Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 152, 331 (2018)	1-Apr-2018

Q(β^-)=−5168 *11*; S(n)=9964 *10*; S(p)=7154 *9*; Q(α)=−498.3 *11* 2017Wa10
S(2n)=17818 *20*, S(2p)=12136.46 *29* (2017Wa10).

^{136}Ce Levels

Cross Reference (XREF) Flags

A	^{136}Pr ε decay	D	^{139}La(p,4nγ)
B	^{136}Ce IT decay (1.9 μs)	E	(HI,xnγ)
C	Coulomb excitation		

$T_{1/2}(2\beta^+,0\nu)$(g.s. to g.s.):
2017Be21: ≥ 4.1×10^{18} yr (90% confidence)
2014Be37: ≥ 6.9×10^{17} yr (90% confidence)
2011Be02: ≥ 7×10^{16} yr (90% confidence)
2009Be20: ≥ 4.2×10^{15} yr (90% confidence)
2001Da22: >1.9×10^{16} y (90% confidence)
2001Da22: >3.2×10^{16} y (68% confidence)
1997Be36: >6.9×10^{17} y (68% confidence)

$T_{1/2}(2\beta^+,2\nu)$(g.s. to g.s.):
2017Be21: ≥ 4.1×10^{18} yr (90% confidence)
2014Be37: ≥ 3.5×10^{17} yr (90% confidence)
2011Be02: ≥ 9×10^{15} yr (90% confidence)
2009Be20: ≥ 4.2×10^{15} yr (90% confidence)
2001Da22: >1.8×10^{16} y (90% confidence)
2001Da22: >3.8×10^{16} y (68% confidence)

$T_{1/2}$(K-capture+β^+,0ν)(g.s. to g.s.):
2017Be21: ≥ 2.6×10^{18} yr (90% confidence)
2014Be37: ≥ 9.6×10^{16} yr (90% confidence)
2011Be02: ≥7×10^{16} yr (90% confidence)
2009Be20: ≥ 2.6×10^{15} yr (90% confidence)
2001Da22: >3.8×10^{16} y (90% confidence)
2001Da22: >6.0×10^{16} y (68% confidence)

$T_{1/2}$(K-capture+β^+,2ν)(g.s. to g.s.):
2017Be21: ≥ 1.0×10^{17} yr (90% confidence)
2014Be37: ≥ 2.7×10^{18} yr (90% confidence)
2011Be02: ≥9×10^{15} yr (90% confidence)
2009Be20: ≥ 2.6×10^{15} yr (90% confidence)
2001Da22: >1.8×10^{15} y (90% confidence)
2001Da22: >3.0×10^{15} y (68% confidence)

$T_{1/2}$(2K-capture,0ν)(g.s. to g.s.):
2017Be21: ≥ 2.1×10^{18} yr (90% confidence)
2014Be37: ≥ 4.6×10^{17} yr (90% confidence)
2011Be02: ≥3×10^{16} yr (90% confidence)
2009Be20: ≥ 1.6×10^{15} yr (90% confidence)
2001Da22: >6.0×10^{15} y (90% confidence)
2001Da22: >8.0×10^{15} y (68% confidence)

$T_{1/2}$(2K-capture,2ν)(g.s. to g.s.):
2011Be02: ≥ 3.2×10^{16} yr (90% confidence)
2001Da22: >0.7×10^{14} y (90% confidence)
2001Da22: >1.1×10^{14} y (68% confidence)

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Adopted Levels, Gammas (continued)

^{136}Ce Levels (continued)

E(level)[†]	J^π	$T_{1/2}$[‡]	XREF	Comments
0.0[#]	0^+	stable	ABCDE	%2ε=? $T_{1/2}$: 2ε decay is expected based on Q-value arguments. $T_{1/2}$ value should be dominated by fastest 2ε decay mode, ground state to ground state 2K-capture with the emission of 2 neutrinos. Most stringent limit for 2K-capture,2ν is ≥ 3.2×10^{16} yr (2011Be02) at 90% confidence level. For more details, see the table above. 2017Be21,2014Be37 and 2009Be20 provide $T_{1/2}$ limits to excited states in ^{136}Ba. Δ<r^2>(^{136}Ce−^{140}Ce)=−0.031 *9* (1997Is06).
552.05[#] *13*	2^+	6.7 ps *8*	ABCDE	B(E2)↑=0.81 *9* (1989Ga24) $T_{1/2}$: derived by evaluator from B(E2) and Adopted Gamma properties. J^π: E2 552γ to 0^+.
1075.9? *4*			A	E(level): very tentative assignment to ^{136}Ce, as depopulating transition could only be assigned to A=136 in ^{136}Pr ε decay and transition with similar energy is also assigned to ^{136}Nd ε decay.
1091.88 *15*	2^+	4.4 ps *7*	A CD	B(E2)↑=0.0114 *19* J^π: E2 1092γ to 0^+. $T_{1/2}$: weighted average of 4.3 ps *7* and 4.5 ps *7* deduced by evaluator from B(E2)(0 to 1092)=0.0114 *19* and B(E2)(552 to 1092)=0.199 *29*, respectively and Adopted Gamma properties. B(E2)↑: from Coulomb Excitation.
1313.74[#] *24*	4^+	0.94 ps *17*	ABCDE	B(E2)↑=0.42 *7* B(E2)↑: from Coulomb Excitation. J^π: E2 762γ to 2^+; band assignment. $T_{1/2}$: derived by evaluator from B(E2) and Adopted Gamma properties. Other: 6.6 ps *18* from RDDM in (HI,xnγ).
1552.98 *23*	3^+		A D	J^π: 3 from γγ(θ) in ^{136}Pr ε decay, π=+ from M1+E2 1001γ to 2^+.
1978.2[@] *5*	5^-	496 ps *23*	B DE	J^π: E1 664γ to 4^+. $T_{1/2}$: from γγ(t) in (HI,xnγ).
1982.0 *6*	(3^-)		C	B(E3)↑=0.19 *3* J^π: sizable population in Coulomb excitation and absence of decay to ground state. B(E2)↑: from Coulomb Excitation.
2066.72 *22*	2^+	0.151 ps *16*	A C	B(E2)↑=0.025 *13* J^π: 2 from γγ(θ) in ^{136}Pr ε decay, population in Coulomb excitation suggests π=+. $T_{1/2}$: deduced by evaluator from B(E2)(552 to 2067) and Adopted Gamma properties. B(E2)↑: from Coulomb excitation. Others: B(E2)(552 to 2067)=0.00328 *16* and B(E2)(1092 to 2067) ≤ 0.037, both from Coulomb excitation.
2155.02 *18*	2^+	0.039 ps *5*	A C	B(E2)↑=0.0116 *6* J^π: 2 from γγ(θ) in ^{136}Pr ε decay, population in Coulomb excitation suggests π=+. $T_{1/2}$: deduced by evaluator from B(E2) and Adopted Gamma properties. B(E2)↑: from Coulomb excitation. Others: B(E2)(552 to 2155)=0.0116 *12* and B(E2)(1092 to 2155) ≤0.054, both from Coulomb excitation.
2213.7[#] *5*	6^+	≤5[g] ns	B DE	J^π: E2 900γ to 4^+; band assignment.
2274.5 *7*	(2^+)	0.305 ps *25*	C	B(E2)↑=0.0118 *8* B(E2)↑: from Coulomb Excitation. Other: B(E2)(552 to 2275) ≤ 0.0033 from Coulomb Excitation. J^π: strong population in Coulomb excitation and strong decay to ground state. $T_{1/2}$: deduced by evaluator from B(E2) and Adopted Gamma properties.
2306.9[@] *5*	7^-	270 ps *24*	B DE	J^π: E2 329γ to 5^-. $T_{1/2}$: from γγ(t) in (HI,xnγ).
2366.1 *5*	6^+	≤5[g] ns	B DE	J^π: E2 1052.5γ to 4^+, E2 623γ from 8^+.

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Adopted Levels, Gammas (continued)

