Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, I. Mitropolsky, A. Rodionov	NDS 107, 2715 (2006)	17-Jul-2006

Q(β^-)=−5.41×10^3 *6*; S(n)=8.36×10^3 *5*; S(p)=5.37×10^3 *5*; Q(α)=6.8×10^2 *4* 2012Wa38
Note: Current evaluation has used the following Q record.
Q(εp)=260 *30* (2003Au03).
Q(β^-)=−5.44×10^3 *6*; S(n)=8360 *40*; S(p)=5380 *40*; Q(α)=680 *40* 2003Au03
In the comments for each rotational band the mean-squared deviation Δ of the energy values calculated with use of Variable Moment of Inertia model from the experimental ones is presented.

^{131}Ce Levels

Cross Reference (XREF) Flags

A ^{131}Pr ε decay (1.51 min)
B ^{131}Pr ε decay (5.71 s)
C ^{131}Ce IT decay (88 ns)
D (HI,xnγ)
E (HI,xnγ):superdeformed bands

E(level)[†]	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0[c]	7/2$^+$	10.3 min *3*	AB D	%ε+%β^+=100; %β^+=11 *3* (1966No05) T$_{1/2}$: weighted average of 10.5 min *6* (1966No05), 10.2 min *3* (1983ViZU). Other: ≈8.5 min (1973De25). J$^\pi$: E1 γ from 9/2$^-$ level.
63.09[d] *9*	(1/2$^+$)	5.4 min *4*	A D	%ε+%β^+=100; %IT=? Additional information 1. J$^\pi$: β decay to (1/2$^+$); from decay pattern; theoretical prediction. T$_{1/2}$: weighted average of 5.6 min *5* (1983AkZZ), 5 min *1* (1966No05). Other: ≈5 min (1973De25).
135.91[d] *10*	(3/2$^+$)		A D	J$^\pi$: M1 γ to (1/2$^+$); from decay pattern; systematics.
161.98[b] *5*	9/2$^-$	88 ns *2*	BCD	μ=−0.85 *3*; Q=0.92 *10* μ: from g=−0.189 *7*. T$_{1/2}$: from 1998Io01. Others: 70 ns *6* (1983AkZZ), 80 ns (1977Gi17). μ,Q: from 1998Io01, TDPAD method. J$^\pi$: E1 γ to 7/2$^+$ g.s.; also, J=9/2 from quadrupole interaction measurements, small value and negative sign of g-factor support π=−.
181.5 *3*	(7/2$^-$)[a]		B	
257.08[c] *11*	9/2$^+$		A D	J$^\pi$: (M1,E2) γ to 7/2$^+$ g.s. and band structure.
300.29[b] *10*	11/2$^-$[@]	120 ps *8*	B D	T$_{1/2}$: from 1999Kl11.
329.24 *11*	(5/2$^+$,3/2$^+$)		A	J$^\pi$: M1,E2 γ's to (1/2$^+$) and (3/2$^+$) levels.
342.65 *11*	(3/2$^+$,5/2$^+$)[a]		A	
348.49[d] *11*	(5/2$^+$)[a]		A D	
384.62 *12*	(11/2$^-$)[a]		B	
387.50 *10*	(5/2$^+$,3/2$^+$)		A	J$^\pi$: from M1 γ to (3/2$^+$) and M1,E2 γ to 7/2$^+$ levels.
427.90 *11*	(3/2$^+$,5/2$^+$,7/2$^+$)[a]		A	
470.92 *12*	(1/2$^+$,3/2$^+$,5/2$^+$)		A	J$^\pi$: from E2,M1 γ to (3/2$^+$) level and decay pattern.
474.77[d] *16*	(7/2$^+$)[&]		A D	
543.25[c] *24*	11/2$^+$[@]		A D	
548.5 *3*			B	
576.65 *19*	(1/2$^+$,3/2$^+$,5/2$^+$)[a]		A	
588.6 *4*	(5/2$^-$ to 13/2$^-$)[a]		B	
600.53 *12*	(7/2$^-$ to 13/2$^-$)[a]		B	
609.6 *5*			A	
636.87[b] *15*	13/2$^-$		B D	J$^\pi$: from (M1,E2) and (E2) γ-rays to 11/2$^-$ and 9/2$^-$ levels,

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Adopted Levels, Gammas (continued)

^{131}Ce Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$	XREF	Comments
				correspondingly, also from band structure.
644.74 *23*			A	
648.12 *13*	(5/2+,7/2+)		A	Jπ: M1,E2 γ to (3/2+,5/2+) level.
687.0 *3*			B	
717.70 *22*	(3/2+,5/2+)[a]		A	
739.99 *23*	(3/2+,5/2+)[a]		A	
744.7 *5*			A	
753.25 *18*	(3/2+,5/2+)[a]		A	
762.4 *3*	(3/2+,5/2+,7/2+)[a]		A	
791.68 *15*	(5/2+)[a]		A	
809.6[b] *3*	(15/2−)[@]	5.21 ps *26*	D	$T_{1/2}$: from 1999Kl11.
848.29 *13*	(3/2+,5/2+)[a]		A	
866.58[c] *24*	13/2+[@]	1.0 ps *4*	D	$T_{1/2}$: from 2004Li27.
902.6 *3*			B	
928.72 *15*	(3/2+,5/2+,7/2+)[a]		A	
984.5[d] *5*	(11/2+)[@]		D	
985.7 *4*			B	
1009.7 *4*	(3/2+,5/2+,7/2+)[a]		A	
1116.85 *22*	(3/2,5/2)[a]		A	
1176.6 *4*	(15/2−)		D	Jπ: (M1,E2) γ to (13/2−) level and decay pattern.
1212.5[c] *3*	15/2+[@]		D	
1236.7 *4*			A	
1276.45 *14*	(3/2+,5/2+,7/2+)[a]		A	
1295.1[b] *3*	(17/2−)[@]		D	
1409.4[#] *5*			D	
1451.8[b] *4*	(19/2−)[@]	>2.8 ps	D	$T_{1/2}$: from 2004Li27.
1591.6[c] *4*	(17/2+)[@]	0.91 ps *7*	D	$T_{1/2}$: from 2004Li27.
1608.9[d] *5*	15/2+[@]		D	
1695.9 *6*	(13/2−,17/2−)		D	Jπ: (M1,E2) γ to (15/2−) level and decay pattern.
1805.3 *4*	(19/2−)[a]		D	
1977.0[c] *4*	(19/2+)[@]		D	
2057.35 *17*	(1/2+,3/2+,5/2+)[a]		A	
2067.5[b] *4*	(21/2−)[@]		D	
2202.2[b] *5*	(23/2−)[@]	1.0 ps *4*	D	$T_{1/2}$: from 2004Li27.
2287.2[f] *5*	(17/2+)[a]		D	
2313.1? *10*	(19/2−)[a]		D	
2352.6[f] *4*	(19/2+)[a]		D	
2387.5[‡c] *4*	(21/2+)[@]	0.42 ps *18*	D	$T_{1/2}$: from 2004Li27.
2505.8[f] *4*	(21/2+)[a]		D	
2563.8 *5*	(23/2−)[a]		D	
2685.8[f] *4*	(23/2+)[a]		D	
2762.2[e] *5*	(23/2+)[&]		D	
2910.1[f] *5*	(25/2+)[&]		D	
2912.5[b] *5*	(25/2−)[&]		D	
3029.1[b] *6*	(27/2−)[@]	0.85 ps *16*	D	$T_{1/2}$: from 2004Li27.
3036.4[‡e] *5*	(25/2+)[a]	<1.52 ps	D	$T_{1/2}$: from 2004Li27.
3069.5[‡g] *6*	(25/2−)[&]		D	
3199.0[f] *5*	(27/2+)[&]		D	
3272.9[‡e] *6*	(27/2+)[a]		D	
3287.6[‡g] *5*	(27/2−)[a]		D	

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Adopted Levels, Gammas (continued)

^{131}Ce Levels (continued)

