

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Huo Junde, Huang Xiaolong, J. K. Tuli		NDS 106,159 (2005)	1-Apr-2005

Q(β⁻)=-4221 5; S(n)=11226 4; S(p)=5268.8 12; Q(α)=-3724.5 13 [2012Wa38](#)

Note: Current evaluation has used the following Q record -4222 5 11227 3 5269.2 11-3725.1 12 [2003Au03](#).

⁶⁷Ga Levels

Cross Reference (XREF) Flags

A	⁶⁷ Ge ε decay	E	⁶⁹ Ga(p,t)	I	⁶⁶ Zn(p,p'γ), (pol p,p) IAR
B	⁶⁷ Zn(p,nγ)	F	⁶⁶ Zn(d,n)	J	⁶⁷ Zn(p,n)
C	⁶⁴ Zn(α,pγ), ⁵³ Cr(¹⁶ O,pnγ)	G	⁶⁶ Zn(³ He,d)	K	¹² C(⁵⁸ Ni,3pγ)
D	⁵⁷ Fe(¹² C,pnγ)	H	⁶⁶ Zn(p,γ)	L	⁴⁶ Ti(²⁵ Mg,3pnγ)

E(level) [†]	J ^π	T _{1/2}	XREF	Comments
0 ^e	3/2 ⁻	3.2617 d 5	ABCDEFGHIJKL	%ε=100 μ=+1.8507 3; Q=0.195 (1989Ra17) T _{1/2} : Unweighted average of 3.261 d I(1972Le37),3.264 d 4(1978La21), 3.261 d I(1978Me10),3.2594 d 12(1979De42),3.2607 d 8(1980Ho17), 3.26154 d 54(2002Un02) 3.2623 d 15(2004Sc04),3.2634 d 16(2004Da05). Others: 3.29 d 8(1938Ma01), 3.46 d(1948Ho04),3.26 d 2(1948Mc32), 3.33 d(1950Ho26),3.246 d 13(1955To27), 3.30 d 7(1964Ru06),3.27 d 6, 3.26 d 5, 3.53 d 10, 3.30 d 6, 2.90 d 15, 3.51 d 5, 3.78 d 18, 3.49 d 18(1972Cr02). J=3/2 from atomic beam data (1976Fu06); π=- from L(p,t)=0.
166.98 3	1/2 ⁻	42 ns 21	ABC EFGH J	T _{1/2} : from delayed coincidence data in ⁶⁴ Zn(α,pγ), ⁵³ Cr(¹⁶ O,pnγ). J=1/2 from γ(θ) in ⁶⁶ Zn(p,γ); π=- from L(p,t)=2.
359.123 ^f 15	5/2 ⁻	49 [@] ps 5	ABCDEFGHIJKL	μ=1.40 65 (1989Ra17) J=5/2 from γ(θ) in ⁶⁶ Zn(p,γ); π=- from L(d,n)=3.
828.082 25	3/2 ^{-&}	0.16 [#] ps 7	ABC EFG J	
910.928 18	5/2 ^{-&b}	0.25 [‡] ps +9-5	ABC E H JK	
1081.63 4	1/2 ⁻	0.28 [#] ps 12	ABC EFG J	J=1/2 from γ(θ) in ⁶⁷ Zn(p,nγ); π=- from L(p,t)=2. T _{1/2} : other: 0.4 ps +4-1 from (p,nγ).
1202.274 ^e 21	7/2 ⁻	1.5 [@] ps 10	ABCDEFGHIJKL	J=7/2 from γ(θ) in ⁶⁷ Zn(p,nγ); π=- from L(p,t)=2. T _{1/2} : other: 0.7 ps +6-2 from (p,nγ).
1240 5	(13/2) ^a		J	
1412.713 21	7/2 ⁻	0.61 [#] ps 24	BC EFGH JK	J=7/2 from γ(θ) in ⁶⁷ Zn(p,nγ); π=- from L(p,t)=2. T _{1/2} : other: 0.9 ps +24-4 from (p,nγ).
1519.17 ^f 3	9/2 ^{-&}	1.9 [@] ps 8	BCD H JKL	T _{1/2} : other: 0.9 ps +24-4 from (p,nγ).
1554.61 3	5/2 ⁻	0.18 ps 4	ABC EFG J	J=5/2 from γ(θ) in ⁶⁷ Zn(p,nγ); π=- from L(p,t)=2. T _{1/2} : weighted average of 0.17 ps 5 from (α,pγ) and 0.18 ps 5 from (p,nγ).
1639.41 6	3/2 ⁻	0.14 [#] ps 4	ABC E J	J ^π : L(p,t)=0. T _{1/2} : other: 0.10 ps +4-2 from (p,nγ).
1735 5	(15/2,17/2) ^a		J	
1808.99 6	3/2 ⁻	0.23 [#] ps 10	ABC EFG J	T _{1/2} : other: 0.07 ps +3-2 from ⁶⁷ Zn(p,nγ). J=3/2 from γ(θ) in ⁶⁷ Zn(p,nγ); π=- from L(p,t)=2.

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Adopted Levels, Gammas (continued)

⁶⁷Ga Levels (continued)

E(level) [†]	J ^π	T _{1/2}	XREF	Comments
1975.2 11		>0.09 [#] ps	A C J	
1977.90 5	5/2,7/2	0.3 [‡] ps +6-2	BC	J=5/2 from γ(θ) in ⁶⁷ Zn(p,nγ); 7/2 from γ(θ) and polarization data in ⁶⁴ Zn(α,pγ). T _{1/2} : other: >0.62 ps from (α,pγ).
2040.90 5	5/2 ⁻	0.09 [‡] ps +3-2	B E G J	J=5/2 from γ(θ) in ⁶⁷ Zn(p,nγ); π=- from L(p,t)=2.
2073.755 ^g 25	9/2 ⁺ &		BCD FGH JKL	T _{1/2} : >1.04 ps from ⁶⁴ Zn(α,pγ), ≥0.21 ps from ⁶⁷ Zn(p,nγ) <6.9 ps from ⁵³ Cr(¹⁶ O,pnγ).
2124.46 5	5/2 ⁻	0.21 [‡] ps +14-7	BC E J	T _{1/2} : other: >0.31 ps from (α,pγ). J=1/2,5/2 from γ(θ) in ⁶⁷ Zn(p,nγ); γ to 7/2 rules out 1/2; π=- from L(p,t)=2.
2141.85 8	3/2 ⁻	≥0.25 [‡] ps	B E J	J=3/2 from γ(θ) in ⁶⁷ Zn(p,nγ); π=- from L(p,t)=0+2.
2145.37 22	(1/2)		B G J	J=1/2 compatible with measured low cross section in ⁶⁷ Zn(p,nγ).
2172.13 7	(3/2) ⁻	0.18 [‡] ps +8-5	BC E G J	J=(3/2) favored from γ(θ) and (p,n) cross section in ⁶⁷ Zn(p,nγ); π=- from L(p,t)=4.
2176.08 5	7/2 ⁻	0.06 [‡] ps +2-1	B F J	J=7/2 from γ(θ) in ⁶⁷ Zn(p,nγ); π=- from E2 to 3/2 ⁻ .
2176.32? 8			B F J	J≤5/2 from γ(θ) of 1348γ and its decay to 1/2 ⁻ , 167 level; measured cross section compatible with J=1/2 in ⁶⁷ Zn(p,nγ).
2190.65 6	9/2 ⁻ &	0.68 [#] ps 21	BC G J	T _{1/2} : other: ≥0.21 ps from (p,nγ).
2262.7 19			C j	
2263.78 11	9/2 ⁻	0.68 [#] ps 22	BC E j	J=9/2 from γ(θ) in ⁶⁷ Zn(p,nγ); π=- from L(p,t)=4. T _{1/2} : other: 0.08 ps +6-3 from (p,nγ).
2281.94 9	7/2 ⁻	0.06 [‡] ps 2	B J	J=7/2 from γ(θ) in ⁶⁷ Zn(p,nγ); π=- from M1 to 5/2 ⁻ .
2374.2 3	3/2 ⁺ ,7/2 ⁺	>0.69 [#] ps	BC E J	J ^π : 3/2 ⁺ ,5/2 ⁻ ,7/2 ⁺ from γ(θ) and polarization data in ⁶⁴ Zn(α,pγ); L(p,t)=3 at 2374 2 rules out 5/2 ⁻ .
2393 7			J	E(level): probably a triplet.
2407 4	-		B E G J	π=- from L(p,t)=2. E(level): probably a triplet in (p,n).
2457.3 10	11/2 ⁻	>1.04 [#] ps	C E G J	J ^π : 7/2 ⁺ ,11/2 ⁻ from γ(θ) and polarization data in ⁶⁴ Zn(α,pγ); L(p,t)=4 at 2457 2 rules out 7/2 ⁺ . J ^π discrepant with L(³ He,d)=(4).
2526.7 5	(1/2 ⁻ ,3/2 ⁻)		A EF J	J ^π : log ft=5.96 5 for ε decay from (1/2 ⁻).
2545 6	1/2 ⁻ ,3/2 ⁻		E G J	J ^π : L(³ He,d)=1 for 2550 20.
2568 6	-		E J	π=- from L(p,t)=2.
2596.7 10	-		C E JK	π=- from L(p,t)=4.
2619.5 5	-		A E J	π=- from L(p,t)=2.
2644 5	-		E J	π=- from L(p,t)=2.
2653.4 ^e 9	11/2 ⁻ &	>1.04 [#] ps	C JK	
2683 6			J	
2730.6 4	3/2 ⁻		A E J	J ^π : L(p,t)=0.
2748 5			EFG J	J ^π : L(p,t)=2 at 2748 5, L(d,n)=2 at 2748 15 and L(³ He,d)=2 at 2770 20 give conflicting π; may be a doublet.
2797.9 13	(5/2 ⁻ ,9/2 ⁻)&	0.38 [#] ps 14	C E G J	
2837 8			G J	
2857 7	3/2 ⁺ ,5/2 ⁺		F J	J ^π : L(d,n)=2 at 2851 15.
2862.45 10	11/2 ⁺	0.87 [#] ps 28	CD KL	J ^π : 11/2 ⁺ from γ(θ) and polarization data in ⁶⁴ Zn(α,pγ); J ^π =11/2 ⁺ obtained from γ(θ) and polarization data in ⁵⁷ Fe(¹² C,pnγ). The (α,pγ) data could not resolve

