Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Alan L. Nichols, Balraj Singh, Jagdish K. Tuli	NDS 113,973 (2012)	15-Apr-2012

Q(β^-)=−9181.1 *4*; S(n)=12890 *16*; S(p)=6472.6 *11*; Q(α)=−3364.3 *6* 2012Wa38
Note: Current evaluation has used the following Q record −9181.07 38 *12896* 16 *6472.7* *11*−3364.3 *6* 2011AuZZ.
S(2n)=23136.4 *7*, S(2p)=11272.9 *5* (2011AuZZ).
Values in 2003Au03: Q(β^-)=−9171 *26*, S(n)=12897 *19*, S(p)=6477 *10*, Q(α)=−3369 *10*, S(2n)=23126 *15*, S(2p)=11277 *10*.
Other reactions:
1997Fo03: ^{62}Ni(π^+,π^-),E=140-230 MeV, measured $\sigma(\theta)$.
1993Be02: ^{62}Ni(π^+,π^-),E=293.4 MeV, measured $\sigma(\theta)$.
1979ShZN: ^{58}Ni(^{14}N,^{10}B) E=155 MeV, measured $\sigma(\theta)$, DWBA.
1977Gr03: ^{58}Ni(α,p) E=6.26-9.12 MeV in steps of 20 keV, excitation functions measured to find resonances of large α width. The spectra show a large number of alpha-particle resonances, but their energies are not listed. Differential cross sections were measured at three angles. No evidence was found for levels with very large α widths; observed α width was concentrated in a small number of states, in qualitative agreement with the predictions of a weak coupling shell model.
1976Ca06: ^{64}Zn(γ,2n) E=8-30 MeV; measured σ, GDR width.
1970Co25: ^{64}Zn(γ,2n) E=12-40 MeV; measured σ, GDR.
Mass measurement: 2006Er03 (Penning trap method).
Additional information 1.
^{62}Zn produced and identified in deuteron and ^{3}He bombardment of Cu (1948Mi12), who also measured half-life.

^{62}Zn Levels

Cross Reference (XREF) Flags

A	^{62}Ga ε decay (116.121 ms)	G	^{58}Ni(^{12}C,^{8}Be)	M	^{61}Ni(^{3}He,2nγ)
B	^{40}Ca(^{28}Si,α2pγ) E=122 MeV	H	^{58}Ni(^{16}O,^{12}C)	N	Coulomb excitation
C	^{40}Ca(^{28}Si,α2pγ) E=125 MeV	I	^{60}Ni(^{3}He,n)	O	^{63}Cu(p,2nγ)
D	^{58}Ni(^{6}Li,pnγ)	J	^{60}Ni(α,2nγ),(^{3}He,nγ)	P	^{64}Zn(p,t)
E	^{58}Ni(^{6}Li,d),(pol ^{6}Li,D)	K	^{60}Ni(^{12}C,^{10}Be)		
F	^{58}Ni(^{7}Li,t)	L	^{60}Ni(^{16}O,^{14}C)		

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$[#]	XREF	Comments
0.0[b]	0+	9.193 h *15*	ABCDEFGHIJKLMNOP	%ε+%β^+=100 $T_{1/2}$: weighted average of 9.186 h *13* (1982Gr10, from decay curve for two γ rays followed over 8 to 11 half-lives, but no details); 9.231 h *20*, 9.23 h *6* (1972Cr02,γ counting, average of measurements for four γ rays of 260, 394, 548 and 597 keV at two different energies of E(^{3}He) beam in ^{64}Zn(^{3}He,X) reaction; 9.34 h *4* and 9.39 h *5* at two other beam energies not used in the averaging procedure because of low counting rates and apparent discrepant results); 9.3 h *2* (1967Ro01, γ decay curve, but no details); 9.2 h *1* (1967An01, from decay curves for several conversion lines, but no other details); 9.13 h *3* (1964Ru06, $\gamma\gamma$ counting method, eight runs, but no other details); 9.3 h *2* (1954Nu27,γ counting, but no details). Others: 8.4 h *2* (1953Ku08, preliminary value from a composite decay curve of several activities produced), 9.33 h (1950Ha65, from positron decay curve), 9.5 h (1948Mi12, from electron counting using GM counter). Reduced χ^2=1.5. Uncertainty is obtained by multiplying uncertainty of 0.0125 by (reduced $\chi^2)^{1/2}$.
953.84[b] *9*	2+	2.93 ps *14*	ABCDEFGHIJKLMNOP	μ=+0.74 *20* (2002Ke02,2011StZZ) μ: from g factor=+0.37 *10* (2002Ke02) using projectile Coulomb excitation in inverse kinematics and transient magnetic fields. Data

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Adopted Levels, Gammas (continued)

^{62}Zn Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]	XREF	Comments
				reanalyzed in 2010Mo14 with the same result of g=+0.37 *10*. J^{π}: E2 γ to 0^+. $T_{1/2}$: from evaluation by 2011PrZZ, based on mean lifetime measurements of 4.2 ps *7* (2007St16), 4.3 ps *3* (2002Ke02), 4.2 ps *3* (1981Wa09) and 2.5 ps *+10−20* (1977BrYO).
1804.67[c] *11*	2^+	2.63 ps *42*	ABCDE H JKLMNOP	J^{π}: E2 γ to 0^+.
2186.06[b] *13*	4^+	0.53 ps *+24−14*	BCDE GH JK MNOP	J^{π}: ΔJ=2, E2 γ to 0^+. $T_{1/2}$: other: 1.0 ps *7* from (α,2nγ).
2341.95 *23*	0^+		A E H M P	XREF: E(2360). J^{π}: L(p,t)=L(^{6}Li,d)=0.
2384.50[d] *15*	3^+	1.7 ps *11*	CD IJ MNO	J^{π}: ΔJ=1, M1+E2 γ to 2^+; not 1 from excitation function. $T_{1/2}$: >0.7 ps from DSAM, <2.8 ps from RDM, ^{58}Ni(^{6}Li,pnγ).
2743.60[c] *15*	4^+	2.36 ps *21*	BCDE H J M OP	J^{π}: ΔJ=2, E2 γ to 2^+; ΔJ=0, M1+E2 γ to 4^+; L(p,t)=4.
2803.14 *17*	2^+	0.146[@] ps *21*	A E H LM P	XREF: E(2840). J^{π}: L(^{6}Li,d)=L(p,t)=2. $T_{1/2}$: DSA in (^{3}He,2nγ). E(level): identified as one component of one-phonon mixed-symmetry 2^+ state (2010Al28).
2884.05 *25*	2^+	0.132[@] ps *21*	M P	J^{π}: γγ(θ) in (^{3}He,2nγ); L(p,t)=(2). $T_{1/2}$: DSA in (^{3}He,2nγ). E(level): identified as second component of one-phonon mixed-symmetry 2^+ state (2010Al28).
3042.9? *8*	(0^+)		A	
3060 *10*	2^+		P	J^{π}: L(p,t)=2.
3160 *10*	(2^+)		I P	J^{π}: L(^{3}He,n)=2+(3). L(p,t)=2 for doublet.
3181.2 *4*	(1^+)		A	
3209.86 *21*	4^+	0.250[@] ps *35*	CD GH kLM	E(level): 2010Al28 identify the 3209 *4+* state as a good candidate for a two-phonon mixed symmetry state. However, non-observation of expected transition to the one-phonon mixed symmetry 2^+ state at 2803 keV does not allow a confirmed identification of such an excitation. J^{π}: from γγ(θ) (2010Al28). $J^{\pi}=3^-$ is ruled out since such an adoption would give a large quadrupole (M2) admixture for 1023.7γ which is inconsistent with RUL.
3223.5 *4*	$3^{(-)}$		E M P	XREF: E(3190). J^{π}: L(p,t)=3 for 3216 *6* group; L(^{6}Li,d)=3 if the 3190 level corresponds to 3223 level.
3310 *50*	(4^+)		k	J^{π}: based on systematic trends and shell-model calculation (1990Bo27).
3374.2 *3*	(1^-)		A P	J^{π}: L(p,t)=(1).
3470 *10*	2^+		E P	J^{π}: L(p,t)=2.
3586.55[d] *23*	(5^+)	0.63 ps *+63−21*	CDE J M O	XREF: E(3540). J^{π}: γ(θ) and excit function, (^{6}Li,pnγ).
3590 *10*	(2^+)		P	J^{π}: L(p,t)=(2).
3640 *10*	2^+		E P	XREF: E(3680). J^{π}: L(p,t)=2.
3707.60[b] *24*	6^+	0.250[@] ps *35*	BCD J M O	J^{π}: ΔJ=2, E2 γ to 4^+. $T_{1/2}$: from DSAM in (^{3}He,2nγ). Others: 0.17 ps *+14−7* from (α,2nγ); 0.25 ps +17−7 in (^{6}Li,pnγ).
3730 *10*	$(3^-,4^+)$		P	J^{π}: L(p,t)=(3,4).
3830 *10*	2^+		P	J^{π}: L(p,t)=2. E(level): not the same as 3840 level seen in (^{6}Li,d) with L=1; evaluators assume 3840 is same as 3870 *30* L=1 level in

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Adopted Levels, Gammas (continued)

