Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen[#]	NDS 147, 1 (2018)	30-Nov-2017

Q(β^-)=−4039 *24*; S(n)=8846 *5*; S(p)=6853.32 *13*; Q(α)=1304.92 *17* 2017Wa10
S(2n)=15751.0 *3*, S(2p)=12339.35 *14* (2017Wa10).

Other reactions:
^{164}Er double electron capture: 2011El08. Measured Q(β^-) value using a Penning-trap.
^{159}Tb(^{7}Li,X): 2011Pr06. Measured Eγ, Iγ. Deduced ratios of cross sections from different reaction channels.
^{124}Sn(^{40}Ar,xn): 2004Na03. Measured Eγ, Iγ, (recoil)γ-coin. Deduced GDR parameters, angular momentum dependence of strength function.
^{162}Dy(^{58}Ni,^{56}Fe): 1996De17. Measured transfer probability.
^{164}Dy(n,n) E=low: 1997Kn01.
^{164}Dy(γ,γ): Mossbauer: 1968Mu01, 1967Mu11. Measured g factor.
Hyperfine structure, isotope shifts, and rms radius for ground state: 2000As04, 1993Kr22, 1990Ji07, 1987Ok03, 1987Ah03, 1986Ch07, 1985Ne09, 1985Be34, 1967Ca21, 1965Vo02.
Mass measurements: 2011El08, 1972Ba08, 1963De30.
For theoretical nuclear structure calculations, consult NSR database, for about 300 references. About 90 of these are listed in the ENSDF dataset as document records.
Additional information 1.

^{164}Er Levels

Nomenclature for quasiparticle labels:
A: ν5/2[642],α=+1/2.
B: ν5/2[642],α=−1/2.
E: ν5/2[523],α=+1/2.
F: ν5/2[523],α=−1/2.

Cross Reference (XREF) Flags

A	^{164}Ho β^- decay (28.8 min)	E	^{160}Gd(^{9}Be,5nγ):E=59 MeV	I	^{164}Er(n,n′γ)
B	^{164}Tm ε decay (1.95 min)	F	^{160}Gd(^{9}Be,5nγ):E=57 MeV	J	^{164}Er(d,d′)
C	^{164}Tm ε decay (5.1 min)	G	^{162}Dy(α,2nγ)	K	Coulomb excitation
D	^{150}Nd(^{18}O,4nγ)	H	^{164}Er(γ,γ′)	L	^{166}Er(p,t)

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	XREF	Comments
0.0[@]	0$^+$	stable	ABCDEFGHIJKL	The rms charge radius (<r^2>)$^{1/2}$: 5.2389 fm *35* (2013An02 evaluation). See also 2009An12 for trends in nuclear radii.
91.380[@] *22*	2$^+$	1.569 ns *34*	ABCDEFGHIJKL	μ=0.697 *15* (1968Mu01,2014StZZ) Q<0 (1981Hu02,2016St14) B(E2)↑=5.48 *4* (1977Ro27) μ: Mossbauer effect (1968Mu01). Other: 0.686 *16* (transient-field integral PAC method,1996Br09). Q: reorientation method (1981Hu02). J$^\pi$: E2 γ to 0$^+$. $T_{1/2}$: from 2016Pr01 evaluation, based on $\gamma\gamma$(t) and $\beta\gamma$(t) in ^{164}Ho decay, (ce)γ(t) in ^{164}Tm decay, and B(E2) in Coulomb excitation. Measured values are: B(E2)=5.48 *4* (1977Ro27), 5.04 *35* (1960El07); mean lifetimes τ=2.140 ns *120* (1970Mo39), 2.190 ns *90* (1968Se02), 2.060 ns *70* (1963Fo02), 2.499 ns *46* (1963De21), 2.020 ns *720* (1954Br96).

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Adopted Levels, Gammas (continued)

^{164}Er Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$	XREF	Comments
				μ: Mossbauer effect.
299.43[@] *3*	4^+	86 ps *9*	BCDEFG IJKL	μ=+1.46 *15* (1997Al25,2014StZZ) B(E4)↑=0.014 *+43−14* (1977Ro27) μ: IPAC method (1997Al25). Other: +1.36 *8* from transient-field method (1996Br09). J$^{\pi}$: stretched E2 γ to 2^+. $T_{1/2}$: from microwave beam pulsing method (1968Be29).
614.39[@] *5*	6^+		CDEFG IJKL	μ=+1.884 *90* (1996Br09,2014StZZ) μ: transient-field integral PAC method. J$^{\pi}$: stretched E2 γ to 4^+; band member.
860.25[&] *3*	2^+	1.9 ps *2*	B D G IJKL	μ=+0.808 *60* (1996Br09,2014StZZ) Q=2.4 *3* (1983Hu01,2016St14) B(E2)↑=0.148 *6* (1982Ro07) μ: transient-field integral PAC method. Q: reorientation method In Coulomb excitation (1983Hu01). J$^{\pi}$: E2 γ to 0^+. $T_{1/2}$: from B(E2) (1982Ro07).
946.34[&] *5*	3^+		BCD FG I	J$^{\pi}$: E2+M1 γs to 2^+ and 4^+.
1024.62[@] *7*	8^+	2.59 ps *14*	CDEFG I K	μ=+2.72 *13* (1996Br09,2014StZZ) μ: transient-field integral PAC method. J$^{\pi}$: stretched E2 γ to 6^+. $T_{1/2}$: Doppler-broadened line shape in Coulomb excitation.
1058.49[&] *8*	4^+		BCD G IJK	J$^{\pi}$: ΔJ=(0), E2(+M1) γ to 4^+; E2 γ to 2^+; band member.
1197.48[&] *6*	5^+		CDEFG I	J$^{\pi}$: E2+M1 gammas to 4^+ and 6^+.
1246.06[a] *5*	0^+		B I L	XREF: L(1248). J$^{\pi}$: E0 transition to 0^+.
1314.56[a] *4*	2^+		B G IJKL	XREF: L(1308). J$^{\pi}$: E2 γ to 0^+.
1358.73[&] *12*	6^+		CDE G I K	J$^{\pi}$: ΔJ=2, E2 γs to 4^+; E2+M1 γ to 6^+.
1386.74[j] *4*	1^-		B HIJ	J$^{\pi}$: E1 γ to 0^+.
1416.57 *5*	0^+		B I L	J$^{\pi}$: E0 transition to 0^+.
1433.98[j] *5*	3^-		B IJK	B(E3)↑=0.15 *3* (1982Ro07) J$^{\pi}$: E1 γs to 2^+ and 4^+.
1469.72[a] *25*	4^+		B G IJ	J$^{\pi}$: E0 admixture in γ to 4^+.
1483.69 *4*	2^+		B IJK	J$^{\pi}$: E2 γ to 0^+.
1495.05 *25*			B G I	J$^{\pi}$: γs to 2^+ and 3^+ suggest 1^+,2,3,4^+; population in (α,2nγ) favors 3,4^+.
1507.6? *10*			G	
1518.08[@] *11*	10^+	1.01 ps *5*	DEFG K	μ=+3.18 *34* (1996Br09,2014StZZ) μ: transient-field integral PAC method. $T_{1/2}$: from Doppler-broadened line shape and Coul. ex. (1977Ke06,1980Ya03).
1545.10[&] *9*	7^+		CDE G	J$^{\pi}$: E2+M1 γs to 6^+ and 8^+.
1555.3[j] *3*	$(5)^-$		G I	J$^{\pi}$: E1 γ to 6^+; γ to 4^+; band member.
1568.67 *14*	(3^-)		B IJK	B(E3)↑=0.091 *34* (1982Ro07) J$^{\pi}$: γs to 2^+ and 4^+; probable E3 excitation in (d,d′).
1577.79 *5*	1^-		B I L	J$^{\pi}$: E1 γ to 2^+; γ to 0^+.
1610.26 *17*	$(4^-,5^-)$		C G	J$^{\pi}$: γs to 3^+ and 4^+; (E1) γ from (5^+), 1683 level.
1631.5 *5*			B IJ	J$^{\pi}$: γ to 4^+; (5^-) proposed in (d,d′).
1640.2 *5*			I	J$^{\pi}$: γ to 4^+.
1664.21[c] *7*	5^-	<0.08 ns	CDEFG I	$T_{1/2}$: $\gamma\gamma$(t) (1973Ch28) in ^{164}Tm ε decay (5.1 min). J$^{\pi}$: E1 γ to 6^+; γ to 4^+. Configuration=ν5/2[523]⊗ν5/2[642], $K^{\pi}=5^-$.
1683.40 *9*	(5^+)		C	J$^{\pi}$: γs to 3^+ and 5^+; possible β feeding from 6^- parent state.

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Adopted Levels, Gammas (continued)

^{164}Er Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$	XREF	Comments
1702.2 *5*			G l	J^{π}: γ to 2^+, 4^+ suggested in (α,2nγ).
1702.20 *4*	0^+		B I l	J^{π}: E0 transition to 0^+.
1706.7[a] *5*	$(6)^+$		G I l	J^{π}: M1(+E2) γ to 6^+; γ to 4^+; band member.
1715.34 *7*	(2^-)		B	J^{π}: E1 γ from J=$1^{(+)}$; γ to 3^+.
1726.1? *10*			G	
1741.6 *3*			I	
1744.55[d] *6*	6^-	0.22 ns *3*	CDEFG I	J^{π}: E1 γ to 5^+, E2 γ to 5^-; band member. $T_{1/2}$: from $\gamma\gamma$(t) (1973Ch28) in ^{164}Tm ε decay.
1744.88[&] *11*	8^+		DE G K	J^{π}: E2 γ to 6^+, γ to 8^+.
1763.8[j] *4*	$(7)^-$		C G	J^{π}: E1 γ to 6^+.
1765.86 *4*	0^+		B I	J^{π}: E0 transition to 0^+.
1788.35 *6*	2^+		B I	J^{π}: E0 admixture in γ to 2^+.
1798.4 *4*	$(5)^-$		C G IJ	J^{π}: ΔJ=1, E1 γ to 6^+; γ to 4^+.
1806.5 *10*			G	J^{π}: γ to 4^+.
1813.99 *14*	$(6)^-$		G	J^{π}: ΔJ=1, E1 γ to 5^+.
1833.41 *4*	2^+		B I	J^{π}: E0 admixture in γ to 2^+.
1841.7? *4*	(0^+)		B	J^{π}: possible E0 transition to 0^+.
1845.54[c] *7*	7^-		CDEFG I	J^{π}: E1 γs to 8^+ and 6^+.
1861.46? *19*	$(0,1,2)^+$		B	J^{π}: E2 γ to 2^+. Possible β feeding from 1^+.
1875.26 *7*	$1^{(+)}$[#]		B HI	J^{π}: (M1) γ between 2173,0^+ and 1875, J=1 levels.
1911.27 *7*	2^+		B I	J^{π}: E0 admixture in γ to 2^+.
1929.5 *10*			G	J^{π}: γ to 5^+.
1953.92 *6*	2^+		B IJ	J^{π}: E0 admixture in γ to 2^+.
1961.29 *8*			B	
1964.34[d] *12*	(8^-)		DE G	
1969.6 *6*	$(2^+,3^-,4^+)$		IJ	J^{π}: gammas to 2^+ and 4^+; population in (d,d′) disfavors 3^+.
1977.15[&] *9*	9^+		DE G	J^{π}: ΔJ=2, E2 γ to 7^+; band member.
1985.06[g] *6*	7^-	23.0 ns *12*	CDEFG	J^{π}: M1 γ to 6^-; E2+M1 γ to 7^-; 6^- rejected by γ to 8^+ and RUL; also log *ft*=5.0 from 6^- parent. Configuration=π7/2[523]$\otimes\pi$7/2[404]. $T_{1/2}$: weighted average of 22.7 ns *17*, 23.3 ns *16* in ^{164}Tm ε decay (5.1 min) and 21.6 ns *15* in (α,2nγ).
2002.6 *4*	(2^+ to 5^-)		IJ	J^{π}: gammas to 4^+ and 3^-.
2005.4 *5*	8^+		G	J^{π}: E0 admixture in γ to 8^+.
2018.0 *10*			G	J^{π}: γ to 6^+.
2022.50 *8*			B I	
2025.77 *6*	(2^+)		B I	J^{π}: gammas to 0^+ and 2^+.
2032.1? *2*			B	
2035.43 *20*	1[#]		B HIJ	
2046.4 *20*			G	
2054.6[j] *10*	$(9)^-$		G	J^{π}: E1 γ to 8^+.
2068.9[a] *6*	$(8)^+$		G	J^{π}: E2+M1 γ to 8^+, γ to 6^+.
2069.38 *15*	$(1^-,2^-)$		B IJ	J^{π}: M1,E2 γ to (2^-); γs to 2^+ and 3^-; possible ε feeding from 1^+.
2082.1 *5*			G	J^{π}: γ to 7^+.
2082.81[@] *12*	12^+	0.63 ps *10*	DEFG K	$T_{1/2}$: from Doppler-broadened line shape and Coul. ex. (1977Ke06,1980Ya03). J^{π}: ΔJ=2, E2 γ to 10^+.
2091.00[i] *11*	(8^-)		DE G	
2093.62? *12*			G	J^{π}: M1+E2 γ to 8^+ suggests 9^+,8^+,7^+, but the placement of the γ ray is uncertain.
2108.57[c] *11*	9^-		DE G	J^{π}: E1 γ to 8^+.
2141.4 *20*			G	
2151.4 *10*			G	

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Adopted Levels, Gammas (continued)

^{164}Er Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$	XREF	Comments
2163.67[h] *8*	(8−)		CDEFG	
2168.1 *3*			B	
2173.04 *5*	0+		B I	J^{π}: E0 transition to 0+.
2184.31[&] *12*	10+		DE G K	J^{π}: M1+E2 γ to (10)+, E2 γ to 8+.
2240.2? *6*			G	
2254.24 *9*			B I	
2261.27[d] *13*	(10−)		DE G	
2278.38 *6*	2+		B	J^{π}: E0 admixture in γ to 2+.
2278.9 *10*			G J	XREF: J(2288).
2337	(3−)		J	J^{π}: probable E3 excitation in (d,d′).
2337.32 *12*	(9−)[#]		G	
2339.99 *10*	(8)		F	J^{π}: γ to 7−.
2356.4 *20*			G	
2363.58[g] *9*	(9−)		DEFG	
2370.6 *3*			C	
2404.2 *7*	1[#]		H	
2408.18[c] *15*	11−		DE G	J^{π}: E1 γ to 10+.
2416.2 *7*	1[#]		H	
2421.13[i] *12*	(10)−		DE G	J^{π}: E1 γ to (9)+.
2444.53 *6*	(2+)		B	J^{π}: (E1) gammas to 1− and (3−).
2448.1 *5*			G	
2462.68[a] *15*	10+		G	J^{π}: E0 admixture in γ to 10+.
2470.1[j] *10*	(11−)		G	J^{π}: γ to 10+; possible band member.
2479.48[&] *11*	11+		DE G	J^{π}: E2 γ to (9)+.
2483.4 *20*			G	
2519.05[b] *25*	12+		DE G	J^{π}: ΔJ=2, E2 γ to 10+, M1(+E2) γ to 12+.
2525.85 *10*	(9)		F	J^{π}: γ to (8−).
2541.03 *17*	(1+,2+)		B	J^{π}: (E2) γ to 1(+); possible γ to 0+.
2577.2 *7*	1[#]		H	
2583.67[h] *10*	(10−)		DEFG	
2591.6 *10*			G	
2631.23[d] *14*	(12−)		DE G	
2640.2 *7*	1[#]		H	
2702.58[@] *16*	14+	0.27 ps *4*	DE G K	$T_{1/2}$: deduced by evaluators from B(E2)↓(620γ)=2.3 *3* in Coul. ex. (1980Ya03), assuming 100% branch for 620γ.
2729.57 *11*	(10)		F	J^{π}: γ to (9).
2733.3[&] *5*	12+	0.76 ps *+67−24*	DE K	$T_{1/2}$: deduced by evaluators from B(E2)↓(549γ)=1.5 *7* in Coul. ex. (1980Ya03), assuming 100% branch for 549γ.
2747.2 *7*	1[#]		H	
2759.01 *9*	(9−)		F	J^{π}: γ to 7−.
2762.2 *7*	1[#]		H	
2800.45[i] *14*	(12−)		DE	
2815.21[c] *15*	13−		DE G	J^{π}: ΔJ=1, E1(+M2) γ to 12+; ΔJ=2 γ to 11−.
2822.55[g] *14*	(11−)		DEFG	
2823.50? *21*			B	
2874.78[b] *14*	14+		DE K	J^{π}: stretched E2 γ to 12+; band member.
2933.2 *7*	1[#]		H	
2950.26 *10*	(11)		F	J^{π}: γs to (9) and (10−).
2966.2 *7*	1[#]		H	
2980.56 *9*	(10−)		F	J^{π}: γs to (8−) and (9−).