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Adopted Levels, Gammas (continued)

⁶⁷Ga Levels (continued)

E(level) [†]	J ^π	T _{1/2}	XREF		Comments
					completely the 1343γ from the 1353γ; this may explain the discrepancy.
2873 8	3/2 ⁺ ,5/2 ⁺		G	J	J ^π : L(³ He,d)=2 at 2890 20.
2898 5	(⁻)		E	J	π=(-) from L(p,t)=(2).
2916 7				J	
2930 8			G	J	
2942 5	3/2 ⁻		E G	J	J ^π : L(p,t)=0.
2978 5			E	J	
2991 7				J	
3014 7				J	
3031.77 ^g 6	13/2 ⁺ &	4.5 [@] ps 4	CD	KL	
3036 5	3/2 ⁻		E	J	J ^π : L(p,t)=0.
3079 5			EF	J	
3094 7				J	
3113 7				J	
3136 7				J	
3150 7				J	
3160.66 ^f 11	13/2 ⁻		A CD	JKL	
3191.1 9	11/2 ⁺	>1.04 [#] ps	C F	JK	J=11/2 from γ(θ) and polarization data in ⁶⁴ Zn(α,γ); π=+ from M1 to 9/2 ⁺ .
3225.0 3	3/2 ⁻		A	E G J	J ^π : L(p,t)=0 at 3228 5.
3267 8				J	
3291 5			E		
3310 5			E		
3337 5	3/2 ⁻		E		J ^π : L(p,t)=0.
3375 5	(3/2 ⁺ ,5/2 ⁺)			FG	J ^π : L(d,n)=(2) at 3370 15.
3401.5 4	(1/2 ⁻ ,3/2 ⁻)		A	G	J ^π : log ft=5.26 5 for ε decay from (1/2 ⁻).
3452 5	1/2 ⁻ ,3/2 ⁻			E G	J ^π : L(³ He,d)=1.
3498 5				E G	
3525.3 4	9/2 ⁺ ,13/2 ⁺ &	>1.04 [#] ps	C	G	
3577.95 6	15/2 ⁺ ^b	0.16 [@] ns 4	CD	KL	μ=-1.69 47 (1989Ra17)
3628.6 7	13/2 ⁺ ,17/2 ⁺ &	>0.48 [#] ps	C	K	
3632.1 15			A		
3654.6 8	(1/2 ⁻ ,3/2 ⁻)		A		J ^π : log ft=5.60 7 for ε decay from (1/2 ⁻).
3727.8 9	(1/2 ⁻ ,3/2 ⁻)		A	G	J ^π : log ft=5.60 6 for ε decay from (1/2 ⁻).
3760 20				G	
3820 20	1/2 ⁻ ,3/2 ⁻			G	J ^π : L(³ He,d)=1.
3855.99 7	17/2 ⁺ ^b	11 [@] ps 2	CD	KL	
3884.5 6				K	XREF: G(3870).
3900 20				G	
3940 20				G	
3980 20	3/2 ⁺ ,5/2 ⁺			G	J ^π : L(³ He,d)=2.
4070 20				G	
4179.4 5				K	
4198.58 ^g 8	17/2 ⁺ ^b	<0.69 [@] ps	CD	KL	
4200 20	3/2 ⁺ ,5/2 ⁺			G	J ^π : L(³ He,d)=2.
4221.4 3			C		
4280.2 ^e 5	13/2 ⁻ ,15/2 ⁻			K	
4290.49 8	19/2 ⁺ ^b	12.5 [@] ps 19	CD	G KL	
4330 20				G	
4348.9 4	17/2 ⁺			K	XREF: G(4360).
4450 20				G	
4500 20				G	

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Adopted Levels, Gammas (continued)

⁶⁷Ga Levels (continued)

E(level) [†]	J ^π	XREF	Comments
4550 20	3/2 ⁺ ,5/2 ⁺	G	J ^π : L(³ He,d)=2.
4720 20	3/2 ⁺ ,5/2 ⁺	G	J ^π : L(³ He,d)=2.
4744.8 12		C	
4749.9 ^f 4	17/2 ⁻	K	
4760 20	1/2 ⁺	G	J ^π : L(³ He,d)=0.
4780.1 6		K	
4820 20	5/2 ⁻ ,7/2 ⁻	G	J ^π : L(³ He,d)=3.
4995.5 5	21/2 ⁺ ,23/2 ⁺	K	
5085.5 4	19/2 ⁽⁻⁾	K	
5186.3 4	21/2 ⁺	K	
5225.7 4	(23/2 ⁺) ^b	CD	KL
5300		G	
5370		G	
5395.7 4	(19/2 ⁻)	K	
5417.0 6		K	
5491.64 ^g 10	(21/2 ⁺) ^b	D	KL
5574.3? 6		K	
5677.1 6	21/2 ⁺	K	
5744.6 5	21/2 ⁽⁻⁾	K	
5751.2? 6		K	
6185.6 5	(23/2 ⁻)	K	
6380.19 ^g 13	25/2 ⁺ ^b	D	KL
6390		G	
6589.5 5	(27/2 ⁺) ^b	D	KL
6870.2 5	23/2 ⁽⁻⁾	K	
7551.2 10		K	
7601.2 10		K	
7618.2 ^g 10	29/2 ⁺	D	KL
7890		G	
7957.5 6	(27/2 ⁻)	K	
7980		G	
7988	5/2 ^{-c}	I	
8060		G	
8076	1/2 ^{-c}	I	
8260		G	
8400	3/2 ^{-c}	I	
8470		G	
8552 5	(9/2 ⁺) ^d	H	
8567 5	(9/2 ⁺) ^d	H	
8615.9 ^g 6	33/2 ⁺	K	
8640		G	
8760		G	
8960	5/2 ^{+c}	I	
9420		I	
9510		I	
9630		I	
10083.5? ^g 9		K	
10250	5/2 ^{+c}	I	
10390	5/2 ^{+c}	I	
10600		I	
10760	5/2 ^{+c}	I	

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Adopted Levels, Gammas (continued)

 ${}^{67}\text{Ga}$ Levels (continued)

† From a least-squares fit to the $E\gamma$ data.

‡ From DSAM in ${}^{67}\text{Zn}(p,n\gamma)$.

From DSAM in ${}^{64}\text{Zn}(\alpha,p\gamma)$, ${}^{53}\text{Cr}({}^{16}\text{O},pn\gamma)$.

@ From RDM in ${}^{64}\text{Zn}(\alpha,p\gamma)$, ${}^{53}\text{Cr}({}^{16}\text{O},pn\gamma)$.