E(level)†	Jπ	$T_{1/2}$	XREF	Comments
3523.0[f] 6	(29/2+)&		D	
3540.2‡[e] 6	(29/2+)[a]		D	
3544.2[g] 6	(29/2−)[a]		D	
3818.0[g] 6	(31/2−)[a]		D	
3841.0[e] 7	(31/2+)&		D	
3894.0[f] 6	(31/2+)&		D	
3921.1[b] 8	(31/2−)@	<0.72 ps	D	$T_{1/2}$: from 2004Li27.
4153.1[g] 7	(33/2−)&		D	
4178.2[e] 7	(33/2+)&		D	
4314.0[f] 7	(33/2+)&		D	
4511.0[g] 7	(35/2−)&		D	
4549.8[e] 7	(35/2+)&		D	
4746.0[f] 7	(35/2+)&		D	
4843.1[b] 9	(35/2−)@		D	
4909.2[g] 7	(37/2−)&		D	
4955.7[e] 8	(37/2+)&		D	
5245.0[f] 8	(37/2+)&		D	
5341.7[g] 8	(39/2−)&		D	
5390.4[e] 8	(39/2+)&		D	
5715.0[f] 9	(39/2+)&		D	
5796.9[g] 8	(41/2−)&		D	
5805.1[b] 11	(39/2−)@		D	
5860.6[e] 9	(41/2+)&		D	
6292.8[g] 8	(43/2−)&		D	
6352.4[e] 10	(43/2+)&		D	
6743.0[f] 10	(43/2+)&		D	
6808.9[g] 10	(45/2−)&		D	
6880.6[e] 10	(45/2+)&		D	
7354.8[g] 10	(47/2−)&		D	
7422.4[e] 11	(47/2+)&		D	
7802.0[f] 11	(47/2+)&		D	
7931.9[g] 11	(49/2−)&		D	
8009.6[e] 11	(49/2+)&		D	
8577.4?[e] 12	(51/2+)&		D	
y[h]	(29/2+)&		E	Additional information 2. Jπ: (29/2+) (2005Pa30). J=17/2 suggested by 1988Lu01 and 21/2 by 1991Pa07, based on feeding of normal states of J=15/2 to 21/2. However, J≈29/2 is more likely from a comparison of experimental angular frequencies with J^{π}'s of normal states and the SD bands of neighboring nuclides.
591.50+y[h] 10	(33/2+)&		E	Additional information 3.
1253.60+y[h] 10	(37/2+)&		E	
1986.90+y[h] 15	(41/2+)&		E	
2791.98+y[h] 18	(45/2+)&		E	
3509.9+y[i] 4	(43/2+)&		E	
3666.88+y[h] 20	(49/2+)&		E	
4305.5+y[i] 4	(47/2+)&		E	

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Adopted Levels, Gammas (continued)

^{131}Ce Levels (continued)

E(level)[†]	Jπ	XREF	E(level)[†]	Jπ	XREF
4610.89+y[h] *23*	(53/2$^+$)[&]	E	14354.6+y[i] *5*	(83/2$^+$)[&]	E
5152.9+y[i] *4*	(51/2$^+$)[&]	E	14791.5+y[h] *4*	(85/2$^+$)[&]	E
5623.39+y[h] *25*	(57/2$^+$)[&]	E	15828.6+y[i] *5*	(87/2$^+$)[&]	E
6061.5+y[i] *4*	(55/2$^+$)[&]	E	16434.8+y[h] *5*	(89/2$^+$)[&]	E
6705.2+y[h] *3*	(61/2$^+$)[&]	E	17382.5+y[i] *5*	(91/2$^+$)[&]	E
7038.2+y[i] *4*	(59/2$^+$)[&]	E	18170.6+y[h] *5*	(93/2$^+$)[&]	E
7858.1+y[h] *3*	(65/2$^+$)[&]	E	19019.1+y[i] *5*	(95/2$^+$)[&]	E
8083.2+y[i] *4*	(63/2$^+$)[&]	E	20001.1+y[h] *6*	(97/2$^+$)[&]	E
9084.8+y[h] *3*	(69/2$^+$)[&]	E	20743+y[i] *3*	(99/2$^+$)[&]	E
9196.3+y[i] *4*	(67/2$^+$)[&]	E	21926.1+y[h] *7*	(101/2$^+$)[&]	E
10379.2+y[i] *4*	(71/2$^+$)[&]	E	22556+y[i] *3*	(103/2$^+$)[&]	E
10388.2+y[h] *4*	(73/2$^+$)[&]	E	23937.1+y[h] *7*	(105/2$^+$)[&]	E
11632.1+y[i] *5*	(75/2$^+$)[&]	E	24461+y[i] *3*	(107/2$^+$)[&]	E
11771.5+y[h] *4*	(77/2$^+$)[&]	E	26045.5+y[i] *8*	(109/2$^+$)[&]	E
12956.5+y[i] *5*	(79/2$^+$)[&]	E	26461+y[i] *3*	(111/2$^+$)[&]	E
13238.1+y[h] *4*	(81/2$^+$)[&]	E	28556+y[i] *3*	(115/2$^+$)[&]	E

[†] From least-squares fit to Eγ's, if ΔEγ not given, ±0.50 keV assumed for least-squares fitting; normalized χ^2=0.75.
[‡] The level also decays to unspecified states.
[#] The level decays to unspecified states.
[@] From (M1+E2) or stretched (E2) γ cascades to bandhead.
[&] From probable band structure.
[a] From decay pattern.
[b] Band(A): Band based on Configuration=(ν $h_{11/2}$) (1991πa07). Q_t=3.1 eb *6* (2004Li27); (Δ=140 keV).
[c] Band(B): Band based on Configuration=(ν $g_{7/2}$) (1991πa07). Q_t=4.6 eb *15* (2004Li27); (Δ=4 keV).
[d] Band(C): Band based on configuration=(ν $s_{1/2}$+$d_{3/2}$) (1996Gi08,1998Io01); (Δ=6 keV).
[e] Band(D): Band based on Configuration=(N,G7/2)(π $h_{11/2}$)^2 (1991Pa07) ; (Δ=80 keV).
[f] Band(E): Band based on Configuration=(N,H11/2)(π $h_{11/2}$)(π $g_{7/2}$) (1991Pa07); (Δ=147 keV).
[g] Band(F): Band based on Configuration=(N,H11/2)(π $h_{11/2}$)^2 (1991Pa07) ;(Δ=81 keV).
[h] Band(G): SD-1 band (1988Lu01,1990He12,1993Mu09,1993Pa02,1996Se04, 1988Lu01,1987Be32,1993Pa02,2005Pa30). Probable configuration= $\pi 5^4 \nu 6^1$ (1996Se03,1996Se04). Q(intrinsic)=7.3 *4*, β_2=0.38 *2* (1998Pe01); β_2=0.36 *2* from Q (1994WaZV). Others: Q_0=7.4 *3* (1996Di03,1996Cl03), 5.5 *5* (1993Mu09), 6.4 (1994WaZV), ≈6.0 (1990He12). Percent population=2.0 to 7.0 depending on projectile energy (1998Wi13); =5 (2005Pa30); (Δ=54 keV).
[i] Band(H): SD-2 band (1996Se03,2005Pa30). Probable configuration=$\pi 5^4 \nu 6^2$ (1996Cl03). This involves excitation of a neutron from 1/2[411] α=+1/2 orbital to 1/2[660] α=−1/2 orbital (1996Cl03,1996Se03). Q(intrinsic)=8.5 *4* (1996Se03,1996Cl03), β_2≈0.43 (1996Se03). Percent population=1.0 to 1.7 (1998Wi13) depending on projectile energy; =1 (2005Pa30); (Δ=49 keV).

Adopted Levels, Gammas (continued)

γ(^{131}Ce)