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Adopted Levels, Gammas (continued)

^{164}Er Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$	XREF	Comments
3018.0 *10*	1[#]		H	
3027.3[&] *5*	13$^+$		DE	
3028.76 *15*			B	
3066.6[d] *4*	(14$^-$)		DE G	
3079.4[h] *4*	(12$^-$)		DE	
3133.2 *7*	1[#]		H	
3179.2 *7*	1[#]		H	
3220.2 *7*	1[#]		H	
3221.18 *9*	(11$^-$)		F	J$^{\pi}$: γs to (9$^-$) and (10$^-$).
3244.35[i] *24*	(14$^-$)		DE	
3263.09[b] *18*	16$^+$	>0.30 ps	DE G K	J$^{\pi}$: ΔJ=2, E2 γ to 14$^+$. T$_{1/2}$: deduced by evaluators from B(E2)↓(561γ)<2.8 in Coul. ex. (1980Ya03) and using the γ-branching ratios for 388γ and 561γ.
3267.0[&] *6*	14$^+$	0.69 ps *+61−22*	DE K	T$_{1/2}$: deduced by evaluators from B(E2)↓(534γ)=1.9 *9* in Coul. ex. (1980Ya03), assuming 100% branch for 534γ.
3281.01[c] *18*	15$^-$		DE	
3303.1 *3*	(6$^-$,7$^-$)		C	J$^{\pi}$: gammas to (8$^-$) and 7$^-$; log *ft*=5.8 from 6$^-$.
3352.3[g] *4*	(13$^-$)		DE	
3377.57[e] *11*	(12$^+$)	68 ns *2*	D F	4-qp state with configuration=ν(5/2[523],5/2[642])⊗π(7/2[523],7/2[404]). T$_{1/2}$: 555γ(t) (2012Sw02). Other: ≥170 ns (1997Ba63).
3408.2 *3*			B	
3411.2[@] *4*	16$^+$	0.21 ps *4*	DE K	T$_{1/2}$: deduced by evaluators from B(E2)↓(709γ)=1.5 *3* in Coul. ex. (1980Ya03), assuming 100% branch for 709γ.
3458.2 *7*	1[#]		H	
3518.7[&] *6*	(15$^+$)		DE	
3534.58? *7*	(2$^+$)		B	J$^{\pi}$: (E2) γ to 0$^+$.
3541.0 *10*	1,2[#]		H	
3545.6[f] *8*	(13$^+$)		D F	
3551.2 *7*	1[#]		H	
3559.6[d] *5*	(16$^-$)		DE	
3602.2 *7*	1[#]		H	
3629.67 *10*	2$^+$		B	J$^{\pi}$: E2 γ to 0$^+$.
3734.5[e] *8*	(14$^+$)		D F	
3752.0 *10*	1[#]		H	
3760.0[i] *4*	(16$^-$)		DE	
3768.19 *11*	(1$^+$,2$^+$)		B	J$^{\pi}$: (E2) γ to 2$^+$, γ to 0$^+$.
3768.59[b] *19*	18$^+$		DE G	
3800.7[&] *6*	(16$^+$)		DE	
3804.9[c] *5*	17$^-$		DE	
3942.7[f] *10*	(15$^+$)		D F	
3944.1 *10*	1[#]		H	
4017.9[&] *7*	(17$^+$)		DE	
4105.6[d] *7*	(18$^-$)		DE	
4121.2[@] *5*	18$^+$		DE K	
4169.4[e] *11*	(16$^+$)		D F	
4344.5[i] *6*	(18$^-$)		DE	
4345.7[b] *4*	20$^+$		DE	

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Adopted Levels, Gammas (continued)

^{164}Er Levels (continued)

E(level)[†]	Jπ[‡]	XREF	E(level)[†]	Jπ[‡]	XREF	E(level)[†]	Jπ[‡]	XREF
4364.3[&] 8	(18+)	D	5678[i] 2	(22−)	E	7999.3[e] 19	(28+)	D
4384.9[c] 5	(19−)	DE	5704.1[c] 11	(23−)	DE	8095.1[c] 20	(29−)	D
4413.1[f] 12	(17+)	D F	5729.1[b] 8	24+	DE	8338.1[b] 19	30+	D
4590.1[&] 8	(19+)	DE	5857.7[e] 15	(22+)	D	8396.6[f] 20	(29+)	D
4673.2[e] 13	(18+)	D	6052.9[d] 13	(24−)	DE	8533.9[d] 22	(30−)	D
4702.0[d] 8	(20−)	DE	6186.5[f] 16	(23+)	D	8803.9[e] 20	(30+)	D
4868.4[@] 6	20+	DE	6442.1[c] 15	(25−)	D	9016.1[c] 23	(31−)	D
4948.2[f] 13	(19+)	D	6526.6[e] 17	(24+)	D	9225.6[f] 22	(31+)	D
4987.4[i] 12	(20−)	E	6529.1[b] 13	26+	D	9342.1[b] 22	32+	D
5000.1[b] 6	22+	DE	6814.9[d] 17	(26−)	D	9492.0[d] 24	(32−)	D
5018.2[c] 7	(21−)	DE	6878.4[f] 17	(25+)	D	9658.9[e] 23	(32+)	D
5230.6[&] 9	(21+)	D	7238.1[c] 18	(27−)	D	10001.1[c] 25	(33−)	D
5238.1[e] 14	(20+)	D	7241.0[e] 18	(26+)	D	10410.1[b] 24	34+	D
5349.9[d] 9	(22−)	DE	7399.1[b] 16	28+	D	10515[d] 3	(34−)	D
5541.4[f] 15	(21+)	D	7614.6[f] 19	(27+)	D	11049[c] 3	(35−)	D
5651.5[@] 8	22+	D	7640.9[d] 20	(28−)	D	11549[b] 3	36+	D

† From least-squares fit to Eγ data. Uncertainties of the following γ rays were doubled due to their somewhat poor fits: 318γ from 2278 level, 666γ from 1911 level and 689γ from 2173 level. With adjustment, only the energies of six γ rays out of a total of about 400 γ rays deviate by ≈3 σ. Reduced χ^2=1.9 as compared to critical χ^2=1.3.

‡ For high-spin (J>7) levels, populated mostly in in-beam reactions ((^{18}O,4nγ), (^{9}Be,5nγ) and (α,2nγ)), the assignments are based on multipolarities and ΔJ extracted from γ(θ) and ce data in (α,2nγ); γ(θ) and γ(lin pol) in (^{9}Be,5nγ); and γ(θ) data in (^{18}O,4nγ); combined with associated band structures. All ΔJ=2 transitions are assumed as stretched E2 and ΔJ=1, mixed transitions as M1+E2 when there is no evidence for long-lived (>20 ns or so) states. In such reactions, spins are assumed to be in ascending order as the excitation energy increases, due to yrast nature of level population.

Population in (γ,γ′).

@ Band(A): $K^\pi=0^+$ g.s. band.

& Band(B): $K^\pi=2^+$ γ band.

a Band(C): $K^\pi=0^+$ band. Band based on 1246 level.

b Band(D): $K^\pi=12^+$ band. Band based on 2519 level. Configuration=AB.

c Band(E): $K^\pi=5^-$,α=1. Configuration=AE.

d Band(e): $K^\pi=5^-$ band,α=0. Configuration=AF.

e Band(F): $K^\pi=12^+$, 4-qp band,α=0. Configuration=ν(5/2[523],5/2[642])⊗π(7/2[523],7/2[404]) (2015Ko14).

f Band(f): $K^\pi=12^+$, 4-qp band,α=1. Configuration=ν(5/2[523],5/2[642])⊗π(7/2[523],7/2[404]) (2015Ko14).

g Band(G): $K^\pi=7^-$ band,α=1. Configuration=π7/2[523]⊗π7/2[404] (2015Ko14).

h Band(g): $K^\pi=7^-$ band,α=0. Configuration=π7/2[523]⊗π7/2[404] (2015Ko14).

i Band(H): Band based on (8),α=0.

j Band(I): Probable $K^\pi=0^-$, octupole band. Band proposed by 1984Fi07.

Adopted Levels, Gammas (continued)

$\gamma(^{164}Er)$

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[#]	δ[a]	α[b]	$I_{(\gamma+ce)}$	Comments
91.380	2^+	91.39 1	100	0.0	0^+	E2		4.14		α(K)=1.314 19; α(L)=2.17 3; α(M)=0.528 8 α(N)=0.1194 17; α(O)=0.01396 20; α(P)=5.51×10^{-5} 8 B(E2)(W.u.)=206 5
299.43	4^+	208.08 3	100	91.380	2^+	E2		0.221		α(K)=0.1445 21; α(L)=0.0587 9; α(M)=0.01396 20 α(N)=0.00318 5; α(O)=0.000394 6; α(P)=6.87×10^{-6} 10 B(E2)(W.u.)=2.6×10^2 3
614.39	6^+	314.97 4	100	299.43	4^+	E2		0.0596		α(K)=0.0441 7; α(L)=0.01197 17; α(M)=0.00279 4 α(N)=0.000640 9; α(O)=8.27×10^{-5} 12; α(P)=2.29×10^{-6} 4
860.25	2^+	561.5 3	3.0 5	299.43	4^+	E2		0.01228		B(E2)(W.u.)=1.6 4
		768.92 4	100 4	91.380	2^+	E2(+M1)	>1.8	0.00725 11		B(E2)(W.u.)=9 2; B(M1)(W.u.)<0.0036
		860.29 4	84 3	0.0	0^+	E2				B(E2)(W.u.)=5.3 6
946.34	3^+	86.24 12		860.25	2^+	E2+M1		4.8 5		α(K)=2.6 11; α(L)=1.7 12; α(M)=0.4 3 α(N)=0.09 7; α(O)=0.011 7; α(P)=0.00014 9
		646.94 7	21 3	299.43	4^+	E2+M1	2.7 10			Mult.,δ: from ce data in (α,2nγ); ce data in ε decay (1.95 min) gives M1,E2.
		855.01 7	100 9	91.380	2^+	E2+M1	−2.8 7			Mult.,δ: δ from $\gamma(\theta)$ in (α,2nγ), mult from ce data in ε decay (1.95 min).
1024.62	8^+	410.22 7	100	614.39	6^+	E2		0.0279		α(K)=0.0216 3; α(L)=0.00484 7; α(M)=0.001114 16 α(N)=0.000256 4; α(O)=3.40×10^{-5} 5; α(P)=1.171×10^{-6} 17 B(E2)(W.u.)=343 19
1058.49	4^+	198.4[‡] 3		860.25	2^+					
		758.85 9	100 7	299.43	4^+	E2(+M1)	>+7			Mult.,δ: from ce and $\gamma(\theta)$ in (α,2nγ), and ce data in ε decay (1.95 min).
		967.8 3	47 16	91.380	2^+	E2				This γ seen in both the activities of ^{164}Tm ε. From relative branching ratios, this γ should have been seen in (α,2ng).
1197.48	5^+	251.0 2	5.1 5	946.34	3^+					
		583.21 10	18.8 12	614.39	6^+	E2+M1[@]	3.1 8	0.0124 9		
		898.05 6	100 5	299.43	4^+	E2+M1	−2.5 +17−7	0.0047 4		Mult.,δ: from ce data in ε decay (5.1 min) and (α,2nγ); sign from $\gamma(\theta)$, where δ=−4.8 +15−59 or 0.00 +7−14 from $\gamma(\theta)$ in (α,2nγ).
1246.06	0^+	385.3 7	0.8 4	860.25	2^+	E2		0.0332		α(K)=0.0255 4; α(L)=0.00595 9; α(M)=0.001374 21 α(N)=0.000316 5; α(O)=4.17×10^{-5} 7; α(P)=1.369×10^{-6} 21
		1154.66 5	100 3	91.380	2^+	E2				
		1246.1 4		0.0	0^+	E0			0.65 12	q^2_K(E0/E2)=2.5 4, X(E0/E2)=0.25 4 (2005Ki02 evaluation).

From ENSDF

γ(^{164}Er) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[#]	δ[a]	α[b]	Comments
1314.56	2^+	68.49 *14*		1246.06	0^+	(E2)		13.09 *22*	α(K)=2.03 *3*; α(L)=8.47 *15*; α(M)=2.06 *4* α(N)=0.466 *8*; α(O)=0.0540 *10*; α(P)=0.0001027 *15*
		368.2[‡d] *3*		946.34	3^+				
		454.6 *1*	2.2 *11*	860.25	2^+	E2		0.0211	α(K)=0.01661 *24*; α(L)=0.00348 *5*; α(M)=0.000798 *12* α(N)=0.000184 *3*; α(O)=2.47×10^{-5} *4*; α(P)=9.10×10^{-7} *13*
		1015.15[c] *7*	<26	299.43	4^+	(E2)			
		1223.14 *5*	100 *3*	91.380	2^+	M1+E2+E0			ρ^2(E0)=0.0053 *27* (review by 1999Wo07).
		1314.3 *2*	56 *3*	0.0	0^+	E2			B(E2)(W.u.)=0.23 *12* from B(E2)↑=0.006 *3* in Coul. ex. (1982Ro07).
1358.73	6^+	300.0 *3*	65 *15*	1058.49	4^+	E2		0.0691	α(K)=0.0506 *8*; α(L)=0.01429 *21*; α(M)=0.00334 *5* α(N)=0.000765 *11*; α(O)=9.83×10^{-5} *15*; α(P)=2.60×10^{-6} *4*
		744.1 *2*	100 *30*	614.39	6^+	E2+M1	3.7 *+19−8*	0.0068 *3*	Mult.,δ: from ce data in (α,2nγ). Other: δ=−1.9 *+16−11* or >7 from $\gamma(\theta)$ in (α,2nγ).
		1059.3 *10*	40 *5*	299.43	4^+	E2			
1386.74	1^-	140.6[‡] *2*		1246.06	0^+				
		526.3[‡d] *4*		860.25	2^+				
		1295.36 *5*	100 *3*	91.380	2^+	E1			
		1386.69 *5*	66 *4*	0.0	0^+	E1			
1416.57	0^+	170.6[‡] *3*		1246.06	0^+	(E0)			
		1325.17 *5*	100 *3*	91.380	2^+	E2			
		1416.6 *1*		0.0	0^+	E0			q^2_K(E0/E2)=1.08 *19*, X(E0/E2)=0.14 *3* (2005Ki02 evaluation).
1433.98	3^-	574.2[‡] *4*		860.25	2^+				
		1134.60 *5*	57 *5*	299.43	4^+	E1			
		1342.59 *7*	100 *5*	91.380	2^+	E1			
1469.72	4^+	855[d]		614.39	6^+				
		1170.2 *3*	100 *20*	299.43	4^+	M1+E2+E0			Mult.: from ce data in ε decay (1.95 min). Other: M1(+E2), δ<0.5 from ce data in (^{18}O,4nγ).
		1378.5 *4*	20 *20*	91.380	2^+				
1483.69	2^+	168.9[‡] *3*		1314.56	2^+				
		237.6[‡] *3*		1246.06	0^+				
		623.5[‡] *4*		860.25	2^+				
		1184.30 *5*	100 *12*	299.43	4^+	E2			
		1392.48 *5*	81 *4*	91.380	2^+	M1+E2+E0		0.021 *9*	ρ^2(E0)=0.09 *5* (review by 1999Wo07).
		1483.2 *3*	46 *19*	0.0	0^+	E2			B(E2)(W.u.)=1.1 *3* from B(E2)↑=0.030 *9* in Coul. ex. (1982Ro07).
1495.05		547.9[‡] *4*		946.34	3^+				
		634.6 *5*		860.25	2^+				
1507.6?		1208.2	100	299.43	4^+				
1518.08	10^+	493.46 *10*	100	1024.62	8^+	E2		0.01701	B(E2)(W.u.)=353 *18*
1545.10	7^+	347.2 *2*	48 *20*	1197.48	5^+				
		520.3 *5*	28 *6*	1024.62	8^+	E2+M1	2.1 *+26−7*	0.018 *3*	Mult.,δ: from ce data in (α,2nγ).

$^{164}_{68}Er_{96}$-8

Adopted Levels, Gammas (continued)

γ(^{164}Er) (continued)

E_i(level)	J^{π}_i	E_γ[†]	I_γ[†]	E_f	J^{π}_f	Mult.[#]	δ[a]	α[b]	$I_{(\gamma+ce)}$	Comments
1545.10	7$^+$	930.5 *4*	100 *13*	614.39	6$^+$	E2+M1	−2.4 *3*			Mult.,δ: from γ(θ) data in (α,2nγ). Other: δ=1.1 *2* from ce data in (α,2nγ).
1555.3	(5)$^-$	358.0 *5*	30 *10*	1197.48	5$^+$					
		941.0 *5*	40 *12*	614.39	6$^+$	E1[@]				
		1255.5 *5*	100 *20*	299.43	4$^+$					
1568.67	(3$^-$)	1268.4 *5*	41 *16*	299.43	4$^+$					
		1477.1 *4*	100 *25*	91.380	2$^+$					
1577.79	1$^-$	190.6[‡] *3*		1386.74	1$^-$					
		331.0[‡] *3*		1246.06	0$^+$					
		1486.27 *17*	100 *10*	91.380	2$^+$	E1				
		1577.72 *8*	26.2 *16*	0.0	0$^+$	(E1)				
1610.26	(4$^-$,5$^-$)	551.5 *5*	16 *3*	1058.49	4$^+$					
		663.9 *2*	100 *6*	946.34	3$^+$					
1631.5		136.1[‡d] *2*		1495.05						
		572.9[‡d] *4*		1058.49	4$^+$					
		685.0[‡d] *4*		946.34	3$^+$					
		1017.2	<10	614.39	6$^+$					γ not reported in ε decay (1.95 min).
		1332.0 *5*	100 *40*	299.43	4$^+$					γ not reported in ε decay (1.95 min).
1640.2		582.0 *5*	100 *20*	1058.49	4$^+$					
		1339.5 *10*	37 *24*	299.43	4$^+$					
1664.21	5$^-$	1049.86 *9*	42 *2*	614.39	6$^+$	E1[@]				B(E1)(W.u.)>7.2×10^{-7} Reduced hindrance factor f_ν≤34.3, ν=4 (2015Ko14 evaluation).
		1364.68 *9*	100 *6*	299.43	4$^+$	[E1]				B(E1)(W.u.)>7.8×10^{-7} Reduced hindrance factor f_ν≤33.6, ν=4 (2015Ko14 evaluation).
1683.40	(5$^+$)	73.0 *3*	73 *12*	1610.26	(4$^-$,5$^-$)	(E1)		0.743 *14*		α(K)=0.611 *11*; α(L)=0.1037 *19*; α(M)=0.0230 *5* α(N)=0.00524 *10*; α(O)=0.000685 *13*; α(P)=2.64×10^{-5} *5*
		486.00 *8*	27 *8*	1197.48	5$^+$					
		624.6 *2*	100 *12*	1058.49	4$^+$					
		736.9 *2*	88 *27*	946.34	3$^+$					
1702.2		841.9 *5*	100	860.25	2$^+$					
1702.20	0$^+$	218.5 *3*	3.8 *13*	1483.69	2$^+$					
		315.44 *6*	11.9 *6*	1386.74	1$^-$	E1		0.01638		
		387.7[d]	<0.6	1314.56	2$^+$					
		456.4 *2*		1246.06	0$^+$	E0			0.14 *3*	q^2_K(E0/E2)=0.98 *19*, X(E0/E2)=0.69 *14* (2005Ki02 evaluation).
		842.06 *5*	36 *2*	860.25	2$^+$	E2				
		1610.71 *5*	100 *3*	91.380	2$^+$	E2				
		1702.1 *4*		0.0	0$^+$	E0			0.057 *13*	q^2_K(E0/E2)=0.38 *9*, X(E0/E2)=0.073 *18* (2005Ki02 evaluation).

