Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 115, 1 (2014)	31-Jul-2013

Q(β^-)=−6680 *30*; S(n)=12290 *30*; S(p)=3420 *30*; Q(α)=−2880 *30* 2012Wa38

^{69}As Levels

Cross Reference (XREF) Flags

A ^{69}Se ε decay
B ^{40}Ca(^{32}S,3pγ)
C ^{58}Ni(^{14}N,2pnγ)
D ^{70}Ge(p,2nγ)
E ^{54}Fe(^{18}O,2npy),^{55}Mn(^{16}O,2nγ),

E(level)[†‡]	J$^\pi$[&]	$T_{1/2}$	XREF	Comments
0.0[i]	5/2$^-$	15.2 min *2*	ABCDE	%ε+%β^+=100 μ=+1.623 *2* (2005Go44) J$^\pi$: 5/2 from atomic-beam magnetic resonance (1976He21); π from log *ft*=5.50 *2* in ^{69}As ε decay to ^{69}Ge g.s. with J^π=5/2$^-$. $T_{1/2}$: weighted average of 15.3 m 2 (1978TeZY) and 15.1 m 3 (1979Su02). Others: 14.9 m 9 (1970Bo19), 15.5 m 10 (1970Mu03), 13.0 m 15 (1971Do01), and 16 m 1 (1974Ro14). μ: from NMR on oriented nuclei (2005Go44). Compiled by 2011StZZ. Other: 1.2 *2* from atomic-beam magnetic resonance-thermal beam (1980Ho02). Compiled by 2011StZZ.
98.01[h] *4*	3/2$^-$	<2 ns	ABCD	J$^\pi$: band member; (M1) 98γ to 5/2$^-$ g.s. $T_{1/2}$: from pulsed beam delayed coincidences in ^{70}Ge(p,2nγ) (1978TeZY).
164.52 *6*	1/2$^-$,3/2$^-$		A D	J$^\pi$: Allowed ε decay from 1/2$^-$.
497.34 *12*			A D	
760.2			D	Additional information 1.
789.46 *12*	1/2$^-$,3/2$^-$		A D	J$^\pi$: Allowed ε decay from 1/2$^-$.
863.39[i] *17*	7/2$^-$	5.5[@] ps *21*	BCDE	J$^\pi$: Band member; E2 765 γ to 3/2$^-$.
933.38 *24*			A	
1075.78 *23*			A	
1216.41[h] *13*	7/2$^-$		B	J$^\pi$: Band member; E2 1118.1 γ to 3/2$^-$.
1305.85[b] *15*	9/2$^+$	1.35[#] ns *4*	BCDE	μ=+4.7 *6* (1980Be32) $T_{1/2}$: 1.3 ns *1* (1976IvZW). J$^\pi$: Band member; E1 89.3 γ to 7/2$^-$; M2 1305.6 γ to 5/2$^-$. μ: from integral perturbed angular distribution. Other: +6 *2* from recoil into gas or vacuum method (1981Ki07). Compiled by 2011StZZ.
1409.9			C	Additional information 2.
1470.34[k] *18*	9/2$^-$		B	J$^\pi$: Band member; E2 1470.3 γ to 5/2$^-$.
1534.12[l] *22*	(5/2$^+$)		B	J$^\pi$: Band member; (E2) 228.4 γ to 9/2$^+$; (E1) 1435.8 γ to 3/2$^-$.
1678.9?			C	
1691.1 *7*			A	Additional information 3.
1744.4 *7*			A	Additional information 4.
1865.0 *4*			A	Additional information 5.
1987.58 *15*	7/2$^-$		B	
2002.1 *7*			C	
2119.1 *8*			A	Additional information 6.
2151.3			A	Additional information 7.
2159.54[b] *12*	13/2$^+$	1.04[#] ps *21*	BCDE	$T_{1/2}$: From 1998Sk04. Others: 4 ps *2* (1976IvZW) and 3.5 ps *6* (1978He13). 1998Sk04 explain discrepancy with value of 1978He13 as due to side feeding. J$^\pi$: Band member; E2 853.8 γ to 9/2$^+$.

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Adopted Levels, Gammas (continued)

^{69}As Levels (continued)

E(level)[†‡]	Jπ[&]	$T_{1/2}$	XREF	Comments
2169.15[l] *18*	9/2(+)		B D	
2184.0 *10*			A	Additional information 8.
2199.88 *20*	11/2−		B	
2211.67[c] *18*	11/2+	<1.4[@] ps	BCDE	
2311.31[j] *15*	9/2−		BC	Jπ: π is positive in ^{58}Ni(^{14}N,2pnγ) (2009Ba30).
2346.8 *5*			A	Additional information 9.
2408.9 *3*			A	Additional information 10.
2421.8 *5*			C	
2532.9 *4*			A	Additional information 11.
2627.72[h] *12*	11/2−		B	
2777.20[k] *16*	13/2−		B	
2808.22[l] *14*	13/2+		BC	
2873.0 *11*			A	Additional information 12.
2930.4			C	Additional information 13.
3031.0 *5*			A	Additional information 14.
3045.48 *14*	13/2−		BC	Jπ: Tentative spin assignment (13/2+) in ^{58}Ni(^{14}N,2pnγ) (2009Ba30) based on the suggested presence of a 9/2+ rotational band built on the 2310 level.
3144.4 *8*			A	Additional information 15.
3220.1			A	Additional information 16.
3257.14[ab] *12*	17/2+	<4.2[@] ps	BC E	$T_{1/2}$: Other: <6 ps (1978He13).
3263.41[c] *15*	15/2+	<1.4[@] ps	BC E	
3302.2			C	Additional information 17.
3346.5 *5*			A	Additional information 18.
3355.4			C	Additional information 19.
3394.5 *6*			A	Additional information 20.
3418.64[h] *13*	15/2−		B	
3468.8 *7*			A	Additional information 21.
3507.35 *16*	15/2+		B	
3560.9			C	Additional information 22.
3651.5 *10*			A	Additional information 23.
3660.55 *14*	17/2+		B	
3840.39[l] *15*	17/2+		B	
3844.73[j] *13*	17/2−		BC	
3947.90 *18*	15/2−		B	
3999.5 *7*			A	Additional information 24.
4148.38 *15*	17/2+		B	
4206.4			C	Additional information 25.
4306.1[c] *3*	(19/2+)		B	Additional information 26.
4356.34[h] *22*	19/2−		B	
4461.33[b] *13*	21/2+	5.4 ps *7*	BC E	$T_{1/2}$: Weighted average of 4.9 ps *9*, 4.7 ps *19*, and 7.6 ps *28* from 1978He13, and 6.6 ps *14* from 1976IvZW. Based on these same data, 1978He13 adopts $T_{1/2}$< 8 ps to account for possible branching from higher levels.
4488.87[g] *15*	19/2−		B	
4554.14 *12*	19/2−		B	
4653.04[j] *19*	21/2−		BC	
4713.3 *3*			B	
4847.34[k] *24*	21/2−		B	
4880.3?			C	
4929.53 *16*	21/2+		B	
5150.0 *7*			B	Additional information 27.
5152.4 *3*			B	Additional information 28.
5170.9 *4*			C	
5193.33[e] *19*	25/2+	6.9 ps *9*	BC E	$T_{1/2}$: Weighted average of 7.8 ps *11* from 1978He13 and 5.5 ps *14* from

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Adopted Levels, Gammas (continued)

^{69}As Levels (continued)