E_i(level)	J_i^π	E_γ[†]	I_γ[@]	E_f	J_f^π	Mult.[a]	Comments
135.91	(3/2$^+$)	72.84 *5*	100	63.09	(1/2$^+$)	M1	α(K)exp=2.88 *29*; K/L=6.16 *44* (1996Gi08)
161.98	9/2$^-$	161.98 *5*	100	0.0	7/2$^+$	E1	
257.08	9/2$^+$	257.07 *11*	100	0.0	7/2$^+$	(M1,E2)	
300.29	11/2$^-$	≈119	≈11	181.5	(7/2$^-$)		
		138.29 *9*	100 *11*	161.98	9/2$^-$	(M1,E2)	
329.24	(5/2$^+$,3/2$^+$)	193.37 *6*	12.6 *16*	135.91	(3/2$^+$)	M1,E2	α(K)exp=0.27 *6* (1996Gi08)
		266.14 *7*	100 *8*	63.09	(1/2$^+$)	E2,M1	α(K)exp=0.060 *6* (1996Gi08)
342.65	(3/2$^+$,5/2$^+$)	206.73 *6*	70 *15*	135.91	(3/2$^+$)		
		279.55 *7*	100 *15*	63.09	(1/2$^+$)	E2,M1	α(K)exp=0.044 *10* (1996Gi08)
348.49	(5/2$^+$)	212.56 *7*	100	135.91	(3/2$^+$)	M1	α(K)exp=0.125 *20*; K/L>5.5 (1996Gi08)
		285.39 *7*	90 *10*	63.09	(1/2$^+$)		
384.62	(11/2$^-$)	≈85	≈11.4	300.29	11/2$^-$		
		203.2 *3*	9.1 *23*	181.5	(7/2$^-$)		
		222.63 *10*	100 *11*	161.98	9/2$^-$		
387.50	(5/2$^+$,3/2$^+$)	58.6 *2*	14 *3*	329.24	(5/2$^+$,3/2$^+$)		
		251.49 *7*	90 *10*	135.91	(3/2$^+$)	M1	α(K)exp=0.098 *23* (1996Gi08)
		324.36 *8*	100 *20*	63.09	(1/2$^+$)		
		387.54 *8*	90 *10*	0.0	7/2$^+$	M1,E2	α(K)exp=0.021 *3*; K/L>6.3 (1996Gi08)
427.90	(3/2$^+$,5/2$^+$,7/2$^+$)	79.39 *9*	31 *5*	348.49	(5/2$^+$)		
		292.04 *7*	100 *6*	135.91	(3/2$^+$)	M1	α(K)exp=0.080 *19* (1996Gi08)
		364.7 *2*	60 *16*	63.09	(1/2$^+$)		
470.92	(1/2$^+$,3/2$^+$,5/2$^+$)	122.5 *4*	≈2.9	348.49	(5/2$^+$)		
		128.20 *17*	8.6 *21*	342.65	(3/2$^+$,5/2$^+$)		
		334.96 *9*	100 *14*	135.91	(3/2$^+$)	E2,M1	α(K)exp=0.031 *8* (1996Gi08)
474.77	(7/2$^+$)	126.1 *2*	16 *5*	348.49	(5/2$^+$)		
		339.05 *21*	100 *11*	135.91	(3/2$^+$)		
543.25	11/2$^+$	286.0 *4*	100 *20*	257.08	9/2$^+$		
		543.2 *4*	91 *9*	0.0	7/2$^+$	(E2)	
548.5		386.5[b] *3*	100[b]	161.98	9/2$^-$		
576.65	(1/2$^+$,3/2$^+$,5/2$^+$)	188.8 *2*	6.3 *13*	387.50	(5/2$^+$,3/2$^+$)		
		248.0 *5*	5.0 *13*	329.24	(5/2$^+$,3/2$^+$)		
		441.3 *3*	100 *10*	135.91	(3/2$^+$)	M1	α(K)exp=0.022 *3* (1996Gi08)
588.6	(5/2$^-$ to 13/2$^-$)	≈405	≤8.7	181.5	(7/2$^-$)		
		426.8 *4*	100 *9*	161.98	9/2$^-$		
600.53	(7/2$^-$ to 13/2$^-$)	300.5 *4*	33 *7*	300.29	11/2$^-$		
		438.56 *11*	100 *13*	161.98	9/2$^-$		
609.6		473.7 *4*	100	135.91	(3/2$^+$)		
636.87	13/2$^-$	336.46 *16*	100 *17*	300.29	11/2$^-$	(M1,E2)	
		475.02 *24*	637 *7*	161.98	9/2$^-$	(E2)	I_γ: branching from ^{131}Pr ε decay (1.51 min). Other: 27 *3* from (HI,XNG).
644.74		315.5 *2*	100	329.24	(5/2$^+$,3/2$^+$)		
648.12	(5/2$^+$,7/2$^+$)	176.5 *4*	48 *12*	470.92	(1/2$^+$,3/2$^+$,5/2$^+$)		

$^{131}_{58}Ce_{73}$-5

Adopted Levels, Gammas (continued)

γ(^{131}Ce) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [@]	E_f	J_f^π	Mult.[a]	Comments
648.12	(5/2$^+$,7/2$^+$)	299.55 *21*	32 *8*	348.49	(5/2$^+$)		
		305.42 *10*	100 *16*	342.65	(3/2$^+$,5/2$^+$)	M1,E2	α(K)exp=0.046 *6* (1996Gi08)
		319.00 *18*	84 *16*	329.24	(5/2$^+$,3/2$^+$)		
687.0		386.5[b] *3*	58[b] *24*	300.29	11/2$^-$		
		525.3 *4*	100 *11*	161.98	9/2$^-$		
717.70	(3/2$^+$,5/2$^+$)	376.5[c] *4*	60 *20*	342.65	(3/2$^+$,5/2$^+$)		
		581.79 *19*	100 *40*	135.91	(3/2$^+$)		
739.99	(3/2$^+$,5/2$^+$)	391.3 *5*	27 *13*	348.49	(5/2$^+$)		
		396.2[bc] *4*	47[b] *20*	342.65	(3/2$^+$,5/2$^+$)		
		410.76[b] *28*	20[b] *7*	329.24	(5/2$^+$,3/2$^+$)		
		604.2 *4*	100 *27*	135.91	(3/2$^+$)		
744.7		396.2[b] *4*	100[b]	348.49	(5/2$^+$)		
753.25	(3/2$^+$,5/2$^+$)	278.48 *15*	100 *10*	474.77	(7/2$^+$)		
		410.76[b] *28*	30[b] *10*	342.65	(3/2$^+$,5/2$^+$)		
		423.7 *4*	40 *20*	329.24	(5/2$^+$,3/2$^+$)		
762.4	(3/2$^+$,5/2$^+$,7/2$^+$)	291.2 *4*	100 *20*	470.92	(1/2$^+$,3/2$^+$,5/2$^+$)		
		414.1 *3*	38 *5*	348.49	(5/2$^+$)		
		≈419	25 *8*	342.65	(3/2$^+$,5/2$^+$)		
		626 *1*	10 *5*	135.91	(3/2$^+$)		
791.68	(5/2$^+$)	316.7 *4*	100 *28*	474.77	(7/2$^+$)		
		443.4 *4*	71 *21*	348.49	(5/2$^+$)		
		655.76 *12*	93 *21*	135.91	(3/2$^+$)		
		729 *1*	86 *21*	63.09	(1/2$^+$)		
809.6	(15/2$^-$)	172.7 *4*	13.9 *26*	636.87	13/2$^-$	(M1,E2)	
		509.7 *4*	100 *16*	300.29	11/2$^-$		
848.29	(3/2$^+$,5/2$^+$)	377.25 *17*	22 *6*	470.92	(1/2$^+$,3/2$^+$,5/2$^+$)		
		420.45 *15*	100 *18*	427.90	(3/2$^+$,5/2$^+$,7/2$^+$)		
		505.0 *4*	13 *5*	342.65	(3/2$^+$,5/2$^+$)		
		712.4 *3*	90 *40*	135.91	(3/2$^+$)		
		785.39 *19*	13 *5*	63.09	(1/2$^+$)		
866.58	13/2$^+$	323.29 *26*	18 *6*	543.25	11/2$^+$	(M1,E2)	
		609.5 *3*	100 *18*	257.08	9/2$^+$	(E2)	
902.6		302.4 *4*	50 *10*	600.53	(7/2$^-$ to 13/2$^-$)		
		740.2 *4*	100 *20*	161.98	9/2$^-$		
928.72	(3/2$^+$,5/2$^+$,7/2$^+$)	280.42 *16*	100 *32*	648.12	(5/2$^+$,7/2$^+$)		
		586.18 *13*	40 *18*	342.65	(3/2$^+$,5/2$^+$)		
		599.7 *7*	82 *18*	329.24	(5/2$^+$,3/2$^+$)		
984.5	(11/2$^+$)	510.0		474.77	(7/2$^+$)		
985.7		≈349	≤20	636.87	13/2$^-$		
		601.1 *4*	100 *20*	384.62	(11/2$^-$)		
1009.7	(3/2$^+$,5/2$^+$,7/2$^+$)	661 *1*	20 *10*	348.49	(5/2$^+$)		
		667.2 *6*	40 *15*	342.65	(3/2$^+$,5/2$^+$)		

$^{131}_{58}Ce_{73}$-6

Adopted Levels, Gammas (continued)