^{62}Zn Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]	XREF	Comments
				(^{3}He,n).
3870 *20*	1$^-$		E HI	J^π: L(^{3}He,n)=L(^{6}Li,d)=1.
3920 *10*	(3$^-$,4$^+$)		P	J^π: L(p,t)=(3,4).
3960.5 *4*	(1$^+$)		A	
4008.4 *7*	0$^+$		E G M P	J^π: L(p,t)=0.
4021.6 *5*	(1$^+$)		A	
4040 *20*	(1$^-$)		E	J^π: L(^{6}Li,d)=(1).
4043.20[e] *24*	(5)$^-$	0.270[@] ps *42*	CD HIJKLM O	XREF: K(4170). J^π: 3,5 from $\gamma(\theta)$, linear polarization; 5 from excitation function in (^{6}Li,pnγ); π=− from L(^{6}Li,d); gammas to 4$^+$ states. $T_{1/2}$: from DSAM in (^{3}He,2nγ). Other: 0.69 ps *+14−49* in (^{6}Li,pnγ).
4090 *10*	(4$^+$)		P	J^π: L(p,t)=(4).
4217.6 *8*	(3$^-$)		M P	J^π: L(p,t)=(3).
4330 *20*	(2$^+$)		P	J^π: L(p,t)=(2).
4347.86[c] *24*	6$^+$[a]	0.48[@] ps *13*	BCD M	$T_{1/2}$: from DSAM in (^{3}He,2nγ). Other: 0.28 ps *+28−14* in (^{6}Li,pnγ).
4380 *20*	(4$^+$)		P	J^π: L(p,t)=(4).
4448.0 *3*	(1$^+$)		A P	
4515 *20*	6$^+$		E H k P	J^π: L(^{6}Li,d)=6.
4535.4? *8*			C M	
4600	(7$^-$)		k	J^π: systematic trends (1990Bo27).
4620 *20*	(0$^+$)		H P	J^π: L(p,t)=(0).
4680 *10*	4$^+$		P	J^π: L(p,t)=4.
4810 *30*	(2$^+$,3$^-$)		P	J^π: L(p,t)=(2,3).
4860 *30*	(3$^-$,4$^+$)		P	J^π: L(p,t)=(3,4).
4895.3 *4*	(1$^+$)		A P	
4904.7[e] *3*	(7$^-$)[a]	8.3 ps *35*	BCD J M O	$T_{1/2}$: other: 0.7 ps *+7−3* from (α,2nγ).
4910 *30*	(2$^+$)		E P	XREF: E(4960). J^π: L(p,t)=(2).
5050 *30*	(2$^+$)		G P	J^π: L(p,t)=(2).
5090 *20*	1$^-$		E P	J^π: L(^{6}Li,d)=1.
5123.5 *4*	(7)$^-$[a]	2.1 ps *14*	D K M	XREF: K(5190). $T_{1/2}$: <3.5 ps from RDM, >0.7 ps from DSAM in ^{58}Ni(^{6}Li,pnγ). J^π: 3,5,7 from $\gamma(\theta)$ and γ(lin pol); yrast population disfavors 3; transition strength arguments (RUL) restrict parity to be the same as that of 4042; 7$^-$ supported by shell-model calculations (1990Bo27).
5131.0[f] *4*	(6$^-$)[a]	>0.7 ps	CD M	
5143.3[d] *5*	(7)$^+$[a]	0.42 ps *+21−14*	CD M	
5211.5 *5*	(1$^+$)		A P	
5240 *20*	(0$^+$)		P	J^π: L(p,t)=(0).
5340[&] *30*	0$^+$		E I	J^π: L(^{3}He,n)=0.
5370 *20*	(4$^+$)		H P	J^π: L(p,t)=(4).
5470			E	
5481.5[b] *6*	(8$^+$)	0.28 ps *+14−7*	CD M	
5560 *20*			P	
5700[&] *30*			HI	
5920.8? *17*	(1$^+$)		A	
6081.6[e] *5*	(9$^-$)	3.9 ps *32*	BCD	J^π: (7,9) from $\gamma(\theta)$, linear polarization and excitation

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Adopted Levels, Gammas (continued)

^{62}Zn Levels (continued)

E(level)[†]	J^{π}[‡]	XREF	Comments
			function in (^{6}Li,pnγ); same parity as that of 4904 level. $T_{1/2}$: 0.7 ps<$T_{1/2}$<7 ps from RDM and DSA, ^{58}Ni(^{6}Li,pnγ).
6113.7[f] 6	(8$^-$)	BCD	
6300 50	(8$^+$)	K	J^{π}: systematic trends (1990Bo27).
6400		I	
6629.5 21		D H	
7200		P	
7400		P	
7422.5[e] 7	(11$^-$)	BCD	J^{π}: ΔJ=2, Q γ to (9).
7422.7[f] 8	(10$^-$)	BC	
7500.0[b] 9	(10$^+$)	C	
7540 50	(8$^+$)	K	J^{π}: from shell-model calculations (1990Bo27).
7629.7 9		C	
7701.5? 12		C	
7976.1[i] 7	(9$^+$)	BC	
8300 50	(6$^+$)	K	J^{π}: from shell-model calculations (1990Bo27).
8437.2[j] 8	(10$^+$)	BC	
9024.7[f] 8	(12$^-$)	B	
9048.6[i] 7	(11$^+$)	BC	
9214.0[e] 8	(13$^-$)	BC	
9465.2[j] 8	(12$^+$)	BC	
9800		P	
9823.7[k] 10	(12$^+$)	B	
9960.4[i] 8	(13$^+$)	B	
10247.4[g] 8	(11$^+$)	C	
10300		P	
10316.4 10	(13$^+$)	C	
10375.1[j] 8	(14$^+$)	BC	
10635.8[h] 8	(12$^+$)	C	
10725.9[f] 10	(14$^-$)	B	
10800		P	
11182.8[g] 8	(13$^+$)	C	
11546.8[k] 9	(14$^+$)	B	
11651.6[l] 8	(13$^-$)	BC	
11755.8[h] 9	(14$^+$)	C	
11788.3[i] 11	(15$^+$)	B	
11961.6[j] 9	(16$^+$)	BC	
12329.3[m] 8	(14$^-$)	BC	
12536.7[g] 9	(15$^+$)	C	
12812.9 10	(15$^-$)	BC	
12993.0[l] 8	(15$^-$)	BC	
13156.3[k] 10	(16$^+$)	B	
13236.6[h] 9	(16$^+$)	C	
13400		P	
13726.7[m] 8	(16$^-$)	BC	
14125.5[g] 9	(17$^+$)	C	
14445.8 9	(17$^-$)	BC	
14541.8[l] 8	(17$^-$)	BC	
14646.3 12	(16$^+$)	B	

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Adopted Levels, Gammas (continued)

^{62}Zn Levels (continued)

E(level)[†]	J^{π}[‡]	XREF	E(level)[†]	J^{π}[‡]	XREF
14832.3 *12*	(16$^+$)	B	20474.9[p] *11*	(21$^-$)	B
15041.8[n] *11*	(16$^+$)	B	20858.9[n] *16*	(22$^+$)	B
15049.6[h] *9*	(18$^+$)	C	21042.0[l] *11*	(23$^-$)	BC
15295.5[k] *13*	(18$^+$)	B	21617.5[o] *11*	(22$^-$)	BC
15415.6[m] *8*	(18$^-$)	BC	21853.8[q] *17*	(22$^+$)	B
15482.7[q] *16*	(16$^+$)	B	22784.4[p] *12*	(23$^-$)	B
15705.8 *14*	(19$^-$)	C	23185.7[m] *14*	(24$^-$)	BC
16372.9[g] *9*	(19$^+$)	C	23344.0[n] *19*	(24$^+$)	B
16374.6[l] *9*	(19$^-$)	BC	24057.0[o] *14*	(24$^-$)	BC
16574.8?[p] *15*	(17$^-$)	B	24469.8[q] *20*	(24$^+$)	B
16717.2 *10*	(18$^+$)	B	25349.4[p] *16*	(25$^-$)	B
16807		B	26176.1[n] *21*	(26$^+$)	B
16818.5[n] *11*	(18$^+$)	B	26746.8[o] *17*	(26$^-$)	BC
17350.7[q] *12*	(18$^+$)	B	27318.9[q] *22*	(26$^+$)	B
17365.8 *11*	(18$^-$)	B	28165.5[p] *19*	(27$^-$)	B
17408.6[o] *10*	(18$^-$)	BC	29475.2[n] *24*	(28$^+$)	B
17480.5[m] *9*	(20$^-$)	BC	29686.0[o] *21*	(28$^-$)	BC
17509.7 *14*	(18$^-$)	B	30437.0[q] *24*	(28$^+$)	B
17590.7[h] *11*	(20$^+$)	C	31216.6[p] *21*	(29$^-$)	B
18416.8[p] *12*	(19$^-$)	B	32922[o] *3*	(30$^-$)	BC
18504.6[l] *9*	(21$^-$)	BC	33362[n] *3*	(30$^+$)	B
18678.9[n] *12*	(20$^+$)	B	33800[q] *3*	(30$^+$)	B
19400.7[o] *9*	(20$^-$)	BC	34603.7[p] *24*	(31$^-$)	B
19478.7[q] *13*	(20$^+$)	B	36501[o] *3*	(32$^-$)	B
19507.7[g] *15*	(21$^+$)	C	38369[p] *3*	(33$^-$)	B
19602.4 *15*		B	40459[o] *3*	(34$^-$)	B
19679.7[m] *10*	(22$^-$)	BC	42521?[p] *3*	(35$^-$)	B

[†] From least-squares fit to the Eγ data of gamma-ray studies. Others are from particle data, averages taken when values of comparable precision are available.

[‡] For levels populated in high-spin studies; assignments above J=8 are based on $\gamma\gamma(\theta)$(DCO) data for selected transitions, band assignments, and comparisons with cranked-shell model calculations. Since full details of most high-spin studies are not available, no separate arguments for J^{π} assignments are given in this evaluation.

[#] From DSA and/or RDM in ^{58}Ni(^{6}Li,pnγ) and (^{3}He,2nγ), except as noted.

[@] Values from DSAM in (^{3}He,2nγ) are effective half-lives, thus should be considered as upper limits. The Be(λ)(W.u.) deduced from these half-lives should be considered as lower limits.