E(level)[†‡]	Jπ[&]	XREF	Comments
			1976IvZW.
5245.75[g] 18	23/2−	B	
5452.5[h] 5	23/2−	B	
5477.4? 6		C	
5679.9		C	Additional information 29.
5711.20[c] 25	23/2+	B	
5918.4[j] 3	25/2−	B	
5941.14[b] 15	25/2+	B	
6089.3[k] 3	25/2−	B	
6359.7[d] 3	29/2+	B	
6369.42[e] 18	29/2+	BC	
6571.6[g] 4	27/2−	B	
6742.2[h] 6	27/2−	B	
6847.32 19	25/2+	B	
7446.6[c] 5	27/2+	B	Additional information 30.
7448.5[j] 3	29/2−	B	
7519.6[k] 5	29/2−	B	
7614.7 4	29/2−	B	
7627.3[b] 4	29/2+	B	Additional information 31.
7689.92 16	27/2+	B	
7716.8 3	33/2+	B	
7896.6[e] 4	33/2+	B	
8142.9[g] 5	31/2−	B	
8186.0[h] 6	31/2−	B	
8382.4 4	29/2+	B	Additional information 32.
8455.42 22	(29/2+)	B	
8641.7[j] 4	33/2−	B	
9095.5[k] 4	(33/2−)	B	
9393.1[g] 3	35/2−	B	
9472.2[d] 8	37/2+	B	Additional information 33.
9738.7[h] 6	35/2−	B	
9819.4[e] 5	37/2+	B	
9985.8[j] 5	37/2−	B	
10097.0 6	(33/2+)	B	Additional information 34.
10795.88[k] 20	(37/2−)	B	
11180.4[g] 9	39/2−	B	Additional information 35.
11434.8[h] 3	39/2−	B	
11551.9[j] 4	41/2−	B	
11977.3[e] 3	41/2+	B	
12677.3[k] 9	(41/2−)	B	Additional information 36.
13325.2[h] 12	(43/2−)	B	Additional information 37.
13546.0[j] 3	45/2−	B	
13871.6[f] 5	(45/2+)	B	
14567.1[e] 10	(45/2+)	B	Additional information 38.
15765.1[f] 7	(49/2+)	B	
16005.8[j] 9	(49/2−)	B	Additional information 39.
18180.8[f] 8	(53/2+)	B	

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Adopted Levels, Gammas (continued)

^{69}As Levels (continued)

† Extensive level schemes have been proposed by 2004St23 using the reaction ^{40}Ca(^{32}S,3pγ) and by 2009Ba30 using ^{58}Ni(^{14}N,2pnγ); however, there is little overlap in the levels proposed, and discrepancies occur in many of the gamma energies and branching ratios for those levels that are common in the two works. Above the 1306 level, 2009Ba30 propose 27 levels up to 6369 while 2004St23 propose 40 levels in this same interval. Only 12 of these levels, including 6369 are common to the two works. The evaluator has chosen to adopt the energies and branchings from 2004St23 where available. For levels reported in both works, transitions reported 2009Ba30 but not seen by 2004St23 are included, but are marked as having an uncertain placement.

‡ From a least-squares fit to Eγ data. In addition to the levels here, several peaks are seen in the β- delayed proton decay. See ^{69}Se ε decay.

By recoil distance method in ^{54}Fe(^{18}O,2npγ),^{55}Mn(^{16}O,2nγ)... (1978He13).

@ By recoil distance method in ^{58}Ni(^{14}N,2pn) (1976IvZW).

& Except as noted, assignments are based on DCO data in in-beam γ-ray studies in ^{40}Ca(^{32}S,3pγ) and band assignments.

[a] Level 3257.03 in 2004St23 from ^{40}Ca(^{32}S,3pγ) and level 3259.69 from 2009Ba30 in ^{58}Ni(^{14}N,2pnγ) are considered the same level by the evaluator.

[b] Band(A): Band based on $9/2^+$.

[c] Band(a): Band based on $11/2^+$.

[d] Band(B): Band based on $29/2^+$.

[e] Band(C): Band based on $25/2^+$.

[f] Band(D): Band based on $(45/2^+)$.

[g] Band(E): Band based on $19/2^-$.

[h] Band(F): Band based on $3/2^-$.

[i] Band(f): Band based on $5/2^-$.

[j] Band(G): Band based on $9/2^-$.

[k] Band(H): Band based on $9/2^-$.

[l] Band(I): Band based on $5/2^+$.

Adopted Levels, Gammas (continued)

γ(^{69}As)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	α[e]	Comments
98.01	3/2⁻	97.99 *4*	100	0.0	5/2⁻	(M1)[‡]	0.0951	α(K)=0.0844 *12*; α(L)=0.00916 *13*; α(M)=0.001399 *20* α(N)=0.0001055 *15* B(M1)(W.u.)>0.011
164.52	1/2⁻,3/2⁻	66.50 *5*	100	98.01	3/2⁻	(M1)[‡]	0.278	α(K)=0.247 *4*; α(L)=0.0270 *4*; α(M)=0.00413 *6* α(N)=0.000311 *5*
497.34		332.7 *2*	30 *4*	164.52	1/2⁻,3/2⁻			
		399.3 *2*	100 *6*	98.01	3/2⁻			
		497.5 *3*	28 *4*	0.0	5/2⁻			
760.2		662.1 *4*	100	98.01	3/2⁻			
789.46	1/2⁻,3/2⁻	291.9 *3*	10.6 *12*	497.34				
		625.0 *3*	14.9 *16*	164.52	1/2⁻,3/2⁻			
		691.5 *2*	100 *8*	98.01	3/2⁻			
		789.4 *2*	24 *3*	0.0	5/2⁻			
863.39	7/2⁻	765.0 *4*	17 *4*	98.01	3/2⁻	(E2)[a]	7.54×10^{-4}	α(K)=0.000672 *10*; α(L)=7.02×10^{-5} *10*; α(M)=1.070×10^{-5} *15* α(N)=8.10×10^{-7} *12* B(E2)(W.u.)=3.4 *16* I_γ: From 2004St23. Iγ/Iγ(863γ)=0.064 *7* in 2009Ba30.
		863.2 *5*	100 *4*	0.0	5/2⁻	M1+E2	0.00051 *5*	α(K)=0.00046 *4*; α(L)=4.7×10^{-5} *5*; α(M)=7.2×10^{-6} *7* α(N)=5.5×10^{-7} *5* Mult.: D+Q from γ(θ)(DCO)in ^{40}Ca(^{32}S,3pγ) (2004St23); Δπ=no from linear polarization.
933.38		835.7 *4*	100	98.01	3/2⁻			
1075.78		911.2 *4*	70 *35*	164.52	1/2⁻,3/2⁻			
		978.1 *4*	100 *22*	98.01	3/2⁻			
1216.41	7/2⁻	1118.1 *3*	100 *6*	98.01	3/2⁻	(E2)[a]	3.00×10^{-4}	α(K)=0.000267 *4*; α(L)=2.75×10^{-5} *4*; α(M)=4.20×10^{-6} *6* α(N)=3.20×10^{-7} *5*; α(IPF)=1.321×10^{-6} *22*
		1216.3 *5*	44 *9*	0.0	5/2⁻	(M1+E2)[c]	2.49×10^{-4} *11*	α(K)=0.000214 *8*; α(L)=2.20×10^{-5} *9*; α(M)=3.35×10^{-6} *13* α(N)=2.56×10^{-7} *10*; α(IPF)=9.6×10^{-6} *15*
1305.85	9/2⁺	89.3 *2*	3.8 *11*	1216.41	7/2⁻	(E1)[#]	0.1039 *17*	α(K)=0.0926 *15*; α(L)=0.00971 *16*; α(M)=0.001468 *23* α(N)=0.0001081 *17* B(E1)(W.u.)=9.E−6 *3*
		442.4 *5*	100 *4*	863.39	7/2⁻	E1	1.04×10^{-3}	α(K)=0.000929 *14*; α(L)=9.59×10^{-5} *14*; α(M)=1.460×10^{-5} *21* α(N)=1.108×10^{-6} *16* B(E1)(W.u.)=2.06×10^{-6} *15* Mult.: D from γ(θ)(DCO)in ^{40}Ca(^{32}S,3pγ) (2004St23); Δπ=yes from linear polarization.
		1305.6 *4*	63 *7*	0.0	5/2⁻	(M2)[&]	4.24×10^{-4}	α(K)=0.000373 *6*; α(L)=3.86×10^{-5} *6*; α(M)=5.90×10^{-6} *9* α(N)=4.51×10^{-7} *7*; α(IPF)=5.91×10^{-6} *9* B(M2)(W.u.)=0.136 *17* I_γ: From 2004St23. Iγ/Iγ(442γ)=0.735 *5* in 2009Ba30.
1409.9		545.4 *5*	100	863.39	7/2⁻			

