

Coulomb excitation 2005Bu29

Type	History		Literature Cutoff Date
	Author	Citation	
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2005Bu29 (also **2005Bu14,2005Wo01**): beam=fully striped ^{56}Cr ions at ≈ 136 MeV/nucleon. Target= ^{197}Au . The ^{56}Cr beam produced in $^9\text{Be}(^{86}\text{Kr},\text{X}),\text{E}(^{86}\text{Kr})=480$ MeV/nucleon fragmentation reaction at GSI, followed by separation of Cr isotopes by magnetic rigidity and energy loss (ΔE) using FRS fragment separator at GSI. Nuclei identified with the CATE calorimeter telescope array of nine Si and CsI(Tl) detectors positioned before and after the ^{197}Au target. Measured E_γ , I_γ , (particle) γ -coin, time-of-flight using the RISING array of 15 Ge cluster detectors, the HECTOR array of two BaF_2 scintillation spectrometers and CsI detectors of CATE. Absorbers of Pb were used in front of the detectors to suppress γ rays with $E_\gamma < 500$ keV. Deduced $B(E2)(\text{W.u.})$ for the first 2^+ state was determined from measured Coulomb-excitation cross sections, and relative to the $B(E2)$ value for the first 2^+ state in ^{54}Cr , taken from literature.

[Additional information 1.](#)

 ^{56}Cr Levels

<u>E(level)</u>	<u>J^π</u>	<u>$T_{1/2}$</u>	<u>Comments</u>
0.0	0^+		
1006.6 2	2^+	5.0 ps +26-13	$B(E2)\uparrow=0.055$ 19 E(level): from the Adopted Levels. $B(E2)\uparrow, T_{1/2}$: deduced by evaluator from measured $B(E2)(\text{W.u.})=8.7$ 30 (2005Bu29).

 $\gamma(^{56}\text{Cr})$

<u>E_γ</u>	<u>$E_i(\text{level})$</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Comments</u>
1006.6 2	1006.6	2^+	0.0	0^+	$B(E2)(\text{W.u.})=8.7$ 30 (2005Bu29) E_γ : from the Adopted Gammas. Measured $B(E2)(\text{W.u.})$ in 2005Bu29 given relative to known corresponding value for the first 2^+ state in ^{54}Cr , taken from literature. Authors made systematic comparison of measured $B(E2)(\text{W.u.})$ values for the first 2^+ states in $^{48,50,52,54,56,58}\text{Cr}$ isotopes, and showed that the collectivity of the first 2^+ state in ^{56}Cr was much lower than that of neighbouring even-even Cr isotopes, appearing similar to that for ^{52}Cr with the N=28 subshell closure. Small $B(E2)(\text{W.u.})$ and high excitation energy of this level indicated closure of N=32 subshell in ^{56}Cr .

Coulomb excitation 2005Bu29Level Scheme