[&] From ^{60}Ni(^{3}He,n).

[a] From $\gamma(\theta)$, excitation, transition strength, linear polarization in ^{58}Ni(^{6}Li,pnγ).

[b] Band(A): g.s. band.

[c] Band(B): $K^{\pi}=2^+,\alpha=0$.

[d] Band(b): $K^{\pi}=2^+,\alpha=1$.

[e] Band(C): $K^{\pi}=3^-,\alpha=1$.

[f] Band(c): $K^{\pi}=3^-,\alpha=0$.

[g] Band(D): $K^{\pi}=(11^+),\alpha=1$. High-j valence configuration=$\pi f^{-1}_{7/2}\pi g^1_{9/2}\nu g^1_{9/2}$ gives maximum (terminating) spin of 21$^+$ with remaining three valence neutrons in $f_{5/2}p_{3/2}$ orbits. Experimental Q(intrinsic) from Doppler-shift data decrease from 1.0 *2* (J=15) to 0.25 *5* (for J=21) as the spin increases (1998Sv01).

[h] Band(d): $K^{\pi}=(11^+),\alpha=0$. See comments for $\alpha=1$ signature partner.

[i] Band(E): $K^{\pi}=(9^+),\alpha=1$.

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Adopted Levels, Gammas (continued)

^{62}Zn Levels (continued)

[j] Band(e): $K^\pi=(9^+),\alpha=0$.
[k] Band(F): Band based on (12^+).
[l] Band(g): Band based on $(13^-),\alpha=1$.
[m] Band(G): Band based on $(14^-),\alpha=0$.
[n] Band(H): Well-deformed band based on 16^+. Percent population=2. Possible configuration=[22,02].
[o] Band(I): SD-1 band,α=0. Possible configurations=[22,23] or [22,13]; former is preferred. Band intensity ≈1%; Q(transition)=2.7 +7−5 (1997Sv02), corresponding to β_2=0.45 +10−7. Probable configuration=$\nu f_{7/2}^{-2}\nu g_{9/2}^{+2}$ with possible contribution from configuration=$\nu f_{7/2}^{-2}\nu g_{9/2}^{+3}$ (1997Sv02).
[p] Band(i): SD-2 band,α=1. Possible configurations=[22,23] or [22,13]; former is preferred.
[q] Band(J): SD-3 band,α=0. Possible configurations=[22,22] or [22,24].

$\gamma(^{62}Zn)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
953.84	2^+	953.8 *1*	100	0.0	0^+	E2		B(E2)(W.u.)=16.8 *8* (2011PrZZ)
1804.67	2^+	850.8 *1*	100 *5*	953.84	2^+	M1+E2	−3.6 +7−10	B(M1)(W.u.)=0.00057 *23*; B(E2)(W.u.)=18 *4* δ: from (^{3}He,2nγ). Others: −1.2 +4−5 from ^{63}Cu(p,2nγ), −5.1 +29−34 from (^{6}Li,pnγ).
		1804.8 *2*	70 *6*	0.0	0^+	E2		B(E2)(W.u.)=0.32 *6*
2186.06	4^+	1232.2 *1*	100	953.84	2^+	E2		B(E2)(W.u.)=26 +7−12
2341.95	0^+	1388.3 *3*	100	953.84	2^+			
2384.50	3^+	579.8 *2*	64 *7*	1804.67	2^+	M1+E2	−1.9 +3−5	B(M1)(W.u.)=0.006 *4*; B(E2)(W.u.)=110 *70*
		1430.7 *2*	100 *6*	953.84	2^+	M1+E2	−0.5 *1*	B(M1)(W.u.)=0.0022 *15*; B(E2)(W.u.)=0.5 *4* δ: +3.4 +9−6 (^{3}He,2nγ).
2743.60	4^+	359.1 *2*	11 *3*	2384.50	3^+	M1+E2	−0.32 *22*	B(M1)(W.u.)=0.010 *4*; B(E2)(W.u.)=15 +19−15
		557.5 *2*	100 *4*	2186.06	4^+	M1+E2	−0.35 *3*	B(M1)(W.u.)=0.025 *3*; B(E2)(W.u.)=17 *4*
		938.9 *2*	79 *10*	1804.67	2^+	E2		B(E2)(W.u.)=9.3 *16* Mult.: δ(M3/E2)=−0.13 +11−5.
		1789.7 *9*	2 *1*	953.84	2^+			
2803.14	2^+	998.4 *4*	9 *2*	1804.67	2^+	(M1+E2)		
		1849.2[&] *2*	100[‡] *7*	953.84	2^+	(M1(+E2))	+0.03 *16*	B(M1)(W.u.)=0.020 *4*; B(E2)(W.u.)=0.01 +10−1
		2803.0[&] *5*	8[‡] *5*	0.0	0^+	[E2]		B(E2)(W.u.)=0.11 *7* E_γ: from ^{62}Ga decay only.
2884.05	2^+	1079.4 *4*	5 *2*	1804.67	2^+	[M1+E2]		
		1930.1[&] *4*	100[‡] *7*	953.84	2^+	(M1(+E2))	−0.32 +30−36	B(M1)(W.u.)=0.020 *5*; B(E2)(W.u.)=1.0 +17−10
		(2884.0[&] *5*)	<2[‡]	0.0	0^+	[E2]		B(E2)(W.u.)=0.014 +15−14
3042.9?	(0^+)	2089.0[a] *8*	100	953.84	2^+			
3181.2	(1^+)	2227.2 *4*	100 *4*	953.84	2^+			
		3181.3 *6*	16.0 *19*	0.0	0^+			
3209.86	4^+	(325.7)	<2	2884.05	2^+	[E2]		
		(406.7)	<2	2803.14	2^+	[E2]		
		1023.7[&] *2*	100[‡] *5*	2186.06	4^+	(M1(+E2))	+0.01 *18*	B(M1)(W.u.)=0.058 *10*; B(E2)(W.u.)=0.01 +35−1
		2256.5[&] *8*	40[‡] *8*	953.84	2^+	[E2]		B(E2)(W.u.)=0.75 *19*
3223.5	$3^{(-)}$	2269.6 *4*	100	953.84	2^+	D(+Q)	−0.10 *19*	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{62}Zn)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[#]	δ[#]	Comments
3374.2	(1⁻)	1032.0 *5*	20 *17*	2341.95	0⁺			
		1569.8 *4*	100 *17*	1804.67	2⁺			
		3373.5 *8*	60 *13*	0.0	0⁺			
3586.55	(5⁺)	843.0 *3*	97 *8*	2743.60	4⁺	M1+E2	−2.5 *+10−33*	B(M1)(W.u.)=0.004 *+3−4*; B(E2)(W.u.)=61 *+23−61*
		1202.1 *3*	100 *5*	2384.50	3⁺	E2		B(E2)(W.u.)=12 *+5−12*
		1400		2186.06	4⁺			
3707.60	6⁺	1521.5[&] *3*	100[‡]	2186.06	4⁺	E2		B(E2)(W.u.)=19 *3*
3960.5	(1⁺)	1156.7 *4*	54 *14*	2803.14	2⁺			
		1619.2 *4*	100 *14*	2341.95	0⁺			
4008.4	0⁺	2203.7 *7*	100	1804.67	2⁺			
4021.6	(1⁺)	1679.3 *6*	5.4 *34*	2341.95	0⁺			
		3068.1 *8*	10.7 *27*	953.84	2⁺			
		4021.7 *8*	100 *7*	0.0	0⁺			
4043.20	(5)⁻	833.2[&] *3*	18[‡] *8*	3209.86	4⁺	[E1]		B(E1)(W.u.)=0.00031 *15*
		1299.4[&] *4*	41[‡] *6*	2743.60	4⁺	(E1)		B(E1)(W.u.)=0.00019 *5*
		1857.5[&] *4*	100[‡] *5*	2186.06	4⁺	(E1)		B(E1)(W.u.)=0.00016 *3*
4217.6	(3⁻)	2031.5 *7*	100	2186.06	4⁺			
4347.86	6⁺	640.3 *2*	13 *5*	3707.60	6⁺	[M1+E2]		
		761.7 *6*	<5	3586.55	(5⁺)	[M1+E2]		
		1604.2[&] *3*	100[‡] *6*	2743.60	4⁺	E2		B(E2)(W.u.)=6.6 *19*
4448.0	(1⁺)	1644.7 *5*	19 *5*	2803.14	2⁺			
		2105.9 *4*	56 *6*	2341.95	0⁺			
		2643.9 *6*	24 *5*	1804.67	2⁺			
		3493.9 *7*	53 *6*	953.84	2⁺			
		4447.8 *9*	100 *7*	0.0	0⁺			
4535.4?		2349.3 *8*	100	2186.06	4⁺			
4895.3	(1⁺)	2092.5 *4*	100 *13*	2803.14	2⁺			
		3089.0 *10*	19 *8*	1804.67	2⁺			
		4894.4 *10*	89 *11*	0.0	0⁺			
4904.7	(7⁻)	370[a]		4535.4?				
		557.2 *5*	56 *10*	4347.86	6⁺	[E1]		B(E1)(W.u.)=0.00010 *5*
		861.5 *3*	14 *2*	4043.20	(5)⁻	[E2]		B(E2)(W.u.)=0.8 *4*
		1196.9 *5*	100 *4*	3707.60	6⁺	(E1(+M2))	−0.01 *13*	B(E1)(W.u.)=1.8×10⁻⁵ *8*; B(M2)(W.u.)=0.006 *+149−6*
5123.5	(7)⁻	1080.3 *3*	100	4043.20	(5)⁻	(E2)		B(E2)(W.u.)=13 *9*
5131.0	(6⁻)	1087.8 *3*	100	4043.20	(5)⁻	(M1+E2)	−4.7 *26*	B(M1)(W.u.)<0.0022; B(E2)(W.u.)<37
5143.3	(7)⁺	795.6 *6*	23 *3*	4347.86	6⁺	[M1+E2]		
		1556.7 *5*	100 *6*	3586.55	(5⁺)	(E2)		B(E2)(W.u.)=8 *+3−5*
5211.5	(1⁺)	2408.3 *7*	25 *8*	2803.14	2⁺			
		2869.8 *7*	33 *8*	2341.95	0⁺			
		4256.6 *9*	57 *8*	953.84	2⁺			
		5211.5 *11*	100 *1*	0.0	0⁺			
5481.5	(8⁺)	1773.7 *6*	100	3707.60	6⁺	[E2]		B(E2)(W.u.)=7.9 *+20−40*
5920.8?	(1⁺)	5920.5[a] *17*	100	0.0	0⁺			
6081.6	(9⁻)	1176.9 *4*	100	4904.7	(7⁻)	(E2)		B(E2)(W.u.)=4 *4*
6113.7	(8⁻)	983		5131.0	(6⁻)			
		1208.7 *7*		4904.7	(7⁻)			
6629.5		1506.0 *20*		5123.5	(7)⁻			
7422.5	(11⁻)	1341.5 *6*	100	6081.6	(9⁻)	Q		
7422.7	(10⁻)	1309		6113.7	(8⁻)			
		1341		6081.6	(9⁻)			
7500.0	(10⁺)	2018		5481.5	(8⁺)			
7629.7		1548		6081.6	(9⁻)			