^{136}Ce Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[‡]	XREF	Comments
2424.7[&] *5*	(6⁻)	≤3[g] ns	E	Jπ: D+Q 446γ to 5⁻; band assignment.
2451.08 *23*	(2⁺)	0.17 ps *3*	A C	B(E2)↑=0.0054 *6* $T_{1/2}$: deduced by evaluator from B(E2) and Adopted Gamma properties. B(E2)↑: from Coulomb excitation. Others: B(E2)(552 to 2451) ≤ 0.0046 and B(E2)(1092 to 2451) ≤ 0.033, both from Coulomb excitation. Jπ: strong population in Coulomb excitation, log *ft*=6.2 from 2⁺ parent.
2517.1 *3*	(2⁺,3)		A	Jπ: log *ft*=6.5 from 2⁺ parent, 1204γ to 4⁺.
2595.2 *3*	(2⁺)		A	Jπ: 1282γ to 4⁺, tentative 2596γ to 0⁺.
2682.0 *3*	(2⁺)		A	Jπ: 1368γ to 4⁺, tentative 2681γ to 0⁺.
2792.7 *4*	(1,2⁺)		A	Jπ: 2793γ to 0⁺.
2827.8 *3*	(1,2,3)		A	Jπ: log *ft*=6.5 from 2⁺ parent.
2865.9 *3*	(1,2⁺)		A	Jπ: log *ft*=6.4 from 2⁺ parent, tentative 2866γ to 0⁺.
2904.1 *4*	(1,2,3)		A	Jπ: log *ft*=6.8 from 2⁺ parent.
2931.8 *4*	(1,2⁺)		A	Jπ: 2931γ to 0⁺.
2942.1? *5*	(2⁺)		A	Jπ: 1628γ to 4⁺, 2942γ to 0⁺.
2954.6 *5*	(8⁺)		E	Jπ: (E2) 741γ to 6⁺.
2989.4[#] *5*	8⁺		B DE	XREF: D(2994.2). Jπ: E2 623γ to 6⁺; band assignment.
2991.3? *5*	(2⁺,3,4⁺)		A	Jπ: 1678γ to 4⁺, 2439.5γ to 2⁺.
3011.16? *23*			A	
3095.0[a] *6*	10⁺	1.9 μs *1*	B DE	%IT=100 μ=−1.80 *2* (1981Ba69) $T_{1/2}$: from γ(t) taking weighted average of 552γ(t), 623γ(t), 762γ(t), and 1052γ(t) in (HI,xnγ). Other: 2.2 μs *2* from γ(t) in ^{139}La(p,4nγ) (note that 106γ depopulating the level was not observed and isomer was assigned to a 2994-keV level. Jπ: E2 106γ to 8⁺. μ: from TDPAD. Other: 1.80 *3* (1982Ri09, TDPAD). Q: Q/Q(10⁺, ^{138}Ce)=1.45 *4* (1983Da29, TDPAD).
3146.2[&] *5*	(8⁻)	≤3[g] ns	E	Jπ: E2 721.5γ to (6⁻); band assignment.
3174.5 *4*	(1,2⁺)		A	Jπ: 3175γ to 0⁺.
3201.3? *4*	(2⁺)		A	Jπ: 1887γ to 4⁺, 3201γ to 0⁺.
3233.0 *3*	(1,2,3)		A	Jπ: log *ft*=6.4 from 2⁺ parent.
3264.1 *4*	(1,2⁺)		A	Jπ: log *ft*=6.2 from 2⁺ parent, 3265γ to 0⁺.
3277.9[@] *7*	9⁻	≤3[g] ns	E	Jπ: E2 971γ to 7⁻; band assignment.
3280.6 *4*	(1,2⁺)		A	Jπ: 3280γ to 0⁺.
3361.7 *3*	(1,2⁺)		A	Jπ: 3362γ to 0⁺.
3399.7 *5*	(10⁺)	≤3[g] ns	E	Jπ: (E2) 410γ to 8⁺.
3440.9 *7*	(9⁺)		E	Jπ: 486γ to (8⁺).
3575.3? *9*			E	
3579.4 *7*	(1,2⁺)		A	Jπ: 3580γ to 0⁺.
3705.3 *6*	(1,2,3)		A	Jπ: log *ft*=6.7 from 2⁺ parent.
3760.1[a] *7*	12⁺		E	Jπ: E2 665γ to 10⁺; band assignment.
3865.4 *7*	(10⁺)		E	Jπ: E2 911γ to (8⁺).
3986.8[&] *6*	(10⁻)	≤3[g] ns	E	Jπ: Q 840.5γ to (8⁻); band assignment.
4023.3? *3*	(1,2,3)		A	Jπ: log *ft*=5.9 from 2⁺ parent.
4084.3[@] *7*	11⁻	<3[g] ns	E	Jπ: E2 806γ to 9⁻.
4240.3[b] *6*	(11⁻)		E	Jπ: D+Q 253γ to (10⁻).
4360.3[c] *9*	(11⁺)		E	Jπ: D 495γ to (10⁺).
4596.6[&] *7*	(12⁻)		E	Jπ: (E2) 610γ to (10⁻), band assignment.
4786.1 *8*	14⁺		E	Jπ: E2 1026γ to 12⁺.
4832.7[a] *7*	(14⁺)		E	Jπ: (E2) 1073γ to 12⁺, band assignment.
4872.4[b] *6*	(13⁻)		E	Jπ: E2 632γ to (11⁻), band assignment.

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Adopted Levels, Gammas (continued)

^{136}Ce Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[‡]	XREF	Comments
4927.9[c] *10*	(13+)		E	Jπ: (E2) 568γ to (11+), band assignment.
5097.5?[@] *8*	(13−)		E	Jπ: 1013γ to 11−, band assignment.
5304.6[d] *7*	15+		E	Jπ: M1 472γ to 14+.
5568.0[c] *11*	(15+)	0.69 ps *26*	E	Jπ: (E2) 640γ to (13+), band assignment.
5593.5[d] *8*	(16+)		E	Jπ: 761γ to (14+), band assignment.
5642.6[e] *8*	16+	>0.69 ps	E	Jπ: E2 857γ to 14+.
5645.1[f] *7*	14−		E	Jπ: M1 163γ from 15−; band assignment.
5662.4 *8*	(14−)		E	Jπ: D 146γ from 15−, 790γ to (13−).
5800.6[b] *7*	(15−)		E	Jπ: (E2) 928γ to (13−); band assignment.
5808.8[f] *7*	15−		E	Jπ: M1 186γ from 16−; band assignment.
5840.6 *12*	(16)		E	Jπ: D 536γ to 15+.
5855.6 *12*			E	
5876.9[e] *9*	17+	>0.69 ps	E	Jπ: M1 234γ to 16+, band assignment.
5994.8[f] *7*	16−		E	Jπ: E1 690γ to 15+.
6098.5[d] *9*	(17+)	<0.56 ps	E	Jπ: D 505γ to (16+), band assignment.
6170.2[e] *9*	(18+)	>0.69 ps	E	Jπ: D 293γ to 17+, band assignment.
6273.0[c] *15*	(17+)	0.35 ps *9*	E	Jπ: 705γ to (15+), band assignment.
6282.5[f] *8*	17−		E	Jπ: M1 288γ to 16−, band assignment.
6380.0 *15*			E	
6524.2 *14*	(19)		E	Jπ: 354γ to (18+).
6539.1[e] *11*	(19+)	0.40 ps *15*	E	Jπ: D 369γ to (18+); band assignment.
6642.2[d] *10*	(18+)		E	Jπ: D 544γ to (17+), 1049γ to (16+), band assignment.
6662.9[f] *9*	18−	0.509 ps *15*	E	Jπ: M1 380.5γ to 17−, 668γ to 16−, band assignment.
6831.7[b] *9*	(17−)		E	Jπ: 1031γ to (15−), band assignment.
6885.5 *13*			E	
6933.2[e] *12*	(20+)	0.55 ps *+17−18*	E	Jπ: D 394γ to (19+), band assignment.
7086.0[c] *18*	(19+)		E	Jπ: 813γ to (17+).
7099.0[f] *9*	19−	0.315 ps *+12−10*	E	Jπ: M1 436γ to 18−, band assignment.
7238.4?[d] *10*	(19+)		E	Jπ: 596γ to (18+), band assignment.
7292.7 *16*			E	
7325.5 *16*			E	
7344.6[e] *13*	(21+)	<0.43 ps	E	Jπ: D 411γ to (20+), band assignment.
7585.1[f] *10*	20−	0.263 ps *+26−31*	E	Jπ: M1 486γ to 19−, 922γ to 18−, band assignment.
7800.6[e] *16*	(22+)		E	Jπ: 456γ to (21+), band assignment.
8110.0?[f] *11*	21−	0.253 ps *+18−28*	E	Jπ: D 525γ to 20−, 1011γ to 19−, band assignment.
8215.4 *17*			E	
8315.6?[e] *19*	(23+)		E	Jπ: 515γ to (22+), band assignment.
8625.4[f] *12*	22−	<0.43 ps	E	Jπ: D 515γ to 21−, band assignment.
9228.0[f] *15*	23−		E	Jπ: 1118γ to 21−, band assignment.

[†] From a least-squares fit to Eγ, by evaluator.
[‡] From Doppler Shift Attenuation Method (DSAM), in (HI,xnγ), except where noted.
[#] Band(A): g.s. yrast band.
[@] Band(B): $\nu[h_{11/2}\otimes s_{1/2}d_{3/2}]$,$\alpha$=1.
[&] Band(C): $\nu[h_{11/2}\otimes s_{1/2}d_{3/2}]$,$\alpha$=0.
[a] Band(D): Band based on 10+. Probable configuration=$\nu h^2_{11/2}$.
[b] Band(E): Band based on 11−. Probable configuration=$\pi g_{7/2}h_{11/2}$.

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Adopted Levels, Gammas (continued)

^{136}Ce Levels (continued)

[c] Band(F): Highly deformed band based on $11^{(+)}$. Possible configuration=$\nu i^2_{13/2}$.

[d] Band(G): Dipole magnetic-rotational band based on 15^+. Possible configuration=$\pi[g_{7/2}h_{11/2}]\otimes\nu[g_{7/2}h_{11/2}]$.

[e] Band(H): Dipole magnetic-rotational band based on 16^+. Possible configuration=$\pi[h^2_{11/2}]\otimes\nu[h^{-2}_{11/2}]$.

[f] Band(I): Dipole magnetic-rotational band based on 14^-. Possible configuration=$\pi[g_{7/2}h_{11/2}]\otimes\nu[h^{-2}_{11/2}]$, oblate.

[g] From γ(t) in (HI,xnγ).

