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β-Delayed Gamma Spectroscopy of Neutron-Rich Mg Isotopes in and around the Island of Inversion[1] ANDREA RICHARD, Ohio University, HEATHER CRAWFORD, Lawrence Berkeley National Laboratory, NSCL E14063 COLLABORATION — The question of the immutability of "magic numbers" and structure of exotic nuclei near to shell closures has long been an area of interest. The neutron-rich Mg isotopes around N=20 and N=28 are examples of regions where the expected spherical shell gaps have narrowed or have disappeared entirely. The "Island of Inversion," centered around ^{32}Mg, is a region where a narrowed N=20 shell gap and collective *np-nh* excitations result in nuclei with deformed ground states. The N=28 region also exhibits a narrowed shell gap and large deformation. The nature of the Mg nuclei between these two shell closures, however, has only recently been studied. Accessing nuclei between N=20 and N=28 provides information about the evolution of single particle states, and the evolution of structure with the addition of neutrons can be indirectly probed. An experiment was performed in March 2015 at the NSCL to study the β-decay of neutron-rich Na, Mg, Al, and Si isotopes between N=20 and N=28. The details of the experiment and preliminary level schemes will be discussed along with the implications for the nuclear structure.

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