Coulomb excitation   1976Pa10,1984Dr05

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, Alexander A. Rodionov And Yuri L. Khazov	NDS 109, 517 (2008)	22-Jan-2008

1976Pa10: $(\alpha,\alpha'\gamma)$ E=8,10 MeV.
1984Dr05: $(\alpha,\alpha'\gamma)$ E=9.6-12.2; $(^{14}N,^{14}N'\gamma)$ E=40 MeV; $(^{16}O,^{16}O\gamma)$ E=35-45 min.
Others: 1958Fa01, 1963Al30, 1966Ga23, 1971RoZI $(\gamma(\theta,H))$.
Additional information 1.

^{135}Ba Levels

E(level)	$J^{\pi \dagger}$	$T_{1/2}^{\ddagger}$	Comments
0.0	3/2$^+$		
221.1	1/2$^+$	0.64 ns 27	B(E2)↑=0.0095 4
			B(E2): average of 0.0094 5 (1976Pa10) and 0.0096 7 (1984Dr05).
480.6	5/2$^+$	13 ps 2	B(E2)↑=0.176 6
			g=0.00 15 (1971RoZI)
			B(E2): average of 0.178 9 (1976Pa10) and 0.174 8 (1984Dr05).
587.7	3/2$^+$		B(E2)↑=0.074 4
			B(E2): average of 0.077 4 (1976Pa10) and 0.069 6 (1984Dr05).
855.1	3/2$^+$		B(E2)↑=0.029 4
			B(E2): from 1984Dr05. Other:≤0.004 (1976Pa10).
874.5	7/2$^+$	1.32 ps 5	B(E2)↑=0.163 6
			B(E2): average of 0.164 8 (1976Pa10) and 0.162 8 (1984Dr05).
909.0	1/2$^+$		B(E2)↑=0.024 2
			B(E2): average of 0.026 2 (1976Pa10) and 0.022 3 (1984Dr05).
980.0	3/2$^+$,5/2$^+$		B(E2)↑≤0.003
1130?			B(E2)↑=0.099 (1963Al30)
			E(level): observed by 1963Al30 only.

† From 'Adopted Levels'.
‡ From B(E2) with adopted branching, δ, and α.

$\gamma(^{135}$Ba)

E_i(level)	J_i^{π}	$E_{\gamma}^{\dagger}$	$I_{\gamma}^{\ddagger}$	E_f	J_f^{π}	Mult.$^{\#}$	$\delta^{\#}$	$\alpha^{@}$	Comments
221.1	1/2$^+$	221.0	100	0.0	3/2$^+$	M1+E2	0.38 8	0.1109 17	α(K)=0.0940 14; α(L)=0.0134 5; α(M)=0.00278 10; α(N+..)=0.000694 23
									α(N)=0.000598 21; α(O)=9.0×10^{-5} 3; α(P)=6.02×10^{-6} 10
									δ: from adopted gammas.
									A$_2$=+0.006 11, A$_4$=−0.018 12 (1984Dr05).
480.6	5/2$^+$	480.5	100	0.0	3/2$^+$	M1+E2	+1.6 +5−4	0.0120 5	α(K)=0.0102 5; α(L)=0.00146 4; α(M)=0.000304 7; α(N+..)=7.55×10^{-5} 18
									α(N)=6.51×10^{-5} 15; α(O)=9.7×10^{-6} 3; α(P)=6.3×10^{-7} 4
									A$_2$=0.096 1, A$_4$=−0.003 2 (1984Dr05) gives δ=+1.7 +13−10.
									δ: from adopted gammas.
587.7	3/2$^+$	366.2	21.5 5	221.1	1/2$^+$	M1(+E2)	<0.5	0.0285 6	α(K)=0.0244 6; α(L)=0.00324 5; α(M)=0.000669 11;

Coulomb excitation   1976Pa10,1984Dr05 (continued)

$\gamma(^{135}$Ba) (continued)

E$_i$(level)	J$_i^\pi$	E$_\gamma^\dagger$	I$_\gamma^\ddagger$	E$_f$	J$_f^\pi$	Mult.[#]	δ[#]	α[@]	Comments
									α(N+..)=0.0001676 24
									α(N)=0.0001441 21; α(O)=2.20×10^{-5}
									3; α(P)=1.57×10^{-6} 5
587.7	3/2$^+$	588.0	78.5 5	0.0	3/2$^+$				
855.1	3/2$^+$	267.2	1 1	587.7	3/2$^+$				
		374.4	33 1	480.6	5/2$^+$	M1+E2	−0.43 3	0.0266	α(K)=0.0228 4; α(L)=0.00306 5;
									α(M)=0.000631 9; α(N+..)=0.0001581
									23
									α(N)=0.0001360 19; α(O)=2.07×10^{-5}
									3; α(P)=1.461×10^{-6} 22
		634.2	38 1	221.1	1/2$^+$				
		855.0	28 1	0.0	3/2$^+$				
874.5	7/2$^+$	394.0	2 1	480.6	5/2$^+$				
		874.5	98 1	0.0	3/2$^+$	E2		0.00244	α(K)=0.00209 3; α(L)=0.000279 4;
									α(M)=5.74×10^{-5} 8;
									α(N+..)=1.434×10^{-5} 20
									α(N)=1.234×10^{-5} 18; α(O)=1.87×10^{-6}
									3; α(P)=1.290×10^{-7} 18
									$\gamma(\theta)$: A$_2$=0.164 3, A$_4$=−0.018 9
									(1984Dr05).
909.0	1/2$^+$	909.0	100	0.0	3/2$^+$			0.0027 5	α=0.0027 5; α(K)=0.0023 4;
									α(L)=0.00030 5
980.0	3/2$^+$,5/2$^+$	980.0	100	0.0	3/2$^+$				
1130?		1130	100	0.0	3/2$^+$				

† No uncertainties available.
‡ Relative photon branching from each level (1984Dr05).
[#] From 'adopted gammas'.
[@] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation
   based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

Coulomb excitation   1976Pa10,1984Dr05

<u>Level Scheme</u>

Intensities: % photon branching from each level

$^{135}_{56}$Ba$_{79}$