Adopted Levels, Gammas (continued)

γ(^{136}Ce)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[f]	Comments
552.05	2+	552.16[#] *19*	100	0.0	0+	E2[@]		0.00827	α(K)=0.00693 *10*; α(L)=0.001055 *15*; α(M)=0.000223 *4*; α(N)=4.90×10^{-5} *7*; α(O)=7.72×10^{-6} *11* α(P)=4.91×10^{-7} *7* B(E2)(W.u.)=39 *5* Mult.: also E2 from DCO,POL in (HI,xnγ).
1075.9?		523.9[#g] *5*	100	552.05	2+				
1091.88	2+	539.75[#] *19*	100[a] *5*	552.05	2+	E2(+M1)[@]	−4.7[&] *7*	0.00895 *14*	α(K)=0.00751 *12*; α(L)=0.001140 *17*; α(M)=0.000241 *4*; α(N)=5.30×10^{-5} *8*; α(O)=8.35×10^{-6} *13* α(P)=5.33×10^{-7} *9* B(E2)(W.u.)=47 *8*; B(M1)(W.u.)=0.0010 *4*
		1092.0[#] *5*	36.8[a] *6*	0.0	0+	E2[@]		1.67×10^{-3}	α(K)=0.001434 *21*; α(L)=0.000190 *3*; α(M)=3.97×10^{-5} *6*; α(N)=8.78×10^{-6} *13* α(O)=1.414×10^{-6} *20*; α(P)=1.041×10^{-7} *15* B(E2)(W.u.)=0.53 *9*
1313.74	4+	762.3 *5*	100	552.05	2+	E2		0.00371	α(K)=0.00315 *5*; α(L)=0.000443 *7*; α(M)=9.29×10^{-5} *13*; α(N)=2.05×10^{-5} *3*; α(O)=3.27×10^{-6} *5* α(P)=2.27×10^{-7} *4* B(E2)(W.u.)=56 *10*
1552.98	3+	460.9[#] *3*	100[#] *5*	1091.88	2+	E2(+M1)[@]	−4.3[&] *6*	0.01379 *22*	α(K)=0.01148 *19*; α(L)=0.00182 *3*; α(M)=0.000387 *6*; α(N)=8.50×10^{-5} *13*; α(O)=1.329×10^{-5} *20* α(P)=8.06×10^{-7} *14* δ: other: second solution of −0.50 *4* from γγ(θ) in ^{136}Pr ε decay is in disagreement with α(K)exp.
		1000.8[#] *3*	65.8[#] *34*	552.05	2+	M1+E2[@]	+0.97[&] *28*	0.00247 *15*	α(K)=0.00212 *13*; α(L)=0.000277 *15*; α(M)=5.8×10^{-5} *3*; α(N)=1.28×10^{-5} *7*; α(O)=2.07×10^{-6} *12* α(P)=1.57×10^{-7} *11* E_γ: other: 1002.8 from (p,4nγ) is discrepant.
1978.2	5−	664.3 *5*	100	1313.74	4+	E1		0.00192	α(K)=0.001652 *24*; α(L)=0.000209 *3*; α(M)=4.33×10^{-5} *7*; α(N)=9.59×10^{-6} *14* α(O)=1.550×10^{-6} *22*; α(P)=1.164×10^{-7} *17* B(E1)(W.u.)=1.76×10^{-6} *9*
1982.0	(3−)	890[a]	9.7[a] *3*	1091.88	2+				
		1430[a]	100[a] *3*	552.05	2+				
		(1982[a])	<0.3[a]	0.0	0+				I_γ: transition not observed, upper limit for intensity is estimated in Coulomb excitation from the detection limit.
2066.72	2+	974.2[#] *5*	13.9[a] *5*	1091.88	2+				

$^{136}_{58}Ce_{78}$-6

Adopted Levels, Gammas (continued)

γ(^{136}Ce) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[f]	Comments
2066.72	2+	991.0[#g] *6*	5.6[#] *9*	1075.9?					α(K)=0.001758 *25*; α(L)=0.000236 *4*; α(M)=4.93×10^{-5} *7*; α(N)=1.092×10^{-5} *16* α(O)=1.755×10^{-6} *25*; α(P)=1.275×10^{-7} *18*
		1514.8[#] *4*	79.7[a] *14*	552.05	2+	M1+E2	+0.46[&] *8*	1.17×10^{-3} *2*	α(K)=0.000934 *18*; α(L)=0.0001184 *22*; α(M)=2.46×10^{-5} *5*; α(N)=5.46×10^{-6} *10* α(O)=8.89×10^{-7} *17*; α(P)=6.95×10^{-8} *14* B(E2)(W.u.)=0.9 *3*; B(M1)(W.u.)=0.0155 *21* Mult.: D+Q from γγ(θ) in ^{136}Pr ε decay, Δπ=no from level scheme.
		2066.8[#] *3*	100[a] *3*	0.0	0+	[E2]		8.10×10^{-4}	α(K)=0.000419 *6*; α(L)=5.25×10^{-5} *8*; α(M)=1.089×10^{-5} *16*; α(N)=2.42×10^{-6} *4*; α(O)=3.93×10^{-7} *6* α(P)=3.04×10^{-8} *5* B(E2)(W.u.)=1.34 *17*
2155.02	2+	841.3[#g] *3*	1.9[#] *3*	1313.74	4+	[E2]		0.00295	α(K)=0.00251 *4*; α(L)=0.000347 *5*; α(M)=7.27×10^{-5} *11*; α(N)=1.606×10^{-5} *23*; α(O)=2.57×10^{-6} *4* α(P)=1.82×10^{-7} *3* B(E2)(W.u.)=14 *3*
		1063.2[#] *7*	5.3[#] *6*	1091.88	2+				
		1602.8[#] *3*	100[#] *8*	552.05	2+	M1+E2	−0.41[&] *8*	1.08×10^{-3} *2*	α(K)=0.000832 *15*; α(L)=0.0001053 *19*; α(M)=2.19×10^{-5} *4*; α(N)=4.85×10^{-6} *9* α(O)=7.91×10^{-7} *15*; α(P)=6.19×10^{-8} *12* B(E2)(W.u.)=4.1 *16*; B(M1)(W.u.)=0.101 *18* Mult.: D+Q from γγ(θ) in ^{136}Pr ε decay, Δπ=no from level scheme.
		2154.9[#] *3*	8.7[#] *10*	0.0	0+	[E2]		8.17×10^{-4}	α(K)=0.000388 *6*; α(L)=4.86×10^{-5} *7*; α(M)=1.008×10^{-5} *15*; α(N)=2.24×10^{-6} *4*; α(O)=3.64×10^{-7} *5* α(P)=2.82×10^{-8} *4* B(E2)(W.u.)=0.56 *11*
2213.7	6+	900.1 *5*	100	1313.74	4+	E2		0.00254	α(K)=0.00216 *3*; α(L)=0.000295 *5*; α(M)=6.18×10^{-5} *9*; α(N)=1.365×10^{-5} *20*; α(O)=2.19×10^{-6} *3* α(P)=1.566×10^{-7} *22* B(E2)(W.u.)>0.0046
2274.5	(2+)	1722	28.7 *13*	552.05	2+				
		2275	100 *3*	0.0	0+	[E2]		8.33×10^{-4}	α(K)=0.000352 *5*; α(L)=4.40×10^{-5} *7*; α(M)=9.11×10^{-6} *13*; α(N)=2.02×10^{-6} *3*; α(O)=3.29×10^{-7} *5* α(P)=2.56×10^{-8} *4* B(E2)(W.u.)=0.57 *6*
2306.9	7−	328.5 *5*	100	1978.2	5−	E2		0.0367	α(K)=0.0297 *5*; α(L)=0.00549 *9*; α(M)=0.001178 *18*; α(N)=0.000257 *4*; α(O)=3.93×10^{-5} *6* α(P)=1.99×10^{-6} *3* B(E2)(W.u.)=12.7 *12*

$^{136}_{58}Ce_{78}$-7

Adopted Levels, Gammas (continued)