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{62}Zn)$ (continued)

E_i(level)	J^π_i	E_γ †	I_γ †	E_f	J^π_f
7701.5?		279		7422.5	(11⁻)
7976.1	(9⁺)	1862		6113.7	(8⁻)
		1894		6081.6	(9⁻)
		2833		5143.3	(7)⁺
8437.2	(10⁺)	2355		6081.6	(9⁻)
9024.7	(12⁻)	1602		7422.7	(10⁻)
		1603		7422.5	(11⁻)
9048.6	(11⁺)	611		8437.2	(10⁺)
		1072		7976.1	(9⁺)
		1626		7422.5	(11⁻)
9214.0	(13⁻)	1791		7422.5	(11⁻)
9465.2	(12⁺)	416		9048.6	(11⁺)
		1028		8437.2	(10⁺)
		2043		7422.5	(11⁻)
9823.7	(12⁺)	2402		7422.5	(11⁻)
9960.4	(13⁺)	495		9465.2	(12⁺)
		911		9048.6	(11⁺)
		936		9024.7	(12⁻)
10247.4	(11⁺)	2747		7500.0	(10⁺)
10316.4	(13⁺)	851		9465.2	(12⁺)
		1268		9048.6	(11⁺)
10375.1	(14⁺)	415		9960.4	(13⁺)
		910		9465.2	(12⁺)
		1160.8 *4*		9214.0	(13⁻)
10635.8	(12⁺)	388.3 *3*		10247.4	(11⁺)
		3006		7629.7	
		3213		7422.5	(11⁻)
10725.9	(14⁻)	1512		9214.0	(13⁻)
		1701		9024.7	(12⁻)
11182.8	(13⁺)	546.9 *3*	100 *6*	10635.8	(12⁺)
		935.5 *5*	24 *2*	10247.4	(11⁺)
11546.8	(14⁺)	1724		9823.7	(12⁺)
		2333		9214.0	(13⁻)
11651.6	(13⁻)	2627		9024.7	(12⁻)
		4229		7422.5	(11⁻)
11755.8	(14⁺)	573.1 *3*	100 *6*	11182.8	(13⁺)
		1119.8 *4*	64 *4*	10635.8	(12⁺)
11788.3	(15⁺)	1827		9960.4	(13⁺)
11961.6	(16⁺)	1586		10375.1	(14⁺)
12329.3	(14⁻)	677.7 *4*	100 *10*	11651.6	(13⁻)
		3116		9214.0	(13⁻)
		3305		9024.7	(12⁻)
12536.7	(15⁺)	780.6 *3*	100 *7*	11755.8	(14⁺)
		1353.8 *5*	68 *5*	11182.8	(13⁺)
12812.9	(15⁻)	2437		10375.1	(14⁺)
12993.0	(15⁻)	663.6 *3*	100 *7*	12329.3	(14⁻)
		1342.0 *10*	95 *23*	11651.6	(13⁻)
		1447		11546.8	(14⁺)
13156.3	(16⁺)	1610		11546.8	(14⁺)
13236.6	(16⁺)	699.6 *3*	88 *6*	12536.7	(15⁺)
		1481.2 *4*	100 *6*	11755.8	(14⁺)
13726.7	(16⁻)	733.6 *3*	100 *8*	12993.0	(15⁻)
		913		12812.9	(15⁻)
		1397.6 *4*	76 *6*	12329.3	(14⁻)
14125.5	(17⁺)	888.7 *3*	100 *6*	13236.6	(16⁺)

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{62}Zn)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f
14125.5	(17+)	1589.0 *6*	79 *6*	12536.7	(15+)
14445.8	(17−)	719		13726.7	(16−)
		1633		12812.9	(15−)
		2483		11961.6	(16+)
14541.8	(17−)	815.0 *3*	100 *8*	13726.7	(16−)
		1385		13156.3	(16+)
		1549.3 *5*	92 *8*	12993.0	(15−)
		2581		11961.6	(16+)
14646.3	(16+)	2858		11788.3	(15+)
14832.3	(16+)	3043		11788.3	(15+)
15041.8	(16+)	3495		11546.8	(14+)
15049.6	(18+)	924.1 *4*	75 *6*	14125.5	(17+)
		1813.0 *5*	100 *6*	13236.6	(16+)
15295.5	(18+)	2140		13156.3	(16+)
15415.6	(18−)	873.7 *3*	78 *7*	14541.8	(17−)
		969		14445.8	(17−)
		1689.2 *5*	100 *7*	13726.7	(16−)
15705.8	(19−)	1260		14445.8	(17−)
16372.9	(19+)	1323.3 *6*	94 *12*	15049.6	(18+)
		2246.7 *8*	100 *12*	14125.5	(17+)
16374.6	(19−)	959.0 *8*	81 *22*	15415.6	(18−)
		1833.1 *5*	100 *8*	14541.8	(17−)
		1928		14445.8	(17−)
16717.2	(18+)	1675		15041.8	(16+)
		1884		14832.3	(16+)
		2071		14646.3	(16+)
		4757		11961.6	(16+)
16818.5	(18+)	1777		15041.8	(16+)
		4856		11961.6	(16+)
17350.7	(18+)	1868		15482.7	(16+)
		5388		11961.6	(16+)
17365.8	(18−)	3639		13726.7	(16−)
17408.6	(18−)	2963		14445.8	(17−)
		3682[a]		13726.7	(16−)
17480.5	(20−)	1105.9 *4*	48 *4*	16374.6	(19−)
		2065.4 *6*	100 *8*	15415.6	(18−)
17590.7	(20+)	1217.5 *7*	33 *6*	16372.9	(19+)
		2541.4 *9*	100 *11*	15049.6	(18+)
18416.8	(19−)	1842[a]		16574.8?	(17−)
		3001[a]		15415.6	(18−)
18504.6	(21−)	1024.3 *4*	57 *6*	17480.5	(20−)
		2130.3 *8*	100 *11*	16374.6	(19−)
18678.9	(20+)	1860		16818.5	(18+)
		1962		16717.2	(18+)
19400.7	(20−)	1891		17509.7	(18−)
		1992.7[&] *12*	0.14[‡] *7*	17408.6	(18−)
		2035		17365.8	(18−)
		3027		16374.6	(19−)
		3983[&]	≈0.08[‡]	15415.6	(18−)
19478.7	(20+)	2127		17350.7	(18+)
		4184		15295.5	(18+)
19507.7	(21+)	3134.7 *12*	100	16372.9	(19+)
19679.7	(22−)	1174.6 *12*	40 *20*	18504.6	(21−)
		2199.5 *7*	100 *8*	17480.5	(20−)
20474.9	(21−)	2058		18416.8	(19−)

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{62}Zn)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f
20474.9	(21⁻)	2994		17480.5	(20⁻)
20858.9	(22⁺)	2180		18678.9	(20⁺)
21042.0	(23⁻)	1362.3 *7*	56 *7*	19679.7	(22⁻)
		2537.4 *9*	100 *11*	18504.6	(21⁻)
21617.5	(22⁻)	2015		19602.4	
		2215.3[&] *8*	0.93[‡] *13*	19400.7	(20⁻)
		3115[@]		18504.6	(21⁻)
21853.8	(22⁺)	2375		19478.7	(20⁺)
22784.4	(23⁻)	2309		20474.9	(21⁻)
		3105[a]		19679.7	(22⁻)
23185.7	(24⁻)	2143.8 *12*	40 *10*	21042.0	(23⁻)
		3505.7 *14*	100 *20*	19679.7	(22⁻)
23344.0	(24⁺)	2485		20858.9	(22⁺)
24057.0	(24⁻)	2439.5[&] *9*	1.02[‡] *15*	21617.5	(22⁻)
24469.8	(24⁺)	2616		21853.8	(22⁺)
25349.4	(25⁻)	2565		22784.4	(23⁻)
26176.1	(26⁺)	2832		23344.0	(24⁺)
26746.8	(26⁻)	2689.7[&] *10*	0.86[‡] *13*	24057.0	(24⁻)
27318.9	(26⁺)	2849		24469.8	(24⁺)
28165.5	(27⁻)	2816		25349.4	(25⁻)
29475.2	(28⁺)	3299		26176.1	(26⁺)
29686.0	(28⁻)	2939.1[&] *12*	0.43[‡] *11*	26746.8	(26⁻)
30437.0	(28⁺)	3118		27318.9	(26⁺)
31216.6	(29⁻)	3051		28165.5	(27⁻)
32922	(30⁻)	3235.6[&] *14*	0.10[‡] *5*	29686.0	(28⁻)
33362	(30⁺)	3887		29475.2	(28⁺)
33800	(30⁺)	3363		30437.0	(28⁺)
34603.7	(31⁻)	3387		31216.6	(29⁻)
36501	(32⁻)	3579		32922	(30⁻)
38369	(33⁻)	3765		34603.7	(31⁻)
40459	(34⁻)	3958		36501	(32⁻)
42521?	(35⁻)	4152		38369	(33⁻)

† Weighted averages of all available data. Intensities are relative branching ratios, unless stated otherwise.