& From $\gamma(\theta)$ and polarization data in ${}^{64}\text{Zn}(\alpha,p\gamma)$, ${}^{53}\text{Cr}({}^{16}\text{O},pn\gamma)$.

^a From comparison of measured cross sections with Hauser-Feshbach calculations.

^b From $\gamma(\theta)$ and polarization data in ${}^{57}\text{Fe}({}^{12}\text{C},pn\gamma)$.

^c From ${}^{66}\text{Zn}(p,p'\gamma)$, (pol p,p) IAR with polarized proton data or $p'\gamma\gamma(\theta)$ and L(d,p) data.

^d From ${}^{66}\text{Zn}(p,\gamma)$ by identifying these as IAS of 604 level in ${}^{67}\text{Zn}$.

^e Band(A): $3/2^-$ g.s. band.

^f Band(B): $5/2^-$ band.

^g Band(C): γ -cascade based on $9/2^+$.

Adopted Levels, Gammas (continued)

E _i (level)	J _i ^π	E _γ [†]	I _γ [‡]	E _f	J _f ^π	Mult.	γ(⁶⁷ Ga)		Comments
							δ	α ^f	
166.98	1/2 ⁻	167.01 4	100	0	3/2 ⁻	[M1]		0.01823	
359.123	5/2 ⁻	359.12 2	100	0	3/2 ⁻	M1+E2 [#]	-0.08 [#] 1		B(M1)(W.u.)=0.0096 10; B(E2)(W.u.)=0.76 21
828.082	3/2 ⁻	468.6 10	4.3 5	359.123	5/2 ⁻				
		661.06 9	10.2 10	166.98	1/2 ⁻	M1+E2 [#]	-0.36 [#] 9		B(M1)(W.u.)=0.038 18; B(E2)(W.u.)=18 12
		828.09 3	100 8	0	3/2 ⁻	M1+E2 [#]	-0.14 [#] 4		B(M1)(W.u.)=0.21 10; B(E2)(W.u.)=9 7
910.928	5/2 ⁻	551.80 15	2.2 2	359.123	5/2 ⁻	(M1(+E2)) ^b	+0.3 ^a +10-5		B(M1)(W.u.)=0.010 7
		743.85 10	2.2 2	166.98	1/2 ⁻	E2(+M3) [#]	-0.03 [#] 7		B(E2)(W.u.)=13 5
1081.63	1/2 ⁻	910.92 2	100 4	0	3/2 ⁻	M1+E2 [#]	+0.32 [#] 2		B(M1)(W.u.)=0.10 4; B(E2)(W.u.)=20 8
		253.45 13	11.7 6	828.082	3/2 ⁻				
		914.68 4	100 3	166.98	1/2 ⁻	(M1) ^b			B(M1)(W.u.)=0.07 3
		1081.66 11	33.4 10	0	3/2 ⁻				Mult.: M1+E2.
1202.274	7/2 ⁻	843.14 3	26.8 15	359.123	5/2 ⁻	M1+E2 [#]	-3.08 [#] 18		B(M1)(W.u.)=0.0005 +10-2; B(E2)(W.u.)=10 +21-5
		1202.24 3	100 2	0	3/2 ⁻	E2(+M3) [#]	-0.00 [#] 2		B(E2)(W.u.)=7 +15-3
1412.713	7/2 ⁻	501.77 4	20.1 9	910.928	5/2 ⁻	M1+E2 [#]	-0.11 [#] 1		B(M1)(W.u.)=0.032 13; B(E2)(W.u.)=2.5 11
		584.6 2	5.8 5	828.082	3/2 ⁻	E2 ^{&}			B(E2)(W.u.)=28 12
		1053.58 4	51 2	359.123	5/2 ⁻	M1+E2 [#]	-2.0 [#] 1		B(M1)(W.u.)=0.0018 8; B(E2)(W.u.)=10 4
		1412.71 3	100 4	0	3/2 ⁻	E2(+M3) [#]	-0.00 [#] 1		B(E2)(W.u.)=5.8 23
1519.17	9/2 ⁻	1160.04 3	100	359.123	5/2 ⁻	E2(+M3) [#]	-0.00 [#] 4		B(E2)(W.u.)=9 4
1554.61	5/2 ⁻	643.69 20	12.2 11	910.928	5/2 ⁻				
		1195.49 4	100 4	359.123	5/2 ⁻	M1+E2 [#]	-0.65 [#] 3		B(M1)(W.u.)=0.024 8; B(E2)(W.u.)=11 4
		1387.58 10	13.6 7	166.98	1/2 ⁻	E2 ^{&}			B(E2)(W.u.)=2.5 8
		1554.57 4	93 4	0	3/2 ⁻	M1+E2 [#]	+0.42 [#] 4		B(M1)(W.u.)=0.012 4; B(E2)(W.u.)=1.4 5
1639.41	3/2 ⁻	557.4 4	1.2 1	1081.63	1/2 ⁻				
		728.7 4	48 5	910.928	5/2 ⁻				
		811.4 3	16 2	828.082	3/2 ⁻				Mult.: M1+E2.
		1280.4 2	7.7 8	359.123	5/2 ⁻	(M1(+E2)) ^b	≤+0.5 ^a		δ: ≤-0.3≥-1.7.
		1472.48 6	100 4	166.98	1/2 ⁻	M1+E2 [#]	-0.16 [#] 2		B(M1)(W.u.)=0.0016 5
		1639.40 15	13 2	0	3/2 ⁻				B(M1)(W.u.)=0.026 8; B(E2)(W.u.)=0.49 19
1808.99	3/2 ⁻	728.20 15	29 3	1081.63	1/2 ⁻				
		898.00 15	87 4	910.928	5/2 ⁻	(M1(+E2)) ^b	≤+0.41 ^a		B(M1)(W.u.)=0.014 7
		980.90 15	100 5	828.082	3/2 ⁻	(M1(+E2)) ^b	+0.8 ^a +27-8		B(M1)(W.u.)=0.02 4
		1449.88 15	40 2	359.123	5/2 ⁻	(M1(+E2)) ^b	≤+0.22 ^a		B(M1)(W.u.)=0.0015 7
		1641.92 15	56 4	166.98	1/2 ⁻				
		1808.98 8	94 4	0	3/2 ⁻	(M1(+E2)) ^b	-0.26 ^a 26		B(M1)(W.u.)=0.0035 16
1975.2		1976.6 16	100	0	3/2 ⁻				

Adopted Levels, Gammas (continued)

γ(⁶⁷Ga) (continued)

<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_γ[†]</u>	<u>I_γ[‡]</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.</u>	<u>δ</u>	<u>Comments</u>
1977.90	5/2,7/2	339.5 2	5.8 8	1639.41	3/2 ⁻			
		423.3 2	9.5 8	1554.61	5/2 ⁻			
		775.66 6	92 4	1202.274	7/2 ⁻			
		1067.00 25	8.2 12	910.928	5/2 ⁻			
		1149.98 15	100 4	828.082	3/2 ⁻			
		1618.62 17	20.8 15	359.123	5/2 ⁻			
		1977.99 22	13.8 10	0	3/2 ⁻			
2040.90	5/2 ⁻	959.0 2	5.3 4	1081.63	1/2 ⁻	E2 ^{&}		B(E2)(W.u.)=20 7
		1130.04 20	6.5 8	910.928	5/2 ⁻			
		1212.89 15	12.7 10	828.082	3/2 ⁻			
		1681.9 2	3.7 6	359.123	5/2 ⁻			
		2040.86 5	100 4	0	3/2 ⁻	(M1+E2) ^b	-0.7 ^a 3	B(M1)(W.u.)=0.015 7; B(E2)(W.u.)=2.8 19
2073.755	9/2 ⁺	554.59 2	69 ^e 6	1519.17	9/2 ⁻	E1(+M2) [#]	-0.00 [#] 2	
		660.2 ^e 7	0.16 ^e 16	1412.713	7/2 ⁻			
		871.47 2	100 ^e 9	1202.274	7/2 ⁻	E1(+M2) [#]	-0.00 [#] 2	
		1714.5 5	3.6 ^e 5	359.123	5/2 ⁻			
2124.46	5/2 ⁻	922.17 15	36 2	1202.274	7/2 ⁻			
		1296.41 7	68 3	828.082	3/2 ⁻	(M1+E2) ^b	≥+0.2 ^a	B(M1)(W.u.)<0.024; B(E2)(W.u.)>0.18
		1765.26 8	4.7 9	359.123	5/2 ⁻	(M1+E2) ^b	≤-0.3 ^a	B(M1)(W.u.)=0.00021 15
		1957.3 3	100 4	166.98	1/2 ⁻	E2 ^{&}		B(E2)(W.u.)=2.7 18
		2124.3 4	6.4 6	0	3/2 ⁻			
2141.85	3/2 ⁻	1230.90 15	45 4	910.928	5/2 ⁻			
		1313.8 2	31.9 29	828.082	3/2 ⁻			
		1782.67 15	39 3	359.123	5/2 ⁻			
		1974.82 16	100 7	166.98	1/2 ⁻	(M1+E2) ^b	≥+0.5 ^a	B(M1)(W.u.)<0.0037
		2141.85 20	28.2 22	0	3/2 ⁻			
2145.37	(1/2)	1317.1 3	56 16	828.082	3/2 ⁻			
		2145.5 3	100 16	0	3/2 ⁻			
2172.13	(3/2) ⁻	1344.16 14	26.3 19	828.082	3/2 ⁻	(M1+(E2)) ^b	≤+0.42 ^a	B(M1)(W.u.)=0.0049 22
		1812.8 3	9.4 10	359.123	5/2 ⁻			
		2172.07 7	100 5	0	3/2 ⁻			δ: -0.02 13 or +4 +4-2 for (M1+(E2)).
2176.08	7/2 ⁻	763.3 2	11.1 13	1412.713	7/2 ⁻			
		1265.0 4	8.2 13	910.928	5/2 ⁻			
		1348.0 2	10 10	828.082	3/2 ⁻	(E2) ^b		B(E2)(W.u.)=7 8
		1816.92 8	62 4	359.123	5/2 ⁻	(M1+(E2)) ^b	+0.0 ^a 1	B(M1)(W.u.)=0.020 7
		2176.05 7	100 7	0	3/2 ⁻	E2 ^{&}		B(E2)(W.u.)=6.3 22
2176.32?		1348.20 15	100 40	828.082	3/2 ⁻			
		2009.3 3	13 11	166.98	1/2 ⁻			
		2176.3 1	16 16	0	3/2 ⁻			