γ(^{136}Ce) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[f]	Comments
2366.1	6$^+$	1052.5 *5*	100	1313.74	4$^+$	E2	0.00181	α(K)=0.001548 *22*; α(L)=0.000206 *3*; α(M)=4.30×10^{-5} *6*; α(N)=9.53×10^{-6} *14* α(O)=1.534×10^{-6} *22*; α(P)=1.123×10^{-7} *16* B(E2)(W.u.)>0.0021
2424.7	(6$^-$)	446.4 *5*	100	1978.2	5$^-$	D+Q	0.018 *3*	α(K)=0.015 *3*; α(L)=0.00218 *18*; α(M)=0.00046 *4*; α(N+..)=0.00012 *1*
2451.08	(2$^+$)	1359.9[#] *5*	100[#] *11*	1091.88	2$^+$			
		1899.0[#] *5*	95[#] *21*	552.05	2$^+$			
		2450.8[#] *3*	71[#] *8*	0.0	0$^+$	[E2]	8.65×10^{-4}	α(K)=0.000308 *5*; α(L)=3.84×10^{-5} *6*; α(M)=7.95×10^{-6} *12*; α(N)=1.765×10^{-6} *25*; α(O)=2.87×10^{-7} *4* α(P)=2.24×10^{-8} *4* B(E2)(W.u.)=0.24 *6*
2517.1	(2$^+$,3)	1203.8[#] *8*	22.2[#] *28*	1313.74	4$^+$			
		1425.0[#] *4*	100[#] *11*	1091.88	2$^+$			
		1965.2[#] *5*	16.7[#] *17*	552.05	2$^+$			
2595.2	(2$^+$)	1041.5[#g] *6*	21.4[#] *22*	1552.98	3$^+$			
		1282.4[#] *7*	17.9[#] *22*	1313.74	4$^+$			
		1503.3[#] *5*	34[#] *4*	1091.88	2$^+$			
		2042.7[#] *5*	100[#] *7*	552.05	2$^+$			
		2596.0[#g] *7*	21.4[#] *22*	0.0	0$^+$			
2682.0	(2$^+$)	1368.3[#] *6*	85[#] *10*	1313.74	4$^+$			
		1590.3[#] *8*	<75[#]	1091.88	2$^+$			
		2131.1[#] *8*	100[#] *10*	552.05	2$^+$			
		2681.3[#g] *5*	62[#] *8*	0.0	0$^+$			
2792.7	(1,2$^+$)	2240.7[#] *4*	100[#] *8*	552.05	2$^+$			
		2792.6[#] *7*	16.2[#] *16*	0.0	0$^+$			
2827.8	(1,2,3)	672.83[#g] *24*	54[#] *6*	2155.02	2$^+$			
		1735.7[#g] *4*	100[#] *11*	1091.88	2$^+$			
		2275.0[#] *10*	54[#] *11*	552.05	2$^+$			
2865.9	(1,2$^+$)	1773.8[#] *5*	38[#] *5*	1091.88	2$^+$			
		1790.2[#g] *10*	15.0[#] *17*	1075.9?				
		2313.7[#] *4*	100[#] *8*	552.05	2$^+$			
		2866.4[#g] *7*	17[#] *4*	0.0	0$^+$			
2904.1	(1,2,3)	1812.8[#g] *10*	<35[#]	1091.88	2$^+$			
		2351.9[#] *4*	100[#] *11*	552.05	2$^+$			
2931.8	(1,2$^+$)	2379.8[#] *4*	100[#] *11*	552.05	2$^+$			

$^{136}_{58}Ce_{78}$-8

Adopted Levels, Gammas (continued)

γ(^{136}Ce) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[f]	Comments
2931.8	(1,2$^+$)	2931.3[#] *9*	29[#] *4*	0.0	0$^+$			
2942.1?	(2$^+$)	1628.2[#g] *7*	100[#] *13*	1313.74	4$^+$			
		2389.5[#g] *10*	95[#] *10*	552.05	2$^+$			
		2942.5[#g] *7*	48[#] *10*	0.0	0$^+$			
2954.6	(8$^+$)	647.8 *5*	<14	2306.9	7$^-$			
		741.1 *5*	100 *30*	2213.7	6$^+$	(E2)	0.00396	α(K)=0.00336 *5*; α(L)=0.000475 *7*; α(M)=9.98×10^{-5} *14*; α(N)=2.20×10^{-5} *4*; α(O)=3.51×10^{-6} *5* α(P)=2.42×10^{-7} *4* Mult.: stretched Q from R(DCO) and γ(θ) in (HI,xnγ), assumed E2.
2989.4	8$^+$	623.4 *5*	95 *5*	2366.1	6$^+$	E2	0.00605	α(K)=0.00510 *8*; α(L)=0.000750 *11*; α(M)=0.0001581 *23*; α(N)=3.48×10^{-5} *5*; α(O)=5.52×10^{-6} *8* α(P)=3.64×10^{-7} *6*
		683.1	1.9	2306.9	7$^-$	[E1]	0.00181	α(K)=0.001557 *22*; α(L)=0.000197 *3*; α(M)=4.08×10^{-5} *6*; α(N)=9.03×10^{-6} *13* α(O)=1.460×10^{-6} *21*; α(P)=1.099×10^{-7} *16* E_γ,I_γ: from ^{136}Ce IT decay.
		775.6 *5*	100 *9*	2213.7	6$^+$	E2	0.00356	α(K)=0.00302 *5*; α(L)=0.000424 *6*; α(M)=8.89×10^{-5} *13*; α(N)=1.96×10^{-5} *3*; α(O)=3.13×10^{-6} *5* α(P)=2.18×10^{-7} *3*
2991.3?	(2$^+$,3,4$^+$)	1677.9[#g] *7*	100[#] *11*	1313.74	4$^+$			
		2439.5[#g] *10*	86[#] *8*	552.05	2$^+$			
3011.16?		855.92[#g] *22*	100[#] *12*	2155.02	2$^+$			
		1919.2[#g] *7*	78[#] *12*	1091.88	2$^+$			
		2460.4[#g] *5*	93[#] *12*	552.05	2$^+$			
3095.0	10$^+$	105.7 *5*	100	2989.4	8$^+$	E2	1.68 *4*	α(K)=1.030 *21*; α(L)=0.512 *13*; α(M)=0.114 *3*; α(N)=0.0245 *7*; α(O)=0.00346 *9* α(P)=5.52×10^{-5} *11* B(E2)(W.u.)=0.203 *12* Mult.: stretched Q from R(DCO) and γ(θ) in (HI,xnγ), assumed E2.
3146.2	(8$^-$)	192		2954.6	(8$^+$)	(E1)[c]	0.0405	α(K)=0.0347 *5*; α(L)=0.00462 *7*; α(M)=0.000961 *14*; α(N)=0.000211 *3*; α(O)=3.35×10^{-5} *5* α(P)=2.26×10^{-6} *4*
		721.5 *2*	100 *12*	2424.7	(6$^-$)	E2	0.00422	α(K)=0.00358 *5*; α(L)=0.000509 *8*; α(M)=0.0001070 *15*; α(N)=2.36×10^{-5} *4*; α(O)=3.76×10^{-6} *6* α(P)=2.57×10^{-7} *4* B(E2)(W.u.)>0.014
		839.3 *5*	65 *8*	2306.9	7$^-$			
3174.5	(1,2$^+$)	2082.4[#] *5*	100[#] *12*	1091.88	2$^+$			
		2622.7[#] *8*	71[#] *6*	552.05	2$^+$			

$^{136}_{58}Ce_{78}$-9

Adopted Levels, Gammas (continued)

γ(^{136}Ce) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[f]	Comments
3174.5	(1,2$^+$)	3174.9[#] *8*	34[#] *6*	0.0	0$^+$			
3201.3?	(2$^+$)	1886.7[#g] *9*	96[#] *12*	1313.74	4$^+$			
		2110.5[#g] *5*	100[#] *12*	1091.88	2$^+$			
		2647.8[#g] *8*	40[#] *8*	552.05	2$^+$			
		3200.6[#g] *8*	56[#] *8*	0.0	0$^+$			
3233.0	(1,2,3)	2140.9[#] *7*	44[#] *5*	1091.88	2$^+$			
		2681.0[#g] *3*	100[#] *13*	552.05	2$^+$			
3264.1	(1,2$^+$)	2171.0[#] *6*	47[#] *5*	1091.88	2$^+$			
		2713.3[#g] *5*	59[#] *12*	552.05	2$^+$			
		3262.0[#] *10*	100[#] *11*	0.0	0$^+$			
3277.9	9$^-$	970.8 *5*	100	2306.9	7$^-$	E2	0.00215	α(K)=0.00184 *3*; α(L)=0.000248 *4*; α(M)=5.17×10^{-5} *8*; α(N)=1.144×10^{-5} *16*; α(O)=1.84×10^{-6} *3* α(P)=1.332×10^{-7} *19* B(E2)(W.u.)>0.0052
3280.6	(1,2$^+$)	2189.0[#] *7*	100[#] *8*	1091.88	2$^+$			
		2204.2[#g] *10*	38[#] *5*	1075.9?				
		2728.7[#] *7*	62[#] *8*	552.05	2$^+$			
		3280.3[#] *10*	30[#] *5*	0.0	0$^+$			
3361.7	(1,2$^+$)	2270.2[#] *4*	100[#] *11*	1091.88	2$^+$			
		2808.7[#] *5*	51[#] *6*	552.05	2$^+$			
		3362.4[#] *10*	16[#] *3*	0.0	0$^+$			
3399.7	(10$^+$)	410.3 *5*	85 *6*	2989.4	8$^+$	(E2)	0.0188	α(K)=0.01552 *23*; α(L)=0.00261 *4*; α(M)=0.000555 *8*; α(N)=0.0001217 *18*; α(O)=1.89×10^{-5} *3* α(P)=1.069×10^{-6} *16* B(E2)(W.u.)>0.18 Mult.: stretched Q from R(DCO) and γ(θ) in (HI,xnγ), M2 excluded by comparison to RUL.
		445.2 *5*	100 *12*	2954.6	(8$^+$)	(E2)	0.01489	α(K)=0.01234 *18*; α(L)=0.00201 *3*; α(M)=0.000427 *7*; α(N)=9.38×10^{-5} *14*; α(O)=1.461×10^{-5} *21* α(P)=8.58×10^{-7} *13* B(E2)(W.u.)>0.14 Mult.: stretched Q from R(DCO) and γ(θ) in (HI,xnγ), M2 excluded by comparison to RUL.
3440.9	(9$^+$)	486.4 *5*	100	2954.6	(8$^+$)			
3575.3?		429[g]	100	3146.2	(8$^-$)			
3579.4	(1,2$^+$)	3027.0[#g] *10*	<67[#]	552.05	2$^+$			
		3579.6[#] *10*	100[#] *13*	0.0	0$^+$			
3705.3	(1,2,3)	2613.1[#] *8*	100[#] *10*	1091.88	2$^+$			