From ENSDF

$^{164}_{68}Er_{96}$-9

Adopted Levels, Gammas (continued)

$\gamma(^{164}Er)$ (continued)

E_i(level)	J^{π}_i	E_γ[†]	I_γ[†]	E_f	J^{π}_f	Mult.[#]	δ[a]	α[b]	$I_{(\gamma+ce)}$	Comments
1706.7	$(6)^+$	1092.4 *8*	100 *35*	614.39	6^+	M1(+E2)[@]	<0.4			
		1407 *1*	57 *30*	299.43	4^+					
1715.34	(2^-)	137.7 *2*		1577.79	1^-					
		768.7		946.34	3^+					
		854.9		860.25	2^+					
1726.1?		1111.7		614.39	6^+					
1741.6		881.0 *4*	100 *28*	860.25	2^+					
		1442.4 *5*	87 *22*	299.43	4^+					
		1651.5 *10*	65 *22*	91.380	2^+					
1744.55	6^-	80.27 *9*	13.4 *14*	1664.21	5^-	E2		6.88		α(K)=1.682 *24*; α(L)=3.99 *6*; α(M)=0.971 *15* α(N)=0.219 *4*; α(O)=0.0255 *4*; α(P)=7.35×10^{-5} *11* B(E2)(W.u.)=8.8×10^{2} *16*
		199.4 *2*	2.8 *10*	1545.10	7^+	[E1]		0.0524		B(E1)(W.u.)=1.6×10^{-6} *7*
		385.59 *14*	5.7 *4*	1358.73	6^+	[E1]		0.0101		B(E1)(W.u.)=4.6×10^{-7} *8*
		547.08 *7*	100 *5*	1197.48	5^+	E1		0.00459		B(E1)(W.u.)=2.8×10^{-6} *5*
		1130.06 *10*	6.9 *6*	614.39	6^+	[E1]		0.0011		B(E1)(W.u.)=2.2×10^{-8} *4*
1744.88	8^+	386.6 *4*	100 *40*	1358.73	6^+	E2[&]		0.0329		α(K)=0.0253 *4*; α(L)=0.00588 *9*; α(M)=0.001359 *20* α(N)=0.000312 *5*; α(O)=4.12×10^{-5} *6*; α(P)=1.358×10^{-6} *20*
		720.1 *2*	77 *45*	1024.62	8^+	E2+M1	−1.5 *+8−30*			Mult.,δ: from ce and γ(θ) data in (α,2nγ); also γ(lin pol) in (^{9}Be,5nγ),E=59 MeV.
1763.8	$(7)^-$	1149.4 *4*	100	614.39	6^+	E1				
1765.86	0^+	451.3[d]	<0.6	1314.56	2^+					
		519.76 *21*		1246.06	0^+	E0			0.39 *13*	q^2_K(E0/E2)=2.9 *7*, X(E0/E2)=2.1 *6* (2005Ki02 evaluation).
		905.70 *5*	32 *2*	860.25	2^+	E2				
		1674.34 *5*	100 *3*	91.380	2^+	E2				
		1765.8 *4*		0.0	0^+	E0			0.32 *6*	q^2_K(E0/E2)=2.3 *4*, X(E0/E2)=0.47 *8* (2005Ki02 evaluation).
1788.35	2^+	474.2 *2*	4.7 *16*	1314.56	2^+	M1+E2+E0		0.10 *4*		
		729.3 *4*	7.8 *16*	1058.49	4^+					
		1489.15 *11*	100 *11*	299.43	4^+	E2				
		1696.86 *6*	61 *3*	91.380	2^+	M1+E2+E0		0.0048 *15*		
		1788.4 *4*	9.4 *16*	0.0	0^+					
1798.4	$(5)^-$	1184.3 *5*	65	614.39	6^+	E1[@]				I_γ: other: 233 in (α,2nγ).
		1498.6 *6*	100	299.43	4^+					
1806.5		748	100	1058.49	4^+					
1813.99	$(6)^-$	616.3 *5*	100	1197.48	5^+	E1				
1833.41	2^+	973.4 *4*	9 *3*	860.25	2^+					
		1533.93 *5*	64 *3*	299.43	4^+	E2				
		1742.09 *5*	100 *3*	91.380	2^+	M1+E2+E0		0.0055 *19*		

Adopted Levels, Gammas (continued)

$\gamma(^{164}Er)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[#]	δ[a]	α[b]	Comments
1833.41	2^+	1833.35 16	48 6	0.0	0^+	E2			
1841.7?	(0^+)	358.0 4	100 30	1483.69	2^+	E2		0.0409	α(K)=0.0311 5; α(L)=0.00763 11; α(M)=0.00177 3 α(N)=0.000406 6; α(O)=5.32×10^{-5} 8; α(P)=1.649×10^{-6} 24
		1750.2 6	30 10	91.380	2^+				
		1841.6[d]		0.0	0^+	(E0)			
1845.54	7^-	101.0[d]	<0.25	1744.55	6^-				
		820.78 11	32.3 15	1024.62	8^+	E1			
		1231.13 7	100 5	614.39	6^+	E1[@]			
1861.46?	$(0,1,2)^+$	377.77 24	20 10	1483.69	2^+				
		546.9 3	100 20	1314.56	2^+	E2		0.01310	
1875.26	$1^{(+)}$	159.93 3	40 10	1715.34	(2^-)	E1		0.0935	α(K)=0.0784 11; α(L)=0.01184 17; α(M)=0.00262 4 α(N)=0.000602 9; α(O)=8.26×10^{-5} 12; α(P)=3.77×10^{-6} 6 E_γ,I_γ,Mult.: from ^{164}Tm ε decay (1.95 min) only.
		305.9[d] 4	40 10	1568.67	(3^-)				
		1015.15[c] 7	<240	860.25	2^+				
		1783.6 2	100 10	91.380	2^+				
		1873.5[d] 5	90 10	0.0	0^+				
1911.27	2^+	524.52 9	15 3	1386.74	1^-	E1			
		666.5[c] 6	<8	1246.06	0^+	(E2)			E_γ: level-energy difference=665.2.
		1819.78 9	100 5	91.380	2^+	E2+M1+E0		0.0036 10	
		1910.92[d] 9	12 1	0.0	0^+				
1929.5		732	100	1197.48	5^+				
1953.92	2^+	1093.4 5	7 3	860.25	2^+	E2			
		1654.9 4	7 3	299.43	4^+	E2			
		1862.52 5	100 5	91.380	2^+	M1+E2+E0		0.0030 8	
1961.29		383.0 4		1577.79	1^-				
		465.3 4		1495.05					
		574.2 4		1386.74	1^-				
		1015.15[c] 7		946.34	3^+				
		1661.2 4		299.43	4^+				
		1869.3[c] 10		91.380	2^+				
1964.34	(8^-)	118.7 2	70 30	1845.54	7^-	(M1+E2)[&]		1.65 10	
		219.9 2	100 40	1744.55	6^-	(E2)[&]		0.184	
1969.6	$(2^+,3^-,4^+)$	1671.5 10	60 20	299.43	4^+				
		1877.5 7	100 25	91.380	2^+				
1977.15	9^+	431.95 7	100 8	1545.10	7^+	E2[@]		0.0242	
		952.60 7	51 6	1024.62	8^+	D+Q[&]			
1985.06	7^-	139.44 8	32.0 11	1845.54	7^-	E2+M1	15 5	0.872	B(M1)(W.u.)=2.5×10^{-7} 17; B(E2)(W.u.)=1.40 10 α(K)=0.457 7; α(L)=0.319 5; α(M)=0.0769 12;

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$^{164}_{68}Er_{96}$-11

γ(^{164}Er) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[#]	δ[a]	α[b]	Comments
									α(N)=0.0174 *3* α(O)=0.00209 *3*; α(P)=1.97×10^{-5} *3* Mult.: (M1) assumed in ^{160}Gd(^{9}Be,5nγ) (2012Sw02). Assuming M1, reduced hindrance factor f_ν=1.81×10^4 *12*, ν=1 (2015Ko14 evaluation, using branching ratio=32.5 *12*).
1985.06	7$^-$	240.49 *3*	100 *3*	1744.55	6$^-$	M1		0.242	α(K)=0.204 *3*; α(L)=0.0301 *5*; α(M)=0.00668 *10* α(N)=0.001557 *22*; α(O)=0.000225 *4*; α(P)=1.248×10^{-5} *18* B(M1)(W.u.)=3.47×10^{-5} *23* Reduced hindrance factor f_ν=3.02×10^4 *17*, ν=1 (2015Ko14 evaluation).
		626.4 *8*	0.6 *4*	1358.73	6$^+$	[E1]			B(E1)(W.u.)=1.2×10^{-10} *8* Reduced hindrance factor f_ν=310 *50*, ν=4 (2015Ko14 evaluation).
		960.5 *2*	3.0 *4*	1024.62	8$^+$	[E1]			B(E1)(W.u.)=1.67×10^{-10} *25* Reduced hindrance factor f_ν=43.4 *16*, ν=6 (2015Ko14 evaluation, using branching ratio=2.8 *6*).
		1370.73 *10*	10.8 *7*	614.39	6$^+$	[E1]			B(E1)(W.u.)=2.07×10^{-10} *18* Reduced hindrance factor f_ν=40.6 *8*, ν=6 (2015Ko14 evaluation, using branching ratio=12.2 *11*).
2002.6	(2$^+$ to 5$^-$)	568.4 *5*	100 *30*	1433.98	3$^-$				
		1703.5 *7*	39 *20*	299.43	4$^+$				
2005.4	8$^+$	298.7 *5*		1706.7	(6)$^+$				
		980.8 *5*		1024.62	8$^+$	E2+M1+E0			
		1391[d]		614.39	6$^+$				
2018.0		1403.6	100	614.39	6$^+$				
2022.50		589.0[d] *6*	133 *42*	1433.98	3$^-$				E_γ: from (n,n′γ) only.
		635.10[c] *25*	<114	1386.74	1$^-$				
		2022.55 *8*	100 *14*	0.0	0$^+$				
2025.77	(2$^+$)	711.2[d] *4*	4 *1*	1314.56	2$^+$				
		780.1 *4*	4 *1*	1246.06	0$^+$				
		1165.45 *5*	100 *5*	860.25	2$^+$	E2			
		1934.96[c] *15*	<22	91.380	2$^+$	(E2)			E_γ: level-energy difference=1934.37.
		2026[d] *1*	15 *7*	0.0	0$^+$				E_γ: from (n,n′γ) only.
2032.1?		786.06[d] *14*	100	1246.06	0$^+$				
2035.43	1	721.1[d] *7*	18 *9*	1314.56	2$^+$				
		1943.5 *4*	59 *14*	91.380	2$^+$				
		2035.60 *23*	100 *18*	0.0	0$^+$				
2046.4		1747 *2*	100	299.43	4$^+$				
2054.6	(9)$^-$	1030.0	100	1024.62	8$^+$	E1[@]			
2068.9	(8)$^+$	1044.3	100	1024.62	8$^+$	E2+M1	1.3 *7*		
		1454.5 *7*	40	614.39	6$^+$				

$^{164}_{68}Er_{96}$-12

γ(^{164}Er) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[#]	δ[a]	α[b]	$I_{(\gamma+ce)}$	Comments
2069.38	(1⁻,2⁻)	355.00 22	67 7	1715.34	(2⁻)	M1,E2		0.064 22		
		635.10[c] 25	<107	1433.98	3⁻					
		1978.0 2	100 7	91.380	2⁺					
2082.1		537.0 5	100	1545.10	7⁺					
2082.81	12⁺	564.73 6	100	1518.08	10⁺	E2		0.01210		B(E2)(W.u.)=294 47
2091.00	(8⁻)	277.0 1	≈30	1813.99	(6)⁻	(E2)				Mult.: from $\gamma(\theta)$ in (α,2nγ) and RUL.
		346.1 1	25 8	1744.88	8⁺					
		546.0 1	100 20	1545.10	7⁺					
2093.62?		1069.0[d] 1	100	1024.62	8⁺	M1+E2[@]	0.9 5			
2108.57	9⁻	1083.95 9	100	1024.62	8⁺	E1				
2141.4		1842 2	100	299.43	4⁺					
2151.4		1537 1	100	614.39	6⁺					
2163.67	(8⁻)	178.48 6	100	1985.06	7⁻					
2168.1		142.3 3	100 43	2025.77	(2⁺)					
		1110.5[d] 8	43 29	1058.49	4⁺					
		1869.3[c] 10	43 29	299.43	4⁺					
2173.04	0⁺	298.09 21	8 2	1875.26	1⁽⁺⁾	(M1)		0.1357		
		339.4	<1	1833.41	2⁺					
		407.0 1		1765.86	0⁺	E0			0.07 1	q^2_K(E0/E2)=0.69 12, X(E0/E2)=1.18 20 (2005Ki02 evaluation).
		595.17 5	62 2	1577.79	1⁻	E1				
		689.63 12	15 2	1483.69	2⁺	E2				E_γ: level-energy difference=689.16.
		858.3	<2	1314.56	2⁺					
		926.6 4		1246.06	0⁺	E0			0.5 1	q^2_K(E0/E2)=4.8 9, X(E0/E2)=4.1 8 (2005Ki02 evaluation).
		1312.25 14	55 11	860.25	2⁺	E2				
		2081.54 14	100 5	91.380	2⁺	E2				
		2172.5 4		0.0	0⁺	E0			1.5 4	q^2_K(E0/E2)=8.1 18, X(E0/E2)=2.6 6 (2005Ki02 evaluation).
2184.31	10⁺	439.43 8	100 12	1744.88	8⁺	E2		0.0231		
		666.2 1	62 30	1518.08	10⁺	M1(+E2)[@]	<0.9	0.0149 20		
2240.2?		235[d]		2005.4	8⁺					
		722[d]	100	1518.08	10⁺					
2254.24		1955.20 11	100	299.43	4⁺					Level-energy difference=1954.80.
2261.27	(10⁻)	152.70 12	17 7	2108.57	9⁻	(M1+E2)[&]		0.74 12		
		296.93 7	100 6	1964.34	(8⁻)	(E2)[&]		0.071		
2278.38	2⁺	318.6 6		1961.29						E_γ: level-energy difference=317.0.
		794.6 5	12 4	1483.69	2⁺	M1+E2+E0		0.058 30		
		844.7 1	≈12	1433.98	3⁻					E_γ: level-energy difference=844.35.
		963.9[d] 3	21 4	1314.56	2⁺	M1+E2+E0		0.040 20		
		1417.96 8	100 8	860.25	2⁺	E2				

$^{164}_{68}Er_{96}$-13

γ(^{164}Er) (continued)

E$_i$(level)	J$^\pi_i$	E$_\gamma$[†]	I$_\gamma$[†]	E$_f$	J$^\pi_f$	Mult.[#]	δ[a]	α[b]	Comments
2278.38	2$^+$	2186.4 *4*	21 *4*	91.380	2$^+$	M1+E2+E0		0.025 *10*	
		2278.09 *12*	46 *5*	0.0	0$^+$	(E2)			
2278.9		534 *1*	100	1744.88	8$^+$				
2337.32	(9$^-$)	1312.7 *1*	100	1024.62	8$^+$				
2339.99	(8)	355.0 *1*	100	1985.06	7$^-$				
2356.4		1742 *2*	100	614.39	6$^+$				
2363.58	(9$^-$)	199.75 *9*	100	2163.67	(8$^-$)				
		379		1985.06	7$^-$				
2370.6		385.51 *25*	100	1985.06	7$^-$				
2404.2	1	2313	183 *53*	91.380	2$^+$				
		2404	100	0.0	0$^+$				
2408.18	11$^-$	890.1 *1*	100	1518.08	10$^+$	E1			
2416.2	1	2325	83 *20*	91.380	2$^+$				
		2416	100	0.0	0$^+$				
2421.13	(10)$^-$	330.2 *1*	45 *7*	2091.00	(8$^-$)				
		443.9 *1*	100 *10*	1977.15	9$^+$	E1			
2444.53	(2$^+$)	484.0 *4*		1961.29					
		729.3 *4*	7 *1*	1715.34	(2$^-$)				
		875.43 *19*	7 *1*	1568.67	(3$^-$)	(E1)			
		1057.81 *5*	100 *4*	1386.74	1$^-$	(E1)			
		1584.0 *4*	5.8 *15*	860.25	2$^+$				
		2353.0[cd] *2*	<26	91.380	2$^+$				
2448.1		1423.5 *5*	100	1024.62	8$^+$				
2462.68	10$^+$	944.6 *1*	100	1518.08	10$^+$	E2+M1+E0[@]			
2470.1	(11$^-$)	952	100	1518.08	10$^+$				
2479.48	11$^+$	502.33 *6*	100	1977.15	9$^+$	E2[@]			
		961.3[d]	24	1518.08	10$^+$				E$_\gamma$: from (α,2nγ) only.
2483.4		1869 *2*	100	614.39	6$^+$				
2519.05	12$^+$	279[d]		2240.2?					
		334.4 *4*	81 *33*	2184.31	10$^+$				
		436.5 *5*	100 *15*	2082.81	12$^+$	M1(+E2)[@]	<0.35	0.0481 *16*	α(K)=0.0405 *14*; α(L)=0.00595 *15*; α(M)=0.00132 *3* α(N)=0.000307 *8*; α(O)=4.44×10^{-5} *12*; α(P)=2.45×10^{-6} *9*
		1001.2 *5*	67	1518.08	10$^+$	E2[@]			
2525.85	(9)	185.9 *1*	97 *16*	2339.99	(8)				
		362.1 *1*	100 *8*	2163.67	(8$^-$)				
2541.03	(1$^+$,2$^+$)	666.5[c] *3*	<50	1875.26	1$^{(+)}$	(E2)			
		775.47[d] *22*	70 *20*	1765.86	0$^+$				
		2449.3 *2*	100 *10*	91.380	2$^+$				
2577.2	1	2486	148 *28*	91.380	2$^+$				
		2577	100	0.0	0$^+$				
2583.67	(10$^-$)	220.1 *1*	100 *25*	2363.58	(9$^-$)				

$^{164}_{68}$Er$_{96}$-14

Adopted Levels, Gammas (continued)

γ(^{164}Er) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[#]	δ[a]	Comments
2583.67	(10⁻)	419.9[d] *6*	≈8	2163.67	(8⁻)			
2591.6		1567 *1*	100	1024.62	8⁺			
2631.23	(12⁻)	369.96 *6*	100	2261.27	(10⁻)	(E2)[&]		
2640.2	1	2549	71 *7*	91.380	2⁺			
		2640	100	0.0	0⁺			
2702.58	14⁺	619.76 *11*	100	2082.81	12⁺	E2		Mult.: from γ(θ) in (α,2nγ) and (^{18}O,4nγ); linear pol in (^{9}Be,5nγ),E=59 MeV. B(E2)(W.u.)=432 *56* from B(E2)↓=2.3 *3* in Coul. ex. (1980Ya03).
2729.57	(10)	203.7 *1*	100 *6*	2525.85	(9)			
		389.6 *1*	37 *4*	2339.99	(8)			
2733.3	12⁺	549.0 *4*	100	2184.31	10⁺	(E2)		B(E2)(W.u.)=282 *132* from B(E2)↓=1.5 *7* in Coul. ex. (1980Ya03). Mult.: ΔJ=(2),(Q) from γ(θ) in (^{9}Be,5nγ),E=59 MeV; population in Coul. ex.
2747.2	1	2656	46 *20*	91.380	2⁺			
		2747	100	0.0	0⁺			
2759.01	(9⁻)	595.1 *1*	19 *8*	2163.67	(8⁻)			
		773.9 *1*	100 *14*	1985.06	7⁻			
2762.2	1	2671	93 *20*	91.380	2⁺			
		2762	100	0.0	0⁺			
2800.45	(12⁻)	379.32 *7*	100	2421.13	(10)⁻	(E2)[&]		
2815.21	13⁻	407.1 *4*	50 *25*	2408.18	11⁻	Q		
		732.4 *1*	100 *16*	2082.81	12⁺	E1(+M2)	−0.040 *26*	Mult.,δ: from γ(θ,lin pol) in (^{9}Be,5nγ).
2822.55	(11⁻)	239.0 *3*	100 *25*	2583.67	(10⁻)			
		458.5 *4*	100 *50*	2363.58	(9⁻)			
2823.50?		753.4 *4*	60 *20*	2069.38	(1⁻,2⁻)			
		797.9 *3*	100 *20*	2025.77	(2⁺)			
		862.7 *4*		1961.29				
		1876.9 *7*	100 *40*	946.34	3⁺			
2874.78	14⁺	355.7 *4*	23 *13*	2519.05	12⁺			
		791.98 *7*	100 *7*	2082.81	12⁺	E2[&]		
2933.2	1	2842	132 *26*	91.380	2⁺			
		2933	100	0.0	0⁺			
2950.26	(11)	220.7 *1*	95 *27*	2729.57	(10)			
		366.6 *1*	65 *10*	2583.67	(10⁻)			
		424.4 *1*	100 *11*	2525.85	(9)			
2966.2	1	2875	194 *35*	91.380	2⁺			
		2966	100	0.0	0⁺			
2980.56	(10⁻)	221.7 *1*	57 *12*	2759.01	(9⁻)			
		616.9 *1*	25 *4*	2363.58	(9⁻)			
		816.8 *1*	100 *10*	2163.67	(8⁻)			
3018.0	1	3018	100	0.0	0⁺			
3027.3	13⁺	547.8 *4*	100	2479.48	11⁺	(Q)[&]		

$^{164}_{68}Er_{96}$-15

Adopted Levels, Gammas (continued)