‡ Relative intensity within the SD-1 band.

\# From $\gamma(\theta)$ and RUL, ^{60}Ni(α,2nγ), ^{58}Ni(^{6}Li,pnγ), ^{61}Ni(^{3}He,2nγ).

@ Level-energy difference=3113.

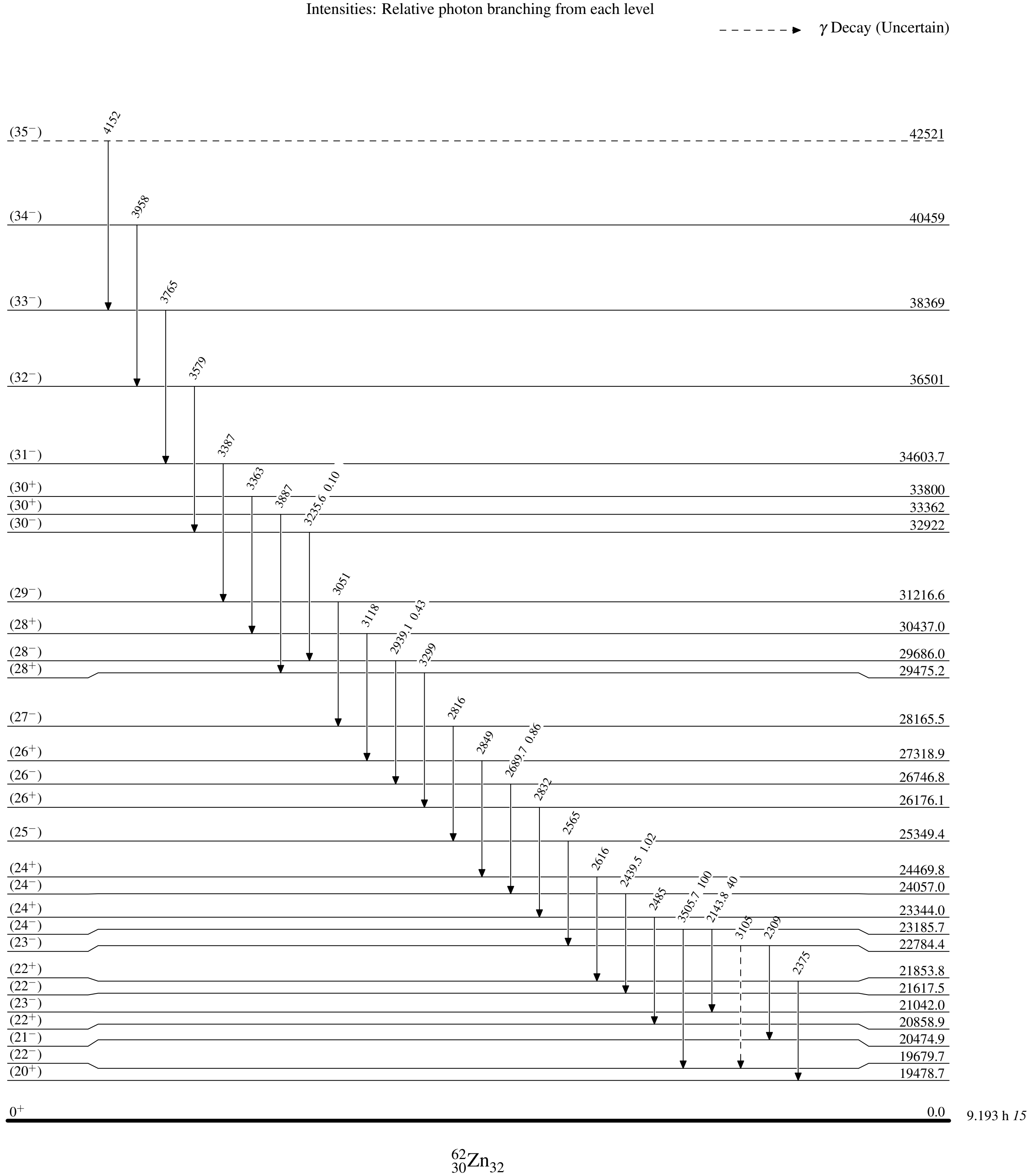
& Be(λ)(W.u.) values should be considered as lower limit since the level half-lives are effective values, not corrected for side feeding.

a Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



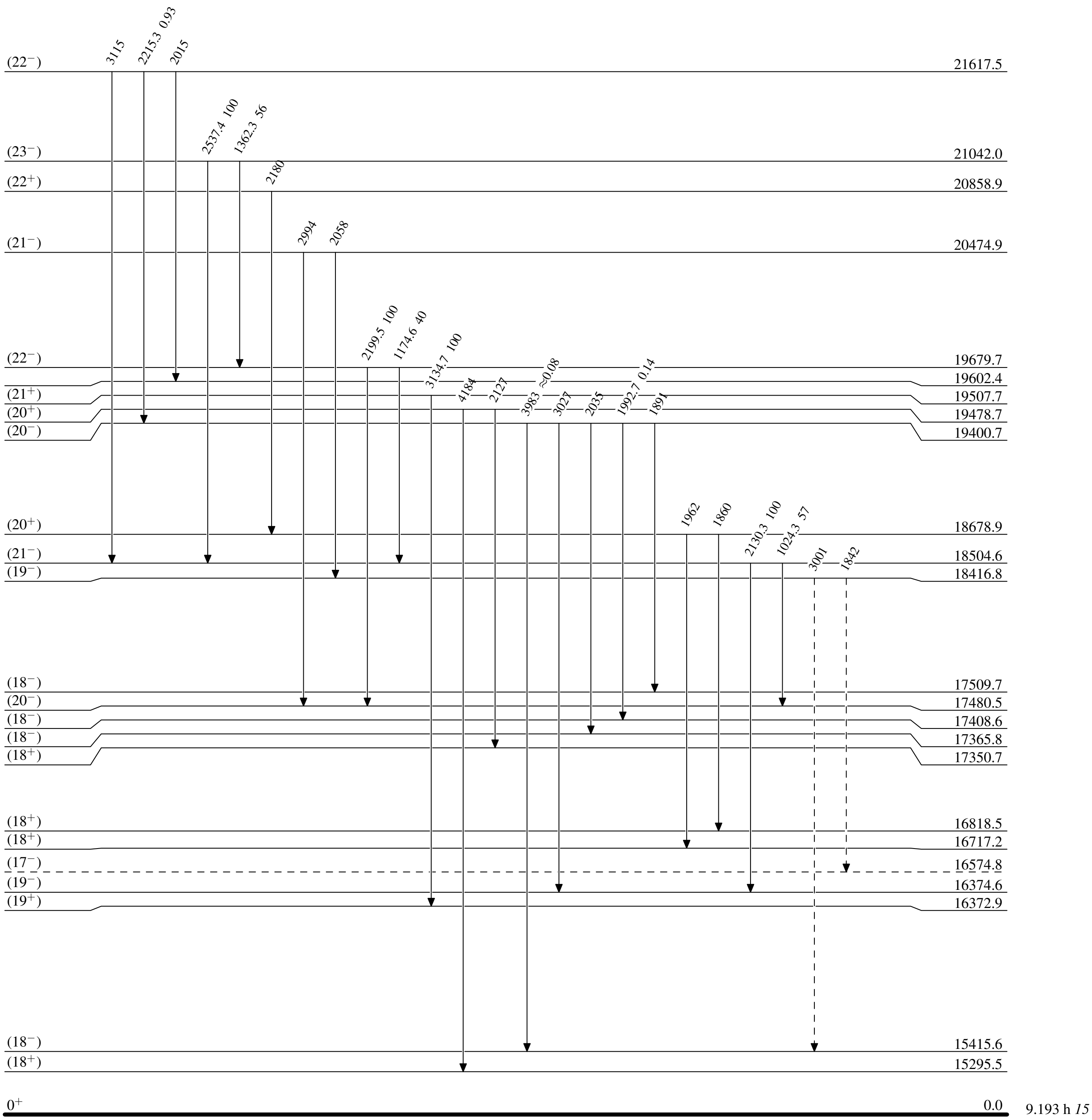
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

Legend

γ Decay (Uncertain)



