Abstract Submitted
for the DNP19 Meeting of
The American Physical Society

Probing large collectivity ^{32}Mg with a recoil-distance lifetime measurement ROBERT ELDER, H. IWASAKI, J. ASH, National Superconducting Cyclotron Laboratory, MSU, D. BAZIN, National Superconducting Cyclotron Laboratory, P. C. BENDER, University of Massachusetts, Lowell, T. BRAUNROTH, Universitt zu Kln, B. A. BROWN, National Superconducting Cyclotron Laboratory, MSU, C. CAMPBELL, H. CRAWFORD, Lawrence Berkeley National Laboratory, B. ELMAN, A. GADE, M. GRINDER, National Superconducting Cyclotron Laboratory, MSU, N. KOBAYASHI, Research Center for Nuclear Astrophysics, B. LONGFELLOW, National Superconducting Cyclotron Laboratory, MSU, A. O. MACCHIAVELLI, Lawrence Berkeley National Laboratory, T. MIJATOVIC, Ruder Boskovic Institute, J. PEREIRA, A. REVEL, National Superconducting Cyclotron Laboratory, D. RHODES, National Superconducting Cyclotron Laboratory, MSU, J. TOSTEVIN, University of Surrey, D. WEISSHAAR, National Superconducting Cyclotron Laboratory — The ^{32}Mg isotope lies within the $N = 20$ island of inversion where intruder configurations drive collective phenomena. However, there is limited information on the $B(E2)$ values in ^{32}Mg which are key quantities to understand quadrupole collectivity and the role of intruder configuration mixing. To determine model-independent $B(E2)$ values, lifetime measurements of excited states are crucial. In ^{32}Mg the prompt 2_1^+ and 4_1^+ states are expected to have lifetimes on the order of 1 to 10 ps, which is the typical range for well-established methods such as RDM and DSAM. The experiment was performed at the NSCL using the TRIPLEX, GRETINA, and S800 devices, enabling sensitive measurements of the lifetimes of these states. The results will be presented in the context of collective models in the island of inversion.

R. Elder
Michigan State Univ

Date submitted: 28 Jun 2019 Electronic form version 1.4