$\gamma(^{164}Er)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[#]	α[b]	Comments
3028.76		1460.20 *16*	100 *13*	1568.67	(3^-)			
		1714.1 *2*	52 *3*	1314.56	2^+			
		1969.6 *5*	27 *7*	1058.49	4^+			
3066.6	(14^-)	435.4 *3*	100	2631.23	(12^-)	Q[&]		
3079.4	(12^-)	256.8 *4*	100	2822.55	(11^-)			
		496		2583.67	(10^-)			
3133.2	1	3042	47 *14*	91.380	2^+			
		3133	100	0.0	0^+			
3179.2	1	3088	40 *11*	91.380	2^+			
		3179	100	0.0	0^+			
3220.2	1	3129	154 *27*	91.380	2^+			
		3220	100	0.0	0^+			
3221.18	(11^-)	240.6 *1*	100 *10*	2980.56	(10^-)			
		462.3 *1*	16 *2*	2759.01	(9^-)			
		637.5 *1*	39 *4*	2583.67	(10^-)			
		857.5 *1*	71 *5*	2363.58	(9^-)			
3244.35	(14^-)	443.9 *2*	100	2800.45	(12^-)	(Q)[&]		
3263.09	16^+	388.4 *3*	22 *7*	2874.78	14^+	(E2)[&]		B(E2)(W.u.)<7.2×10^2
		560.50 *11*	100 *10*	2702.58	14^+	E2[&]	0.01233	B(E2)(W.u.)<526 from B(E2)↓<2.8 in Coul. ex. (1980Ya03).
3267.0	14^+	533.7[c] *3*	100	2733.3	12^+	(E2)		B(E2)(W.u.)=357 *170* from B(E2)↓=1.9 *9* in Coul. ex. (1980Ya03). Mult.: ΔJ=(2),(Q) from $\gamma(\theta)$ in (^{9}Be,5nγ),E=59 MeV; population in Coul. ex.
3281.01	15^-	465.8 *1*	100 *14*	2815.21	13^-	Q[&]		
		578.4 *6*	48 *25*	2702.58	14^+	D[&]		
3303.1	$(6^-,7^-)$	1139.5 *3*	100 *10*	2163.67	(8^-)			
		1317.6 *10*	26 *16*	1985.06	7^-			
3352.3	(13^-)	273.2	83	3079.4	(12^-)			
		529.7 *4*	100	2822.55	(11^-)			
3377.57	(12^+)	156.4 *1*	22 *2*	3221.18	(11^-)	(E1)	0.0992	α(K)=0.0831 *12*; α(L)=0.01258 *18*; α(M)=0.00278 *4* α(N)=0.000640 *9*; α(O)=8.77×10^{-5} *13*; α(P)=3.99×10^{-6} *6* B(E1)(W.u.)=1.29×10^{-7} *13* Mult.: from α(exp) In (^{9}Be,5nγ) (2012Sw02). Reduced hindrance factor $f_\nu=2.78\times10^3$ *12*, ν=2 (2015Ko14 evaluation).
		427.3 *1*	21 *1*	2950.26	(11)	[D]	0.030 *22*	
		555.0 *1*	100 *3*	2822.55	(11^-)	[E1]		B(E1)(W.u.)=1.31×10^{-8} *7* Reduced hindrance factor f_ν=93.4 *8*, ν=4 (2015Ko14 evaluation).
		1294.8 *3*	2.0 *3*	2082.81	12^+	[M1]		B(M1)(W.u.)=2.0×10^{-9} *4* Reduced hindrance factor f_ν=6.17 *9*, ν=11 (2015Ko14 evaluation).
		1859.5[d] *6*	0.4 *2*	1518.08	10^+	[E2]		B(E2)(W.u.)=1.9×10^{-8} *10* Reduced hindrance factor f_ν=5.9 *3*, ν=10 (2015Ko14 evaluation).
3408.2		1840.8 *7*	33 *16*	1568.67	(3^-)			

$^{164}_{68}Er_{96}$-16

Adopted Levels, Gammas (continued)

$\gamma(^{164}Er)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.#	Comments
3408.2		1974.5 *5*	100 *17*	1433.98	3^-		
		3108.2 *4*	42 *9*	299.43	4^+		
		3315.6[d] *5*	50 *8*	91.380	2^+		
3411.2	16^+	708.6 *3*	100	2702.58	14^+	(E2)[&]	B(E2)(W.u.)=282 *56* from B(E2)↓=1.5 *3* in Coul. ex. (1980Ya03).
3458.2	1	3367	2.9×10^2 *12*	91.380	2^+		
		3458	100	0.0	0^+		
3518.7	(15^+)	491.4 *4*	100	3027.3	13^+		
3534.58?	(2^+)	1361.53 *5*	100 *5*	2173.04	0^+	(E2)	
		1623.9[d] *3*	71 *9*	1911.27	2^+		
		2052.5[cd] *5*	<36	1483.69	2^+		
3541.0	1,2	3541	100	0.0	0^+		
3545.6	(13^+)	168		3377.57	(12^+)		
3551.2	1	3460	58 *24*	91.380	2^+		
		3551	100	0.0	0^+		
3559.6	(16^-)	493.0 *3*	100	3066.6	(14^-)		
3602.2	1	3511	46 *15*	91.380	2^+		
		3602	100	0.0	0^+		
3629.67	2^+	1350.9 *5*	7 *4*	2278.38	2^+		
		2052.5[cd] *5*	<7	1577.79	1^-		
		2383.61 *9*	100 *5*	1246.06	0^+	E2	
		2570.9 *5*	10 *1*	1058.49	4^+		
3734.5	(14^+)	189		3545.6	(13^+)		
		357		3377.57	(12^+)		
3752.0	1	3752	100	0.0	0^+		
3760.0	(16^-)	515.7 *3*	100	3244.35	(14^-)	Q[&]	
3768.19	$(1^+,2^+)$	1894.4 *4*	50 *12*	1875.26	$1^{(+)}$		E_γ: level-energy difference=1893.0.
		1934.96[c] *15*	<312	1833.41	2^+	(E2)	
		2353.0[cd] *2*	<225	1416.57	0^+		
		2521.77 *14*	100 *12*	1246.06	0^+		
3768.59	18^+	505.50 *6*	100	3263.09	16^+	Q[&]	
3800.7	(16^+)	533.7[c] *3*	100	3267.0	14^+		
3804.9	17^-	523.9 *4*	100	3281.01	15^-	Q[&]	
3942.7	(15^+)	208		3734.5	(14^+)		
		397		3545.6	(13^+)		
3944.1	1	3944	100	0.0	0^+		
4017.9	(17^+)	499.2 *4*	100	3518.7	(15^+)	(Q)[&]	
4105.6	(18^-)	546.0 *5*	100	3559.6	(16^-)	(Q)[&]	
4121.2	18^+	710.0 *3*	100	3411.2	16^+	(E2)[&]	
4169.4	(16^+)	227		3942.7	(15^+)		
		435		3734.5	(14^+)		

$^{164}_{68}Er_{96}$-17

Adopted Levels, Gammas (continued)

$\gamma(^{164}Er)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[#]
4344.5	(18^-)	584.4 *4*	100	3760.0	(16^-)	
4345.7	20^+	577.1 *3*	100	3768.59	18^+	Q[&]
4364.3	(18^+)	563.6 *5*	100	3800.7	(16^+)	
4384.9	(19^-)	580.0 *2*	100	3804.9	17^-	
4413.1	(17^+)	244		4169.4	(16^+)	
		470		3942.7	(15^+)	
4590.1	(19^+)	572.2 *2*	100	4017.9	(17^+)	
4673.2	(18^+)	260		4413.1	(17^+)	
		504		4169.4	(16^+)	
4702.0	(20^-)	596.4 *3*	100	4105.6	(18^-)	Q[&]
4868.4	20^+	747.2 *4*	100	4121.2	18^+	
4948.2	(19^+)	275		4673.2	(18^+)	
		535		4413.1	(17^+)	
4987.4	(20^-)	642.9	100	4344.5	(18^-)	
5000.1	22^+	654.4 *4*	100	4345.7	20^+	Q[&]
5018.2	(21^-)	633.3 *4*	100	4384.9	(19^-)	(Q)[&]
5230.6	(21^+)	640.5 *4*	100	4590.1	(19^+)	
5238.1	(20^+)	290		4948.2	(19^+)	
		565		4673.2	(18^+)	
5349.9	(22^-)	647.9 *4*	100	4702.0	(20^-)	
5541.4	(21^+)	303		5238.1	(20^+)	
		593		4948.2	(19^+)	
5651.5	22^+	783.1 *4*	100	4868.4	20^+	
5678	(22^-)	691[d]	100	4987.4	(20^-)	
5704.1	(23^-)	685.9 *8*	100	5018.2	(21^-)	
5729.1	24^+	729.0 *5*	100	5000.1	22^+	
5857.7	(22^+)	316		5541.4	(21^+)	
		620		5238.1	(20^+)	
6052.9	(24^-)	703		5349.9	(22^-)	
6186.5	(23^+)	329		5857.7	(22^+)	
		645		5541.4	(21^+)	
6442.1	(25^-)	738		5704.1	(23^-)	

E_i(level)	J^π_i	E_γ[†]	E_f	J^π_f
6526.6	(24^+)	340	6186.5	(23^+)
		669	5857.7	(22^+)
6529.1	26^+	800	5729.1	24^+
6814.9	(26^-)	762	6052.9	(24^-)
6878.4	(25^+)	352	6526.6	(24^+)
		692	6186.5	(23^+)
7238.1	(27^-)	796	6442.1	(25^-)
7241.0	(26^+)	362	6878.4	(25^+)
		714	6526.6	(24^+)
7399.1	28^+	870	6529.1	26^+
7614.6	(27^+)	373	7241.0	(26^+)
		737	6878.4	(25^+)
7640.9	(28^-)	826	6814.9	(26^-)
7999.3	(28^+)	385	7614.6	(27^+)
		758	7241.0	(26^+)
8095.1	(29^-)	857	7238.1	(27^-)
8338.1	30^+	939	7399.1	28^+
8396.6	(29^+)	397	7999.3	(28^+)
		782	7614.6	(27^+)
8533.9	(30^-)	893	7640.9	(28^-)
8803.9	(30^+)	407	8396.6	(29^+)
		805	7999.3	(28^+)
9016.1	(31^-)	921	8095.1	(29^-)
9225.6	(31^+)	829	8396.6	(29^+)
9342.1	32^+	1004	8338.1	30^+
9492.0	(32^-)	958	8533.9	(30^-)
9658.9	(32^+)	855	8803.9	(30^+)
10001.1	(33^-)	985	9016.1	(31^-)
10410.1	34^+	1068	9342.1	32^+
10515	(34^-)	1023	9492.0	(32^-)
11049	(35^-)	1048	10001.1	(33^-)
11549	36^+	1139	10410.1	34^+

† When a level is populated in more than one reaction, values are taken from weighted averages of all available data of comparable precision, from the following datasets: ^{164}Tm ε decay (1.95 min); ^{164}Tm ε decay (5.1 min); ^{150}Nd(^{18}O,4nγ); and ^{160}Gd(^{9}Be,5nγ),E=59 MeV (this dataset used mainly for Iγ values as ΔEγ are not provided). Selected data for a few levels are also available from ^{160}Gd(^{9}Be,5nγ),E=57 MeV and ^{164}Er(n,n$'\gamma$). For J=1 states values are generally from ^{164}Er(γ,γ').

‡ Weak γ ray from ^{164}Tm ε decay (1.95 min) only, branching is not available.

From ce data in ε decay (1.95 min) for γ rays from low-spin (J≤3), and from ce and $\gamma(\theta)$ in (α,2nγ), $\gamma(\theta)$ and linear polarization in (^{18}O,4nγ) and

$\gamma(^{164}Er)$ (continued)

(^{9}Be,5nγ),E=59 MeV for γ rays from higher spin (J>3) levels. Exceptions are noted. Mult=Q indicates ΔJ=2, quadrupole (likely to be E2), and D+Q indicates ΔJ=1, dipole+quadrupole (likely to be M1+E2). Further RUL for E2 and M2 transitions is used to assign (E2) or (M1+E2), assuming level half-life is <20 ns or so. All data for pure E0 or for those with E0 admixture are from 1990Ad07 in ^{164}Tm ε decay (1.95 min). See this dataset for details of conversion electron measurements for E0 transitions.

[@] From $\gamma(\theta)$ in (^{18}O,4nγ).

[&] From $\gamma(\theta)$, and linear polarization for selected transitions in (^{9}Be,5nγ),E=59 MeV.

[a] From ce data in ε decay (1.95 min) and/or in (α,2nγ).

[b] Additional information 2.

[c] Multiply placed.

[d] Placement of transition in the level scheme is uncertain.

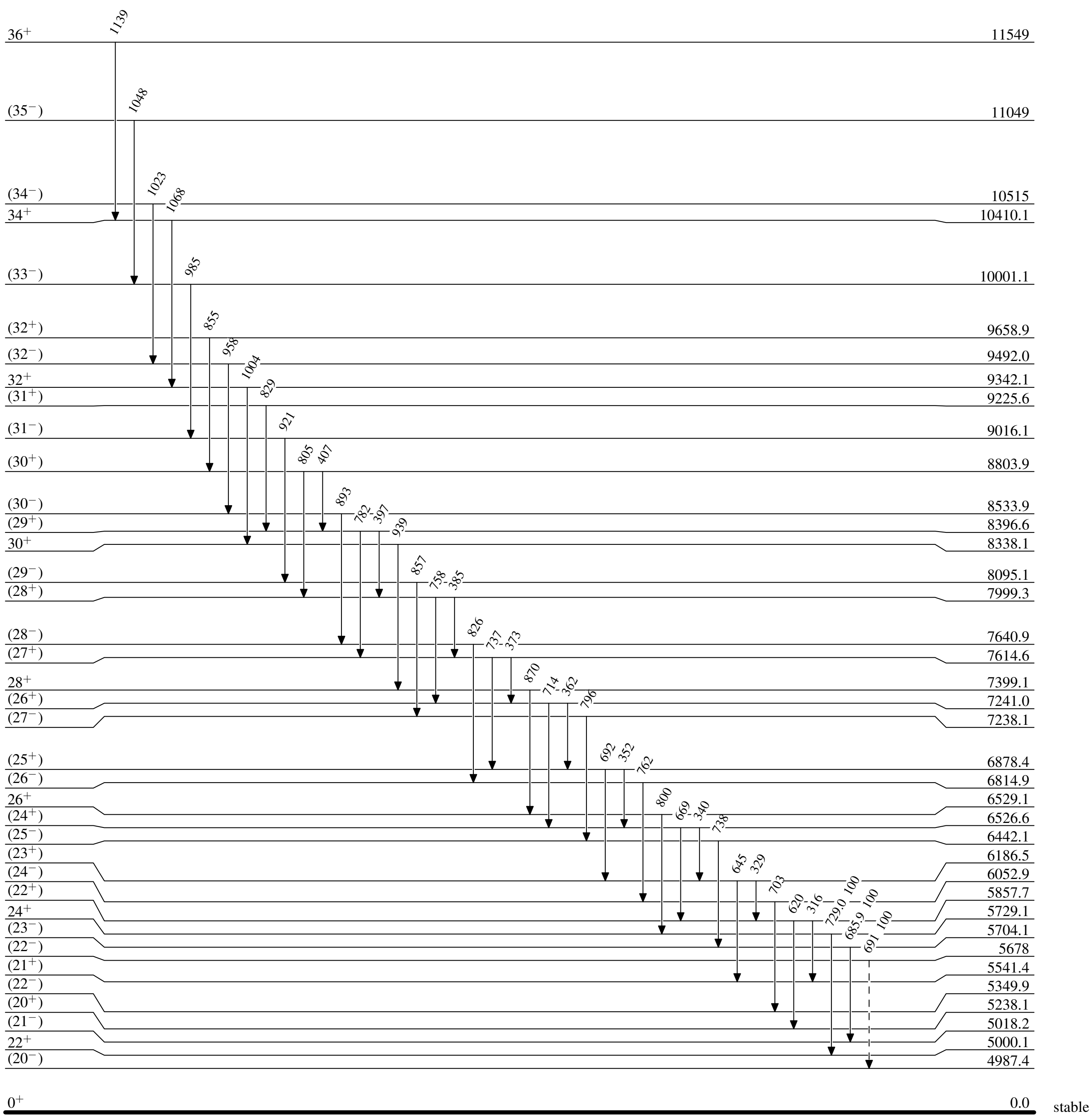
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

- - - - - ► γ Decay (Uncertain)