$^{62}_{30}Zn_{32}$

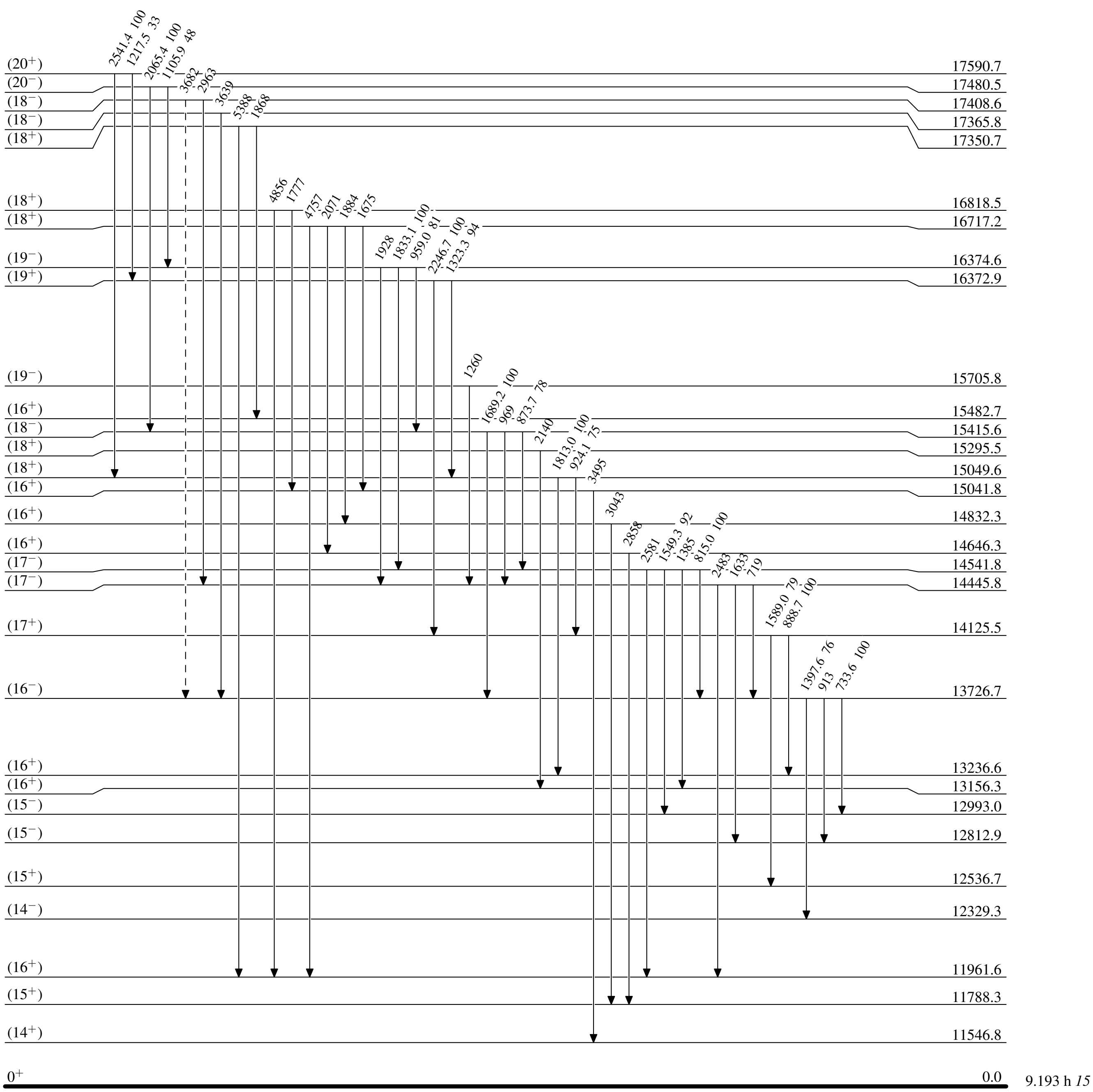
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

- - - - - -▸ γ Decay (Uncertain)

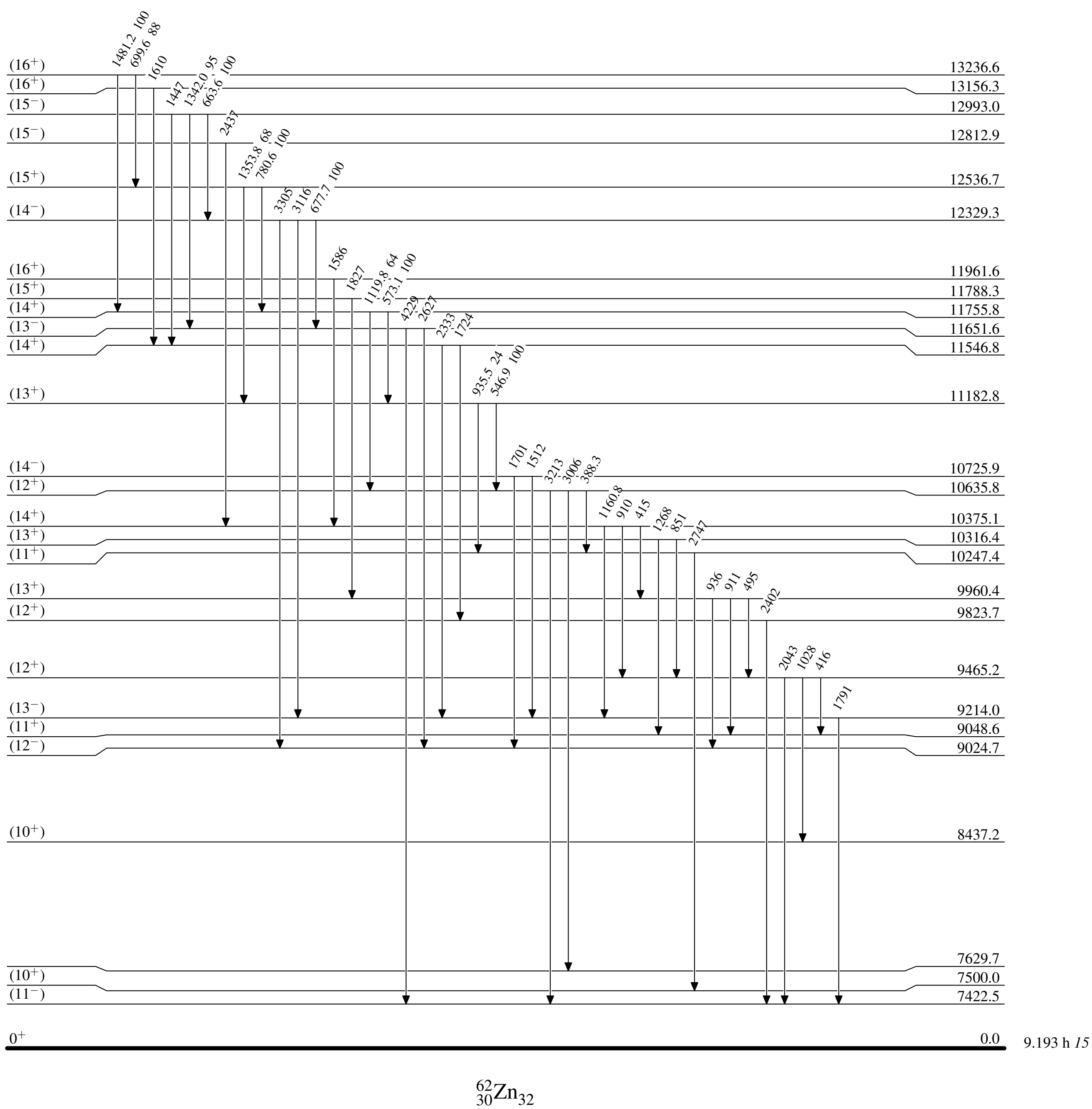


$^{62}_{30}Zn_{32}$

Adopted Levels, Gammas

Level Scheme (continued)

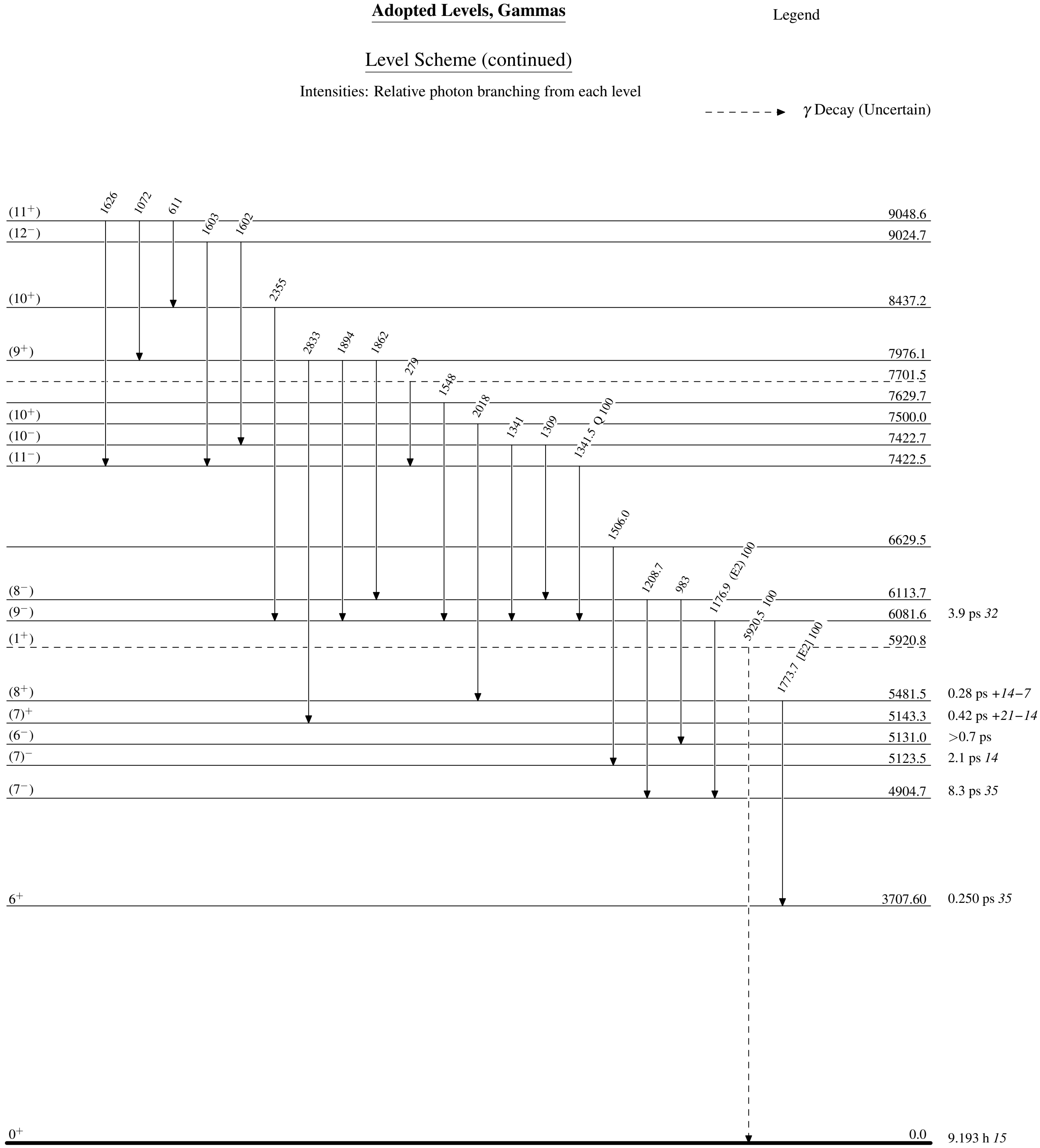
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