Adopted Levels, Gammas (continued)

$\gamma(^{67}\text{Ga})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\ddagger	E_f	J_f^π	Mult.	δ	Comments
2190.65	9/2 ⁻	778.01 11 988.35 10	57 3 44 3	1412.713 1202.274	7/2 ⁻ 7/2 ⁻	M1+E2&	-0.06 ^a 3	B(M1)(W.u.)=0.019 6; B(E2)(W.u.)=0.18 19 δ : +0.75 15 or +2.0 4 for M1+E2.
		1279.68 7	100 5	910.928	5/2 ⁻	E2(+M3)#	-0.02# 2	B(E2)(W.u.)=7.3 23
		1831.5 3	5.4 10	359.123	5/2 ⁻	E2&		B(E2)(W.u.)=0.065 24
2262.7		2262.7 19	100	0	3/2 ⁻			
2263.78	9/2 ⁻	1061.33 19	100 5	1202.274	7/2 ⁻	M1+E2 ^c	-2.4 ^d 2	B(M1)(W.u.)=0.0022 8; B(E2)(W.u.)=18 6
		1352.90 12	82 4	910.928	5/2 ⁻	E2(+M3)&	-0.02 ^a 4	B(E2)(W.u.)=5.1 17
2281.94	7/2 ⁻	1371.03 14	75 5	910.928	5/2 ⁻			δ : +0.08 9 or -7 +3-17 for (M1+(E2)).
		1922.77 12	100 5	359.123	5/2 ⁻			δ : -0.28 10 or -1.9 4 for M1+E2.
		2281.8 3	7.3 11	0	3/2 ⁻			
2374.2	3/2 ⁺ , 7/2 ⁺	1463.3 3	100	910.928	5/2 ⁻			
2407	-	2240 5	67 33	166.98	1/2 ⁻			
		2407 5	100 33	0	3/2 ⁻			
2457.3	11/2 ⁻	1255 1	100	1202.274	7/2 ⁻			
2526.7	(1/2 ⁻ , 3/2 ⁻)	2526.6 5	100 10	0	3/2 ⁻			
2596.7	-	1183.9 ^e 7	100 ^e	1412.713	7/2 ⁻			
2619.5	-	1708.2 10	69 8	910.928	5/2 ⁻			
		1790.8 8	100 15	828.082	3/2 ⁻			
		2453.0 7	25 2	166.98	1/2 ⁻			
2653.4	11/2 ⁻	1131.8 9		1519.17	9/2 ⁻	M1+E2#	-3.7# 1	
		1451.3 ^e 4		1202.274	7/2 ⁻			
2730.6	3/2 ⁻	2563.6 5	100 11	166.98	1/2 ⁻			
		2730.6 7	41 4	0	3/2 ⁻			
2797.9	(5/2 ⁻ , 9/2 ⁻)	1595.6 13	100	1202.274	7/2 ⁻			δ : +0.53 12 or +2.2 +13-7 for a 5/2 ⁻ to 7/2 ⁻ transition; -0.12 5 for a 9/2 ⁻ to 7/2 ⁻ transition.
2862.45	11/2 ⁺	789.3 7	46.2 21	2073.755	9/2 ⁺	M1(+E2)#	-0.04# 4	B(M1)(W.u.)=0.016 6
		1343.26 10	100 2	1519.17	9/2 ⁻	E1(+M2)@	+0.01@ 2	B(E1)(W.u.)=0.00013 5
3031.77	13/2 ⁺	168.8 ^e 4	0.2 ^e 1	2862.45	11/2 ⁺			
		958.01 5	100 ^e 9	2073.755	9/2 ⁺	E2(+M3)#	-0.00# 1	B(E2)(W.u.)=9.6 9
3160.66	13/2 ⁻	1641.44 10	100 11	1519.17	9/2 ⁻			
		2079.5 10	16 2	1081.63	1/2 ⁻			
		3162.8 10	85 7	0	3/2 ⁻			
3191.1	11/2 ⁺	328.4 ^e 4	9 ^e 9	2862.45	11/2 ⁺			
		1117.3 9	100 ^e 9	2073.755	9/2 ⁺	M1+E2 ^c	-1.60 ^d 7	B(M1)(W.u.)<0.0045; B(E2)(W.u.)<14
3225.0	3/2 ⁻	2144 1	31 10	1081.63	1/2 ⁻			
		2395.9 6	36 5	828.082	3/2 ⁻			
		2865.6 10	54 5	359.123	5/2 ⁻			
		3058.3 5	100 10	166.98	1/2 ⁻			
		3225.5 7	15.1 15	0	3/2 ⁻			

Adopted Levels, Gammas (continued)