$^{136}_{58}Ce_{78}$-10

Adopted Levels, Gammas (continued)

γ(^{136}Ce) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[f]	Comments
3705.3	(1,2,3)	3153.6[#] *8*	50[#] *5*	552.05	2^+			
3760.1	12^+	665.2 *5*	100	3095.0	10^+	E2	0.00514	α(K)=0.00435 *7*; α(L)=0.000630 *9*; α(M)=0.0001325 *19*; α(N)=2.92×10^{-5} *5*; α(O)=4.64×10^{-6} *7* α(P)=3.11×10^{-7} *5*
3865.4	(10^+)	425[g] *1*	23 *3*	3440.9	(9^+)	(M1)[d]	0.0234	α(K)=0.0201 *3*; α(L)=0.00264 *4*; α(M)=0.000552 *9*; α(N)=0.0001224 *19*; α(O)=1.99×10^{-5} *3* α(P)=1.528×10^{-6} *24*
		910.6 *5*	100 *17*	2954.6	(8^+)	E2	0.00247	α(K)=0.00211 *3*; α(L)=0.000287 *4*; α(M)=6.01×10^{-5} *9*; α(N)=1.328×10^{-5} *19*; α(O)=2.13×10^{-6} *3* α(P)=1.528×10^{-7} *22*
3986.8	(10^-)	840.5 *5*	100	3146.2	(8^-)	E2	0.00296	α(K)=0.00252 *4*; α(L)=0.000348 *5*; α(M)=7.28×10^{-5} *11*; α(N)=1.609×10^{-5} *23*; α(O)=2.58×10^{-6} *4* α(P)=1.82×10^{-7} *3* B(E2)(W.u.)>0.011 Mult.: stretched Q from R(DCO) in (HI,xnγ), M2 excluded by comparison to RUL.
4023.3?	(1,2,3)	1012.2[#g] *3*	100[#] *10*	3011.16?				
		1032.4[#g] *6*	48[#] *10*	2991.3?	$(2^+,3,4^+)$			
		2469.9[#g] *5*	67[#] *7*	1552.98	3^+			
		3471.1[#g] *10*	52[#] *5*	552.05	2^+			
4084.3	11^-	806.2 *5*	100	3277.9	9^-	E2	0.00325	α(K)=0.00277 *4*; α(L)=0.000385 *6*; α(M)=8.07×10^{-5} *12*; α(N)=1.78×10^{-5} *3*; α(O)=2.85×10^{-6} *4* α(P)=2.00×10^{-7} *3* B(E2)(W.u.)>0.013 Mult.: stretched Q from R(DCO) in (HI,xnγ), M2 excluded by comparison to RUL.
4240.3	(11^-)	253.4 *5*	100 *17*	3986.8	(10^-)	D+Q		
		665[g] *1*		3575.3?				
		840.7 *5*		3399.7	(10^+)			
4360.3	(11^+)	494.9 *5*	100	3865.4	(10^+)	D		
4596.6	(12^-)	609.9 *5*	100	3986.8	(10^-)	(E2)[e]	0.00639	α(K)=0.00538 *8*; α(L)=0.000797 *12*; α(M)=0.0001680 *24*; α(N)=3.70×10^{-5} *6*; α(O)=5.85×10^{-6} *9* α(P)=3.84×10^{-7} *6*
4786.1	14^+	1026.1 *5*	100	3760.1	12^+	E2	0.00191	α(K)=0.001633 *23*; α(L)=0.000218 *3*; α(M)=4.56×10^{-5} *7*; α(N)=1.009×10^{-5} *15* α(O)=1.623×10^{-6} *23*; α(P)=1.185×10^{-7} *17*
4832.7	(14^+)	1072.7 *5*	100	3760.1	12^+	(E2)[e]	1.74×10^{-3}	α(K)=0.001488 *21*; α(L)=0.000198 *3*; α(M)=4.13×10^{-5} *6*; α(N)=9.13×10^{-6} *13* α(O)=1.471×10^{-6} *21*; α(P)=1.080×10^{-7} *16*
4872.4	(13^-)	276.0[g] *5*		4596.6	(12^-)			
		632.3 *5*	100	4240.3	(11^-)	E2	0.00584	α(K)=0.00493 *7*; α(L)=0.000723 *11*; α(M)=0.0001522 *22*;

$^{136}_{58}Ce_{78}$-11

Adopted Levels, Gammas (continued)

γ(^{136}Ce) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[f]	Comments
								α(N)=3.35×10^{-5} *5*; α(O)=5.31×10^{-6} *8* α(P)=3.52×10^{-7} *5*
4927.9	(13$^+$)	567.6 *5*	100	4360.3	(11$^+$)	(E2)[e]	0.00769	α(K)=0.00646 *10*; α(L)=0.000975 *14*; α(M)=0.000206 *3*; α(N)=4.53×10^{-5} *7*; α(O)=7.14×10^{-6} *11* α(P)=4.58×10^{-7} *7*
5097.5?	(13$^-$)	1013.0[g] *5*	100	4084.3	11$^-$			
5304.6	15$^+$	471.7 *5*	100	4832.7	(14$^+$)	M1	0.0180	α(K)=0.01542 *22*; α(L)=0.00202 *3*; α(M)=0.000422 *6*; α(N)=9.37×10^{-5} *14*; α(O)=1.523×10^{-5} *22* α(P)=1.173×10^{-6} *17*
5568.0	(15$^+$)	640.1 *5*	100	4927.9	(13$^+$)	E2	0.00566	α(K)=0.00478 *7*; α(L)=0.000698 *10*; α(M)=0.0001471 *21*; α(N)=3.24×10^{-5} *5*; α(O)=5.14×10^{-6} *8* α(P)=3.41×10^{-7} *5* B(E2)(W.u.)=1.8×10^2 *7* Mult.: stretched Q from R(DCO) in (HI,xnγ), M2 excluded by comparison to RUL.
5593.5	(16$^+$)	288.9 *5*		5304.6	15$^+$	(M1+E2)[b]	0.059 *5*	α(K)=0.049 *6*; α(L)=0.0080 *7*; α(M)=0.00169 *18*; α(N)=0.00037 *4*; α(O)=5.8×10^{-5} *4* α(P)=3.5×10^{-6} *7*
		761 *1*		4832.7	(14$^+$)	(E2)	0.00372	α(K)=0.00316 *5*; α(L)=0.000445 *7*; α(M)=9.33×10^{-5} *14*; α(N)=2.06×10^{-5} *3*; α(O)=3.29×10^{-6} *5* α(P)=2.28×10^{-7} *4*
5642.6	16$^+$	338[g] *1*		5304.6	15$^+$			
		810[g] *1*		4832.7	(14$^+$)			
		856.6 *5*	100	4786.1	14$^+$	E2	0.00283	α(K)=0.00242 *4*; α(L)=0.000332 *5*; α(M)=6.96×10^{-5} *10*; α(N)=1.537×10^{-5} *22*; α(O)=2.46×10^{-6} *4* α(P)=1.746×10^{-7} *25* B(E2)(W.u.)<43
5645.1	14$^-$	547.4 *5*	100	5097.5?	(13$^-$)	D		
5662.4	(14$^-$)	790 *1*	100	4872.4	(13$^-$)			
5800.6	(15$^-$)	928.1 *5*	100	4872.4	(13$^-$)	(E2)	0.00237	α(K)=0.00202 *3*; α(L)=0.000275 *4*; α(M)=5.75×10^{-5} *8*; α(N)=1.270×10^{-5} *18*; α(O)=2.04×10^{-6} *3* α(P)=1.466×10^{-7} *21*
5808.8	15$^-$	146.4 *5*	20 *3*	5662.4	(14$^-$)	D		
		163.4 *5*	14 *2*	5645.1	14$^-$	M1[d]	0.297	α(K)=0.254 *5*; α(L)=0.0344 *6*; α(M)=0.00720 *12*; α(N)=0.00160 *3*; α(O)=0.000259 *5* α(P)=1.96×10^{-5} *4*
		936.4 *5*	100 *7*	4872.4	(13$^-$)	E2	0.00233	α(K)=0.00199 *3*; α(L)=0.000269 *4*; α(M)=5.63×10^{-5} *8*; α(N)=1.244×10^{-5} *18*; α(O)=2.00×10^{-6} *3* α(P)=1.438×10^{-7} *21*
		976.1 *5*	20 *7*	4832.7	(14$^+$)	E1	8.85×10^{-4}	α(K)=0.000764 *11*; α(L)=9.53×10^{-5} *14*; α(M)=1.97×10^{-5} *3*; α(N)=4.37×10^{-6} *7*; α(O)=7.09×10^{-7} *10* α(P)=5.43×10^{-8} *8*

$^{136}_{58}Ce_{78}$-12

Adopted Levels, Gammas (continued)