γ(^{131}Ce) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[@]	E_f	J_f^π	Mult.[a]
1009.7	(3/2$^+$,5/2$^+$,7/2$^+$)	873.7 *6*	100 *25*	135.91	(3/2$^+$)	
1116.85	(3/2,5/2)	646.5	≈10.4	470.92	(1/2$^+$,3/2$^+$,5/2$^+$)	
		769.18[‡c] *20*	44 *12*	348.49	(5/2$^+$)	
		774.3 *8*	40 *12*	342.65	(3/2$^+$,5/2$^+$)	
		787.4 *3*	40 *12*	329.24	(5/2$^+$,3/2$^+$)	
		980.2 *6*	100 *20*	135.91	(3/2$^+$)	
		1117.0	26 *10*	0.0	7/2$^+$	
1176.6	(15/2$^-$)	367.0		809.6	(15/2$^-$)	
		539.8 *4*		636.87	13/2$^-$	(M1,E2)
1212.5	15/2$^+$	345.9 *3*	7.8 *26*	866.58	13/2$^+$	
		669.2 *3*	100 *16*	543.25	11/2$^+$	(E2)
1236.7		474.3 *3*	100	762.4	(3/2$^+$,5/2$^+$,7/2$^+$)	
1276.45	(3/2$^+$,5/2$^+$,7/2$^+$)	428.15 *8*	100 *13*	848.29	(3/2$^+$,5/2$^+$)	
		848.7 *2*	17 *3*	427.90	(3/2$^+$,5/2$^+$,7/2$^+$)	
		1276.3 *2*	23 *3*	0.0	7/2$^+$	
1295.1	(17/2$^-$)	485.7 *3*	84 *10*	809.6	(15/2$^-$)	(M1,E2)
		657.9 *4*	100 *16*	636.87	13/2$^-$	(E2)
1451.8	(19/2$^-$)	156.0		1295.1	(17/2$^-$)	
		641.9 *4*		809.6	(15/2$^-$)	(E2)
1591.6	(17/2$^+$)	379.0		1212.5	15/2$^+$	
		725.0 *3*		866.58	13/2$^+$	(E2)
1608.9	15/2$^+$	624.8	100	984.5	(11/2$^+$)	(E2)
1695.9	(13/2$^-$,17/2$^-$)	519.3 *5*	100	1176.6	(15/2$^-$)	(M1,E2)
1805.3	(19/2$^-$)	510.0[c]		1295.1	(17/2$^-$)	
		629.0		1176.6	(15/2$^-$)	
		996.0		809.6	(15/2$^-$)	
1977.0	(19/2$^+$)	385.0[c]		1591.6	(17/2$^+$)	
		764.5 *3*		1212.5	15/2$^+$	(E2)
2057.35	(1/2$^+$,3/2$^+$,5/2$^+$)	940.2	≈22	1116.85	(3/2,5/2)	
		1669.7 *2*	71 *10*	387.50	(5/2$^+$,3/2$^+$)	
		1921.8 *3*	100 *16*	135.91	(3/2$^+$)	
		1994.3 *3*	71 *16*	63.09	(1/2$^+$)	
2067.5	(21/2$^-$)	615.0		1451.8	(19/2$^-$)	
		773.0		1295.1	(17/2$^-$)	
2202.2	(23/2$^-$)	135.0		2067.5	(21/2$^-$)	
		750.0 *4*		1451.8	(19/2$^-$)	(E2)
2287.2	(17/2$^+$)	678.4		1608.9	15/2$^+$	
		878.0		1409.4		
2313.1?	(19/2$^-$)	617.5[c] *6*	100	1695.9	(13/2$^-$,17/2$^-$)	(M1,E2)
2352.6	(19/2$^+$)	743.8		1608.9	15/2$^+$	
		943.0		1409.4		
		1139.8 *4*		1212.5	15/2$^+$	
2387.5	(21/2$^+$)	411.0		1977.0	(19/2$^+$)	

$^{131}_{58}Ce_{73}$-7

Adopted Levels, Gammas (continued)

γ(^{131}Ce) (continued)

E_i(level)	J_i^π	E_γ †	I_γ @	E_f	J_f^π	Mult. [a]
2387.5	(21/2$^+$)	795.8 *3*		1591.6	(17/2$^+$)	(E2)
2505.8	(21/2$^+$)	153.1 *4*		2352.6	(19/2$^+$)	
		218.9 *4*		2287.2	(17/2$^+$)	
		529.0		1977.0	(19/2$^+$)	
		914.5 *4*		1591.6	(17/2$^+$)	
2563.8	(23/2$^-$)	496.0		2067.5	(21/2$^-$)	
		759.0		1805.3	(19/2$^-$)	
		1112.0		1451.8	(19/2$^-$)	
2685.8	(23/2$^+$)	180.2 *4*		2505.8	(21/2$^+$)	
		298.0		2387.5	(21/2$^+$)	
		333.0		2352.6	(19/2$^+$)	
		708.7 *4*		1977.0	(19/2$^+$)	
2762.2	(23/2$^+$)	375.0		2387.5	(21/2$^+$)	
		784.9 *4*		1977.0	(19/2$^+$)	(E2)
2910.1	(25/2$^+$)	224.3 *4*		2685.8	(23/2$^+$)	
		404.4 *4*		2505.8	(21/2$^+$)	
2912.5	(25/2$^-$)	710.0		2202.2	(23/2$^-$)	
		845.0		2067.5	(21/2$^-$)	
3029.1	(27/2$^-$)	826.9 *4*	100	2202.2	(23/2$^-$)	(E2)
3036.4	(25/2$^+$)	274.0		2762.2	(23/2$^+$)	
		649.0		2387.5	(21/2$^+$)	
3069.5	(25/2$^-$)	157.0		2912.5	(25/2$^-$)	
3199.0	(27/2$^+$)	289.0		2910.1	(25/2$^+$)	
		513.0		2685.8	(23/2$^+$)	
3272.9	(27/2$^+$)	236.0		3036.4	(25/2$^+$)	
		511.0		2762.2	(23/2$^+$)	
3287.6	(27/2$^-$)	218.0		3069.5	(25/2$^-$)	
		258.0 [c]		3029.1	(27/2$^-$)	
		375.0		2912.5	(25/2$^-$)	
		724.0		2563.8	(23/2$^-$)	
		1086.0 [c]		2202.2	(23/2$^-$)	
3523.0	(29/2$^+$)	324.0		3199.0	(27/2$^+$)	
		613.0		2910.1	(25/2$^+$)	
3540.2	(29/2$^+$)	267.0		3272.9	(27/2$^+$)	
		504.0		3036.4	(25/2$^+$)	
3544.2	(29/2$^-$)	257.0		3287.6	(27/2$^-$)	
		475.0 [c]		3069.5	(25/2$^-$)	
		515.0		3029.1	(27/2$^-$)	
3818.0	(31/2$^-$)	274.0		3544.2	(29/2$^-$)	
		530.0		3287.6	(27/2$^-$)	
		789.0		3029.1	(27/2$^-$)	
3841.0	(31/2$^+$)	301.0		3540.2	(29/2$^+$)	
		568.0		3272.9	(27/2$^+$)	
3894.0	(31/2$^+$)	371.0		3523.0	(29/2$^+$)	
		695.0		3199.0	(27/2$^+$)	
3921.1	(31/2$^-$)	892.0		3029.1	(27/2$^-$)	
4153.1	(33/2$^-$)	335.0		3818.0	(31/2$^-$)	
		609.0		3544.2	(29/2$^-$)	
4178.2	(33/2$^+$)	337.0		3841.0	(31/2$^+$)	
		638.0		3540.2	(29/2$^+$)	
4314.0	(33/2$^+$)	420.0		3894.0	(31/2$^+$)	
		791.0		3523.0	(29/2$^+$)	
4511.0	(35/2$^-$)	358.0		4153.1	(33/2$^-$)	
		693.0		3818.0	(31/2$^-$)	
4549.8	(35/2$^+$)	371.0		4178.2	(33/2$^+$)	
		709.0		3841.0	(31/2$^+$)	
4746.0	(35/2$^+$)	432.0		4314.0	(33/2$^+$)	
		852.0		3894.0	(31/2$^+$)	
4843.1	(35/2$^-$)	922.0		3921.1	(31/2$^-$)	
4909.2	(37/2$^-$)	398.0		4511.0	(35/2$^-$)	
		756.0		4153.1	(33/2$^-$)	
4955.7	(37/2$^+$)	405.0		4549.8	(35/2$^+$)	
		778.0		4178.2	(33/2$^+$)	
5245.0	(37/2$^+$)	931.0		4314.0	(33/2$^+$)	
5341.7	(39/2$^-$)	432.0		4909.2	(37/2$^-$)	
		831.0		4511.0	(35/2$^-$)	
5390.4	(39/2$^+$)	434.0		4955.7	(37/2$^+$)	
		841.0		4549.8	(35/2$^+$)	
5715.0	(39/2$^+$)	969.0		4746.0	(35/2$^+$)	
5796.9	(41/2$^-$)	455.0		5341.7	(39/2$^-$)	
		888.0		4909.2	(37/2$^-$)	
5805.1	(39/2$^-$)	962.0		4843.1	(35/2$^-$)	
5860.6	(41/2$^+$)	470.0		5390.4	(39/2$^+$)	
		905.0		4955.7	(37/2$^+$)	
6292.8	(43/2$^-$)	496.0		5796.9	(41/2$^-$)	
		951.0		5341.7	(39/2$^-$)	
6352.4	(43/2$^+$)	491.0 [c]		5860.6	(41/2$^+$)	
		962.0		5390.4	(39/2$^+$)	
6743.0	(43/2$^+$)	1028.0		5715.0	(39/2$^+$)	
6808.9	(45/2$^-$)	515.0 [c]		6292.8	(43/2$^-$)	
		1012.0		5796.9	(41/2$^-$)	
6880.6	(45/2$^+$)	529.0 [c]		6352.4	(43/2$^+$)	
		1020.0		5860.6	(41/2$^+$)	
7354.8	(47/2$^-$)	547.0 [c]		6808.9	(45/2$^-$)	
		1062.0		6292.8	(43/2$^-$)	
7422.4	(47/2$^+$)	1070.0		6352.4	(43/2$^+$)	