$\gamma(^{67}\text{Ga})$ (continued)								
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\ddagger	E_f	J_f^π	Mult.	δ	Comments
3401.5	(1/2 ⁻ ,3/2 ⁻)	3042.2 7 3401.5 5	23 3 100 10	359.123 0	5/2 ⁻ 3/2 ⁻			
3525.3	9/2 ⁺ ,13/2 ⁺	493.5 4		3031.77	13/2 ⁺			Mult.: E2 if it is a 9/2 ⁺ to 13/2 ⁺ transition or M1+E2 if it is a 13/2 ⁺ to 13/2 ⁺ transition, from $\gamma(\theta)$ and polarization data in $^{64}\text{Zn}(\alpha,\text{p}\gamma)$, $^{53}\text{Cr}(^{16}\text{O},\text{p}\text{n}\gamma)$. $\delta(\text{M3/E2})=-0.00$ 1; $\delta(\text{E2/M1})=-0.33$ 2 from $^{64}\text{Zn}(\alpha,\text{p}\gamma)$, $^{53}\text{Cr}(^{16}\text{O},\text{p}\text{n}\gamma)$.
3577.95	15/2 ⁺	1451 2 387.1 ^e 3 417.4 ^e 3		2073.755 3191.1 3160.66	9/2 ⁺ 11/2 ⁺ 13/2 ⁻			Additional information 1.
3628.6	13/2 ⁺ ,17/2 ⁺	546.18 2 715.5 4 596.8 7	100 ^e 8 6.7 ^e 8 100	3031.77 2862.45 3031.77	13/2 ⁺ 11/2 ⁺ 13/2 ⁺	M1+E2 [@]	-0.23 [@] 2	B(M1)(W.u.)=0.00073 19; B(E2)(W.u.)=0.20 7
3632.1		3465.7 20 3631.4 20	100 18 71 24	166.98 0	1/2 ⁻ 3/2 ⁻			
3654.6	(1/2 ⁻ ,3/2 ⁻)	1680.0 10 1844.7 10 3655.6 20	46 10 100 20 18 6	1975.2 1808.99 0	3/2 ⁻ 3/2 ⁻ 3/2 ⁻			
3727.8	(1/2 ⁻ ,3/2 ⁻)	3368.8 10 3727.0 20	100 11 72 14	359.123 0	5/2 ⁻ 3/2 ⁻			
3855.99	17/2 ⁺	278.4 ^e 4 824.20 4	1.2 ^e 2 100 ^e 10	3577.95 3031.77	15/2 ⁺ 13/2 ⁺	E2(+M3) [@]	-0.005 [@] 10	B(E2)(W.u.)=8.4 16
3884.5		1022.5 ^e 4	100 ^e	2862.45	11/2 ⁺			
4179.4		324.0 ^e 3	100 ^e	3855.99	17/2 ⁺			
4198.58	17/2 ⁺	342.58 9	56 15	3855.99	17/2 ⁺			
4221.4		1166.83 7 365.4 3	100 4 100	3031.77 3855.99	13/2 ⁺ 17/2 ⁺	(E2(+M3)) [@]	+0.00 [@] 3	B(E2)(W.u.)>15
4280.2	13/2 ⁻ ,15/2 ⁻	1627.2 ^e 4	100 ^e	2653.4	11/2 ⁻			
4290.49	19/2 ⁺	434.3 ^e 4	1.6 ^e 3	3855.99	17/2 ⁺			
4348.9	17/2 ⁺	712.53 4 493.4 ^e 3	100 ^e 9 52 ^e 6	3577.95 3855.99	15/2 ⁺ 17/2 ⁺	E2(+M3) [@]	+0.003 [@] 15	B(E2)(W.u.)=15.2 24 Additional information 2. Additional information 3.
4744.8		1317.7 ^e 3	100 ^e 10	3031.77	13/2 ⁺			
4749.9	17/2 ⁻	889.1 5 469.9 ^e 5	100 12 ^e 6	3855.99 4280.2	17/2 ⁺ 13/2 ⁻ ,15/2 ⁻			
4780.1		1589.9 ^e 3 924.6 ^e 4	100 ^e 12 100 ^e	3160.66 3855.99	13/2 ⁻ 17/2 ⁺			DCO=1.46 14. Additional information 4.

Adopted Levels, Gammas (continued)

γ(⁶⁷Ga) (continued)

E _i (level)	J ^π _i	E _γ [†]	I _γ [‡]	E _f	J ^π _f	Mult.	δ	Comments
4995.5	21/2 ⁺ ,23/2 ⁺	705.3 ^e 4	100 ^e	4290.49	19/2 ⁺			
5085.5	19/2 ⁽⁻⁾	335.8 ^e 7	8 ^e 4	4749.9	17/2 ⁻			
		1230.0 ^e 3	100 ^e 13	3855.99	17/2 ⁺			Additional information 5.
5186.3	21/2 ⁺	896.2 ^e 4	31 ^e 8	4290.49	19/2 ⁺			
		1330.9 ^e 3	100 ^e 8	3855.99	17/2 ⁺			Additional information 6.
5225.7	(23/2 ⁺)	139.7 ^e 5	1.2 ^e 6	5085.5	19/2 ⁽⁻⁾			
		475.2 ^e 3	4.6 ^e 6	4749.9	17/2 ⁻			Additional information 7.
		935.2 4	100 9	4290.49	19/2 ⁺			
5395.7	(19/2 ⁻)	646.1 ^e 4	33 ^e 17	4749.9	17/2 ⁻			
		1540.1 ^e 4	100 ^e 17	3855.99	17/2 ⁺			
5417.0		1219.0 ^e 4	100 ^e	4198.58	17/2 ⁺			
5491.64	(21/2 ⁺)	304.2 ^e 4	2.1 ^e 11	5186.3	21/2 ⁺			
		1141.7 ^e 3	27 ^e 2	4348.9	17/2 ⁺			Additional information 8.
		1293.07 8	100 8	4198.58	17/2 ⁺			
		1635.57 12	67 ^e 9	3855.99	17/2 ⁺	(E2(+M3)) [@]	-0.004 [@] 20	
5574.3?		349.1 ^e g 4	100 ^e	5225.7	(23/2 ⁺)			
5677.1	21/2 ⁺	1387.2 ^e 4	100 ^e	4290.49	19/2 ⁺			Additional information 9.
5744.6	21/2 ⁽⁻⁾	519.3 ^e 3	100 ^e 12	5225.7	(23/2 ⁺)			Additional information 10.
		659.3 ^e 4	24 ^e 6	5085.5	19/2 ⁽⁻⁾			
5751.2?		526.0 ^e g 4	100 ^e	5225.7	(23/2 ⁺)			
6185.6	(23/2 ⁻)	441.1 ^e 4	30 ^e 10	5744.6	21/2 ⁽⁻⁾			
		789.9 ^e 3	100 ^e 10	5395.7	(19/2 ⁻)			Additional information 11.
		1100.0 ^e 4	40 ^e 10	5085.5	19/2 ⁽⁻⁾			
6380.19	25/2 ⁺	888.54 8	100 ^e 9	5491.64	(21/2 ⁺)	(E2(+M3)) [@]	+0.010 [@] 15	
		1193.0 ^e 4	3.2 ^e 5	5186.3	21/2 ⁺			
		1383.2 ^e 5	1.0 ^e 5	4995.5	21/2 ⁺ ,23/2 ⁺			
6589.5	(27/2 ⁺)	1363.8 2	100	5225.7	(23/2 ⁺)	(E2(+M3)) [@]	+0.03 [@] 4	
6870.2	23/2 ⁽⁻⁾	1126.0 ^e 5	36 ^e 9	5744.6	21/2 ⁽⁻⁾			
		1645.4 ^e 4	100 ^e 9	5225.7	(23/2 ⁺)			
7551.2		1172.6 ^e 4	100 ^e	6380.19	25/2 ⁺			
7601.2		1222.6 ^e 4	100 ^e	6380.19	25/2 ⁺			
7618.2	29/2 ⁺	1239.8 ^e 3	100 ^e	6380.19	25/2 ⁺			
7957.5	(27/2 ⁻)	1086.5 ^e 6	50 ^e 17	6870.2	23/2 ⁽⁻⁾			
		1368.8 ^e 4	100 ^e 17	6589.5	(27/2 ⁺)			
8552	(9/2 ⁺)	6478	100 5	2073.755	9/2 ⁺	(M1(+E2))	-0.09 10	Mult.: from γ(θ) in ⁶⁶ Zn(p,γ) and ΔJ ^π . δ: from γ(θ) in ⁶⁶ Zn(p,γ).
		7139	18 3	1412.713	7/2 ⁻			
		7350	11 3	1202.274	7/2 ⁻			

Adopted Levels, Gammas (continued)

$\gamma(^{67}\text{Ga})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\ddagger	E_f	J_f^π	Comments
8552	(9/2 ⁺)	7641	8 3	910.928	5/2 ⁻	
8567	(9/2 ⁺)	6493	100	2073.755	9/2 ⁺	
8615.9	33/2 ⁺	997.0 ^e 3	100 ^e	7618.2	29/2 ⁺	Additional information 12.
10083.5?		1467.6 ^{eg} 6	100 ^e	8615.9	33/2 ⁺	

† Average of values of comparable precision from available γ data from $^{67}\text{Zn}(p,n\gamma)$, $^{64}\text{Zn}(\alpha,pn\gamma)$, $^{53}\text{Cr}(^{16}\text{O},pn\gamma)$, and $^{57}\text{Fe}(^{12}\text{C},pn\gamma)$, except as noted.

‡ Relative photon branching from each level.

From $\gamma(\theta)$ and polarization data in $^{64}\text{Zn}(\alpha,p\gamma)$, $^{53}\text{Cr}(^{16}\text{O},pn\gamma)$.

@ From $\gamma(\theta)$ and polarization data in $^{57}\text{Fe}(^{12}\text{C},pn\gamma)$.

& From $\gamma(\theta)$ in $^{67}\text{Zn}(p,n\gamma)$ and RUL.

^a From $\gamma(\theta)$ in $^{67}\text{Zn}(p,n\gamma)$.

^b From $\gamma(\theta)$ in $^{67}\text{Zn}(p,n\gamma)$ and ΔJ^π .

^c From $\gamma(\theta)$ in $^{64}\text{Zn}(\alpha,p\gamma)$, $^{53}\text{Cr}(^{16}\text{O},pn\gamma)$ and RUL.