γ(^{136}Ce) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[f]	Comments
5840.6	(16)	536 *1*	100	5304.6	15^+	D	0.0112 *22*	α(K)=0.0094 *19*; α(L)=0.00132 *17*
5855.6		551 *1*	100	5304.6	15^+			
5876.9	17^+	234.4 *5*		5642.6	16^+	M1	0.1110 *17*	α(K)=0.0949 *15*; α(L)=0.01275 *20*; α(M)=0.00267 *4*; α(N)=0.000591 *9*; α(O)=9.59×10^{-5} *15* α(P)=7.30×10^{-6} *11*
		572[g] *1*		5304.6	15^+			
5994.8	16^-	185.9 *5*	100 *12*	5808.8	15^-	M1	0.208 *4*	α(K)=0.178 *3*; α(L)=0.0240 *4*; α(M)=0.00503 *8*; α(N)=0.001116 *18*; α(O)=0.000181 *3* α(P)=1.372×10^{-5} *22*
		194.2 *5*	32 *4*	5800.6	(15^-)	M1[d]	0.185	α(K)=0.1579 *25*; α(L)=0.0213 *4*; α(M)=0.00446 *7*; α(N)=0.000990 *16*; α(O)=0.000160 *3* α(P)=1.217×10^{-5} *19*
		350 *1*		5645.1	14^-			
		690.3 *5*	35 *12*	5304.6	15^+	E1	1.77×10^{-3}	α(K)=0.001524 *22*; α(L)=0.000192 *3*; α(M)=3.99×10^{-5} *6*; α(N)=8.83×10^{-6} *13* α(O)=1.428×10^{-6} *21*; α(P)=1.075×10^{-7} *16*
6098.5	(17^+)	504.9 *5*		5593.5	(16^+)	D		
		794 *1*		5304.6	15^+			
6170.2	(18^+)	293.3 *5*	100	5876.9	17^+	D		
6273.0	(17^+)	705 *1*	100	5568.0	(15^+)	[E2]	0.00446	α(K)=0.00378 *6*; α(L)=0.000541 *8*; α(M)=0.0001136 *17*; α(N)=2.51×10^{-5} *4*; α(O)=3.99×10^{-6} *6* α(P)=2.71×10^{-7} *4* B(E2)(W.u.)=2.2×10^2 *6*
6282.5	17^-	287.7 *5*	100 *7*	5994.8	16^-	M1	0.0643	α(K)=0.0550 *9*; α(L)=0.00735 *11*; α(M)=0.001535 *23*; α(N)=0.000341 *5*; α(O)=5.53×10^{-5} *9* α(P)=4.22×10^{-6} *7*
		474 *1*	2.4 *7*	5808.8	15^-			
6380.0		812 *1*	100	5568.0	(15^+)			
6524.2	(19)	354 *1*	100	6170.2	(18^+)			
6539.1	(19^+)	368.9 *5*	100	6170.2	(18^+)	D		
6642.2	(18^+)	543.6 *5*		6098.5	(17^+)	D		
		1049 *1*		5593.5	(16^+)			
6662.9	18^-	380.5 *5*	100 *5*	6282.5	17^-	M1	0.0311	α(K)=0.0266 *4*; α(L)=0.00352 *5*; α(M)=0.000735 *11*; α(N)=0.0001630 *24*; α(O)=2.65×10^{-5} *4* α(P)=2.03×10^{-6} *3* B(M1)(W.u.)=0.72 *6*
		668 *1*	5.5 *5*	5994.8	16^-	[E2]	0.00509	α(K)=0.00430 *7*; α(L)=0.000623 *9*; α(M)=0.0001310 *19*; α(N)=2.89×10^{-5} *5*; α(O)=4.59×10^{-6} *7* α(P)=3.08×10^{-7} *5* B(E2)(W.u.)=10.2 *11*
6831.7	(17^-)	1031.1 *5*	100	5800.6	(15^-)			
6885.5		603 *1*	100	6282.5	17^-			

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Adopted Levels, Gammas (continued)

γ(^{136}Ce) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[f]	Comments
6933.2	(20$^+$)	394.1 *5*	100	6539.1	(19$^+$)	D		
7086.0	(19$^+$)	813[g] *1*	100	6273.0	(17$^+$)			
7099.0	19$^-$	436.3 *5*	100 *6*	6662.9	18$^-$	M1	0.0219	α(K)=0.0188 *3*; α(L)=0.00247 *4*; α(M)=0.000516 *8*; α(N)=0.0001145 *17*; α(O)=1.86×10^{-5} *3* α(P)=1.429×10^{-6} *21* B(M1)(W.u.)=0.78 *8*
		816 *1*	4.4 *3*	6282.5	17$^-$	[E2]	0.00317	α(K)=0.00269 *4*; α(L)=0.000374 *6*; α(M)=7.83×10^{-5} *12*; α(N)=1.730×10^{-5} *25*; α(O)=2.77×10^{-6} *4* α(P)=1.94×10^{-7} *3* B(E2)(W.u.)=4.9 *5*
7238.4?	(19$^+$)	596.1[g] *5*		6642.2	(18$^+$)			
		1140[g] *1*		6098.5	(17$^+$)			
7292.7		912.7 *5*	100	6380.0		Q		
7325.5		440 *1*	100	6885.5		D		
7344.6	(21$^+$)	411.4 *5*	100	6933.2	(20$^+$)			
7585.1	20$^-$	486.1 *5*	100 *8*	7099.0	19$^-$	M1	0.01667	α(K)=0.01430 *21*; α(L)=0.00188 *3*; α(M)=0.000391 *6*; α(N)=8.68×10^{-5} *13*; α(O)=1.411×10^{-5} *20* α(P)=1.087×10^{-6} *16* B(M1)(W.u.)=0.60 *+10−9*
		922 *1*	19.0 *13*	6662.9	18$^-$	[E2]	0.00241	α(K)=0.00205 *3*; α(L)=0.000279 *4*; α(M)=5.84×10^{-5} *9*; α(N)=1.290×10^{-5} *19*; α(O)=2.07×10^{-6} *3* α(P)=1.487×10^{-7} *22* B(E2)(W.u.)=12.2 *+19−17*
7800.6	(22$^+$)	456[g] *1*	100	7344.6	(21$^+$)			
8110.0?	21$^-$	524.9[g] *5*	100 *9*	7585.1	20$^-$	M1[d]	0.01376	α(K)=0.01181 *17*; α(L)=0.001545 *22*; α(M)=0.000322 *5*; α(N)=7.15×10^{-5} *11* α(O)=1.162×10^{-5} *17*; α(P)=8.96×10^{-7} *13* B(M1)(W.u.)=0.43 *+5−3*
		1011 *1*	37 *3*	7099.0	19$^-$	[E2]	0.00197	α(K)=0.001685 *24*; α(L)=0.000226 *4*; α(M)=4.71×10^{-5} *7*; α(N)=1.043×10^{-5} *15* α(O)=1.678×10^{-6} *24*; α(P)=1.222×10^{-7} *18* B(E2)(W.u.)=13.7 *+17−9*
8215.4		922.7 *5*	100	7292.7		Q		
8315.6?	(23$^+$)	515[g] *1*	100	7800.6	(22$^+$)			
8625.4	22$^-$	515.4 *5*	100 *13*	8110.0?	21$^-$	M1[d]	0.01440	α(K)=0.01236 *18*; α(L)=0.001617 *23*; α(M)=0.000337 *5*; α(N)=7.49×10^{-5} *11* α(O)=1.217×10^{-5} *18*; α(P)=9.38×10^{-7} *14* B(M1)(W.u.)>0.24
		1040 *1*	54 *4*	7585.1	20$^-$	[E2]		B(E2)(W.u.)>9.0
9228.0	23$^-$	620.6 *5*	100 *10*					
		1118 *1*	45 *7*	8110.0?	21$^-$			

[†] From (HI,xnγ), except where noted.

$^{136}_{58}Ce_{78}$-14

Adopted Levels, Gammas (continued)

$\gamma(^{136}Ce)$ (continued)

‡ From R(DCO), $\gamma(\theta)$, and γ(lin pol) in (HI,xnγ), except where noted.
# From ^{136}Pr ε decay.
@ From ce measurements in ^{136}Pr ε decay.
& From $\gamma\gamma(\theta)$ in ^{136}Pr ε decay.
[a] From Coulomb Excitation.
[b] D+Q from R(DCO) in (HI,xnγ), $\Delta\pi$=no from level scheme.
[c] D from R(DCO) in (HI,xnγ), $\Delta\pi$=yes from level scheme.
[d] D from R(DCO) in (HI,xnγ), $\Delta\pi$=no from level scheme.
[e] Q from R(DCO) in (HI,xnγ), E2 from assumed band member.
[f] 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.
[g] Placement of transition in the level scheme is uncertain.

