

Intermediate-energy Coulomb excitation of $^{58,60,62}\text{Cr}$: The onset of collectivity toward $N = 40$

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Intermediate-energy Coulomb excitation measurements were performed on the neutron-rich chromium isotopes $^{58,60,62}\text{Cr}$. The electric quadrupole excitation strengths, $B(E2 \uparrow) = B(E2; 0_{\text{gs}}^+ \rightarrow 2_1^+)$, of $^{60,62}\text{Cr}$ were determined for the first time. The results quantify the trend of increasing quadrupole collectivity in the Cr isotopes approaching neutron number $N = 40$. The results are confronted with large-scale shell-model calculations in the *fpgd* shell using the state-of-the-art LNPS effective interaction. Different sets of effective charges are proposed that provides an improved and robust description of the $B(E2 \uparrow)$ values of the neutron-rich Fe and Cr isotopes in this region of rapid shell evolution. The ratio of the neutron and proton transition matrix elements, $|M_n/M_p|$, is proposed as a tool to discriminate between the various choices of effective charges.

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