^d From $\gamma(\theta)$ in $^{64}\text{Zn}(\alpha,p\gamma)$, $^{53}\text{Cr}(^{16}\text{O},pn\gamma)$.

^e From $^{12}\text{C}(^{58}\text{Ni},3P\gamma)$.

^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.

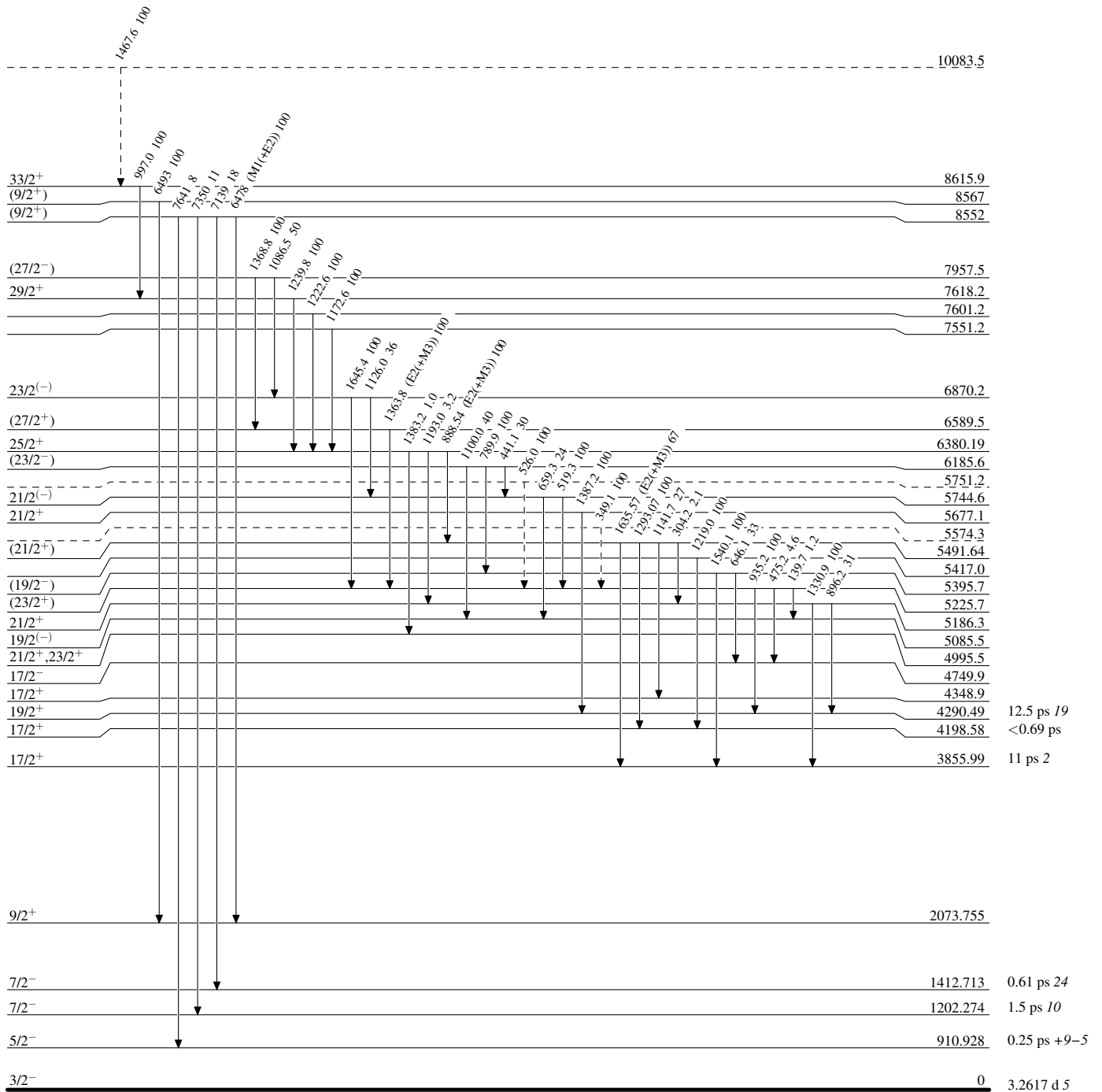
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

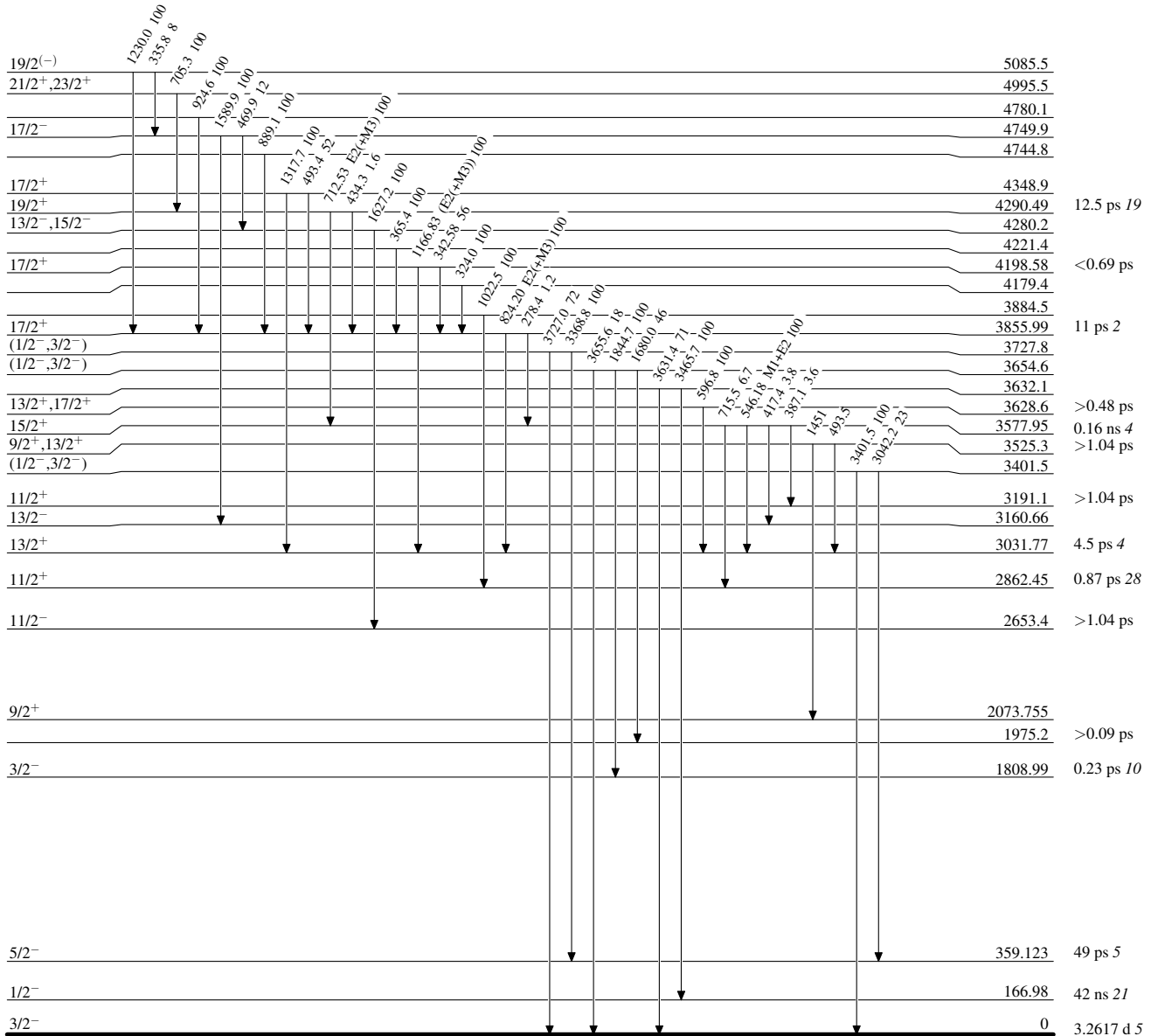
-----▶ γ Decay (Uncertain)