$^{136}_{58}Ce_{78}$-15

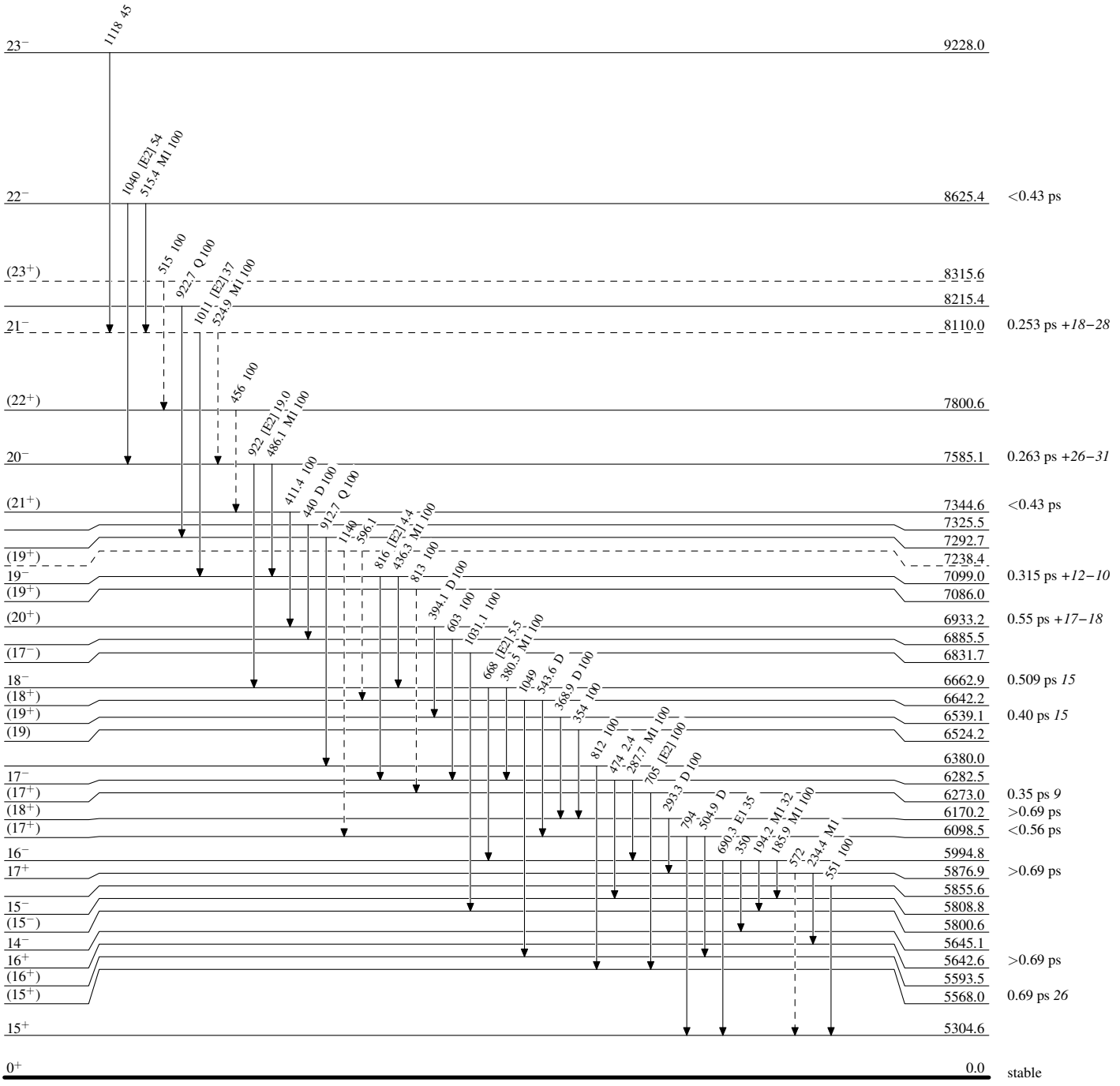
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



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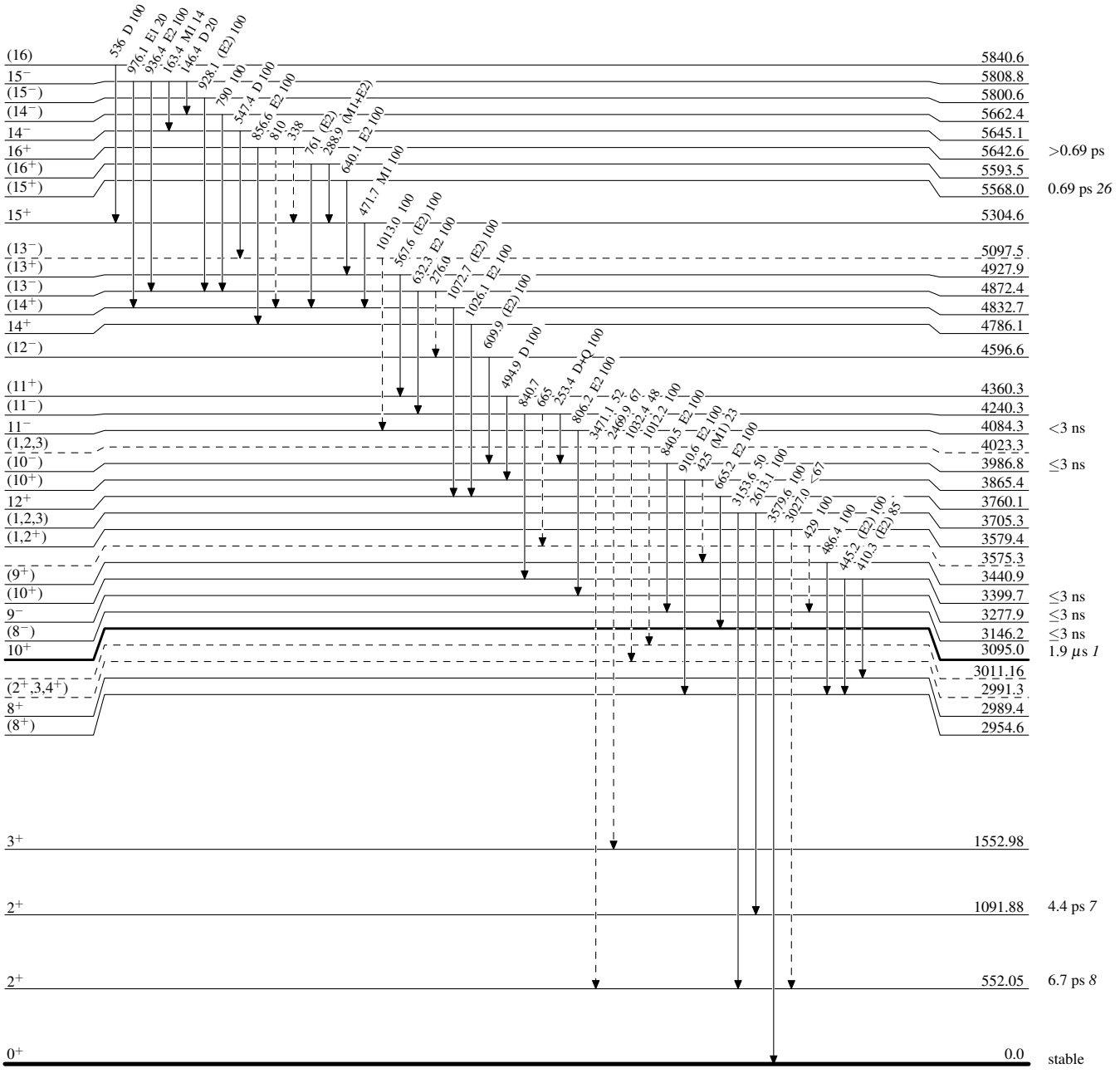
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



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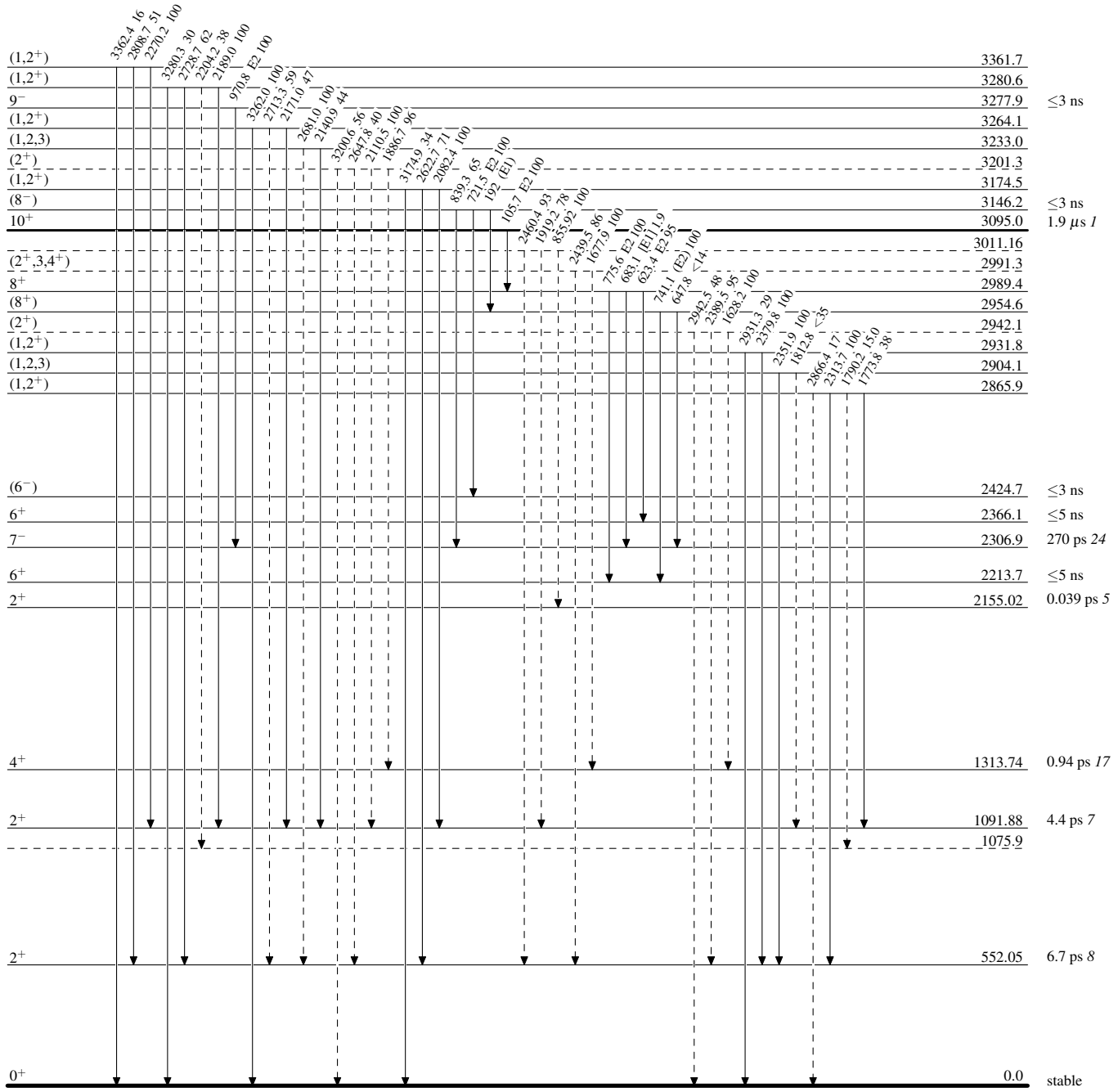
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