$^{69}_{33}As_{36}$-5

Adopted Levels, Gammas (continued)

γ(^{69}As) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.	α e	Comments
1470.34	9/2⁻	1470.3 *2*	100	0.0	5/2⁻	(E2) a	2.41×10⁻⁴	α(K)=0.0001485 *21*; α(L)=1.524×10⁻⁵ *22*; α(M)=2.32×10⁻⁶ *4* α(N)=1.774×10⁻⁷ *25*; α(IPF)=7.50×10⁻⁵ *11*
1534.12	(5/2⁺)	228.4 *3*	7.1 *6*	1305.85	9/2⁺			
		1435.8 *4*	100 *10*	98.01	3/2⁻			
1678.9?		372.9 f *8*	16 d *4*	1305.85	9/2⁺			
		812.8 f *6*	100 d *8*	863.39	7/2⁻			
1691.1		1526.5 *5*	86 *22*	164.52	1/2⁻,3/2⁻			
		1592.6 *4*	86 *14*	98.01	3/2⁻			
		1690.9 *6*	100 *7*	0.0	5/2⁻			
1744.4		1646.4 *10*	100 *36*	98.01	3/2⁻			
		1744.1 *7*	50 *14*	0.0	5/2⁻			
1865.0		1075.8 *10*	100 *14*	789.46	1/2⁻,3/2⁻			
		1700.2 *4*	39 *9*	164.52	1/2⁻,3/2⁻			
		1766.8 *4*	59 *9*	98.01	3/2⁻			
		1866.0 *10*	16 *2*	0.0	5/2⁻			
1987.58	7/2⁻	1987.5 *2*	100	0.0	5/2⁻	(M1+E2) c	0.00037 *3*	α(K)=8.22×10⁻⁵ *15*; α(L)=8.38×10⁻⁶ *16*; α(M)=1.278×10⁻⁶ *23* α(N)=9.79×10⁻⁸ *18*; α(IPF)=0.000280 *25*
2002.1		696.2 *6*	100	1305.85	9/2⁺			
2119.1		1329.6 *9*	100 *67*	789.46	1/2⁻,3/2⁻			
		2119.2 *10*	33 *7*	0.0	5/2⁻			
2151.3		1360.9 *8*	100 *17*	789.46	1/2⁻,3/2⁻			
		1652.9 *8*	82 *18*	497.34				
		2051.4 *7*	53 *12*	98.01	3/2⁻			
2159.54	13/2⁺	853.8 *5*	100	1305.85	9/2⁺	E2	5.68×10⁻⁴	α(K)=0.000506 *8*; α(L)=5.27×10⁻⁵ *8*; α(M)=8.04×10⁻⁶ *12* α(N)=6.10×10⁻⁷ *9* B(E2)(W.u.)=21 *4* Mult.: Q from γ(θ)(DCO) in ^{40}Ca(^{32}S,3pγ) (2004St23); Δπ=no from linear polarization.
2169.15	9/2(+)	635.0 *3*	16 *3*	1534.12	(5/2⁺)	(Q)		Mult.: from γ(θ)(DCO) in ^{40}Ca(^{32}S,3pγ) (2004St23).
		952.7 *2*	9.5 *14*	1216.41	7/2⁻	(D)		Mult.: from γ(θ)(DCO) in ^{40}Ca(^{32}S,3pγ) (2004St23).
		1305.8 *3*	100 *14*	863.39	7/2⁻	(D)		Mult.: from γ(θ)(DCO) in ^{40}Ca(^{32}S,3pγ) (2004St23).
2184.0		2086.0 *10*	100	98.01	3/2⁻			
2199.88	11/2⁻	1336.5 *2*	100	863.39	7/2⁻	Q		Mult.: Q from γ(θ)(DCO) in ^{40}Ca(^{32}S,3pγ) (2004St23);
2211.67	11/2⁺	905.1 *3*	100	1305.85	9/2⁺	M1+E2	0.00046 *4*	α(K)=0.00041 *3*; α(L)=4.2×10⁻⁵ *4*; α(M)=6.4×10⁻⁶ *6* α(N)=4.9×10⁻⁷ *4* Mult.: D+Q from γ(θ)(DCO) in ^{40}Ca(^{32}S,3pγ) (2004St23); Δπ=no from linear polarization.
2311.31	9/2⁻	307.0 f *6*	16 d *4*	2002.1				
		323.7 *3*	2.8 *6*	1987.58	7/2⁻	(M1+E2) c	0.007 *4*	α(K)=0.007 *3*; α(L)=0.0007 *4*; α(M)=0.00011 *5* α(N)=8.E−6 *4*
		1005.6 *5*	23.4 *16*	1305.85	9/2⁺	(E1) @	1.65×10⁻⁴	α(K)=0.0001475 *21*; α(L)=1.508×10⁻⁵ *22*; α(M)=2.30×10⁻⁶ *4* α(N)=1.754×10⁻⁷ *25*

$^{69}_{33}As_{36}$-6

Adopted Levels, Gammas (continued)

