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Quadrupole deformation of the self-conjugate nucleus 72 Kr¹ A. GADE, National Superconducting Cyclotron Laboratory, Michigan State University, East Lansing, Michigan 48824, D. BAZIN, A. BECERRIL, C.M. CAMPBELL, J.M. COOK, D.-C. DINCA, T. GLASMACHER, G.W. HITT, W.F. MUELLER, H. OLLIVER, J.R. TERRY, K. YONEDA, National Superconducting Cyclotron Laboratory, Michigan State University, East Lansing, Michigan 48824, D.J. DEAN, Physics Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831, M.E. HOWARD, Department of Physics, Ohio State University, Columbus, Ohio 43210 — We report on the first determination of the absolute $B(E2; 0_1^+ \rightarrow 2_1^+)$ excitation strength in the N = Z nucleus ⁷²Kr via intermediate-energy Coulomb excitation performed at the National Superconducting Cyclotron Laboratory at Michigan State University. ⁷²Kr is the heaviest self-conjugate system for which this quantity has been measured. The deduced quadrupole deformation strength is compared to predictions of a variety of self-consistent models predicting shape coexistence. Largescale shell-model Monte Carlo calculations reproduce the experimental B(E2) value and link the result to the gap between the fp and qds major shells and the occupation of the deformation-driving $g_{9/2}$ orbit.

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