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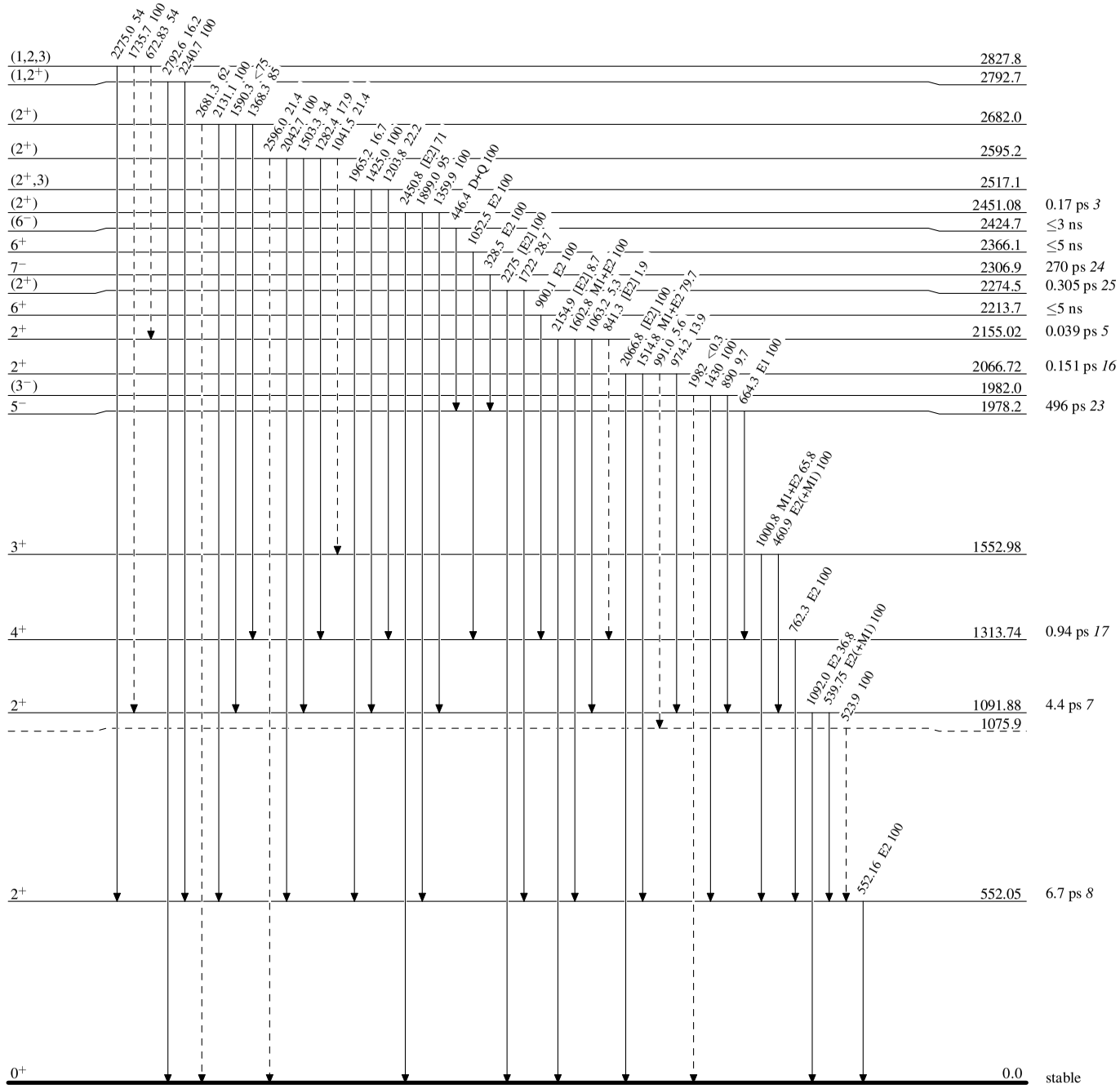
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



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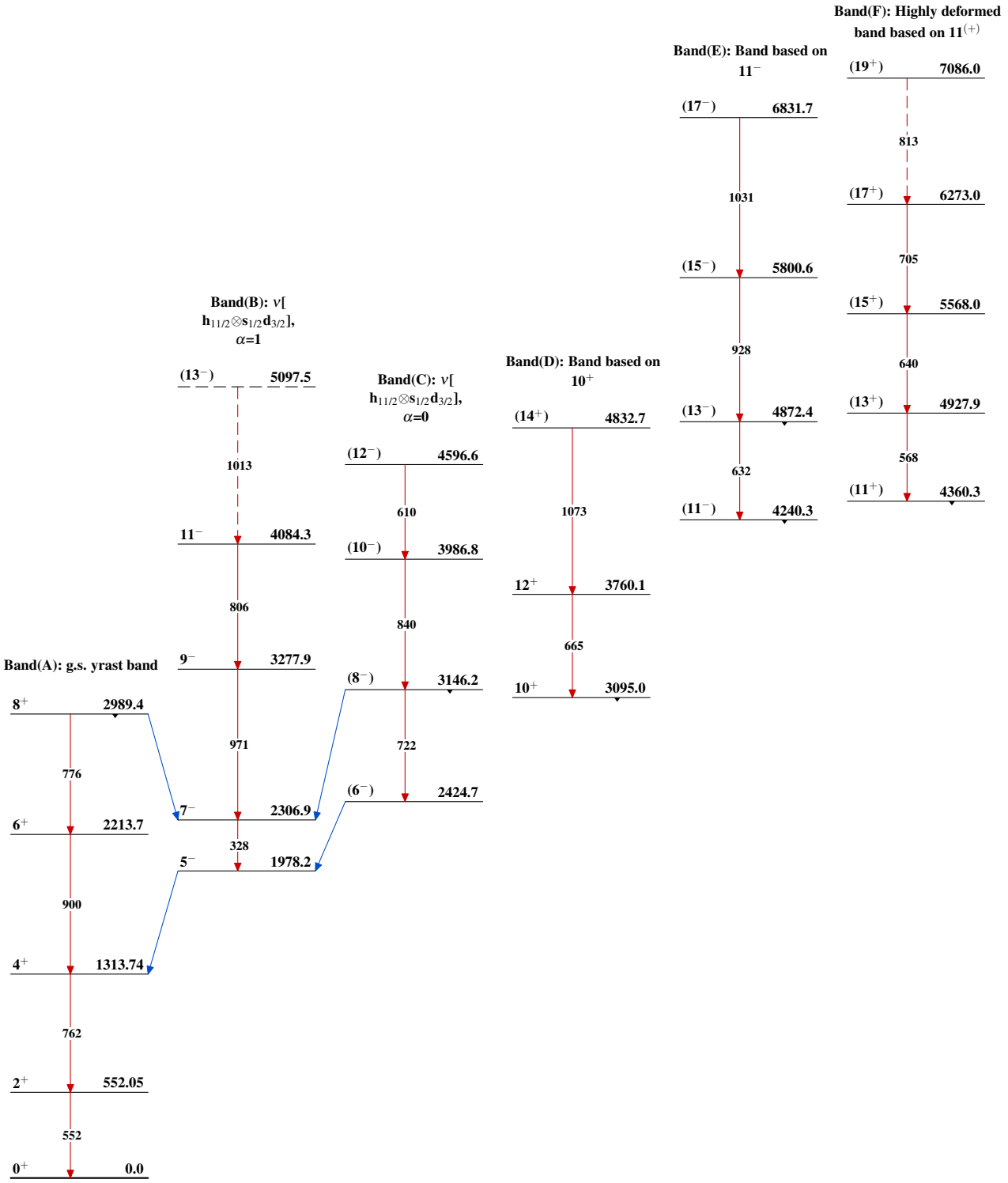
Adopted Levels, Gammas



$^{136}_{58}Ce_{78}$

Adopted Levels, Gammas (continued)