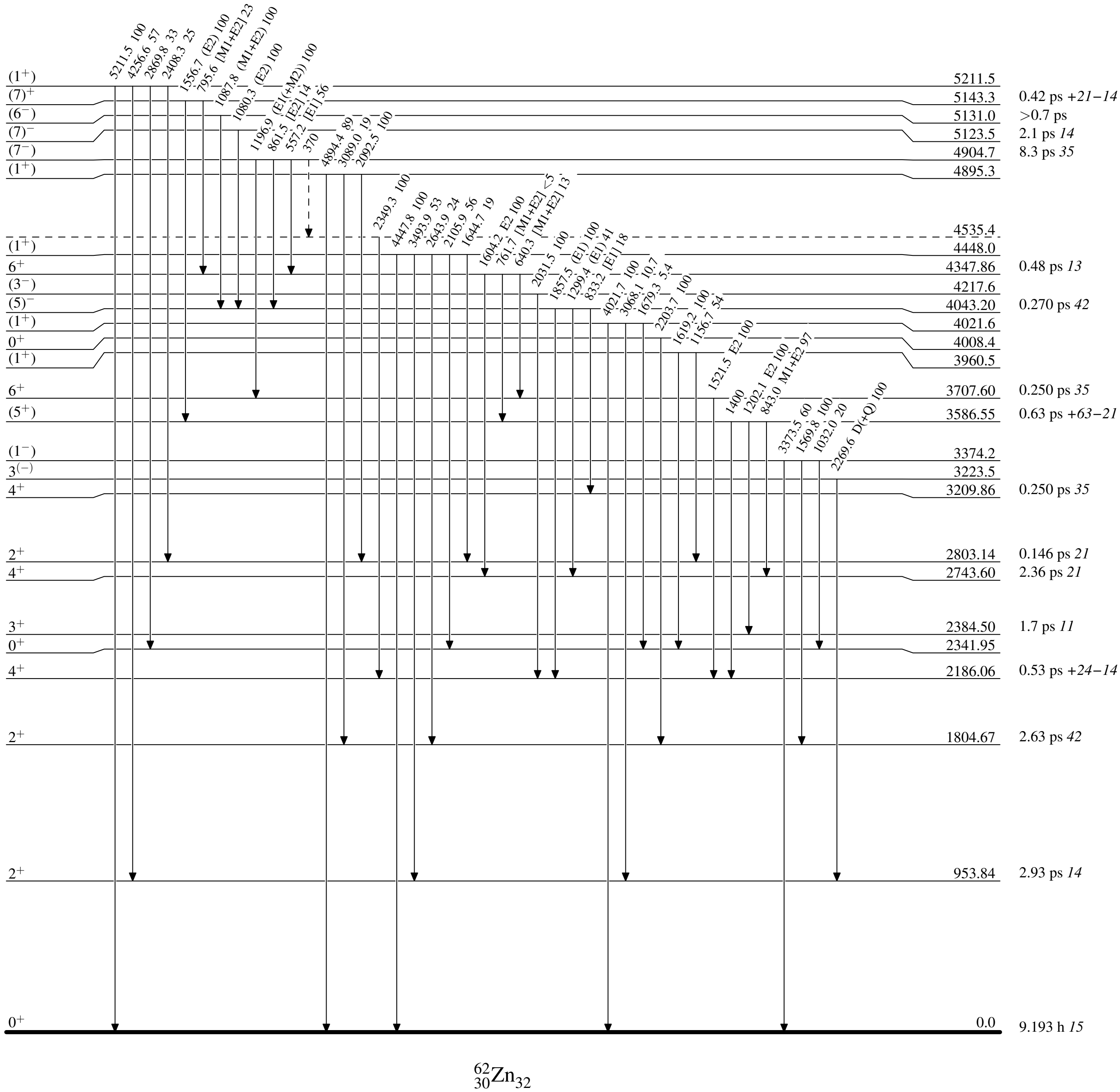


$^{62}_{30}Zn_{32}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



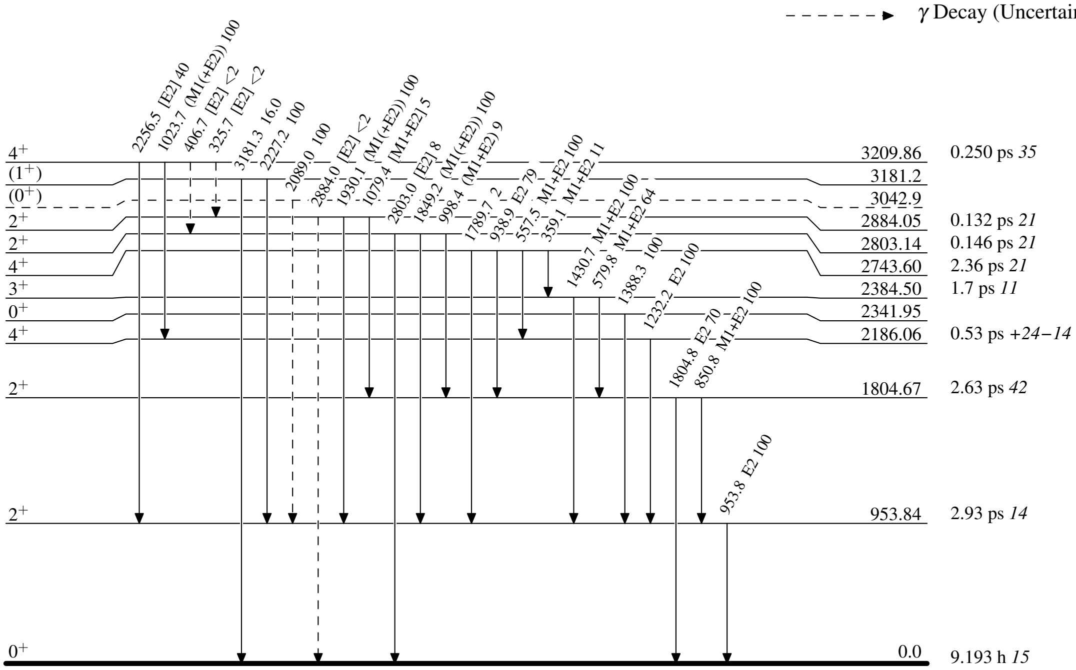
Adopted Levels, Gammas

Legend

Level Scheme (continued)

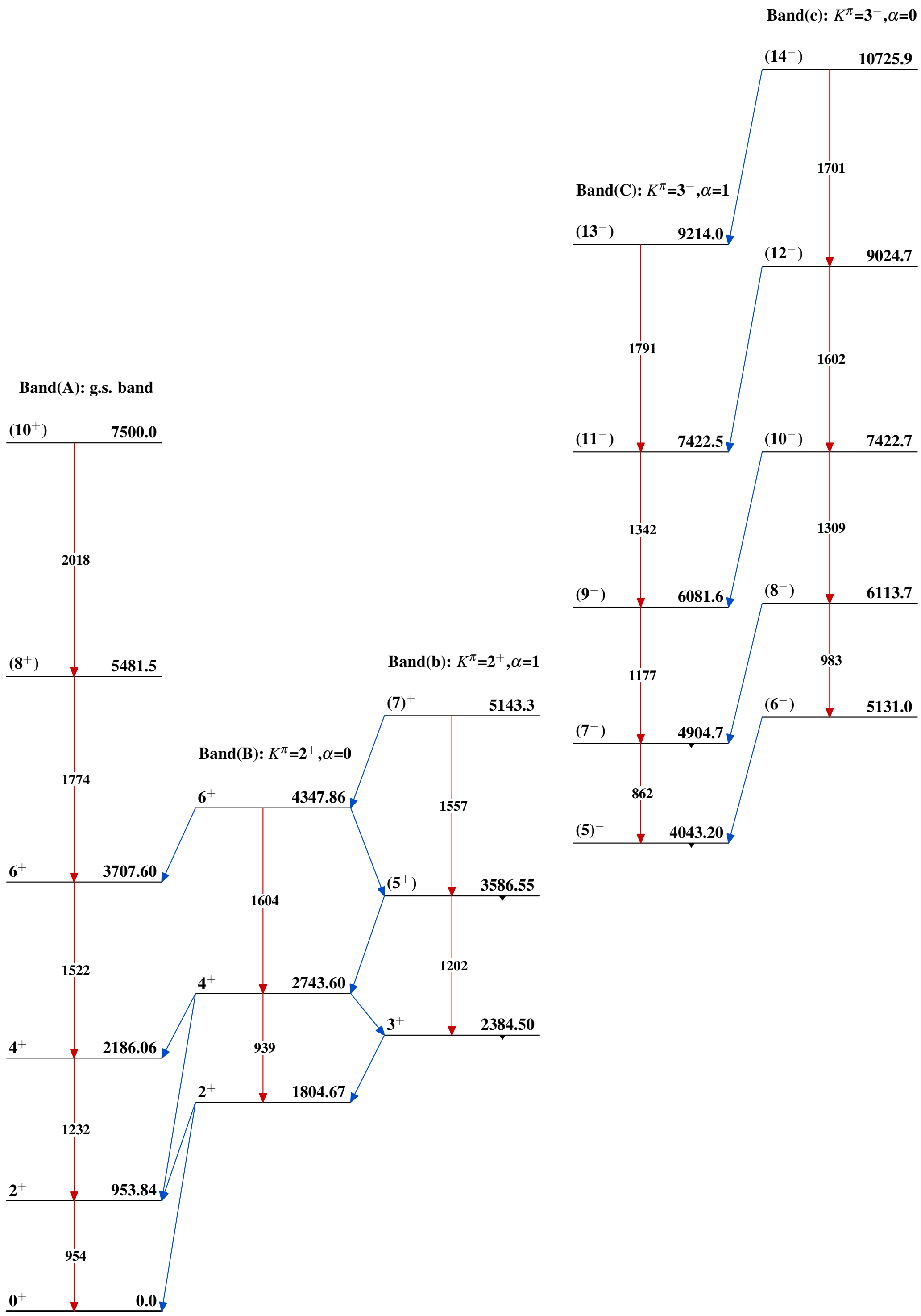
Intensities: Relative photon branching from each level