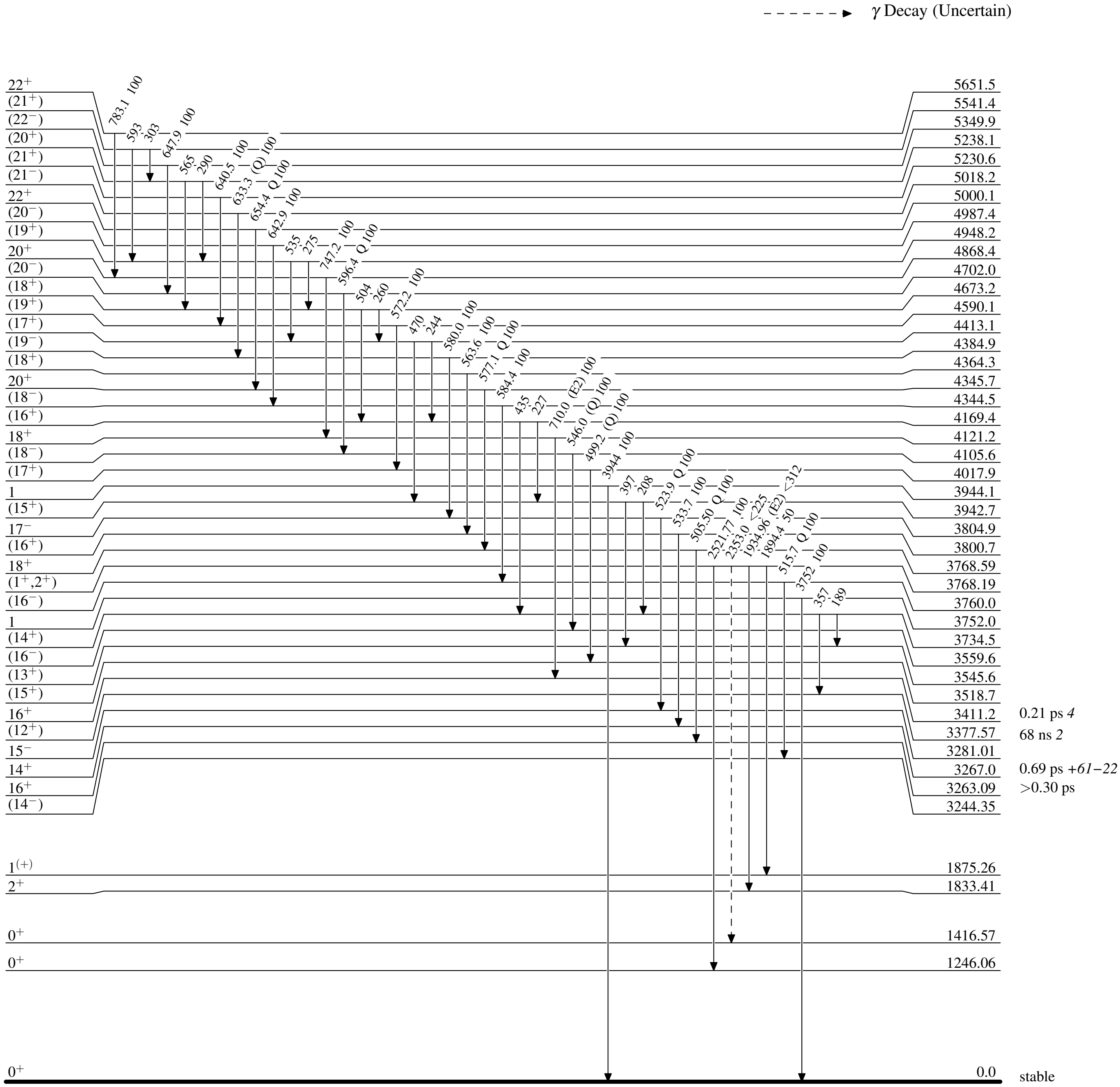


$^{164}_{68}Er_{96}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

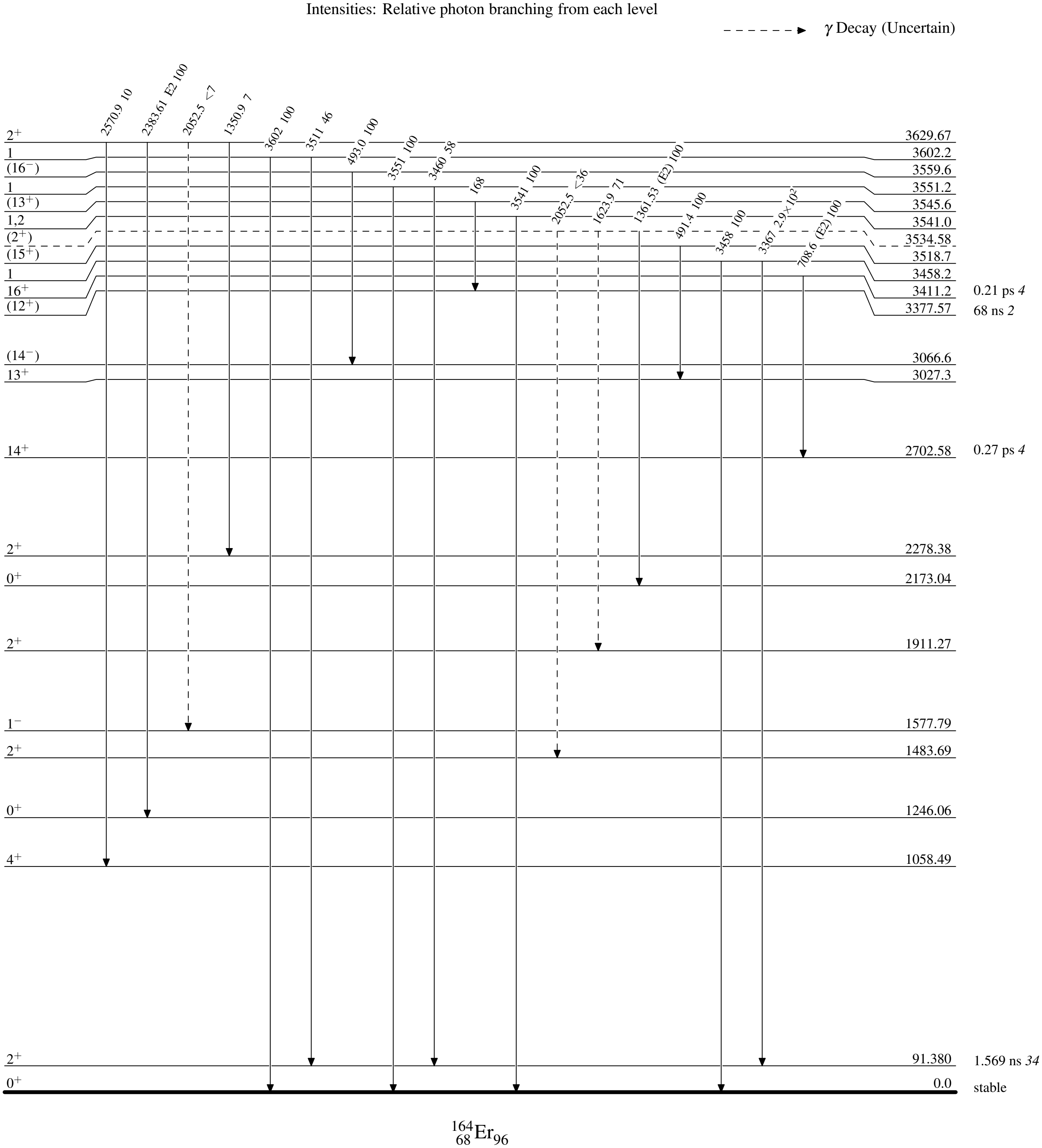


$^{164}_{68}Er_{96}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

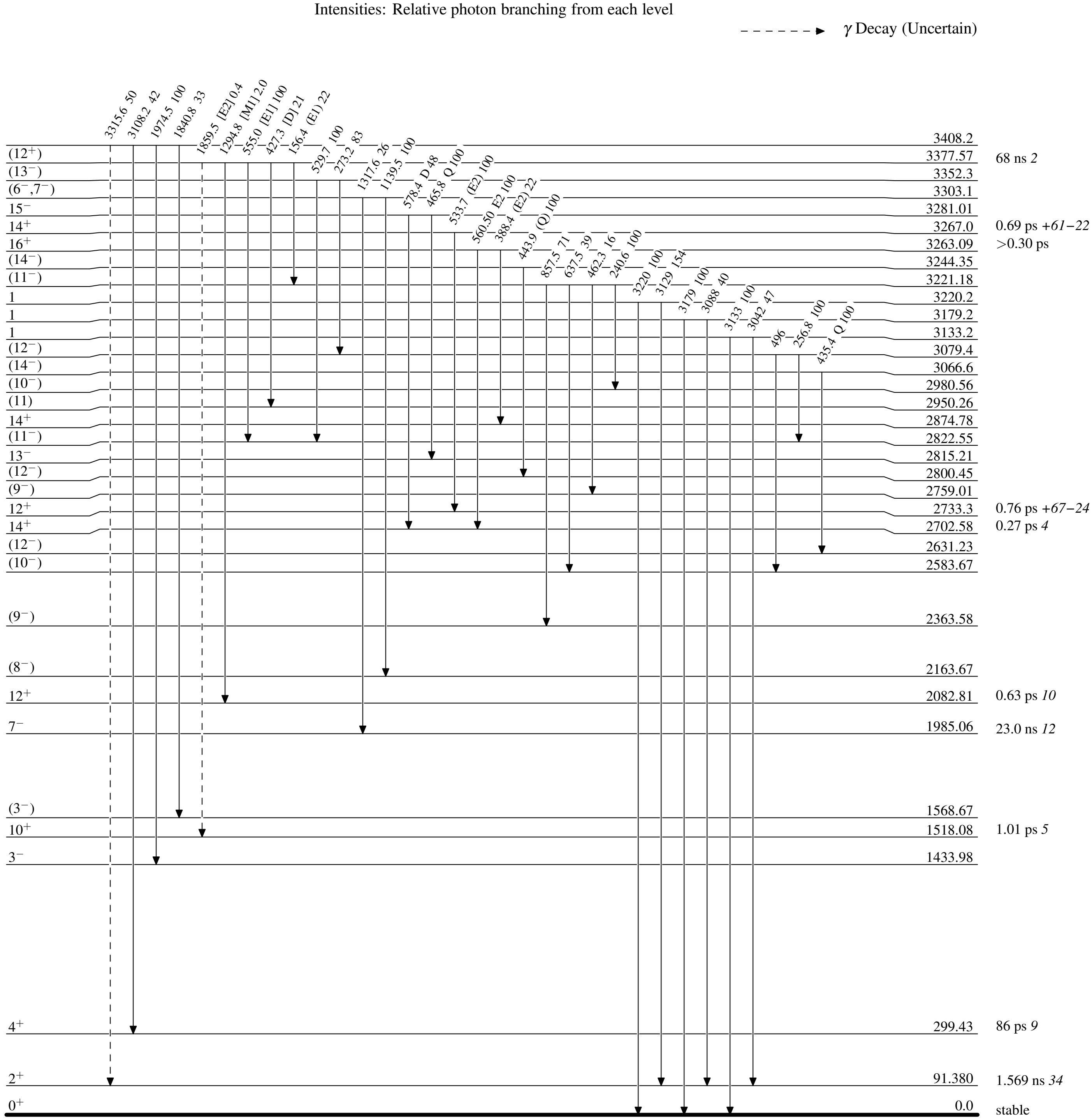


Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{164}_{68}Er_{96}$

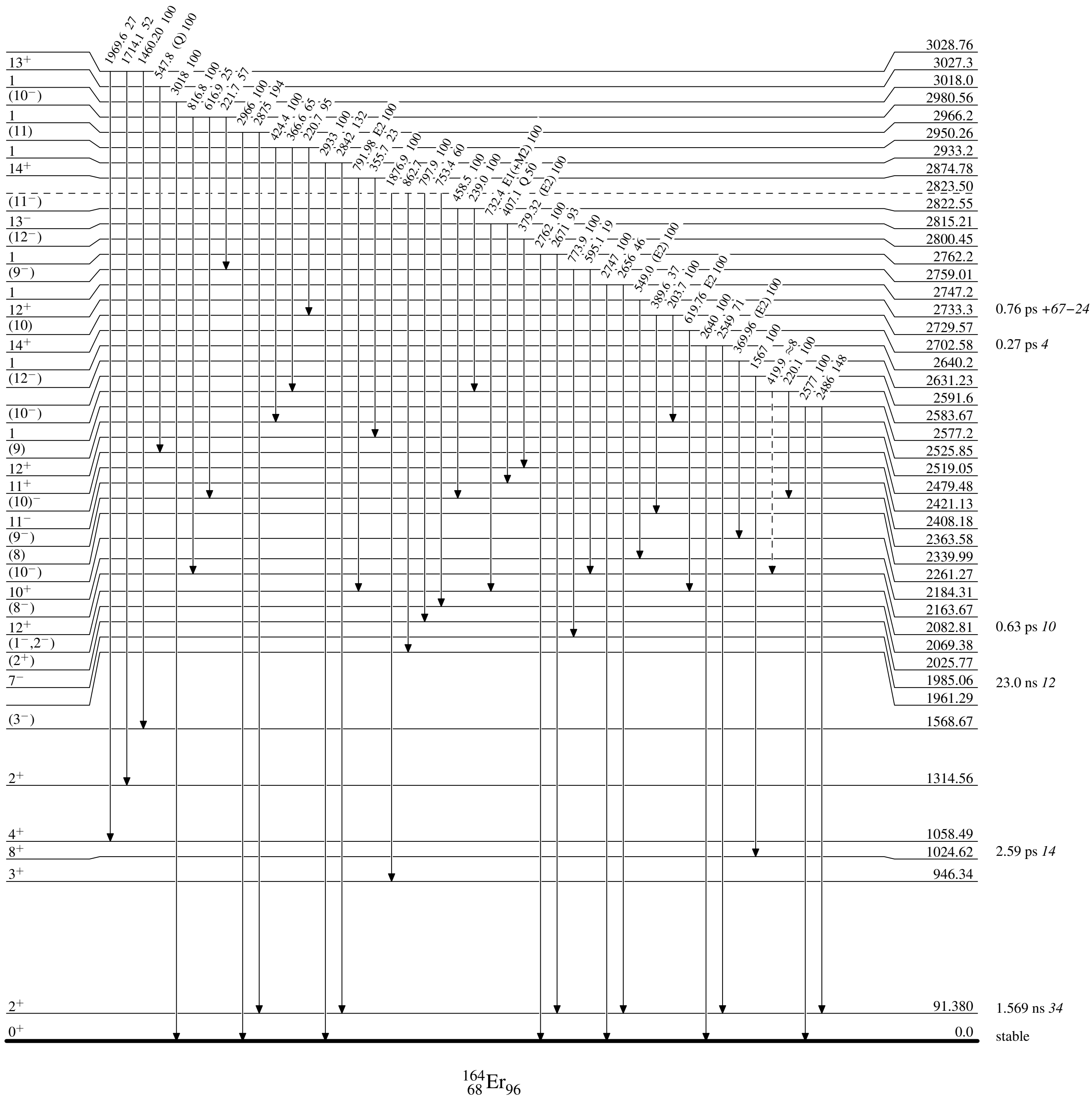
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

Legend

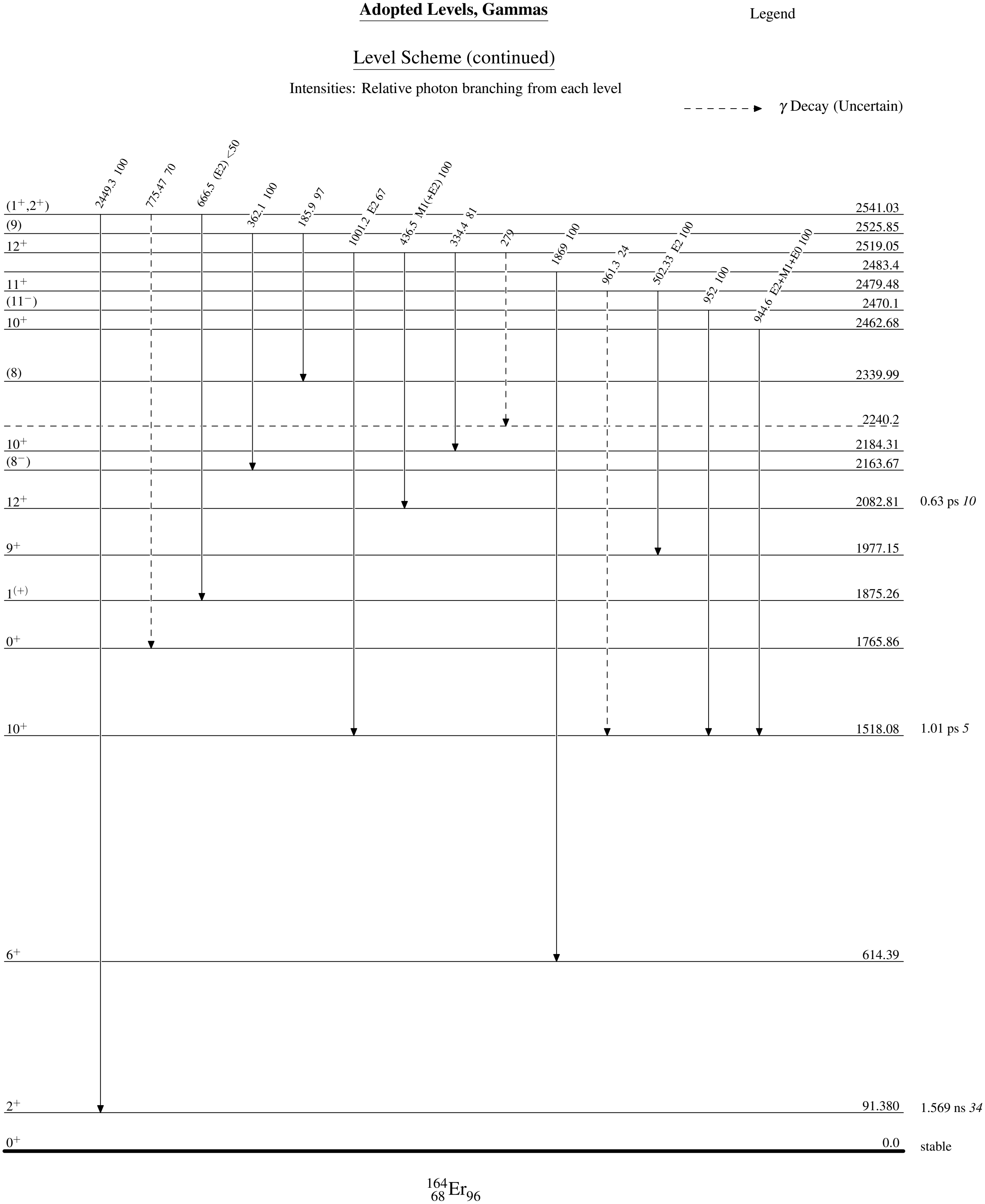
γ Decay (Uncertain)



Adopted Levels, Gammas

Level Scheme (continued)

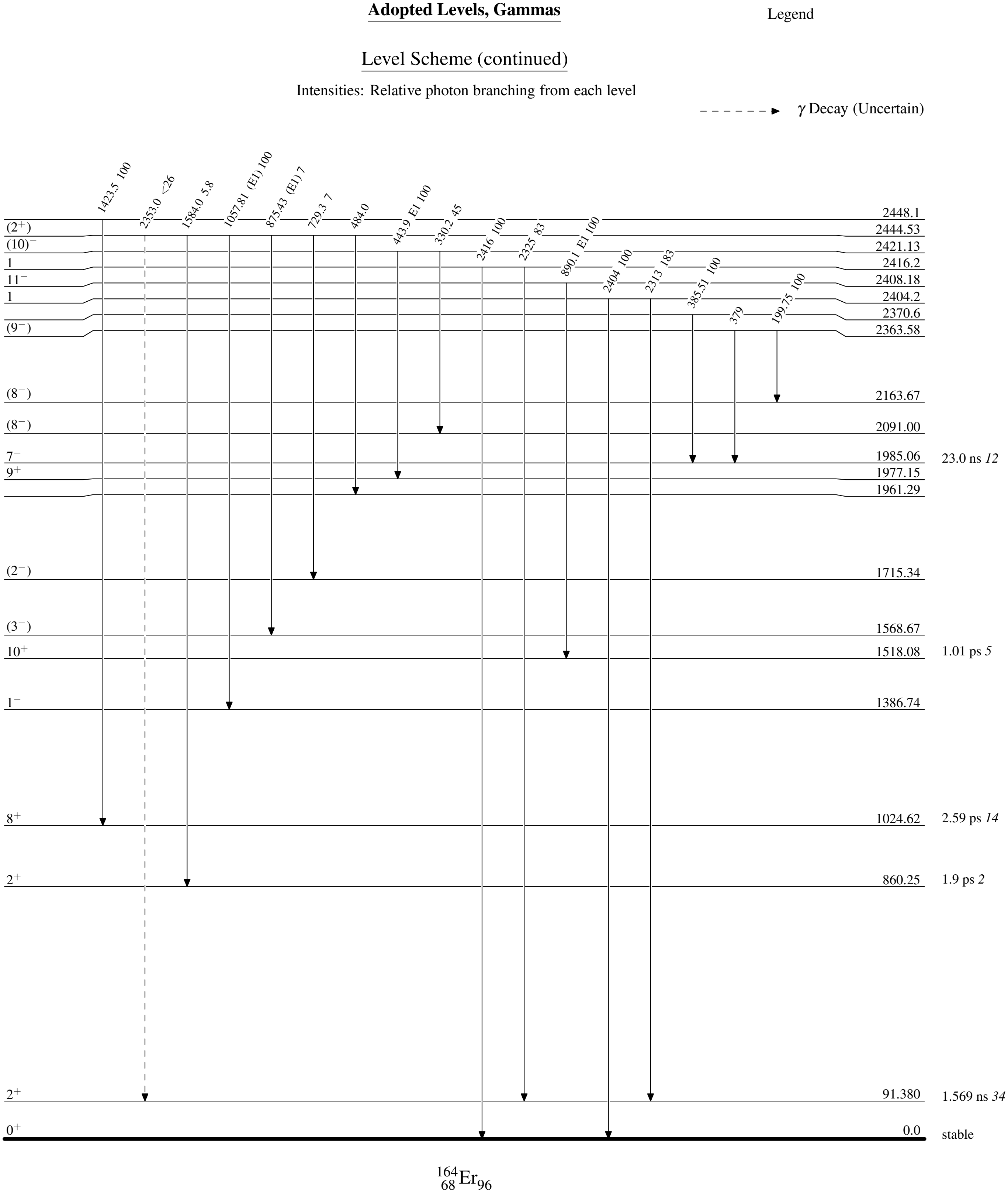
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