$^{131}_{58}Ce_{73}$-8

$\gamma(^{131}Ce)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[@]	E_f	J^π_f	Mult.[a]
7802.0	(47/2+)	1059.0		6743.0	(43/2+)	
7931.9	(49/2−)	1123.0		6808.9	(45/2−)	
8009.6	(49/2+)	1129.0		6880.6	(45/2+)	
8577.4?	(51/2+)	1155.0[c]		7422.4	(47/2+)	
591.50+y	(33/2+)	591.5 *1*	0.38[&] *2*	y	(29/2+)	(E2)
1253.60+y	(37/2+)	662.1 *1*	0.79[&] *2*	591.50+y	(33/2+)	(E2)
1986.90+y	(41/2+)	733.3 *1*	0.84[&] *2*	1253.60+y	(37/2+)	(E2)
2791.98+y	(45/2+)	805.1 *1*	1.00[&]	1986.90+y	(41/2+)	(E2)
3509.9+y	(43/2+)	788[#c]				
		1522.6 *4*	0.07[&] *1*	1986.90+y	(41/2+)	(M1+E2)
3666.88+y	(49/2+)	874.9 *1*	0.96[&] *2*	2791.98+y	(45/2+)	(E2)
4305.5+y	(47/2+)	795.5 *1*	0.62[&] *2*	3509.9+y	(43/2+)	(E2)
4610.89+y	(53/2+)	944.0 *1*	0.96[&] *2*	3666.88+y	(49/2+)	(E2)
5152.9+y	(51/2+)	847.4 *1*	0.96[&] *2*	4305.5+y	(47/2+)	(E2)
5623.39+y	(57/2+)	1012.5 *1*	0.93[&] *2*	4610.89+y	(53/2+)	(E2)
6061.5+y	(55/2+)	908.6 *1*	0.90[&] *2*	5152.9+y	(51/2+)	(E2)
6705.2+y	(61/2+)	1081.8 *1*	0.75[&] *2*	5623.39+y	(57/2+)	(E2)
7038.2+y	(59/2+)	976.7 *1*	1.00[&]	6061.5+y	(55/2+)	(E2)
7858.1+y	(65/2+)	1152.9 *1*	0.69[&] *2*	6705.2+y	(61/2+)	(E2)
8083.2+y	(63/2+)	1045.0 *1*	0.89[&] *2*	7038.2+y	(59/2+)	(E2)
9084.8+y	(69/2+)	1226.7 *1*	0.54[&] *2*	7858.1+y	(65/2+)	(E2)
9196.3+y	(67/2+)	1113.1 *1*	0.79[&] *2*	8083.2+y	(63/2+)	(E2)
10379.2+y	(71/2+)	1182.9 *1*	0.81[&] *2*	9196.3+y	(67/2+)	(E2)
10388.2+y	(73/2+)	1303.4 *1*	0.51[&] *2*	9084.8+y	(69/2+)	(E2)
11632.1+y	(75/2+)	1252.9 *1*	0.69[&] *2*	10379.2+y	(71/2+)	(E2)
11771.5+y	(77/2+)	1383.3 *1*	0.38[&] *2*	10388.2+y	(73/2+)	(E2)
12956.5+y	(79/2+)	1324.4 *1*	0.66[&] *2*	11632.1+y	(75/2+)	(E2)
13238.1+y	(81/2+)	1466.6 *1*	0.32[&] *2*	11771.5+y	(77/2+)	(E2)
14354.6+y	(83/2+)	1398.1 *1*	0.61[&] *2*	12956.5+y	(79/2+)	(E2)
14791.5+y	(85/2+)	1553.4 *1*	0.23[&] *2*	13238.1+y	(81/2+)	(E2)
15828.6+y	(87/2+)	1474.0 *1*	0.54[&] *2*	14354.6+y	(83/2+)	(E2)
16434.8+y	(89/2+)	1643.2 *2*	0.16[&] *1*	14791.5+y	(85/2+)	(E2)
17382.5+y	(91/2+)	1553.9 *2*	0.49[&] *2*	15828.6+y	(87/2+)	(E2)
18170.6+y	(93/2+)	1735.8 *2*	0.14[&] *1*	16434.8+y	(89/2+)	(E2)
19019.1+y	(95/2+)	1636.6 *1*	0.38[&] *2*	17382.5+y	(91/2+)	(E2)
20001.1+y	(97/2+)	1830.5 *3*	0.08[&] *1*	18170.6+y	(93/2+)	(E2)

$^{131}_{58}Ce_{73}$-9

Adopted Levels, Gammas (continued)

$\gamma(^{131}Ce)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[@]	E_f	J_f^π	Mult.[a]
20743+y	(99/2$^+$)	1723.5 *25*	0.27[&] *2*	19019.1+y	(95/2$^+$)	(E2)
21926.1+y	(101/2$^+$)	1925.0 *3*	0.04[&] *1*	20001.1+y	(97/2$^+$)	(E2)
22556+y	(103/2$^+$)	1813.4 *3*	0.21[&] *2*	20743+y	(99/2$^+$)	(E2)
23937.1+y	(105/2$^+$)	2011.0 *3*	0.02[&] *1*	21926.1+y	(101/2$^+$)	
24461+y	(107/2$^+$)	1905.3 *3*	0.12[&] *2*	22556+y	(103/2$^+$)	(E2)
26045.5+y	(109/2$^+$)	2108.4 *4*	0.01[&] *1*	23937.1+y	(105/2$^+$)	
26461+y	(111/2$^+$)	1999.6 *4*	0.05[&] *1*	24461+y	(107/2$^+$)	(E2)
28556+y	(115/2$^+$)	2094.6 *5*	0.02[&] *1*	26461+y	(111/2$^+$)	

[†] Weighted average of all available data; $\Delta E\gamma$=0.5 keV, if it is not given (assumed by evaluators).
[‡] Poor fit: the energy difference between corresponding levels is equal to 768.76 *14* keV.
[#] The transition populates an unspecified states.
[@] Relative photon branching from each level when are available.
[&] For the SD band, the values are relative photon intensities within the band.
[a] From ε decay (α(exp) data) and in-beam measurements ($\gamma(\theta)$ data).
[b] Multiply placed with intensity suitably divided.
[c] Placement of transition in the level scheme is uncertain.

$^{131}_{58}Ce_{73}$-10

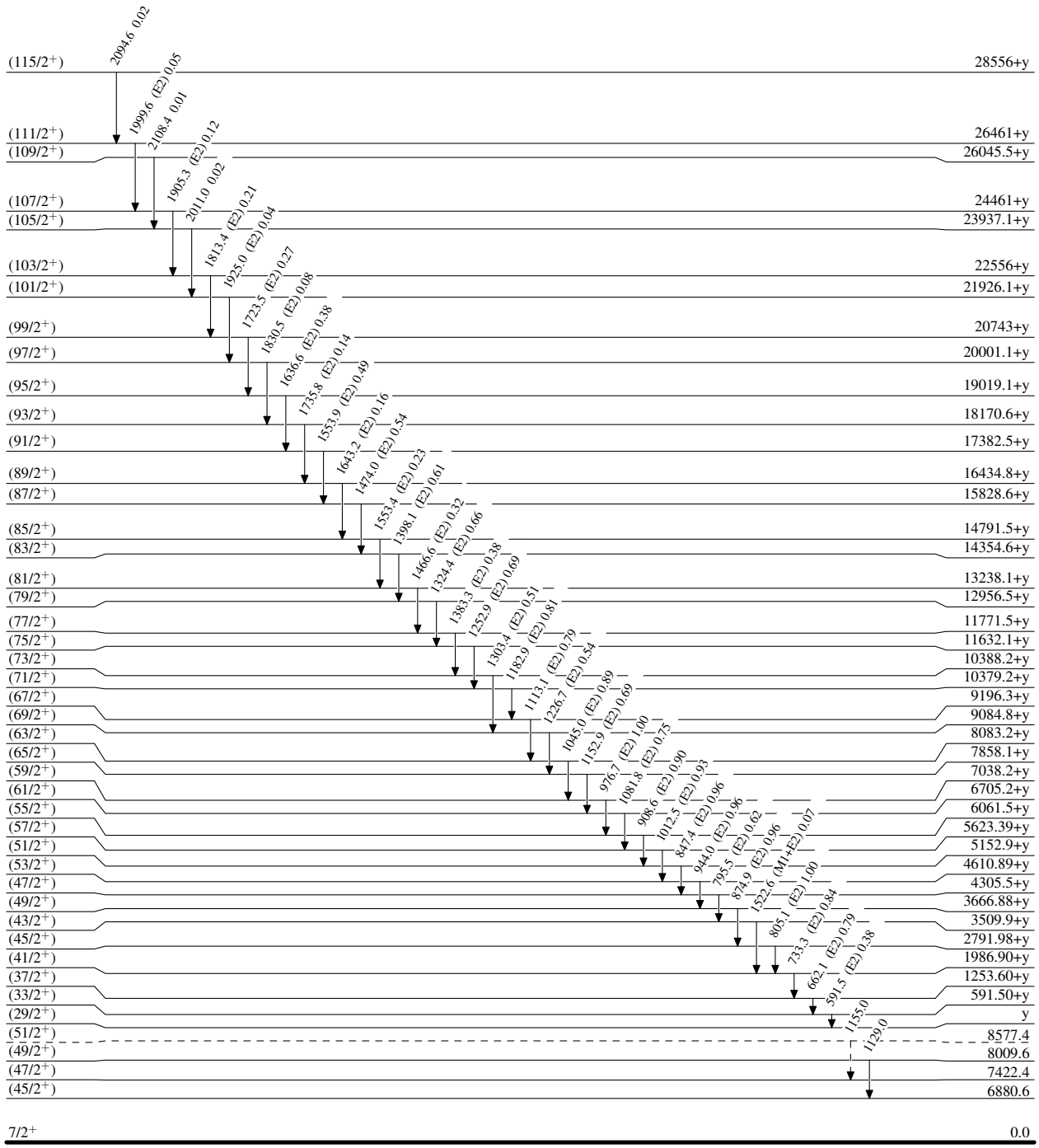
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{131}_{58}Ce_{73}$