γ(^{69}As) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	α[e]	Comments
2311.31	9/2$^-$	1094.9 *4*	18.4 *14*	1216.41	7/2$^-$	(M1+E2)[c]	2.99×10^{-4} *15*	α(K)=0.000267 *13*; α(L)=2.75×10^{-5} *14*; α(M)=4.20×10^{-6} *22* α(N)=3.21×10^{-7} *16*
		1448.0 *4*	12 *8*	863.39	7/2$^-$	(M1+E2)[c]	2.28×10^{-4} *12*	α(K)=0.000150 *4*; α(L)=1.54×10^{-5} *5*; α(M)=2.34×10^{-6} *7* α(N)=1.79×10^{-7} *5*; α(IPF)=6.0×10^{-5} *8*
		2311.2 *3*	100 *11*	0.0	5/2$^-$	(E2)[a]	5.33×10^{-4}	α(K)=6.33×10^{-5} *9*; α(L)=6.46×10^{-6} *9*; α(M)=9.84×10^{-7} *14* α(N)=7.54×10^{-8} *11*; α(IPF)=0.000462 *7*
2346.8		1557.2 *4*	100 *17*	789.46	1/2$^-$,3/2$^-$			
		1849.4 *8*	67 *17*	497.34				
2408.9		1475.7 *3*	71 *13*	933.38				
		1620.0 *15*	100 *17*	789.46	1/2$^-$,3/2$^-$			
		1912.3 *6*	50 *17*	497.34				
		2244.6 *5*	33 *8*	164.52	1/2$^-$,3/2$^-$			
		2310.2 *5*	54 *8*	98.01	3/2$^-$			
2421.8		262.4 *5*	100 *15*	2159.54	13/2$^+$			
		1115.6 *8*	57 *19*	1305.85	9/2$^+$			
2532.9		1456.9 *5*	100 *18*	1075.78				
		2368.6 *10*	41 *6*	164.52	1/2$^-$,3/2$^-$			
		2435.0 *5*	12 *3*	98.01	3/2$^-$			
2627.72	11/2$^-$	316.4 *2*	3.6 *6*	2311.31	9/2$^-$	(M1+E2)[c]	0.008 *4*	α(K)=0.007 *3*; α(L)=0.0008 *4*; α(M)=0.00012 *6* α(N)=9.E−6 *4*
		468.2 *3*	<2.0	2159.54	13/2$^+$	(E1)[#]	9.01×10^{-4}	α(K)=0.000805 *12*; α(L)=8.30×10^{-5} *12*; α(M)=1.263×10^{-5} *18* α(N)=9.59×10^{-7} *14*
		640.1 *2*	4 *8*	1987.58	7/2$^-$	(E2)[a]	1.23×10^{-3}	α(K)=0.001092 *16*; α(L)=0.0001150 *17*; α(M)=1.751×10^{-5} *25* α(N)=1.322×10^{-6} *19*
		1322.0 *5*	48 *2*	1305.85	9/2$^+$	(E1)[#]	2.29×10^{-4}	α(K)=8.97×10^{-5} *13*; α(L)=9.14×10^{-6} *13*; α(M)=1.392×10^{-6} *20* α(N)=1.065×10^{-7} *15*; α(IPF)=0.0001288 *19*
		1411.3 *1*	100 *6*	1216.41	7/2$^-$	(E2)[a]	2.37×10^{-4}	α(K)=0.0001614 *23*; α(L)=1.658×10^{-5} *24*; α(M)=2.53×10^{-6} *4* α(N)=1.93×10^{-7} *3*; α(IPF)=5.62×10^{-5} *8*
2777.20	13/2$^-$	1306.8 *3*	100	1470.34	9/2$^-$	(E2)[a]	2.42×10^{-4}	α(K)=0.000190 *3*; α(L)=1.95×10^{-5} *3*; α(M)=2.97×10^{-6} *5* α(N)=2.27×10^{-7} *4*; α(IPF)=2.96×10^{-5} *5*
2808.22	13/2$^+$	597.3 *4*	77 *14*	2211.67	11/2$^+$	(M1+E2)[c]	0.00127 *23*	α(K)=0.00113 *21*; α(L)=0.000118 *23*; α(M)=1.8×10^{-5} *4* α(N)=1.37×10^{-6} *25*
		639.0 *4*	25.5 *21*	2169.15	9/2$^{(+)}$	Q		Mult.: Q from γ(θ)(DCO) in ^{40}Ca(^{32}S,3pγ) (2004St23).
		648.6 *2*	45 *4*	2159.54	13/2$^+$			
		1502.4 *4*	100 *21*	1305.85	9/2$^+$	(E2)[a]	2.46×10^{-4}	α(K)=0.0001421 *20*; α(L)=1.458×10^{-5} *21*; α(M)=2.22×10^{-6} *4* α(N)=1.698×10^{-7} *24*; α(IPF)=8.66×10^{-5} *13*
2873.0		2375.6 *10*	100	497.34				
2930.4		716.7 *5*	100	2211.67	11/2$^+$			
3031.0		1956.2 *7*	100 *29*	1075.78				
		2866.5 *5*	23 *6*	164.52	1/2$^-$,3/2$^-$			
		2932.4 *10*	43 *9*	98.01	3/2$^-$			

$^{69}_{33}As_{36}$-7

Adopted Levels, Gammas (continued)

γ(^{69}As) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.	α e	Comments
3045.48	13/2$^-$	268.3 *2*	0.8 *7*	2777.20	13/2$^-$	(M1) @	0.00687	α(K)=0.00612 *9*; α(L)=0.000646 *10*; α(M)=9.85×10^{-5} *14* α(N)=7.49×10^{-6} *11*
		417.8 *4*	2.9 *2*	2627.72	11/2$^-$	(M1+E2) c	0.0034 *11*	α(K)=0.0031 *10*; α(L)=0.00033 *11*; α(M)=5.0×10^{-5} *16* α(N)=3.7×10^{-6} *12*
		734.2 *4*	100 *12*	2311.31	9/2$^-$	(E2) a	8.41×10^{-4}	α(K)=0.000749 *11*; α(L)=7.84×10^{-5} *11*; α(M)=1.195×10^{-5} *17* α(N)=9.04×10^{-7} *13*
		886.0 *2*	22.4 *14*	2159.54	13/2$^+$	(E1) #	2.12×10^{-4}	α(K)=0.000189 *3*; α(L)=1.94×10^{-5} *3*; α(M)=2.95×10^{-6} *5* α(N)=2.25×10^{-7} *4*
3144.4		2069.1 *10*	56 *14*	1075.78				
		3045.9 *10*	100 *14*	98.01	3/2$^-$			
3220.1		3122.0 *7*	100	98.01	3/2$^-$			
3257.14	17/2$^+$	449.0 *4*	<0.1	2808.22	13/2$^+$			
		834.9 f *5*	11.1 d *14*	2421.8				
		1097.6 *2*	100 *1*	2159.54	13/2$^+$	E2	3.11×10^{-4}	α(K)=0.000278 *4*; α(L)=2.87×10^{-5} *4*; α(M)=4.38×10^{-6} *7* α(N)=3.33×10^{-7} *5* B(E2)(W.u.)>4.4 Mult.: Q from γ(θ)(DCO) in ^{40}Ca(^{32}S,3pγ) (2004St23); Δπ=no from linear polarization.
3263.41	15/2$^+$	455.2 *5*	5.8 *16*	2808.22	13/2$^+$	(M1+E2) c	0.0027 *8*	α(K)=0.0024 *7*; α(L)=0.00025 *8*; α(M)=3.8×10^{-5} *11* α(N)=2.9×10^{-6} *8*
		1052.5 *4*	81.6 *21*	2211.67	11/2$^+$	(E2) a	3.43×10^{-4}	α(K)=0.000306 *5*; α(L)=3.17×10^{-5} *5*; α(M)=4.82×10^{-6} *7* α(N)=3.67×10^{-7} *6* B(E2)(W.u.)>8.1
		1103.8 *2*	100 *26*	2159.54	13/2$^+$	(M1+E2) c	2.95×10^{-4} *14*	α(K)=0.000263 *13*; α(L)=2.71×10^{-5} *14*; α(M)=4.13×10^{-6} *21* α(N)=3.15×10^{-7} *15*; α(IPF)=7.4×10^{-7} *13*
3302.2		1088.5 *5*	100	2211.67	11/2$^+$			
3346.5		3181.9 *5*	100 *16*	164.52	1/2$^-$,3/2$^-$			
		3248.7 *7*	94 *16*	98.01	3/2$^-$			
3355.4		1141.7 *6*	100	2211.67	11/2$^+$			
3394.5		3230.0 *5*	100	164.52	1/2$^-$,3/2$^-$			
3418.64	15/2$^-$	373.1 *4*	13 *3*	3045.48	13/2$^-$			
		641.4 *3*	22 *5*	2777.20	13/2$^-$	(M1+E2) c	0.00105 *17*	α(K)=0.00094 *15*; α(L)=9.8×10^{-5} *17*; α(M)=1.50×10^{-5} *25* α(N)=1.14×10^{-6} *18*
		790.9 *2*	100 *18*	2627.72	11/2$^-$	(E2) a	6.91×10^{-4}	α(K)=0.000616 *9*; α(L)=6.43×10^{-5} *9*; α(M)=9.80×10^{-6} *14* α(N)=7.42×10^{-7} *11*
		1218.8 *3*	28 *5*	2199.88	11/2$^-$	(E2) a	2.58×10^{-4}	α(K)=0.000220 *3*; α(L)=2.27×10^{-5} *4*; α(M)=3.46×10^{-6} *5* α(N)=2.64×10^{-7} *4*; α(IPF)=1.143×10^{-5} *17*
		1259.1 *2*	80 *4*	2159.54	13/2$^+$	(E1+M2) b	1.98×10^{-4} *4*	α(K)=0.000101 *4*; α(L)=1.03×10^{-5} *4*; α(M)=1.57×10^{-6} *6* α(N)=1.20×10^{-7} *4*; α(IPF)=8.57×10^{-5} *15*
3468.8		3304.3 *7*	100	164.52	1/2$^-$,3/2$^-$			
3507.35	15/2$^+$	699.1 *3*	<31.2	2808.22	13/2$^+$			