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

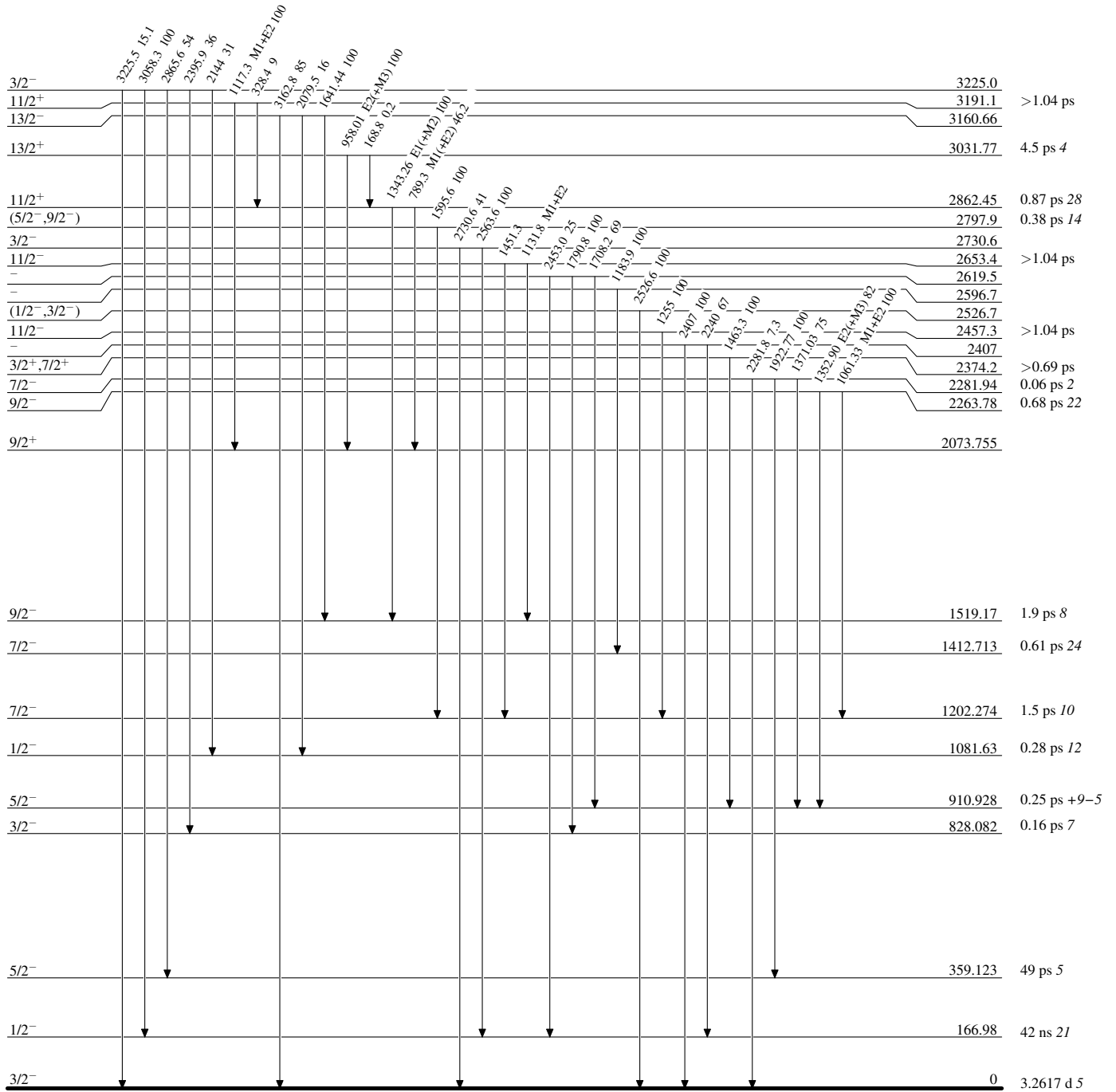


$^{67}_{31}\text{Ga}_{36}$

Adopted Levels, Gammas

Level Scheme (continued)

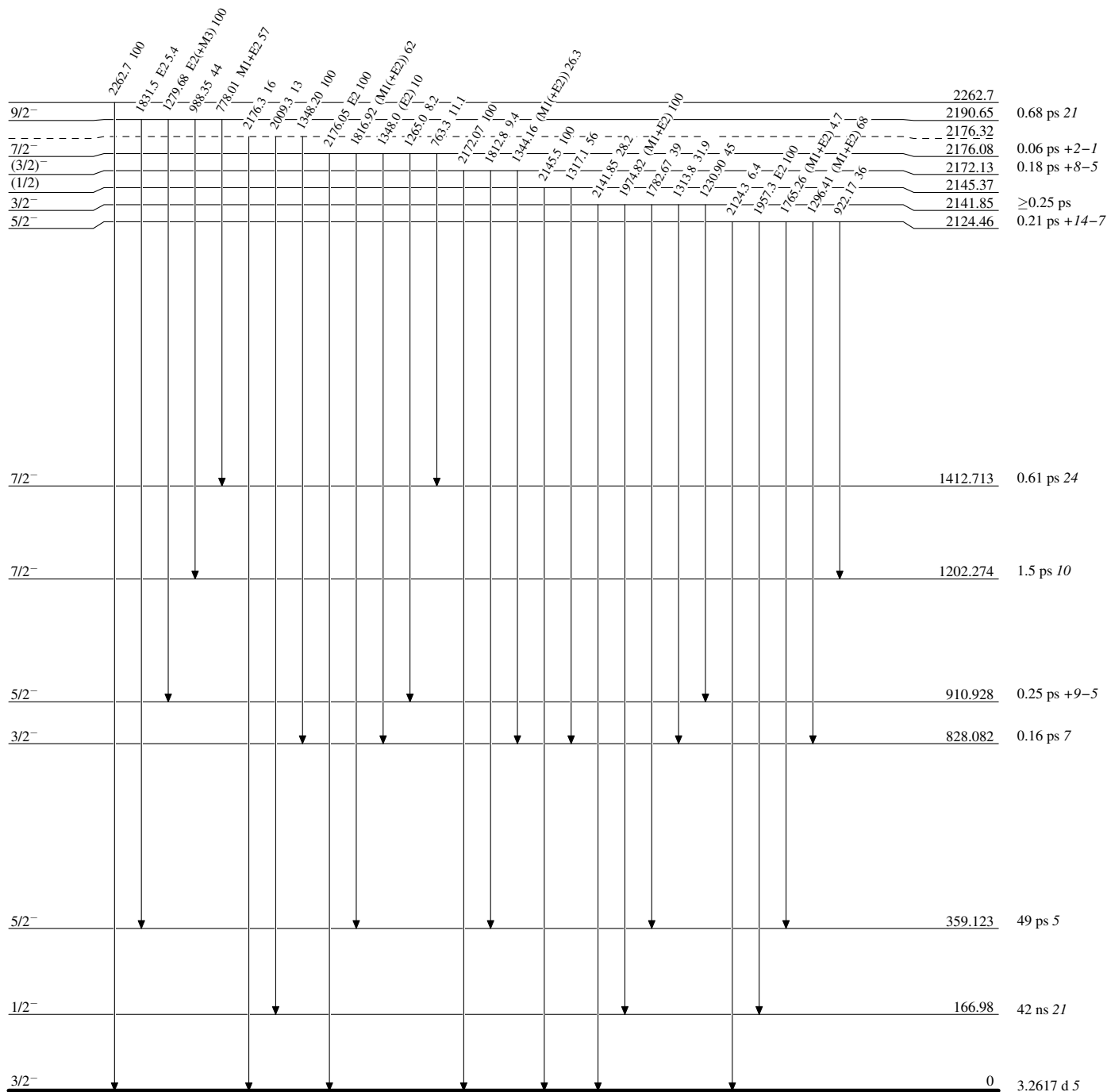
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