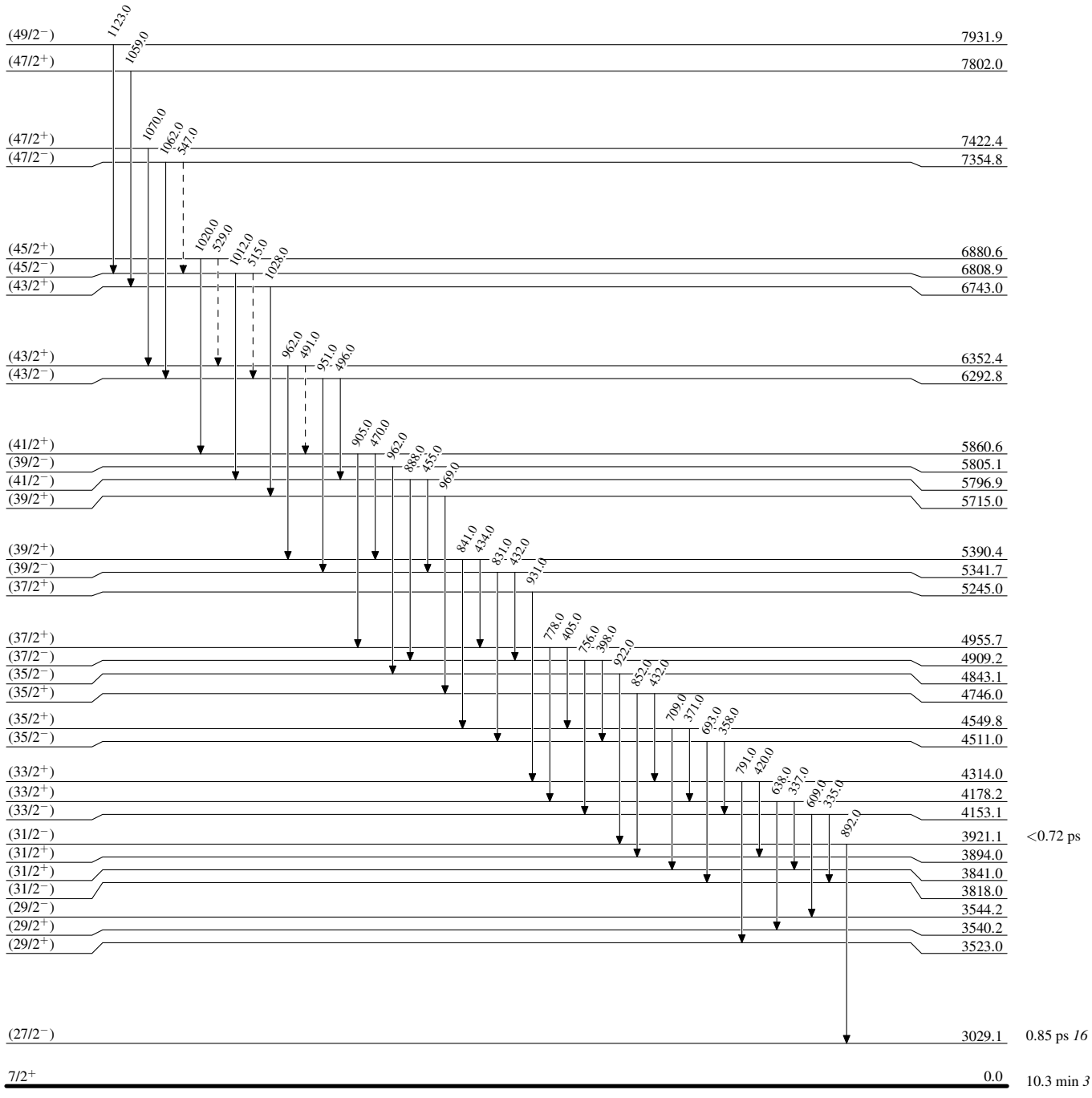
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{131}_{58}Ce_{73}$

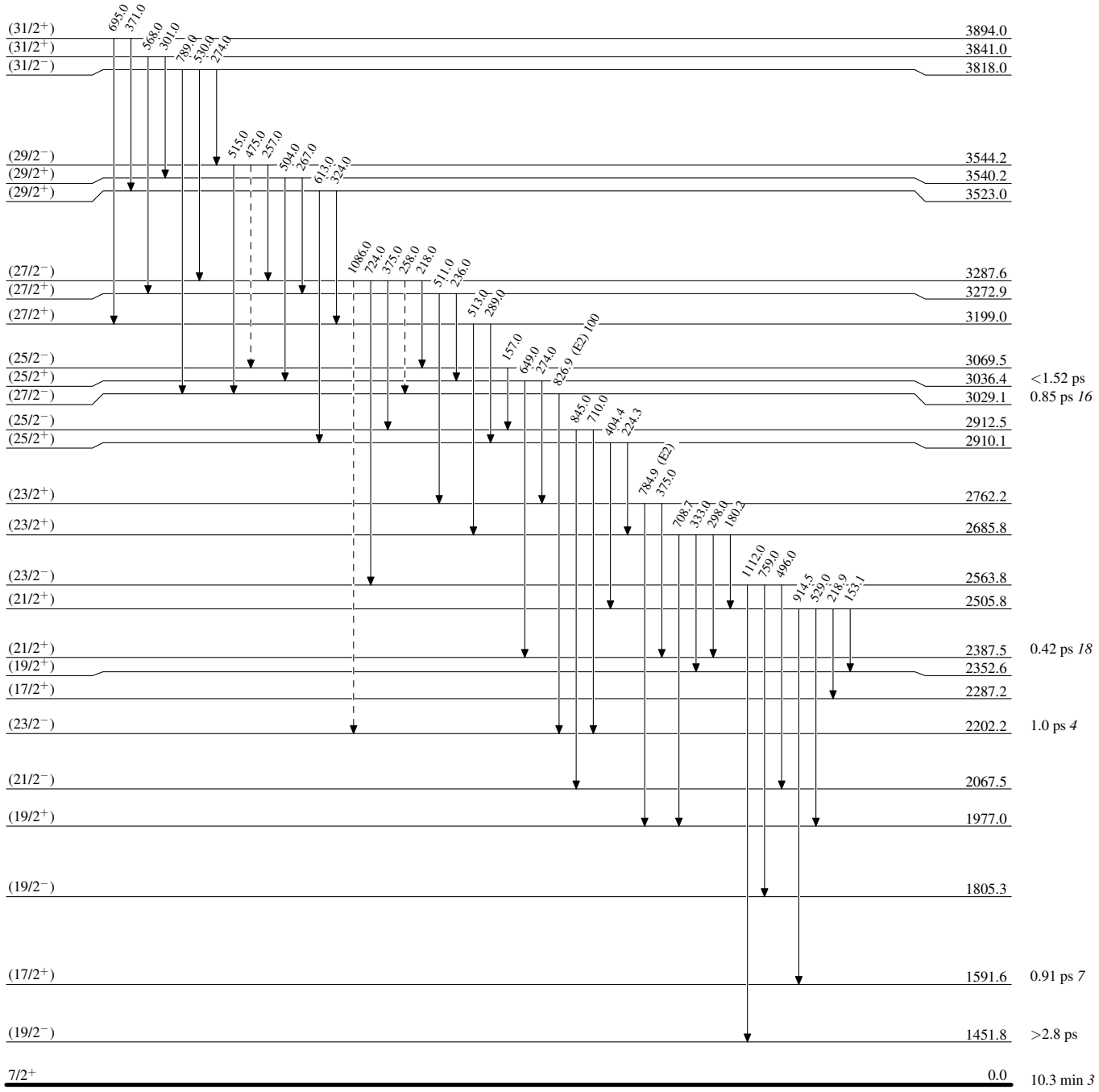
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{131}_{58}Ce_{73}$

