}$  at  $\sim 60$  MeV/u were used to populate the neutron-unbound ground state of  $^{28}\text{F}$ , as well as unbound excited states in other neutron-rich Fluorine isotopes. These unbound excited states decay through the emission of one or more neutrons, which were detected near zero degrees in the MoNA plastic scintillator array. The remaining charged fragments were deflected by the Sweeper dipole magnet, and their kinematic properties were measured in detectors behind the magnet. The decay energy was then calculated from the measured energies and angles of the neutrons and the fragments. In addition, coincident gamma-rays were measured at the target location using the recently commissioned CAESAR CsI array. The gamma-ray tagging was used to determine whether the neutron decayed to the ground state or an excited state of the daughter nucleus. Preliminary results of the analysis, including neutron decay energy spectra, will be presented.

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