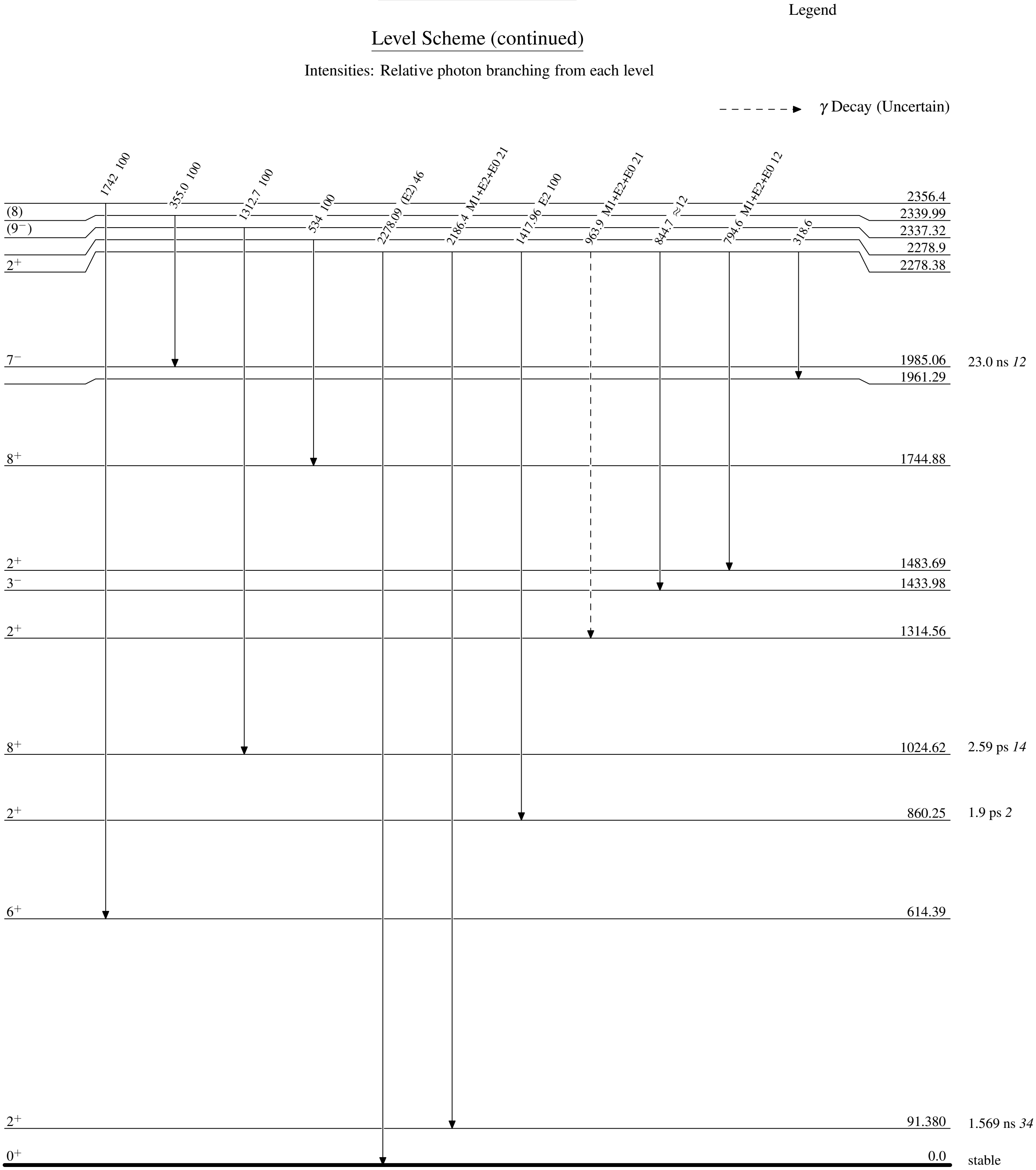
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



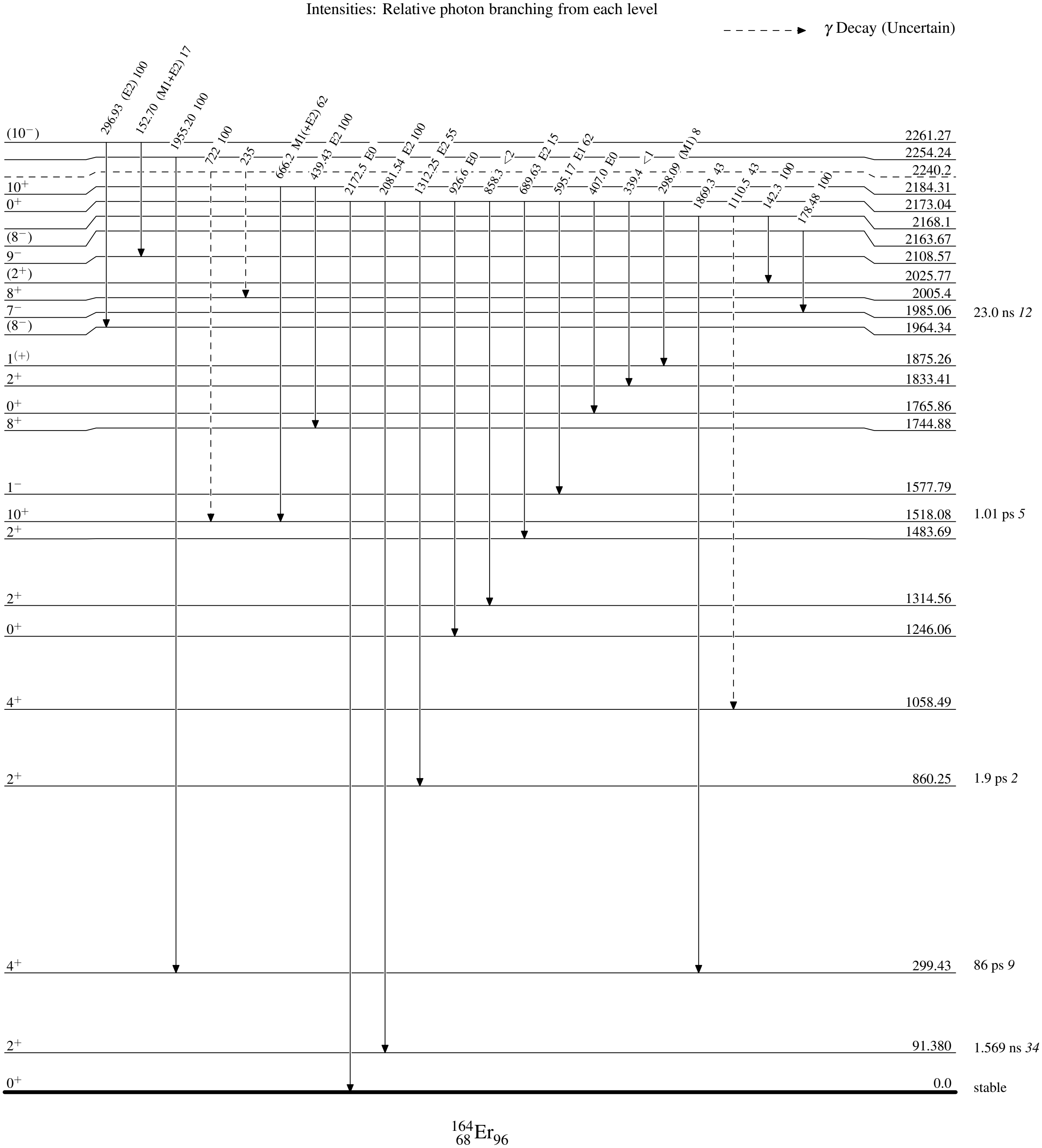
$^{164}_{68}Er_{96}$

Adopted Levels, Gammas

Legend

Level Scheme (continued)

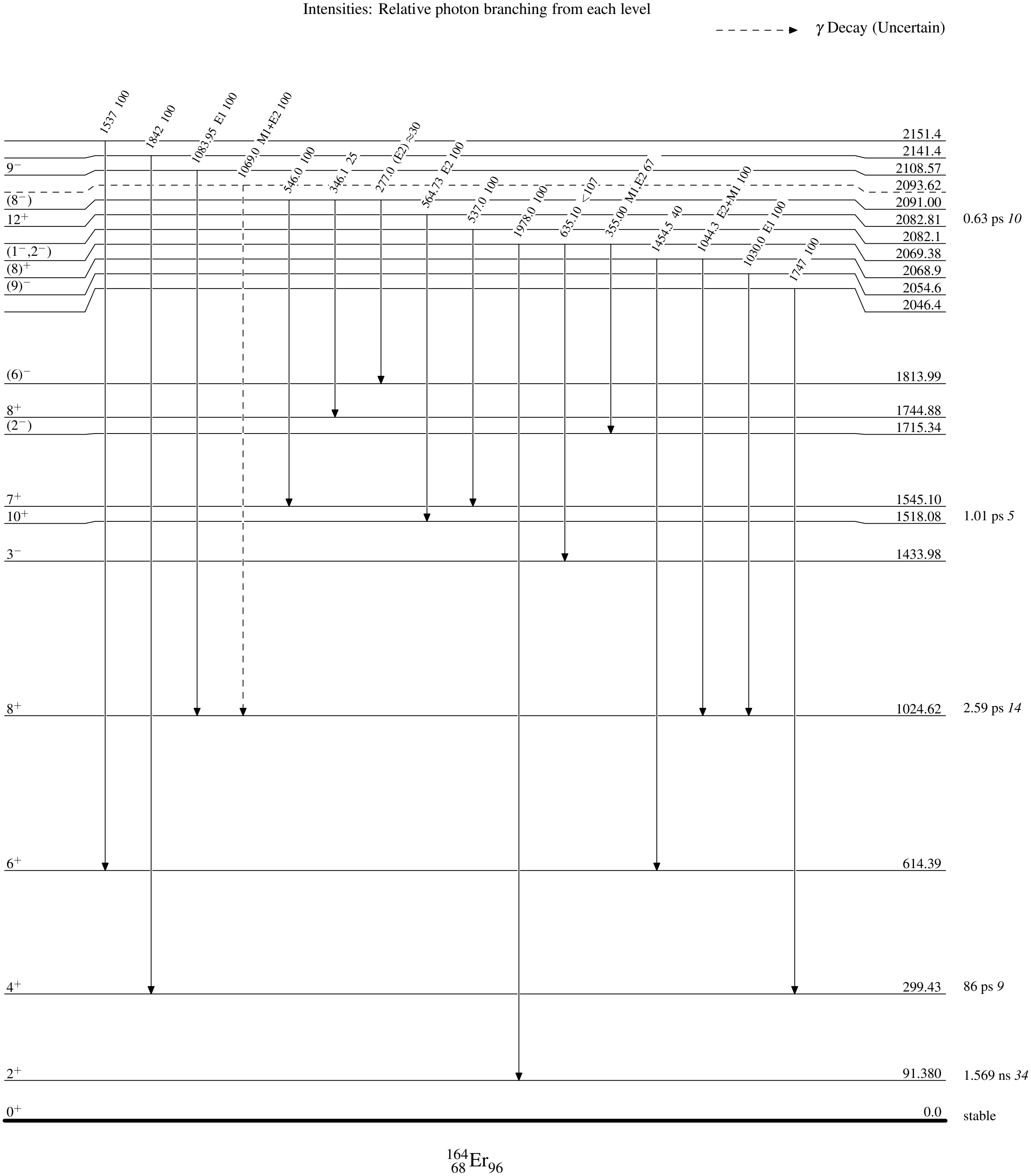
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



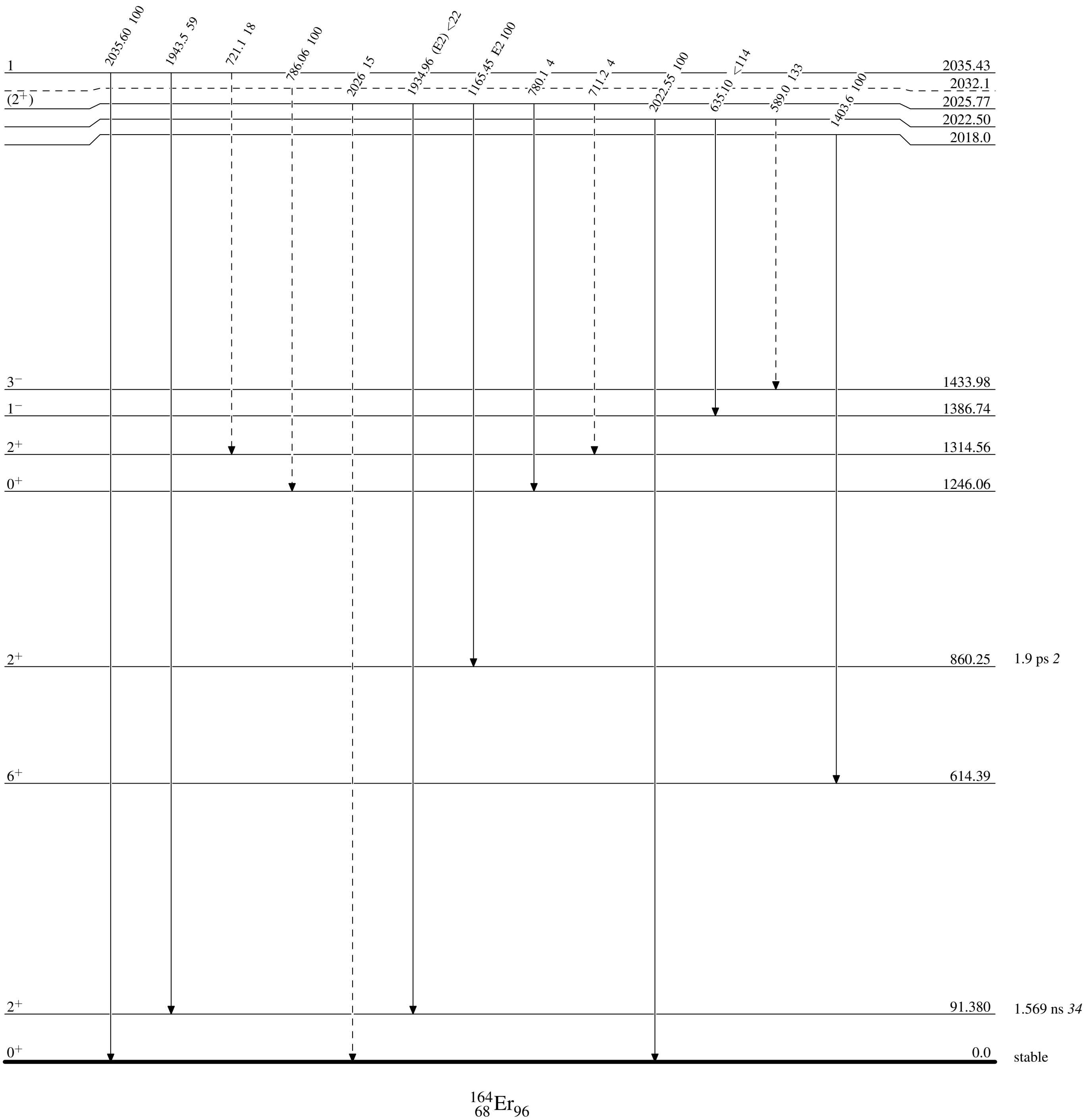
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

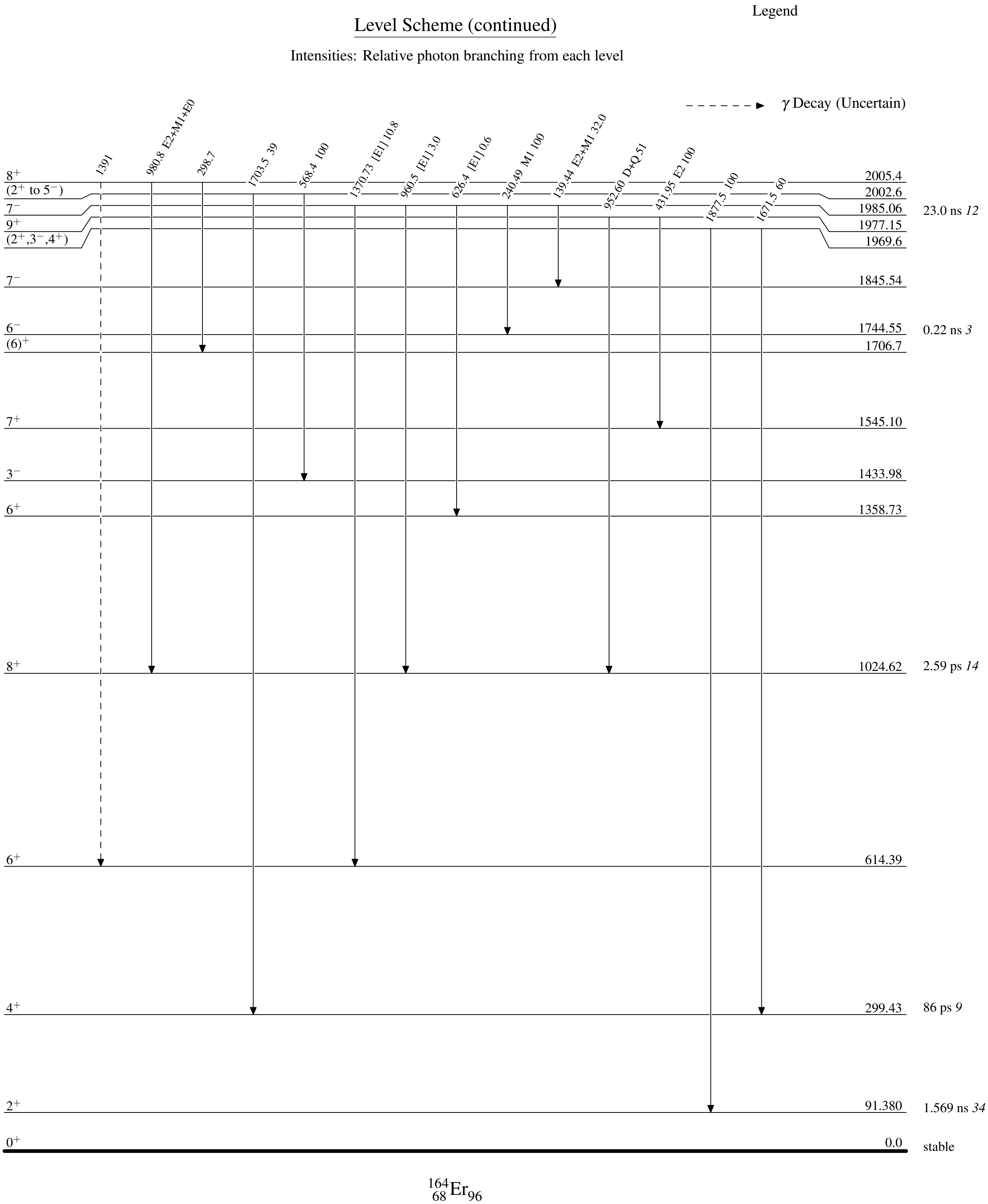
γ Decay (Uncertain)