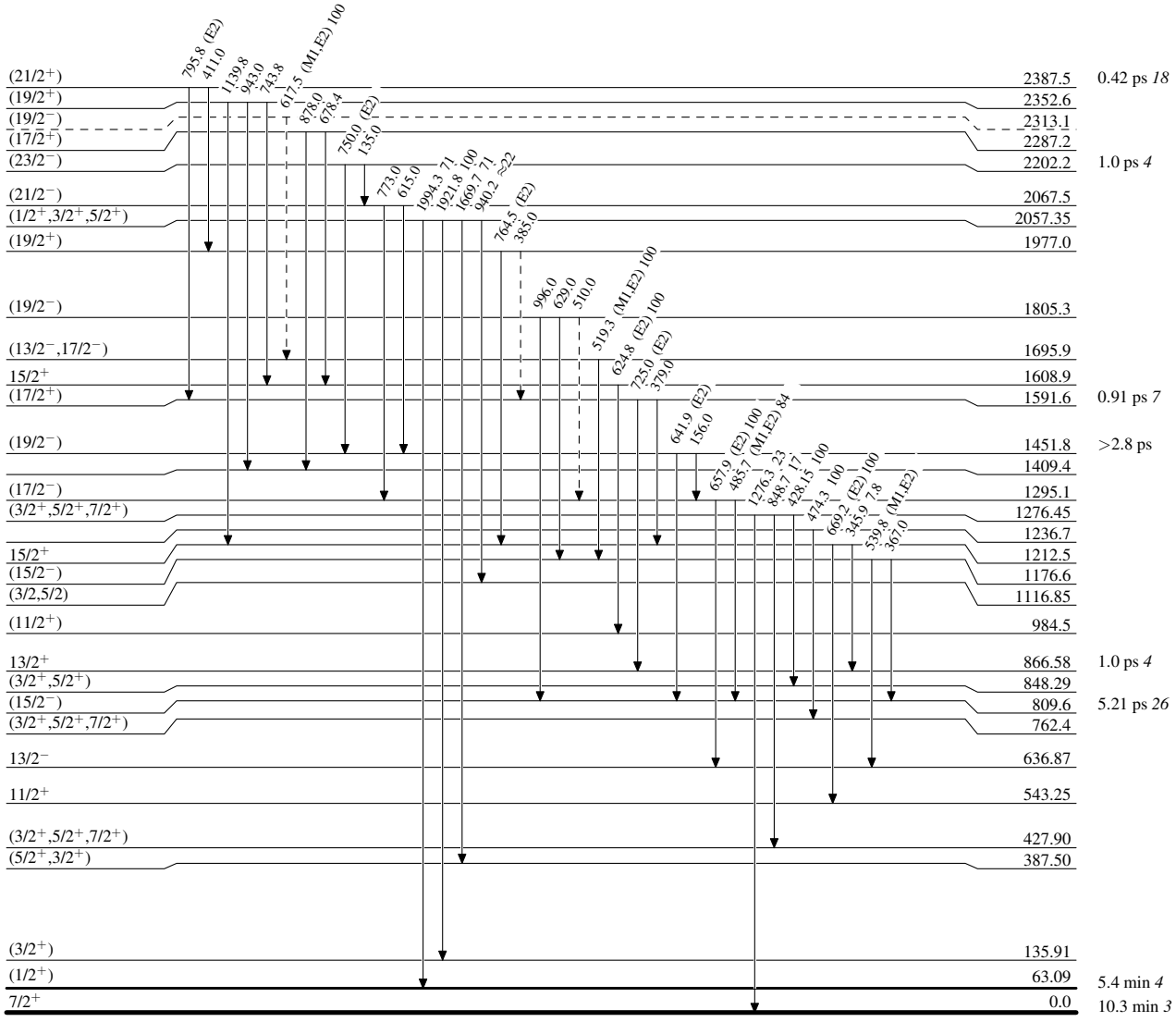
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{131}_{58}Ce_{73}$

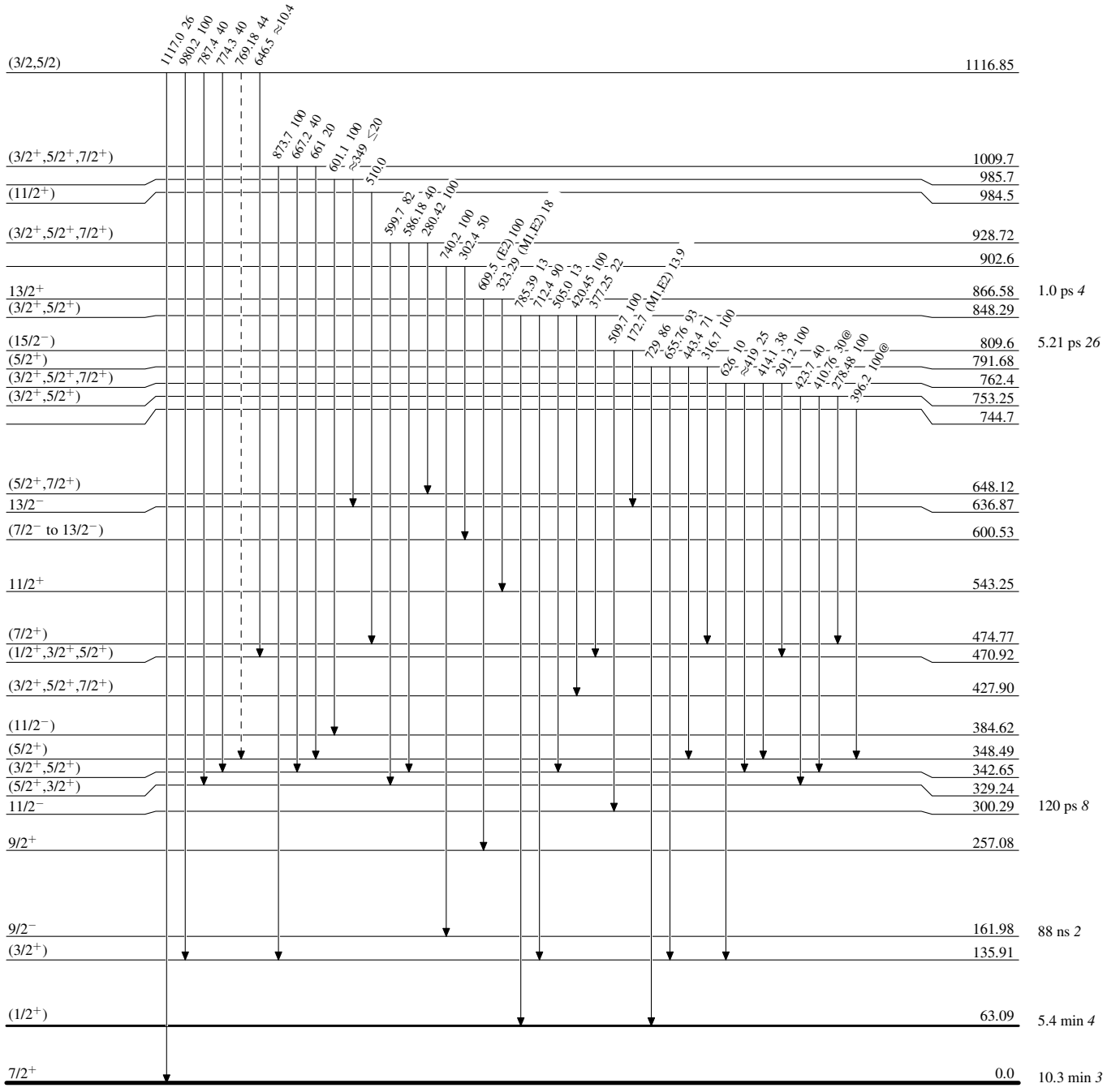
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

γ Decay (Uncertain)



