Abstract Submitted
for the DNP06 Meeting of
The American Physical Society

Studying the Transition to the Island of Inversion E. RODRIGUEZ-VIEITEZ, P. FALLON, R.M. CLARK, M. CROMAZ, M.A. DELEPLANQUE, I.Y. LEE, A.O. MACCHIAVELLI, F.S. STEPHENS, M. WIEDEKING, LBNL, Berkeley, CA 94720, S.G. PRUSSIN, UC Berkeley, CA 94720, D. BAZIN, C.M. CAMPBELL, J.M. COOK, D.-C. DINCA, A. GADE, T. GLASMACHER, W.F. MUELLER, K. YONEDA, NSCL, Michigan State University, East Lansing, MI 48824 — The existence of deformed (2p2h) intruder ground states in A$\sim$30 N$\sim$20 nuclei ("island of inversion") signals a modification of conventional shell structure in neutron-rich nuclei. While intruder ground states have been identified in e.g. ^{30}Ne and ^{31}Na, questions remain as to where the normal-to-deformed transition occurs and the nature of their collectivity: data on excited states will help answer these questions. An experiment was conducted at MSU to study N$\sim$20 Ne and Na nuclei. A 140 MeV/A ^{48}Ca primary beam produced secondary-beam "cocktails" (^{29}Na/^{30}Mg/^{32}Al, ^{32}Mg/^{33}Al/^{35}Si) which underwent secondary reactions to produce Ne and Na; γ-ray decays were detected by the segmented Ge array, SeGA, and $\gamma-\gamma$ coincidences were critical to establish a correct level scheme in e.g. ^{28}Ne. The data provide information on the transition to the island of inversion and a test of recent shell-model calculations.

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Date submitted: 30 Jun 2006 Electronic form version 1.4