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

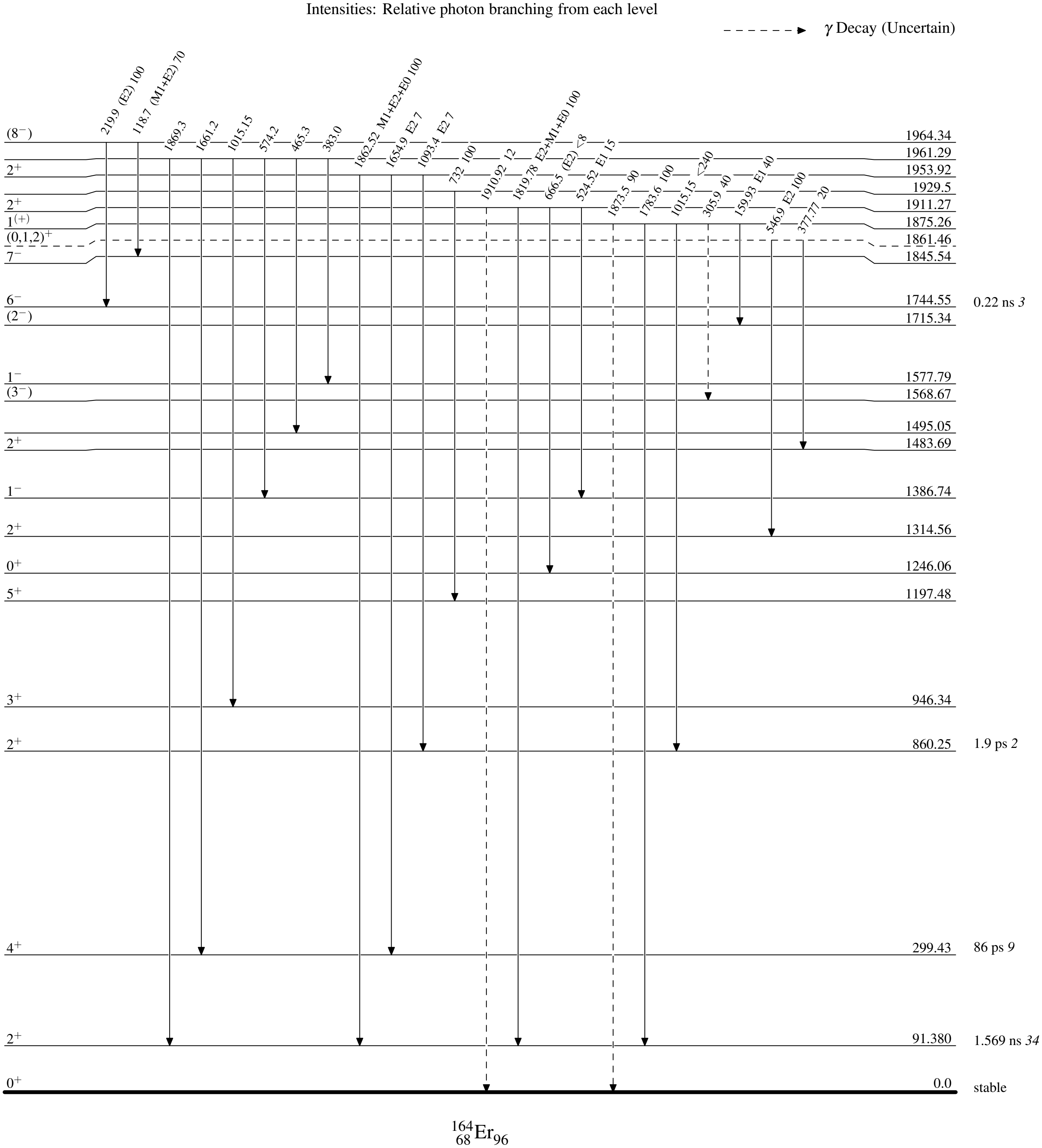


Adopted Levels, Gammas

Legend

Level Scheme (continued)

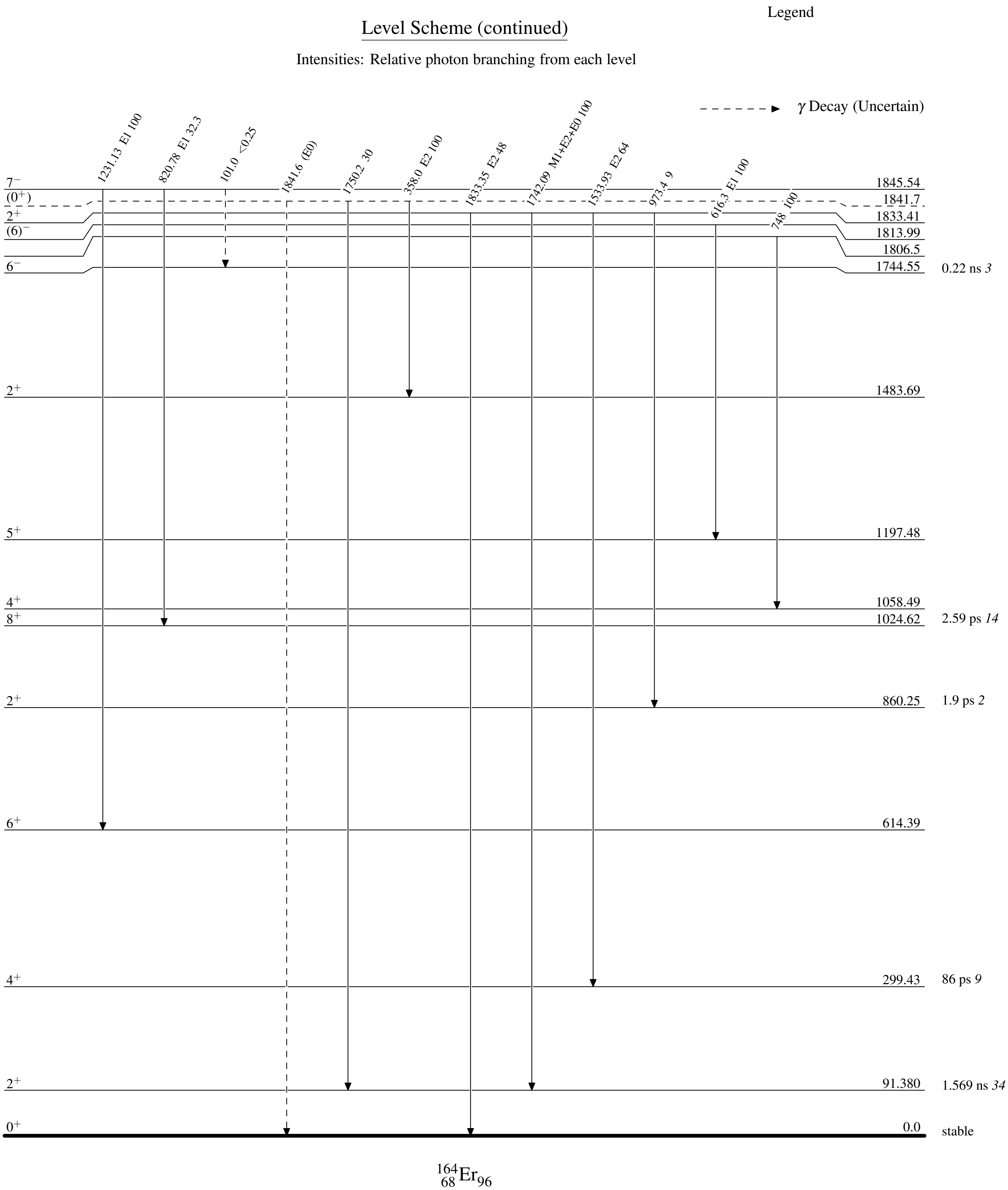
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

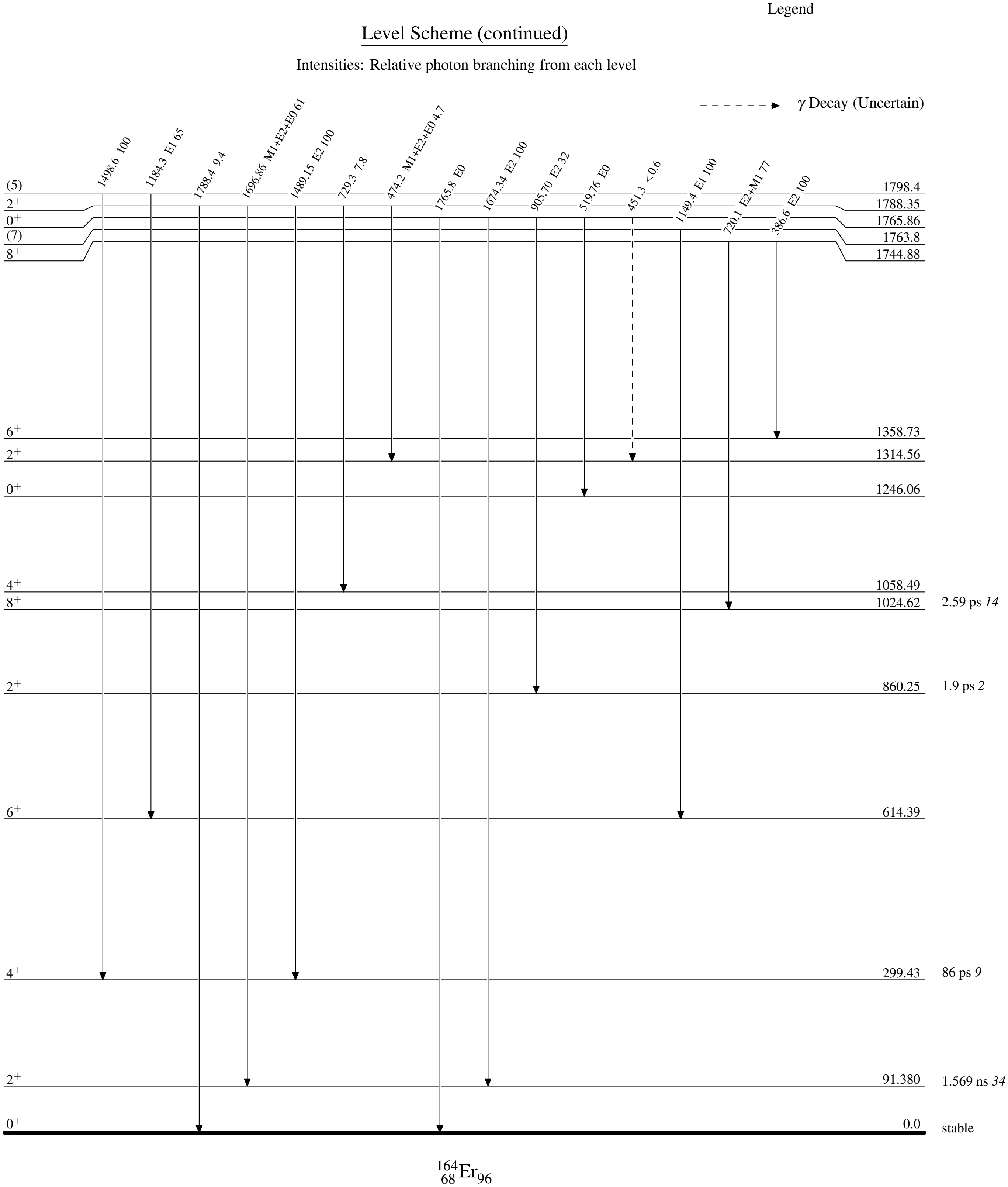
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

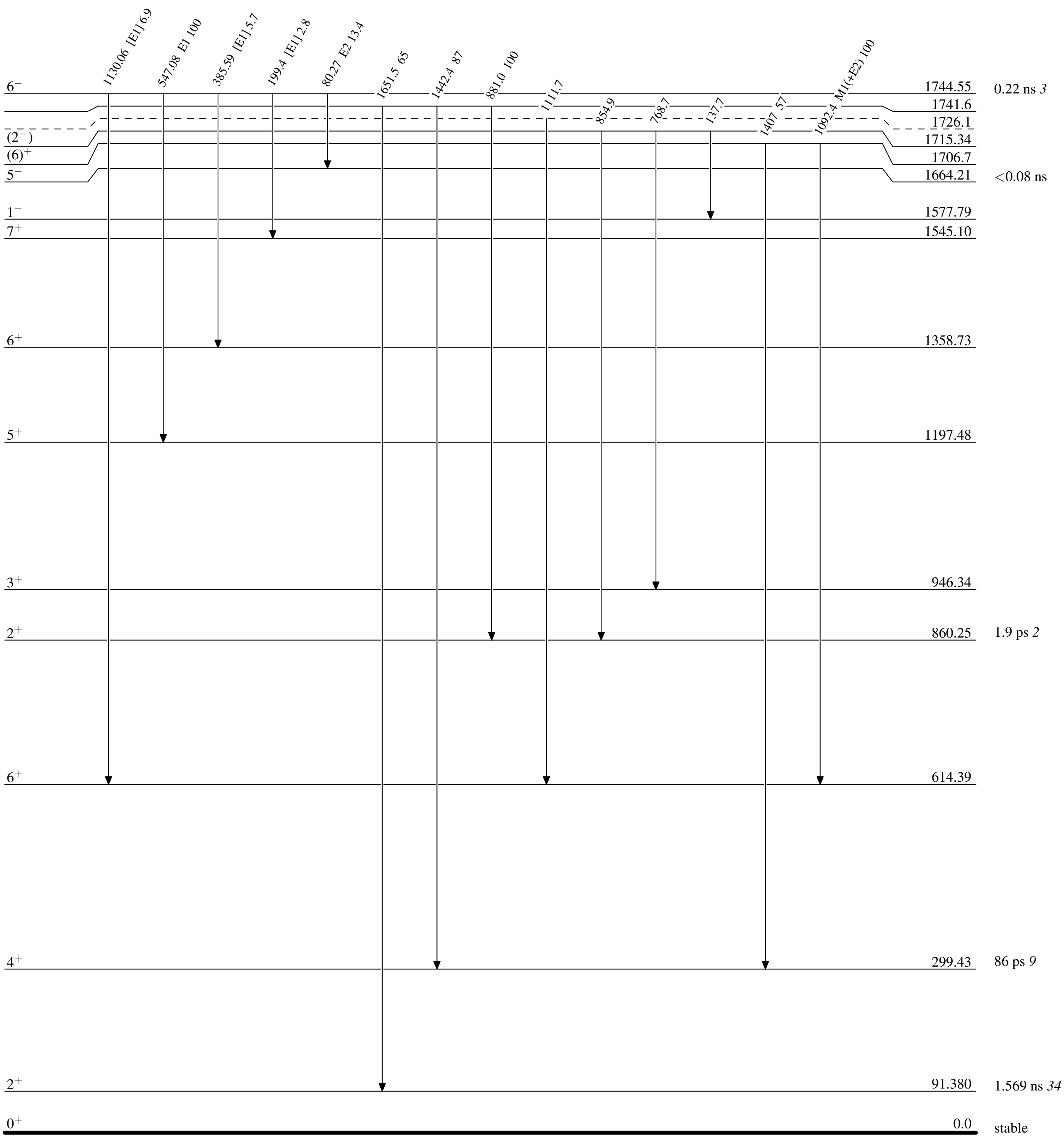
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

