Abstract Submitted
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Collectivity of Neutron-rich Silicon Isotopes[1] A. RATKIEWICZ, A. GADE, T. GLASMACHER, T. BAUGHER, D. BAZIN, S. BARTHELEMY, A. BROWN, C. CAMPBELL, G. GRINYER, S. MCDANIEL, R. MEHARCHAND, K. MEIERBACHTOL, A. SIGNORACCI, A. SPYROU, R. STROBERG, P. VOSS, K. WALSH, D. WEISSHAAR, R. WINKLER, NSCL, P. COTTLE, K. KEMPER, FSU, A. URIBARRI, ORNL, D. MILLER, UTK, E. RODAL, UNAM, Y. UTSUNO, JAEA — The determination of the electric quadrupole transition strength between the ground state and first excited state with spin-party of $J^{\pi}=2^{+}$ (the B(E2) value) in an even-even nucleus provides a measurement of the low-lying quadrupole collectivity. The B(E2) values for ^{34,36,38,40,42}Si were measured via relativistic Coulomb excitation at NSCL. The secondary beams were produced by the fragmentation of ^{48}Ca primary beam and guided onto a high-Z target. De-excitation gamma rays indicating the inelastic process were detected at the target with the scintillator array CAESAR in coincidence with scattered projectiles tracked on an event-by-event basis in the S800 spectrograph. The results comprise the first measurements of the quadrupole collectivity of ^{40}Si and ^{42}Si. The measured B(E2) values are compared to large-scale shell model calculations and provide insight into the evolution of shell structure and deformation in this region.

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A. Ratkiewicz
NSCL

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