$^{69}_{33}As_{36}$-8

Adopted Levels, Gammas (continued)

γ(^{69}As) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	α[e]	Comments
3507.35	15/2$^+$	1296.4 *4*	100 *12*	2211.67	11/2$^+$	(E2)[a]	2.43×10^{-4}	α(K)=0.000193 *3*; α(L)=1.98×10^{-5} *3*; α(M)=3.02×10^{-6} *5* α(N)=2.31×10^{-7} *4*; α(IPF)=2.72×10^{-5} *4*
		1347.7 *3*	75 *9*	2159.54	13/2$^+$	(M1+E2)[c]	2.29×10^{-4} *11*	α(K)=0.000173 *5*; α(L)=1.78×10^{-5} *6*; α(M)=2.71×10^{-6} *9* α(N)=2.07×10^{-7} *6*; α(IPF)=3.5×10^{-5} *5*
3560.9		516.5 *5*	100	3045.48	13/2$^-$			
3651.5		3487.0 *10*	100	164.52	1/2$^-$,3/2$^-$			
3660.55	17/2$^+$	153.3 *5*	3.6 *2*	3507.35	15/2$^+$	(M1+E2)[c]	0.09 *7*	α(K)=0.08 *6*; α(L)=0.010 *7*; α(M)=0.0015 *11* α(N)=0.00011 *8*
		397.2 *3*	3.8 *2*	3263.41	15/2$^+$	(M1+E2)[c]	0.0040 *14*	α(K)=0.0036 *12*; α(L)=0.00038 *14*; α(M)=5.8×10^{-5} *20* α(N)=4.3×10^{-6} *15*
		403.4 *2*	62 *4*	3257.14	17/2$^+$			
		852.4 *3*	100 *7*	2808.22	13/2$^+$	(E2)[a]	5.70×10^{-4}	α(K)=0.000508 *8*; α(L)=5.30×10^{-5} *8*; α(M)=8.07×10^{-6} *12* α(N)=6.12×10^{-7} *9*
		1501.0 *3*	93 *7*	2159.54	13/2$^+$	(E2)[a]	2.45×10^{-4}	α(K)=0.0001424 *20*; α(L)=1.461×10^{-5} *21*; α(M)=2.23×10^{-6} *4* α(N)=1.701×10^{-7} *24*; α(IPF)=8.61×10^{-5} *13*
3840.39	17/2$^+$	333.1 *3*	33 *10*	3507.35	15/2$^+$	(M1+E2)[c]	0.007 *3*	α(K)=0.0061 *25*; α(L)=0.0007 *3*; α(M)=0.00010 *5* α(N)=7.E−6 *3*
		577.0 *4*	61 *21*	3263.41	15/2$^+$	(M1+E2)[c]	0.0014 *3*	α(K)=0.00124 *24*; α(L)=0.00013 *3*; α(M)=2.0×10^{-5} *4* α(N)=1.5×10^{-6} *3*
		583.2 *4*	<1.75	3257.14	17/2$^+$	(M1)[@]	1.10×10^{-3}	α(K)=0.000980 *14*; α(L)=0.0001016 *15*; α(M)=1.550×10^{-5} *22* α(N)=1.183×10^{-6} *17*
		1032.2 *2*	100 *7*	2808.22	13/2$^+$	(E2)[a]	3.59×10^{-4}	α(K)=0.000320 *5*; α(L)=3.31×10^{-5} *5*; α(M)=5.05×10^{-6} *7* α(N)=3.84×10^{-7} *6*
		1680.8 *6*	33 *10*	2159.54	13/2$^+$	(E2)[a]	2.89×10^{-4}	α(K)=0.0001139 *16*; α(L)=1.166×10^{-5} *17*; α(M)=1.777×10^{-6} *25* α(N)=1.359×10^{-7} *19*; α(IPF)=0.0001614 *23*
3844.73	17/2$^-$	426.1 *3*	1.40 *8*	3418.64	15/2$^-$	(M1+E2)[c]	0.0032 *10*	α(K)=0.0029 *9*; α(L)=0.00031 *10*; α(M)=4.7×10^{-5} *15* α(N)=3.5×10^{-6} *11*
		587.6 *3*	7.1 *5*	3257.14	17/2$^+$	(E1)[#]	5.19×10^{-4}	α(K)=0.000463 *7*; α(L)=4.77×10^{-5} *7*; α(M)=7.26×10^{-6} *11* α(N)=5.52×10^{-7} *8*
		799.2 *3*	100 *10*	3045.48	13/2$^-$	(E2)[a]	6.72×10^{-4}	α(K)=0.000599 *9*; α(L)=6.26×10^{-5} *9*; α(M)=9.53×10^{-6} *14* α(N)=7.23×10^{-7} *11*
		1067.5 *2*	74 *7*	2777.20	13/2$^-$	(E2)[a]	3.32×10^{-4}	α(K)=0.000296 *5*; α(L)=3.06×10^{-5} *5*; α(M)=4.67×10^{-6} *7* α(N)=3.55×10^{-7} *5*
3947.90	15/2$^-$	902.3 *3*	32.2 *16*	3045.48	13/2$^-$			
		1748.0 *4*	100 *13*	2199.88	11/2$^-$	(E2)[a]	3.10×10^{-4}	α(K)=0.0001056 *15*; α(L)=1.081×10^{-5} *16*; α(M)=1.647×10^{-6} *23* α(N)=1.260×10^{-7} *18*; α(IPF)=0.000191 *3*
		1788.7 *4*	84 *10*	2159.54	13/2$^+$	(E1)[#]	5.37×10^{-4}	α(K)=5.47×10^{-5} *8*; α(L)=5.56×10^{-6} *8*; α(M)=8.47×10^{-7} *12* α(N)=6.48×10^{-8} *9*; α(IPF)=0.000476 *7*
3999.5		3835.0 *7*	100	164.52	1/2$^-$,3/2$^-$			
4148.38	17/2$^+$	641.1 *2*	100 *8*	3507.35	15/2$^+$	(M1+E2)[c]	0.00106 *17*	α(K)=0.00094 *15*; α(L)=9.8×10^{-5} *17*; α(M)=1.50×10^{-5} *25* α(N)=1.14×10^{-6} *18*

$^{69}_{33}As_{36}$-9

Adopted Levels, Gammas (continued)