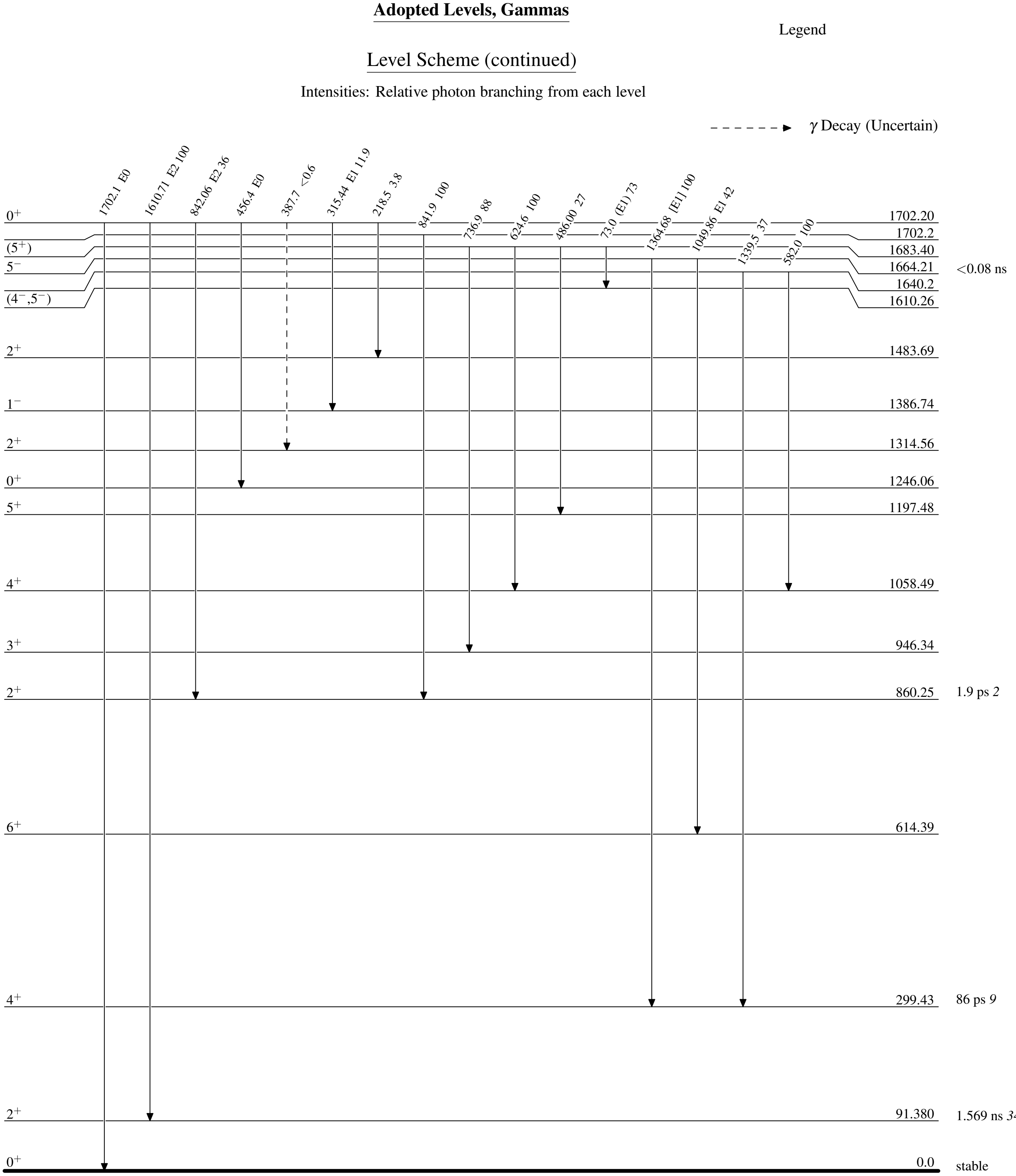


$^{164}_{68}Er_{96}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



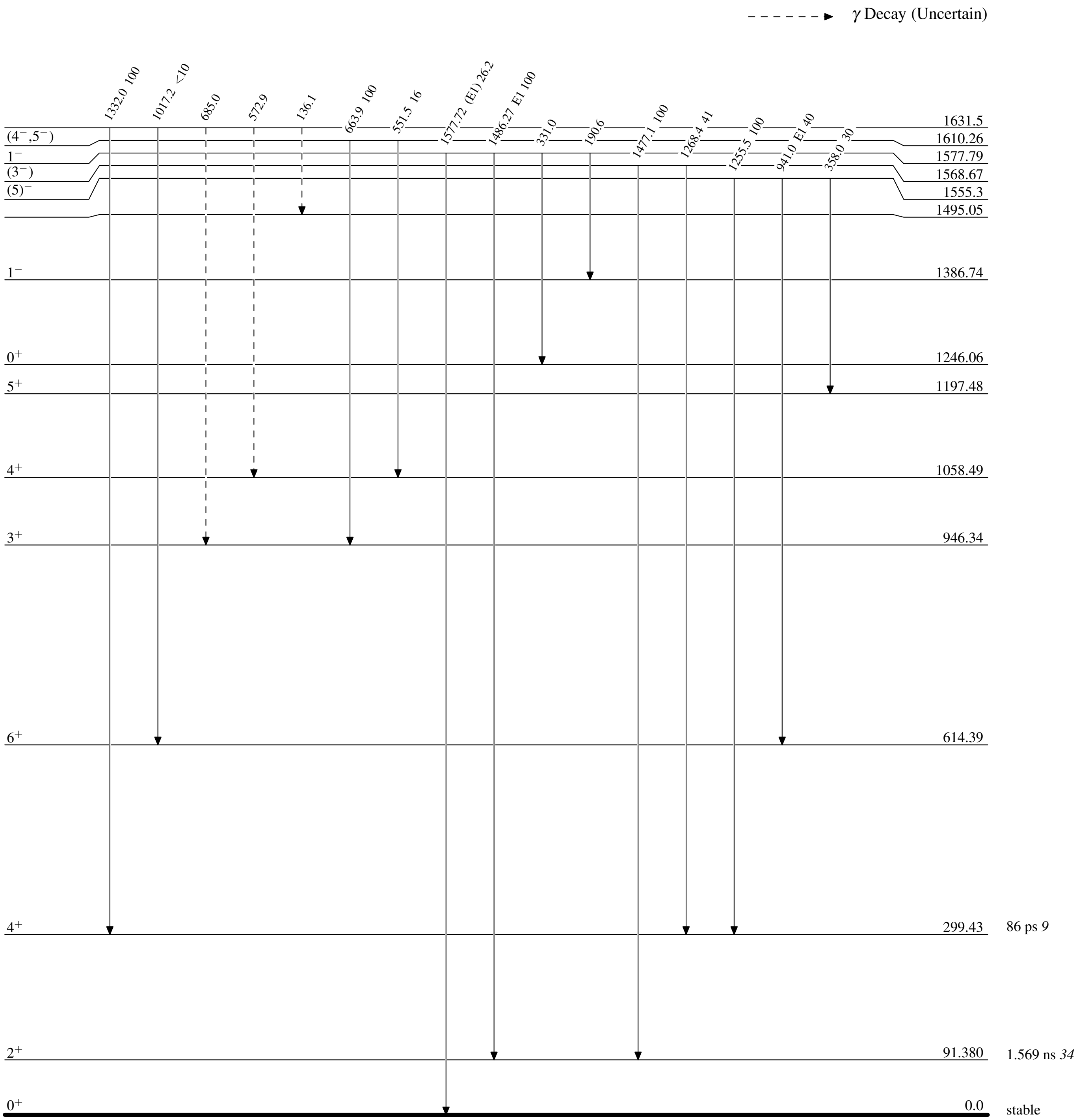
$^{164}_{68}Er_{96}$

Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

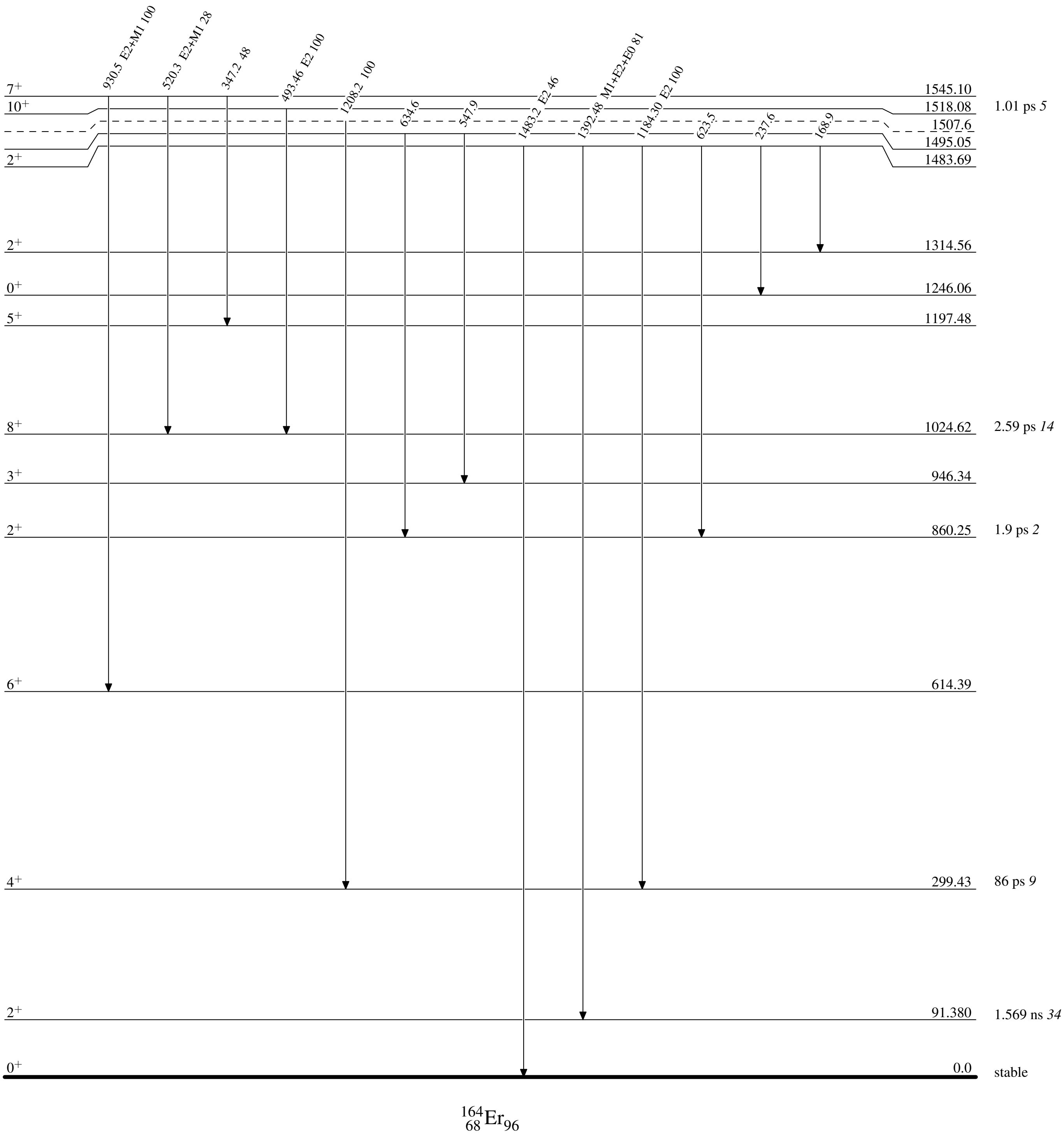


$^{164}_{68}Er_{96}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

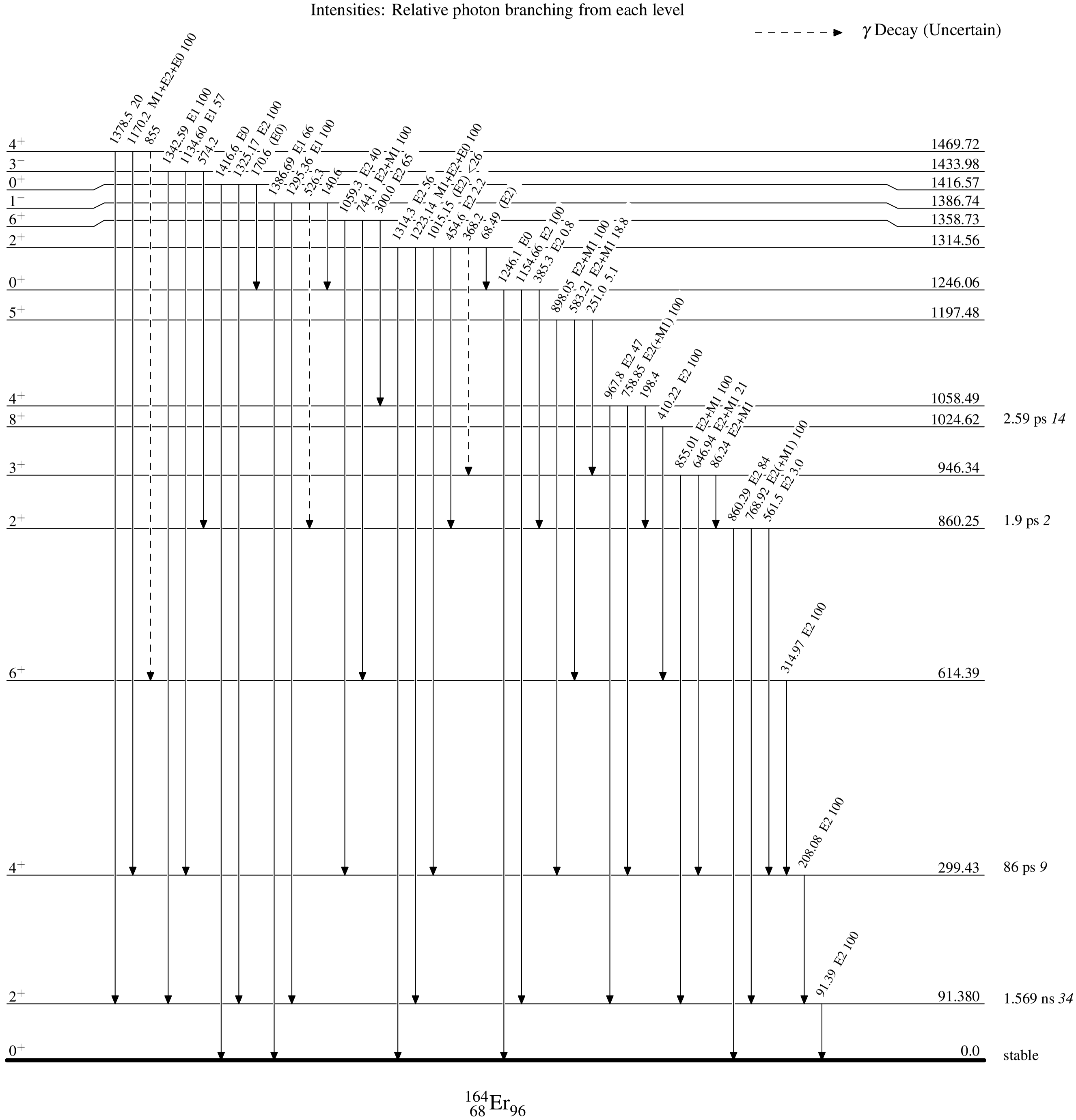


Adopted Levels, Gammas

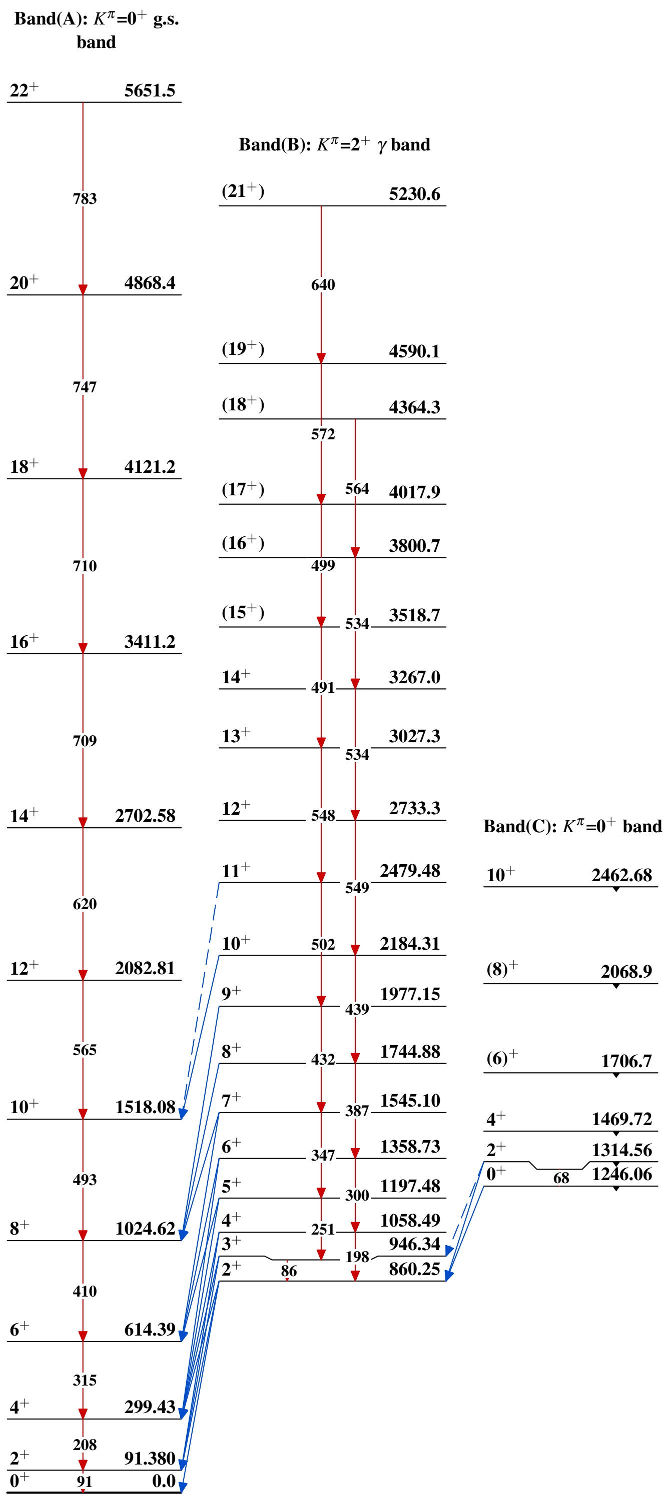
Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

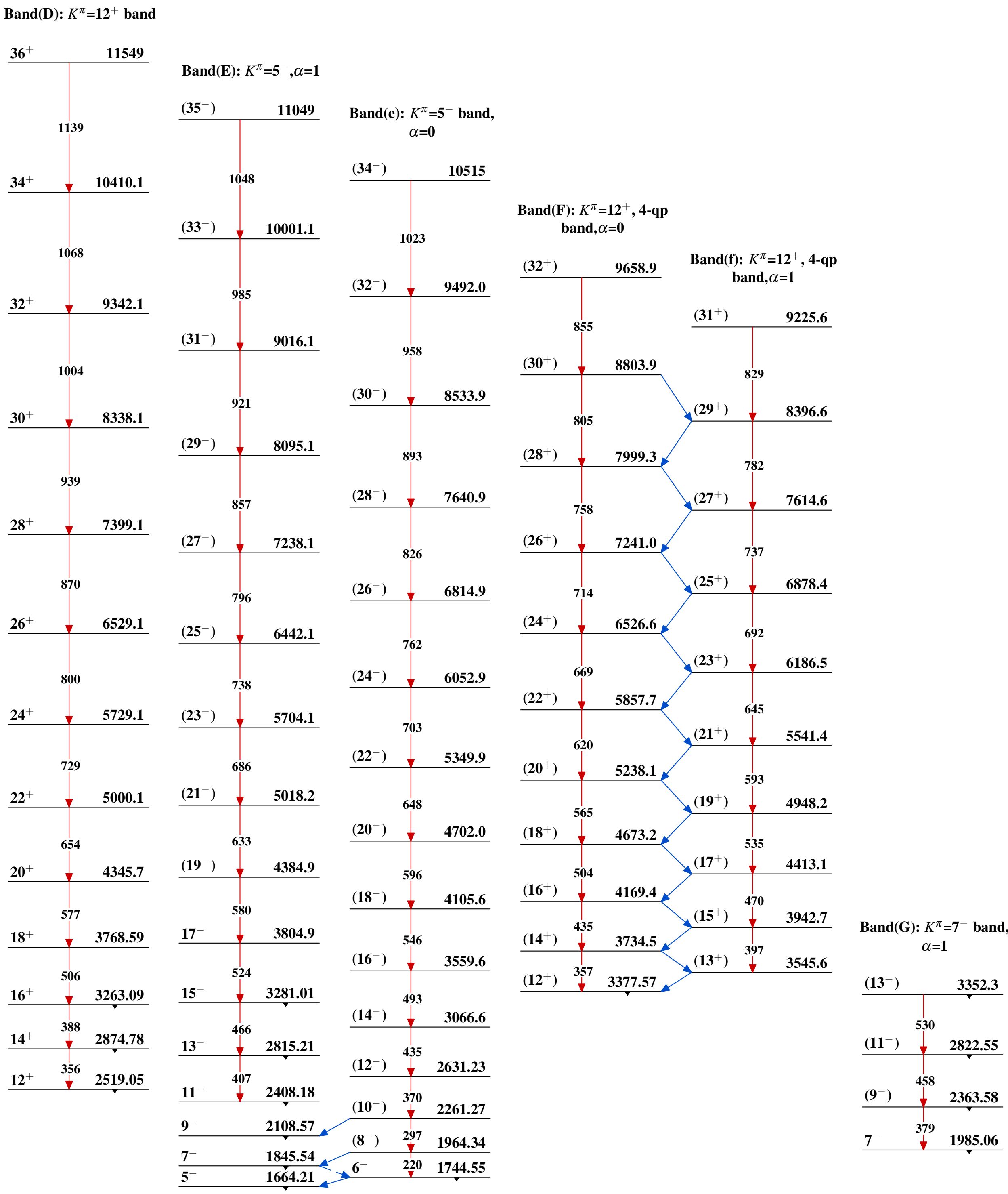


Adopted Levels, Gammas



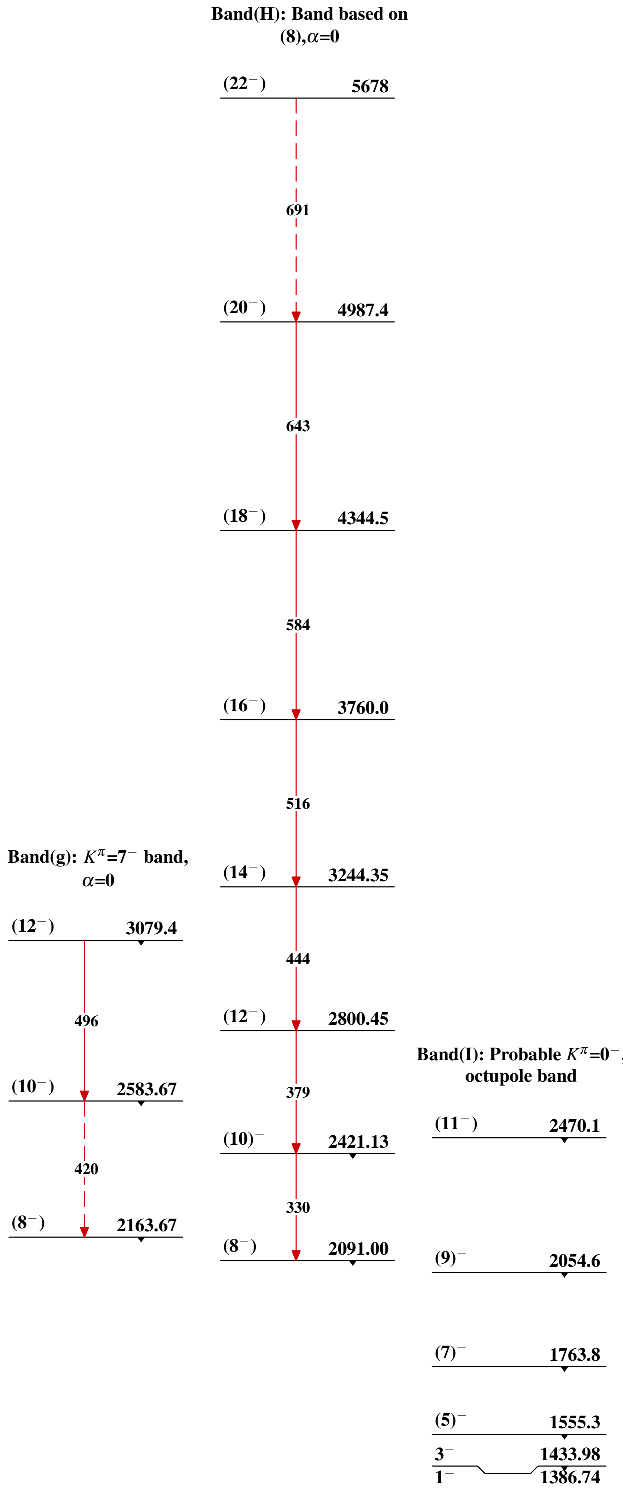
$^{164}_{68}Er_{96}$

Adopted Levels, Gammas (continued)



$^{164}_{68}Er_{96}$

Adopted Levels, Gammas (continued)



$^{164}_{68}Er_{96}$