Abstract Submitted
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Collectivity of Exotic Silicon Isotopes A. RATKIEWICZ, A. GADE, T. GLASMACHER, D. WEISSHAAR, G. GRINYER, D. BAZIN, T. BAUGHER, S. BARLTHELEMY, B.A. BROWN, C. CAMPBELL, S. MCDANIEL, K. MEIER-BACHTOL, R. MEHARCHAND, A. SIGNORACCI, A. SPYROU, R. STROBERG, P. VOSS, R. WINKLER, NSCL, P. COTTLE, K. KEMPER, FSU, D. MILLER, UTK, A. GALINDO-URIBARRI, ORNL, T. OTSUKA, RIKEN, Y. UTSUNO, JAEA, E. PADILLA-RODAL, ICNM — 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; $0^{+} \rightarrow 2^{+}$) 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 intermediate-energy Coulomb excitation at NSCL. The secondary beams were produced by fragmentation of ^{48}Ca primary beam and guided onto a high-Z target. De-excitation gamma rays indicating the inelastic process were detected around the target position with the high efficiency 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 and probe the persistence of the N=28 magic number. 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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