γ(^{69}As) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.	α e	Comments
4148.38	17/2$^+$	885.0 *4*	56 *8*	3263.41	15/2$^+$	(M1+E2) c	0.00048 *4*	α(K)=0.00043 *4*; α(L)=4.4×10^{-5} *4*; α(M)=6.8×10^{-6} *6* α(N)=5.2×10^{-7} *5*
		891.2 *2*	<40	3257.14	17/2$^+$			
4306.1	(19/2$^+$)	465.9 *4*	<41.7	3840.39	17/2$^+$			
		645.7 *3*	50 *12*	3660.55	17/2$^+$			
		1042.9 *3*	100 *21*	3263.41	15/2$^+$			
4356.34	19/2$^-$	937.7 *2*	96 *5*	3418.64	15/2$^-$	(E2) a	4.50×10^{-4}	α(K)=0.000402 *6*; α(L)=4.17×10^{-5} *6*; α(M)=6.36×10^{-6} *9* α(N)=4.83×10^{-7} *7*
		1099.2 *5*	100 *11*	3257.14	17/2$^+$			
4461.33	21/2$^+$	1204.2 *1*	100	3257.14	17/2$^+$	(E2) a	2.62×10^{-4}	α(K)=0.000226 *4*; α(L)=2.33×10^{-5} *4*; α(M)=3.55×10^{-6} *5* α(N)=2.71×10^{-7} *4*; α(IPF)=9.10×10^{-6} *13* B(E2)(W.u.)=2.5 *4*
4488.87	19/2$^-$	340.5 *3*	50 *6*	4148.38	17/2$^+$	(E1) #	0.00208	α(K)=0.00186 *3*; α(L)=0.000192 *3*; α(M)=2.92×10^{-5} *5* α(N)=2.21×10^{-6} *4*
		541.0 *3*	13.8 *19*	3947.90	15/2$^-$	(E2) a	0.00200	α(K)=0.00178 *3*; α(L)=0.000189 *3*; α(M)=2.88×10^{-5} *4* α(N)=2.16×10^{-6} *3*
		644.1 *4*	<6.2	3844.73	17/2$^-$			
		648.5 *2*	88 *12*	3840.39	17/2$^+$	(E1) #	4.13×10^{-4}	α(K)=0.000369 *6*; α(L)=3.79×10^{-5} *6*; α(M)=5.77×10^{-6} *8* α(N)=4.40×10^{-7} *7*
		828.3 *4*	50 *6*	3660.55	17/2$^+$	(E1) #	2.43×10^{-4}	α(K)=0.000217 *3*; α(L)=2.22×10^{-5} *4*; α(M)=3.39×10^{-6} *5* α(N)=2.58×10^{-7} *4*
		1070.2 *3*	100 *6*	3418.64	15/2$^-$	(E2) a	3.30×10^{-4}	α(K)=0.000294 *5*; α(L)=3.04×10^{-5} *5*; α(M)=4.64×10^{-6} *7* α(N)=3.53×10^{-7} *5*
		1231.7 *5*	7.5 *12*	3257.14	17/2$^+$	(E1) #	1.81×10^{-4}	α(K)=0.0001015 *15*; α(L)=1.035×10^{-5} *15*; α(M)=1.577×10^{-6} *23* α(N)=1.206×10^{-7} *17*; α(IPF)=6.79×10^{-5} *10*
4554.14	19/2$^-$	405.8 *3*	72 *17*	4148.38	17/2$^+$			
		606.3 *3*	86 *25*	3947.90	15/2$^-$			
		709.4 *1*	5.9 *14*	3844.73	17/2$^-$	(M1+E2) c	0.00082 *11*	α(K)=0.00073 *10*; α(L)=7.6×10^{-5} *11*; α(M)=1.16×10^{-5} *16* α(N)=8.8×10^{-7} *12*
		893.6 *3*	83 *14*	3660.55	17/2$^+$	(E1) #	2.08×10^{-4}	α(K)=0.000186 *3*; α(L)=1.90×10^{-5} *3*; α(M)=2.90×10^{-6} *4* α(N)=2.21×10^{-7} *4*
		1135.5 *2*	100 *41*	3418.64	15/2$^-$	(E2) a	2.90×10^{-4}	α(K)=0.000257 *4*; α(L)=2.66×10^{-5} *4*; α(M)=4.05×10^{-6} *6* α(N)=3.09×10^{-7} *5*; α(IPF)=2.13×10^{-6} *4*
		1297.0 *4*	48 *14*	3257.14	17/2$^+$	(E1) #	2.16×10^{-4}	α(K)=9.27×10^{-5} *13*; α(L)=9.45×10^{-6} *14*; α(M)=1.439×10^{-6} *21* α(N)=1.101×10^{-7} *16*; α(IPF)=0.0001123 *16*
4653.04	21/2$^-$	808.3 *2*	100	3844.73	17/2$^-$	(E2) a	6.53×10^{-4}	α(K)=0.000582 *9*; α(L)=6.07×10^{-5} *9*; α(M)=9.25×10^{-6} *13* α(N)=7.02×10^{-7} *10*
4713.3		565.1 *5*	100	4148.38	17/2$^+$			
4847.34	21/2$^-$	194.3 *3*	4.8 *9*	4653.04	21/2$^-$	(M1) @	0.01550	α(K)=0.01379 *20*; α(L)=0.001468 *22*; α(M)=0.000224 *4* α(N)=1.698×10^{-5} *25*

$^{69}_{33}As_{36}$-10

Adopted Levels, Gammas (continued)

γ(^{69}As) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.	α e	Comments
4847.34	21/2⁻	1002.6 *5*	100 *9*	3844.73	17/2⁻	(E2) a	3.84×10⁻⁴	α(K)=0.000343 *5*; α(L)=3.55×10⁻⁵ *5*; α(M)=5.41×10⁻⁶ *8* α(N)=4.11×10⁻⁷ *6*
4880.3?		224.8 f *5*	100 d	4653.04	21/2⁻			
4929.53	21/2⁺	468.2 *1*	22.5 *17*	4461.33	21/2⁺			
		1672.4 *6*	100 *8*	3257.14	17/2⁺	(E2) a	2.86×10⁻⁴	α(K)=0.0001150 *17*; α(L)=1.178×10⁻⁵ *17*; α(M)=1.79×10⁻⁶ *3* α(N)=1.372×10⁻⁷ *20*; α(IPF)=0.0001577 *23*
5150.0		436.7 *3*	100	4713.3				
5152.4		598.3 *2*	100	4554.14	19/2⁻			
5170.9		964.5 *5*	100	4206.4				
5193.33	25/2⁺	263.8 *2*	0.86 *17*	4929.53	21/2⁺			
		732.1 *4*	100 *5*	4461.33	21/2⁺	(E2) a	8.47×10⁻⁴	α(K)=0.000755 *11*; α(L)=7.91×10⁻⁵ *12*; α(M)=1.204×10⁻⁵ *17* α(N)=9.11×10⁻⁷ *13* B(E2)(W.u.)=23 *4*
5245.75	23/2⁻	398.4 *3*	40 *3*	4847.34	21/2⁻	(M1+E2) c	0.0040 *14*	α(K)=0.0035 *12*; α(L)=0.00038 *13*; α(M)=5.7×10⁻⁵ *20* α(N)=4.3×10⁻⁶ *15*
		592.7 *2*	100 *7*	4653.04	21/2⁻	(M1+E2) c	0.00129 *24*	α(K)=0.00115 *21*; α(L)=0.000121 *23*; α(M)=1.8×10⁻⁵ *4* α(N)=1.4×10⁻⁶ *3*
		691.6 *4*	45 *3*	4554.14	19/2⁻	(E2) a	9.88×10⁻⁴	α(K)=0.000881 *13*; α(L)=9.24×10⁻⁵ *13*; α(M)=1.408×10⁻⁵ *20* α(N)=1.064×10⁻⁶ *15*
		756.9 *2*	48.2 *3*	4488.87	19/2⁻	(E2) a	7.75×10⁻⁴	α(K)=0.000691 *10*; α(L)=7.23×10⁻⁵ *11*; α(M)=1.101×10⁻⁵ *16* α(N)=8.34×10⁻⁷ *12*
5452.5	23/2⁻	1096.2 *5*	100	4356.34	19/2⁻	(E2) a	3.12×10⁻⁴	α(K)=0.000279 *4*; α(L)=2.88×10⁻⁵ *4*; α(M)=4.39×10⁻⁶ *7* α(N)=3.34×10⁻⁷ *5* E_γ: 19/2⁻ to 15/2⁻ listed in table I of 2004St23 seems a misprint; shown as 23/2⁻ to 19/2⁻ in authors′ figure 3.
5477.4?		1016.1 f *5*	100 d	4461.33	21/2⁺			
5679.9		509.0 *5*	100	5170.9				
5711.20	23/2⁺	1249.9 *3*	100	4461.33	21/2⁺	(M1+E2) c	2.41×10⁻⁴ *10*	α(K)=0.000202 *7*; α(L)=2.08×10⁻⁵ *8*; α(M)=3.17×10⁻⁶ *12* α(N)=2.42×10⁻⁷ *9*; α(IPF)=1.50×10⁻⁵ *22*
5918.4	25/2⁻	672.7 *5*	7.2 *5*	5245.75	23/2⁻	(M1+E2) c	0.00093 *14*	α(K)=0.00083 *12*; α(L)=8.7×10⁻⁵ *13*; α(M)=1.32×10⁻⁵ *20* α(N)=1.01×10⁻⁶ *15*
		1265.4 *3*	100 *8*	4653.04	21/2⁻	(E2) a	2.48×10⁻⁴	α(K)=0.000203 *3*; α(L)=2.09×10⁻⁵ *3*; α(M)=3.19×10⁻⁶ *5* α(N)=2.43×10⁻⁷ *4*; α(IPF)=2.04×10⁻⁵ *3*
5941.14	25/2⁺	1479.8 *1*	100	4461.33	21/2⁺	(E2) a	2.42×10⁻⁴	α(K)=0.0001465 *21*; α(L)=1.504×10⁻⁵ *21*; α(M)=2.29×10⁻⁶ *4* α(N)=1.751×10⁻⁷ *25*; α(IPF)=7.84×10⁻⁵ *11*
6089.3	25/2⁻	843.6 *3*	26.8 *19*	5245.75	23/2⁻			
		1242.0 *4*	100 *6*	4847.34	21/2⁻	(E2) a	2.52×10⁻⁴	α(K)=0.000211 *3*; α(L)=2.18×10⁻⁵ *3*; α(M)=3.32×10⁻⁶ *5* α(N)=2.53×10⁻⁷ *4*; α(IPF)=1.562×10⁻⁵ *24*
6359.7	29/2⁺	1166.4 *5*	100	5193.33	25/2⁺	(E2) a	2.76×10⁻⁴	α(K)=0.000242 *4*; α(L)=2.50×10⁻⁵ *4*; α(M)=3.81×10⁻⁶ *6* α(N)=2.91×10⁻⁷ *4*; α(IPF)=4.44×10⁻⁶ *8*
6369.42	29/2⁺	1176.1 *2*	100	5193.33	25/2⁺	(E2) a	2.72×10⁻⁴	α(K)=0.000238 *4*; α(L)=2.46×10⁻⁵ *4*; α(M)=3.74×10⁻⁶ *6* α(N)=2.85×10⁻⁷ *4*; α(IPF)=5.44×10⁻⁶ *8*