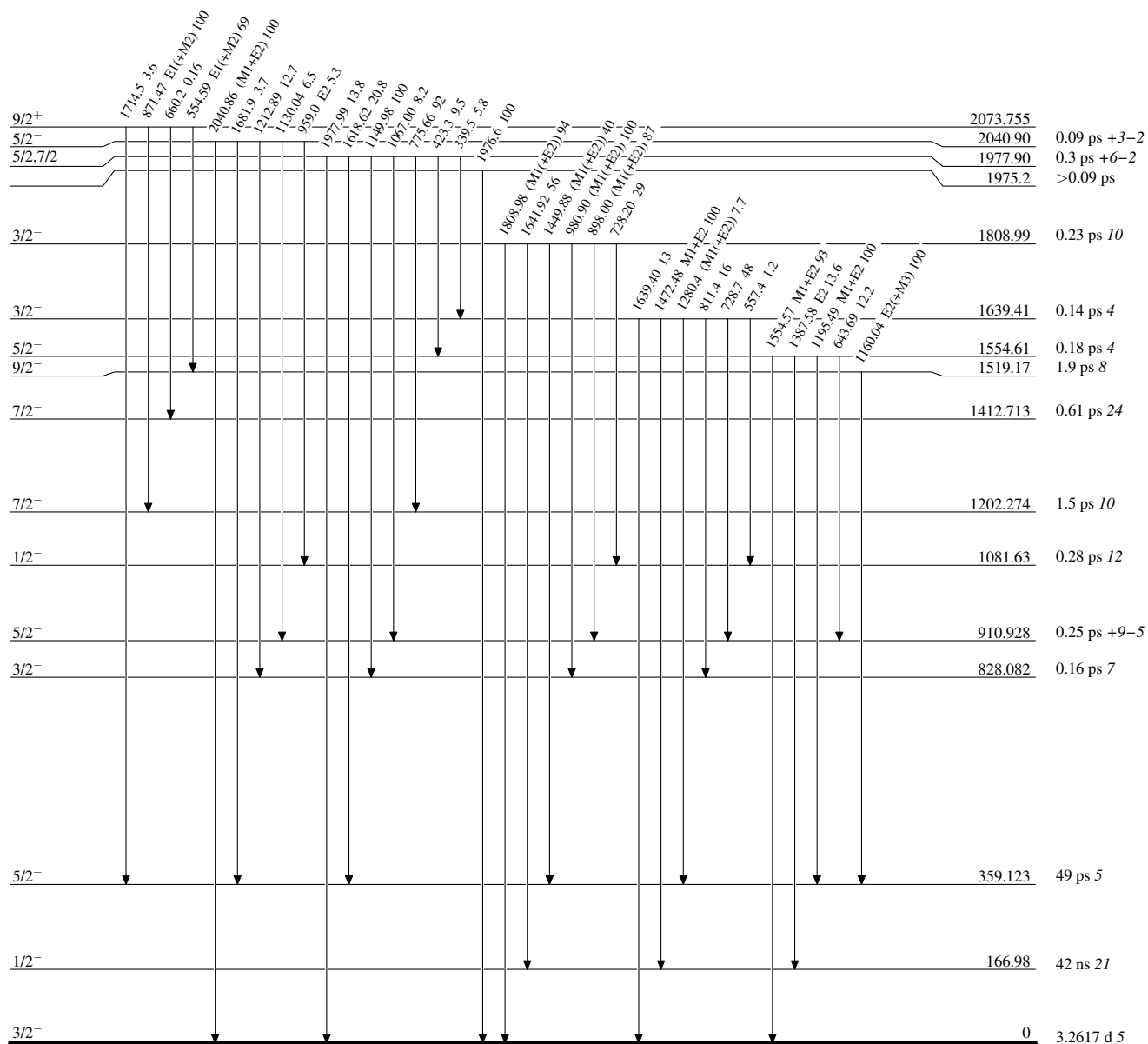


$^{67}_{31}\text{Ga}_{36}$

Adopted Levels, Gammas

Level Scheme (continued)

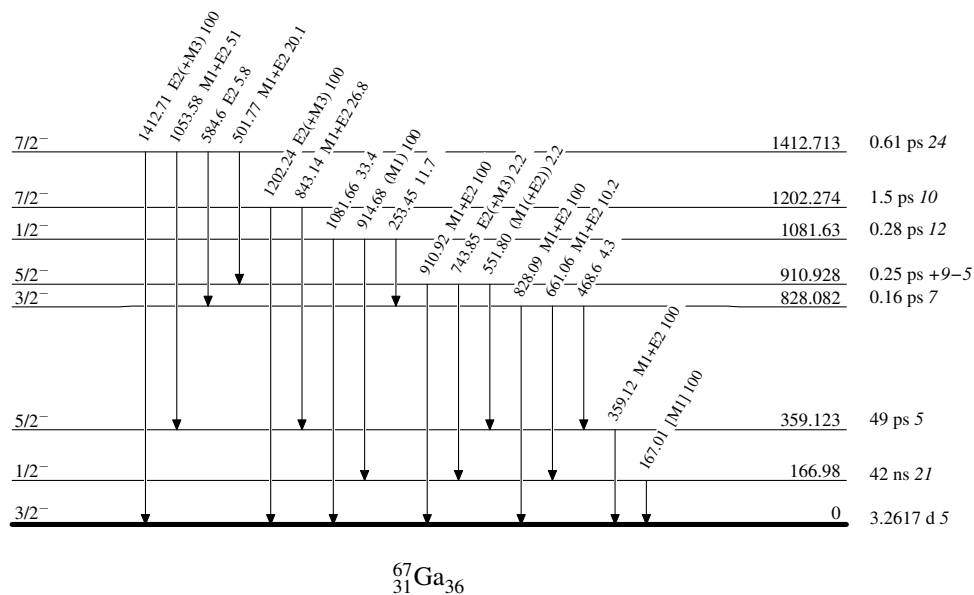
Intensities: Relative photon branching from each level

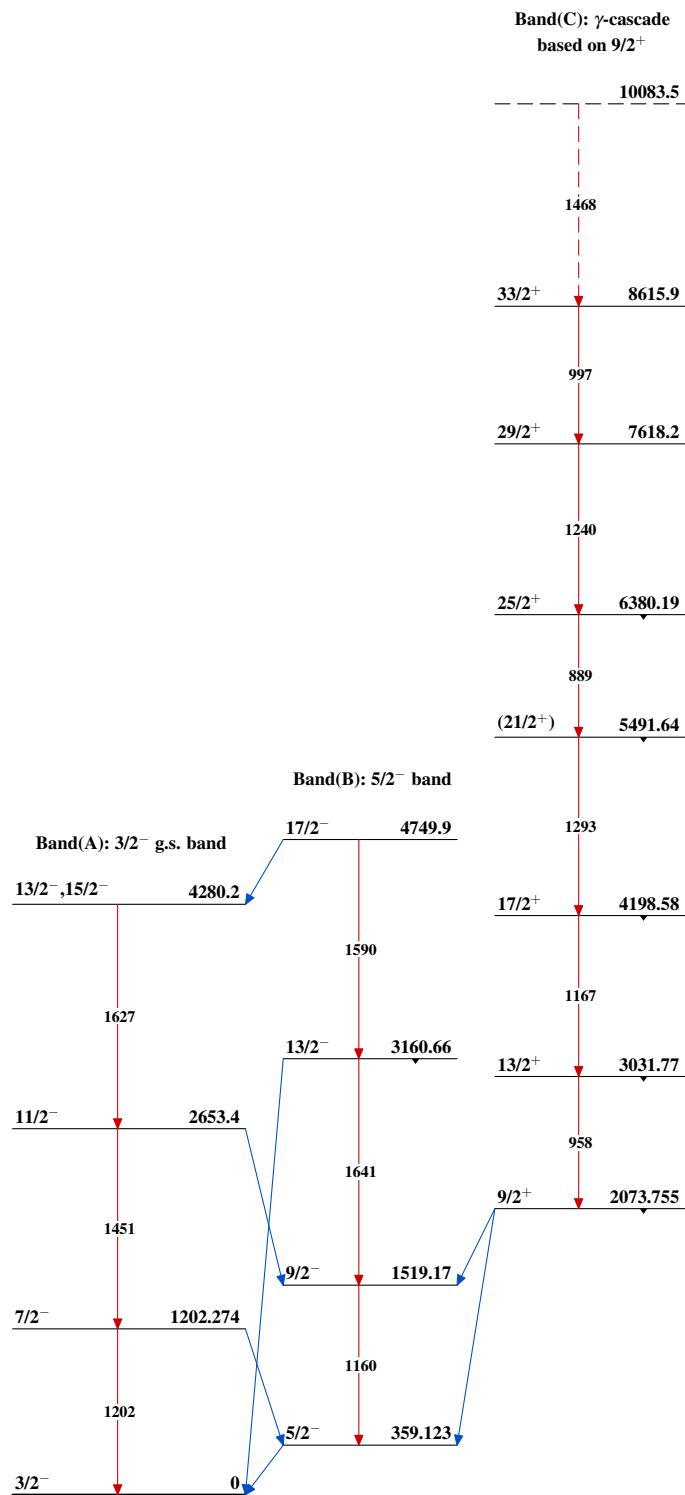


$^{67}_{31}\text{Ga}_{36}$

Adopted Levels, Gammas**Level Scheme (continued)**

Intensities: Relative photon branching from each level

 $^{67}_{31}\text{Ga}_{36}$

Adopted Levels, Gammas $^{67}_{31}\text{Ga}_{36}$