γ Decay (Uncertain)



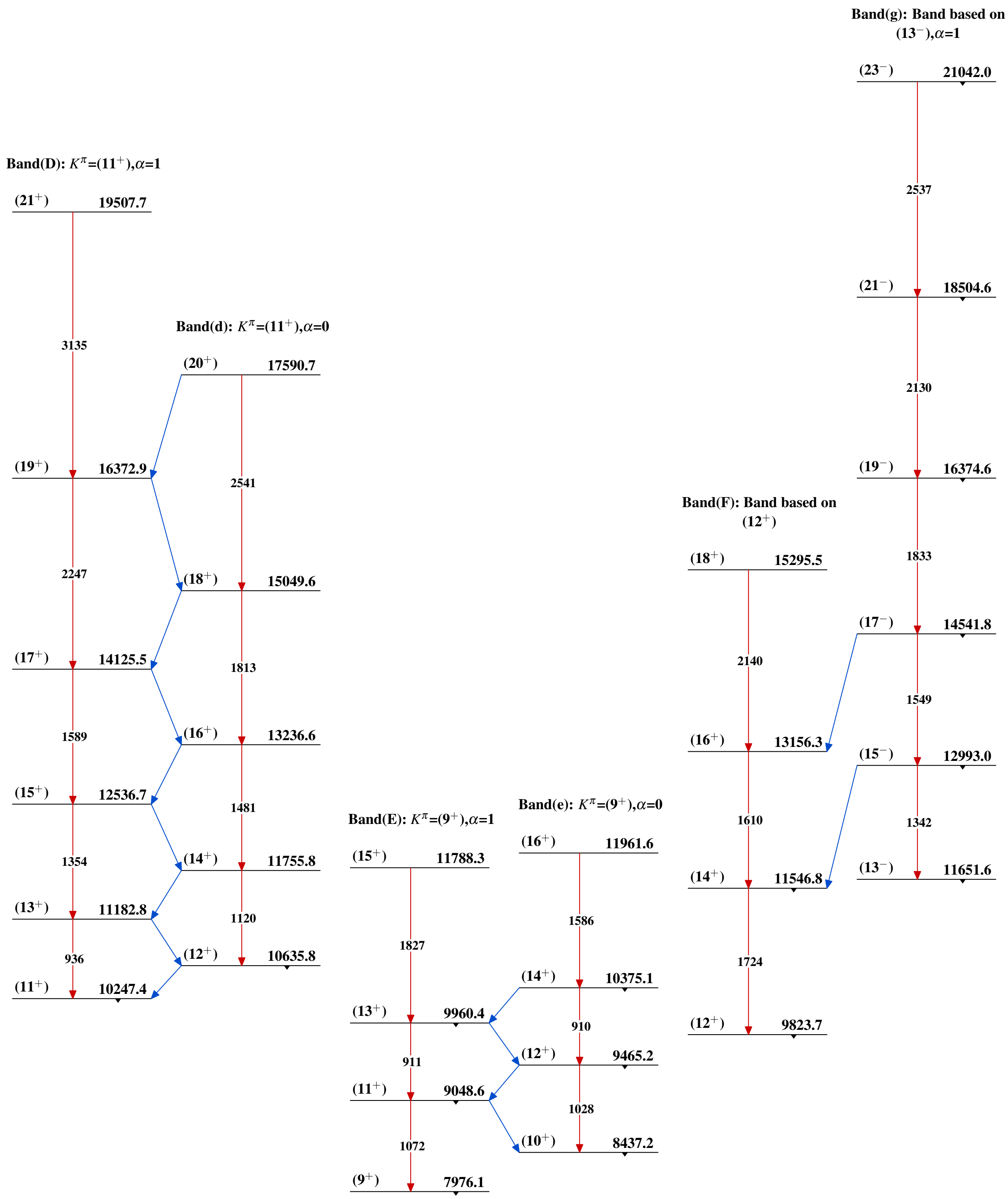
$^{62}_{30}Zn_{32}$

Adopted Levels, Gammas



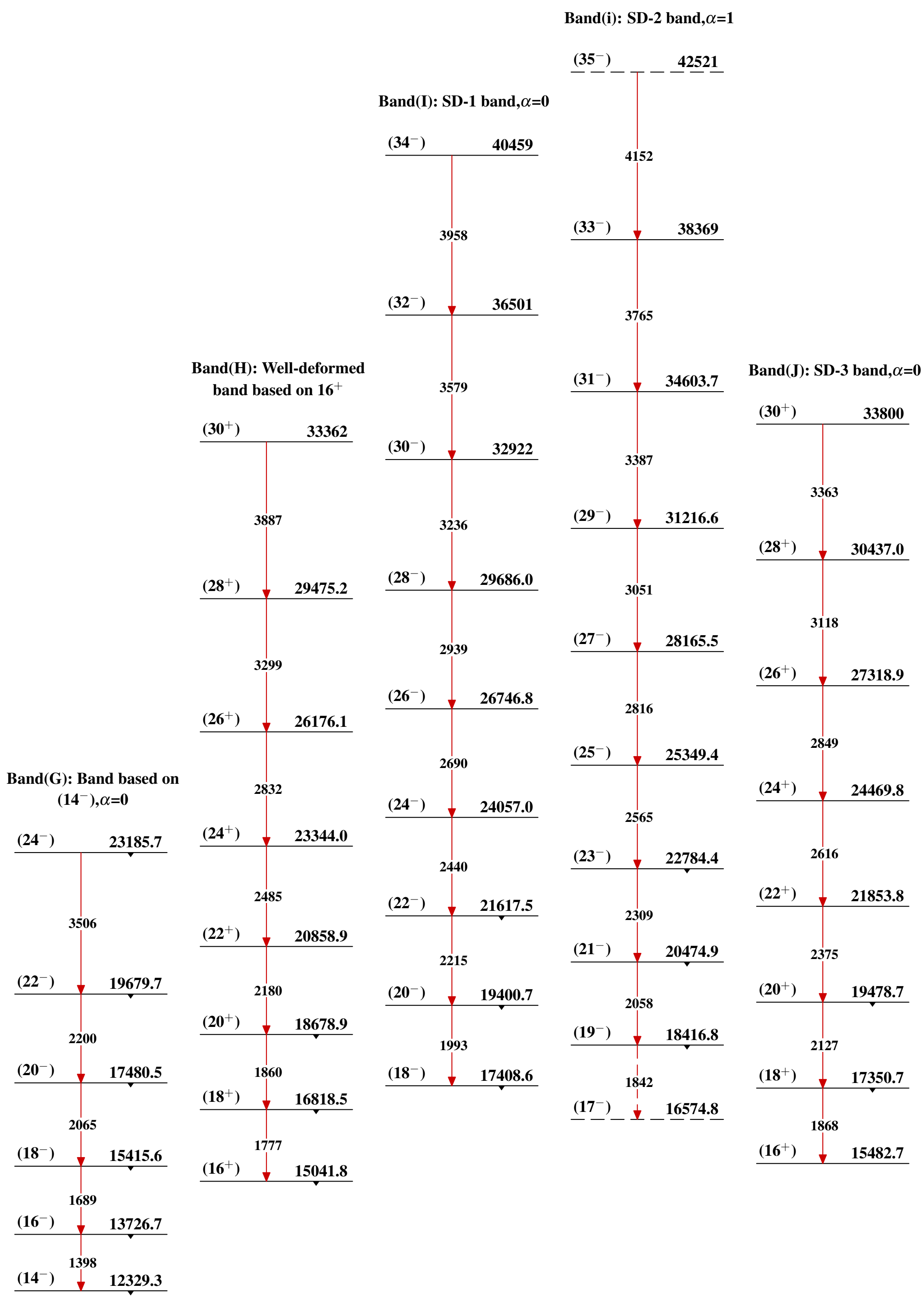
$^{62}_{30}Zn_{32}$

Adopted Levels, Gammas (continued)



$^{62}_{30}Zn_{32}$

Adopted Levels, Gammas (continued)



$^{62}_{30}Zn_{32}$