

Abstract Submitted
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Observation of new neutron-rich Mg, Al, and Si isotopes¹ T. BAUMANN, A.M. AMTHOR, D. BAZIN, C.M. FOLDEN III, A. GADE, T.N. GINTER, M. HAUSMANN, M. MATOS, D.J. MORRISSEY, A. NETTLETON, M. PORTILLO, A. SCHILLER², B.M. SHERRILL, A. STOLZ, O.B. TARASOV, M. THOENNESSEN, Michigan State University, East Lansing, MI 48824-1321 — We report on the first observation of the neutron-rich isotopes ^{40}Mg , $^{42,43}\text{Al}$, and ^{44}Si . The rare isotopes were produced by fragmentation of ^{48}Ca at 142 MeV/u at NSCL using tungsten targets, and subsequently separated in the A1900 fragment separator. For the discovery of ^{40}Mg and $^{42,43}\text{Al}$, the A1900 was used in combination with the S800 analysis beam line, resulting in an exceptional selectivity. The comparison of the observed isotopes—especially the odd-odd ^{42}Al —to established theoretical model calculations suggests that the drip line lies further out to heavier isotopes, at least for aluminum and silicon.

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