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**Pursuing the most neutron-rich nuclei, status and prospects<sup>1</sup>**

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The production of the most neutron-rich nuclei by the fragmentation of  $^{48}\text{Ca}$  and  $^{76}\text{Ge}$  beams at Michigan State will be presented. The cross sections were measured for a large range of nuclei including fifteen new isotopes that are the most neutron-rich nuclides of magnesium, aluminum, silicon, and the elements from chlorine to manganese. The observation of  $^{42}\text{Al}$  was itself surprising. The cross sections of several new nuclei were found to be enhanced relative to a simple thermal evaporation framework, previously shown to describe similar production cross sections. This may be an indication that precursor excited nuclei in the region around  $^{62}\text{Ti}$  that decay to the observed nuclei are more stable than predicted by current mass models and may be evidence for a new island of inversion similar to that centered on  $^{31}\text{Na}$ . The next generation radioactive beam facility, FRIB, for the United States will be constructed at Michigan State University. A brief overview of the proposed facility and the prospective for future studies of the most neutron-rich nuclei will be presented.

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