$^{69}_{33}As_{36}$-11

Adopted Levels, Gammas (continued)

γ(^{69}As) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.	α e	Comments
6571.6	27/2⁻	1325.9 *4*	100	5245.75	23/2⁻	(E2) a	2.40×10⁻⁴	α(K)=0.000184 *3*; α(L)=1.89×10⁻⁵ *3*; α(M)=2.88×10⁻⁶ *4* α(N)=2.20×10⁻⁷ *3*; α(IPF)=3.41×10⁻⁵ *5*
6742.2	27/2⁻	1289.6 *3*	100	5452.5	23/2⁻	(E2) a	2.44×10⁻⁴	α(K)=0.000195 *3*; α(L)=2.01×10⁻⁵ *3*; α(M)=3.06×10⁻⁶ *5* α(N)=2.33×10⁻⁷ *4*; α(IPF)=2.56×10⁻⁵ *4*
6847.32	25/2⁺	477.9 *3*	10 *3*	6369.42	29/2⁺	(E2) a	0.00293	α(K)=0.00261 *4*; α(L)=0.000278 *4*; α(M)=4.24×10⁻⁵ *6* α(N)=3.17×10⁻⁶ *5*
		1136.2 *5*	100 *25*	5711.20	23/2⁺	(M1+E2) c	2.78×10⁻⁴ *13*	α(K)=0.000247 *11*; α(L)=2.54×10⁻⁵ *12*; α(M)=3.88×10⁻⁶ *18* α(N)=2.96×10⁻⁷ *13*; α(IPF)=1.9×10⁻⁶ *3*
7446.6	27/2⁺	1505.5 *6*	100 *12*	5941.14	25/2⁺	(E2) a	2.46×10⁻⁴	α(K)=0.0001415 *20*; α(L)=1.452×10⁻⁵ *21*; α(M)=2.21×10⁻⁶ *4* α(N)=1.691×10⁻⁷ *24*; α(IPF)=8.78×10⁻⁵ *13*
		1735.4 *5*	4.1 *5*	5711.20	23/2⁺			
7448.5	29/2⁻	1359.1 *3*	39 *3*	6089.3	25/2⁻			
		1530.0 *4*	100 *7*	5918.4	25/2⁻	(E2) a	2.51×10⁻⁴	α(K)=0.0001370 *20*; α(L)=1.405×10⁻⁵ *20*; α(M)=2.14×10⁻⁶ *3* α(N)=1.637×10⁻⁷ *23*; α(IPF)=9.72×10⁻⁵ *14*
7519.6	29/2⁻	1430.3 *5*	100	6089.3	25/2⁻	(E2) a	2.38×10⁻⁴	α(K)=0.0001570 *22*; α(L)=1.613×10⁻⁵ *23*; α(M)=2.46×10⁻⁶ *4* α(N)=1.88×10⁻⁷ *3*; α(IPF)=6.19×10⁻⁵ *9*
7614.7	29/2⁻	1696.2 *3*	100	5918.4	25/2⁻	(E2) a	2.93×10⁻⁴	α(K)=0.0001119 *16*; α(L)=1.146×10⁻⁵ *16*; α(M)=1.746×10⁻⁶ *25* α(N)=1.335×10⁻⁷ *19*; α(IPF)=0.0001682 *24*
7627.3	29/2⁺	1686.2 *3*	100	5941.14	25/2⁺	(E2) a	2.90×10⁻⁴	α(K)=0.0001132 *16*; α(L)=1.159×10⁻⁵ *17*; α(M)=1.766×10⁻⁶ *25* α(N)=1.350×10⁻⁷ *19*; α(IPF)=0.0001638 *23*
7689.92	27/2⁺	842.6 *2*	36 *8*	6847.32	25/2⁺	(M1+E2) c	0.00054 *5*	α(K)=0.00048 *5*; α(L)=5.0×10⁻⁵ *5*; α(M)=7.6×10⁻⁶ *8* α(N)=5.8×10⁻⁷ *6*
		1320.5 *2*	100 *25*	6369.42	29/2⁺	(M1+E2) c	2.31×10⁻⁴ *10*	α(K)=0.000181 *6*; α(L)=1.85×10⁻⁵ *6*; α(M)=2.83×10⁻⁶ *10* α(N)=2.16×10⁻⁷ *7*; α(IPF)=2.9×10⁻⁵ *4*
7716.8	33/2⁺	1347.4 *3*	100 *6*	6369.42	29/2⁺	(E2) a	2.38×10⁻⁴	α(K)=0.0001777 *25*; α(L)=1.83×10⁻⁵ *3*; α(M)=2.79×10⁻⁶ *4* α(N)=2.13×10⁻⁷ *3*; α(IPF)=3.93×10⁻⁵ *6*
		1357.1 *2*	84 *4*	6359.7	29/2⁺	(E2) a	2.38×10⁻⁴	α(K)=0.0001751 *25*; α(L)=1.80×10⁻⁵ *3*; α(M)=2.74×10⁻⁶ *4* α(N)=2.09×10⁻⁷ *3*; α(IPF)=4.17×10⁻⁵ *6*
7896.6	33/2⁺	1527.2 *4*	100	6369.42	29/2⁺	(E2) a	2.50×10⁻⁴	α(K)=0.0001375 *20*; α(L)=1.411×10⁻⁵ *20*; α(M)=2.15×10⁻⁶ *3* α(N)=1.643×10⁻⁷ *23*; α(IPF)=9.61×10⁻⁵ *14*
8142.9	31/2⁻	1571.3 *5*	100	6571.6	27/2⁻	(E2) a	2.60×10⁻⁴	α(K)=0.0001300 *19*; α(L)=1.332×10⁻⁵ *19*; α(M)=2.03×10⁻⁶ *3* α(N)=1.552×10⁻⁷ *22*; α(IPF)=0.0001140 *17*
8186.0	31/2⁻	1443.8 *6*	100	6742.2	27/2⁻	(E2) a	2.39×10⁻⁴	α(K)=0.0001541 *22*; α(L)=1.582×10⁻⁵ *23*; α(M)=2.41×10⁻⁶ *4* α(N)=1.84×10⁻⁷ *3*; α(IPF)=6.62×10⁻⁵ *10*
8382.4	29/2⁺	692.5 *2*	40 *7*	7689.92	27/2⁺	(M1+E2) c	0.00087 *12*	α(K)=0.00077 *11*; α(L)=8.1×10⁻⁵ *12*; α(M)=1.23×10⁻⁵ *18* α(N)=9.3×10⁻⁷ *13*
		1535.1 *5*	100 *25*	6847.32	25/2⁺	(E2) a	2.52×10⁻⁴	α(K)=0.0001361 *19*; α(L)=1.396×10⁻⁵ *20*; α(M)=2.13×10⁻⁶ *3* α(N)=1.626×10⁻⁷ *23*; α(IPF)=9.92×10⁻⁵ *14*
8455.42	(29/2⁺)	765.5 *3*	15 *3*	7689.92	27/2⁺			
		1608.1 *3*	33 *10*	6847.32	25/2⁺			
		2095.7 *7*	100 *25*	6359.7	29/2⁺			
8641.7	33/2⁻	1027.0 *3*	38 *11*	7614.7	29/2⁻			