$^{131}_{58}Ce_{73}$

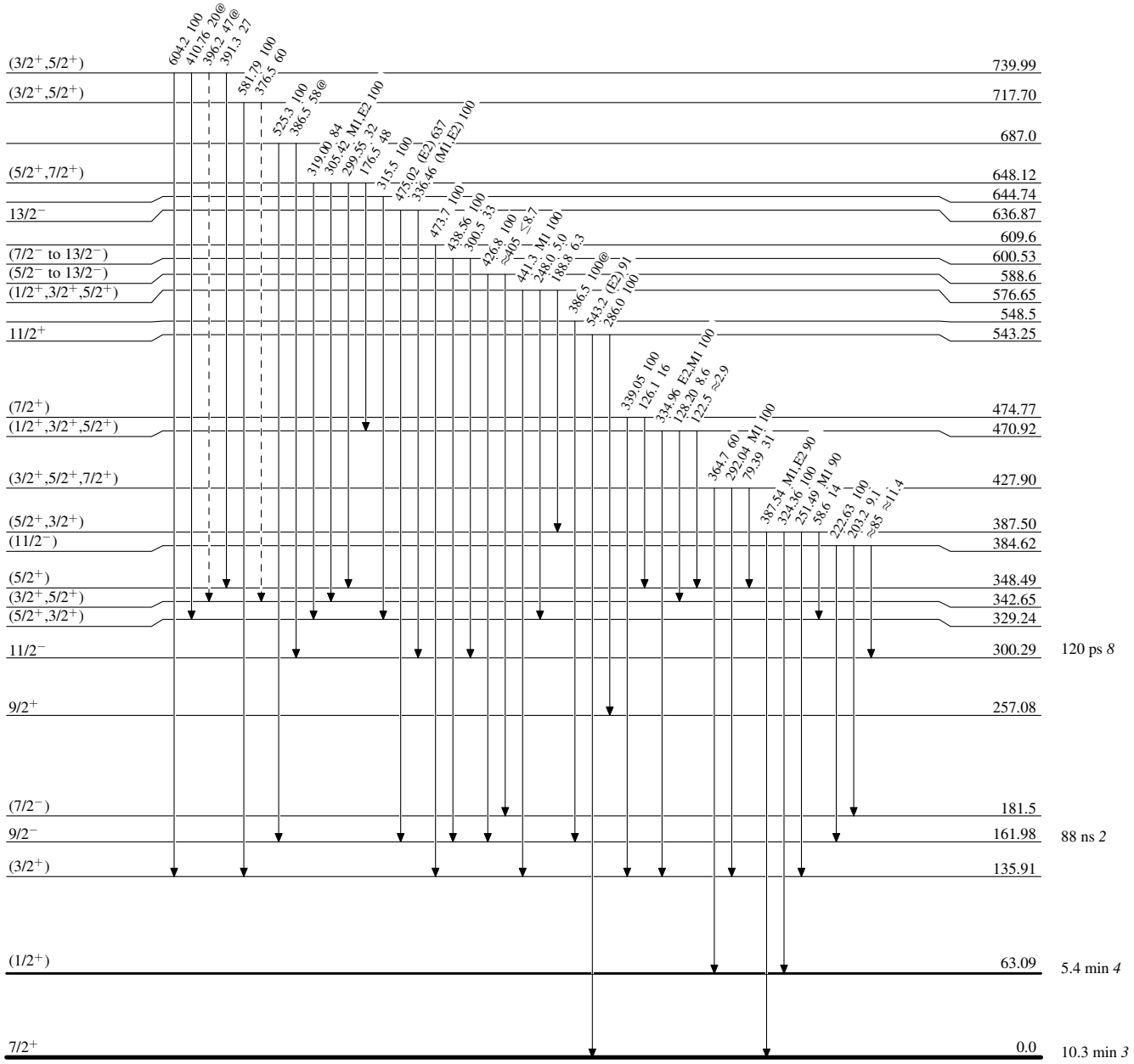
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

– – – – – – ► γ Decay (Uncertain)

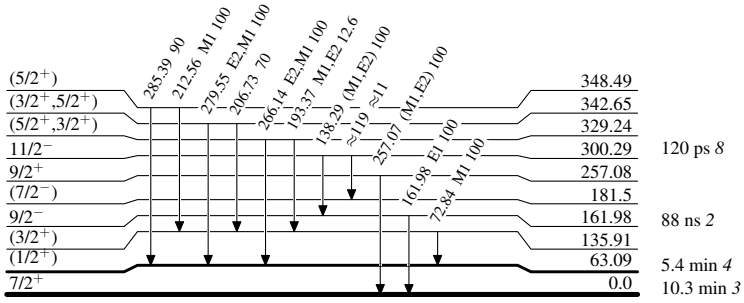


$^{131}_{58}Ce_{73}$

Adopted Levels, Gammas

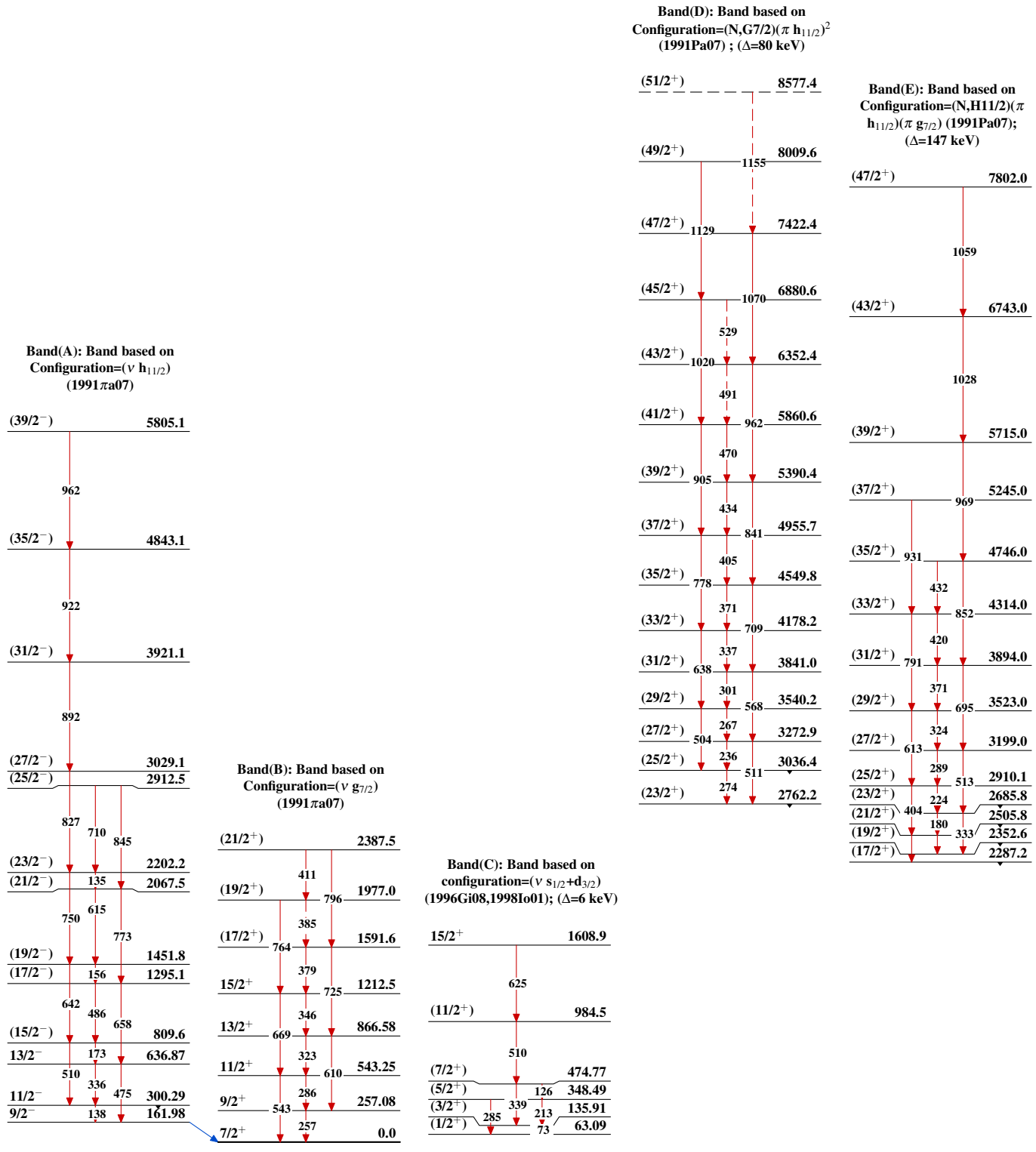
Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



$^{131}_{58}Ce_{73}$

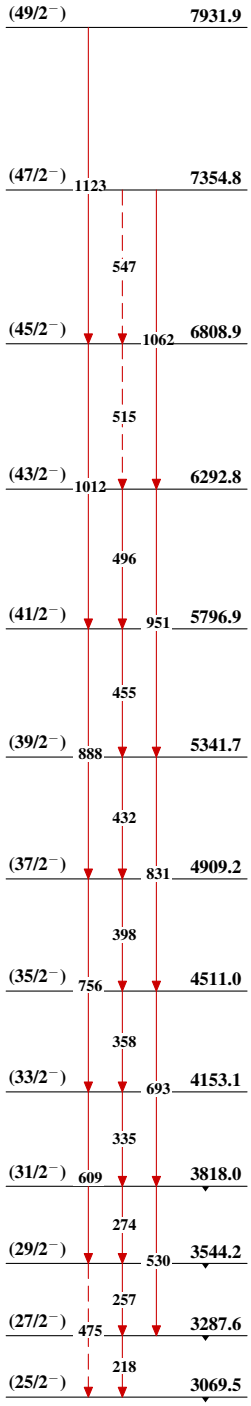
Adopted Levels, Gammas



$^{131}_{58}Ce_{73}$

Adopted Levels, Gammas (continued)

Band(F): Band based on Configuration=(N,H11/2)($\pi h_{11/2}$)^2 (1991Pa07) ;(Δ=81 keV)



$^{131}_{58}Ce_{73}$

Adopted Levels, Gammas (continued)