$^{69}_{33}As_{36}$-12

Adopted Levels, Gammas (continued)

γ(^{69}As) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [†]	E_f	J_f^π	Mult.	α [e]	Comments
8641.7	33/2⁻	1193.2 *4*	100 *7*	7448.5	29/2⁻	(E2) [a]	2.66×10⁻⁴	α(K)=0.000231 *4*; α(L)=2.38×10⁻⁵ *4*; α(M)=3.62×10⁻⁶ *5* α(N)=2.76×10⁻⁷ *4*; α(IPF)=7.54×10⁻⁶ *12*
9095.5	(33/2⁻)	1575.9 *4*	100	7519.6	29/2⁻			
9393.1	35/2⁻	1250.2 *5*	100	8142.9	31/2⁻	(E2) [a]	2.51×10⁻⁴	α(K)=0.000208 *3*; α(L)=2.15×10⁻⁵ *3*; α(M)=3.27×10⁻⁶ *5* α(N)=2.50×10⁻⁷ *4*; α(IPF)=1.72×10⁻⁵ *3*
9472.2	37/2⁺	1755.4 *7*	100	7716.8	33/2⁺	(E2) [a]	3.12×10⁻⁴	α(K)=0.0001048 *15*; α(L)=1.072×10⁻⁵ *15*; α(M)=1.633×10⁻⁶ *23* α(N)=1.249×10⁻⁷ *18*; α(IPF)=0.000195 *3*
9738.7	35/2⁻	1552.7 *3*	100	8186.0	31/2⁻	(E2) [a]	2.55×10⁻⁴	α(K)=0.0001331 *19*; α(L)=1.364×10⁻⁵ *20*; α(M)=2.08×10⁻⁶ *3* α(N)=1.589×10⁻⁷ *23*; α(IPF)=0.0001063 *15*
9819.4	37/2⁺	1922.8 *6*	100	7896.6	33/2⁺	(E2) [a]	3.72×10⁻⁴	α(K)=8.83×10⁻⁵ *13*; α(L)=9.02×10⁻⁶ *13*; α(M)=1.374×10⁻⁶ *20* α(N)=1.052×10⁻⁷ *15*; α(IPF)=0.000273 *4*
9985.8	37/2⁻	1344.2 *5*	100	8641.7	33/2⁻	(E2) [a]	2.38×10⁻⁴	α(K)=0.000179 *3*; α(L)=1.84×10⁻⁵ *3*; α(M)=2.80×10⁻⁶ *4* α(N)=2.14×10⁻⁷ *3*; α(IPF)=3.85×10⁻⁵ *6*
10097.0	(33/2⁺)	1641.6 *4*	100	8455.42	(29/2⁺)			E_γ: (29/2⁺) to (25/2⁺) listed in table I of 2004St23 seems a misprint; shown as (33/2⁺) to (29/2⁺) in authors′ figure 3.
10795.88	(37/2⁻)	1700.4 *4*	100	9095.5	(33/2⁻)			
11180.4	39/2⁻	1787.3 *3*	100	9393.1	35/2⁻	(E2) [a]	3.22×10⁻⁴	α(K)=0.0001012 *15*; α(L)=1.035×10⁻⁵ *15*; α(M)=1.578×10⁻⁶ *22* α(N)=1.207×10⁻⁷ *17*; α(IPF)=0.000209 *3*
11434.8	39/2⁻	1696.1 *6*	100	9738.7	35/2⁻	(E2) [a]	2.93×10⁻⁴	α(K)=0.0001119 *16*; α(L)=1.146×10⁻⁵ *16*; α(M)=1.746×10⁻⁶ *25* α(N)=1.335×10⁻⁷ *19*; α(IPF)=0.0001682 *24*
11551.9	41/2⁻	1566.1 *5*	100	9985.8	37/2⁻	(E2) [a]	2.58×10⁻⁴	α(K)=0.0001308 *19*; α(L)=1.341×10⁻⁵ *19*; α(M)=2.04×10⁻⁶ *3* α(N)=1.562×10⁻⁷ *22*; α(IPF)=0.0001119 *16*
11977.3	41/2⁺	2157.8 *4*	100	9819.4	37/2⁺	(E2) [a]	4.67×10⁻⁴	α(K)=7.15×10⁻⁵ *10*; α(L)=7.30×10⁻⁶ *11*; α(M)=1.112×10⁻⁶ *16* α(N)=8.52×10⁻⁸ *12*; α(IPF)=0.000387 *6*
12677.3	(41/2⁻)	1881.4 *2*	100	10795.88	(37/2⁻)			
13325.2	(43/2⁻)	1890.4 *3*	100	11434.8	39/2⁻			
13546.0	45/2⁻	1994.0 *2*	100	11551.9	41/2⁻	(E2) [a]	3.99×10⁻⁴	α(K)=8.25×10⁻⁵ *12*; α(L)=8.43×10⁻⁶ *12*; α(M)=1.284×10⁻⁶ *18* α(N)=9.83×10⁻⁸ *14*; α(IPF)=0.000307 *5*
13871.6	(45/2⁺)	1894.3 *4*	100	11977.3	41/2⁺			
14567.1	(45/2⁺)	2589.8 *3*	100	11977.3	41/2⁺			
15765.1	(49/2⁺)	1893.5 *5*	100	13871.6	(45/2⁺)			
16005.8	(49/2⁻)	2459.8 *3*	100	13546.0	45/2⁻			
18180.8	(53/2⁺)	2415.6 *2*	100	15765.1	(49/2⁺)			

[†] Extensive level schemes have been proposed by 2004St23 using the reaction ^{40}Ca(^{32}S,3pγ) and by 2009Ba30 using ^{58}Ni(^{14}N,2pnγ); however, there is little overlap in the levels proposed, and discrepancies occur in many of the gamma energies and branching ratios for those levels that are common in the two works. Above the 1306 level, 2009Ba30 propose 27 levels up to 6369 while 2004St23 propose 40 levels in this same interval. Only 12 of these levels, including 6369 are common to the two works. The evaluator has chosen to adopt the energies and branchings from 2004St23 where available. For levels reported in both works, transitions reported 2009Ba30 but not seen by 2004St23 are included, but are marked as having an uncertain placement.

[‡] From α(K)exp in ^{69}Se ε decay which is consistent with multi= E1 or M1. Probable π (98 level)=− requires Δπ=no.

$^{69}_{33}As_{36}$-13

Adopted Levels, Gammas (continued)

$\gamma(^{69}As)$ (continued)

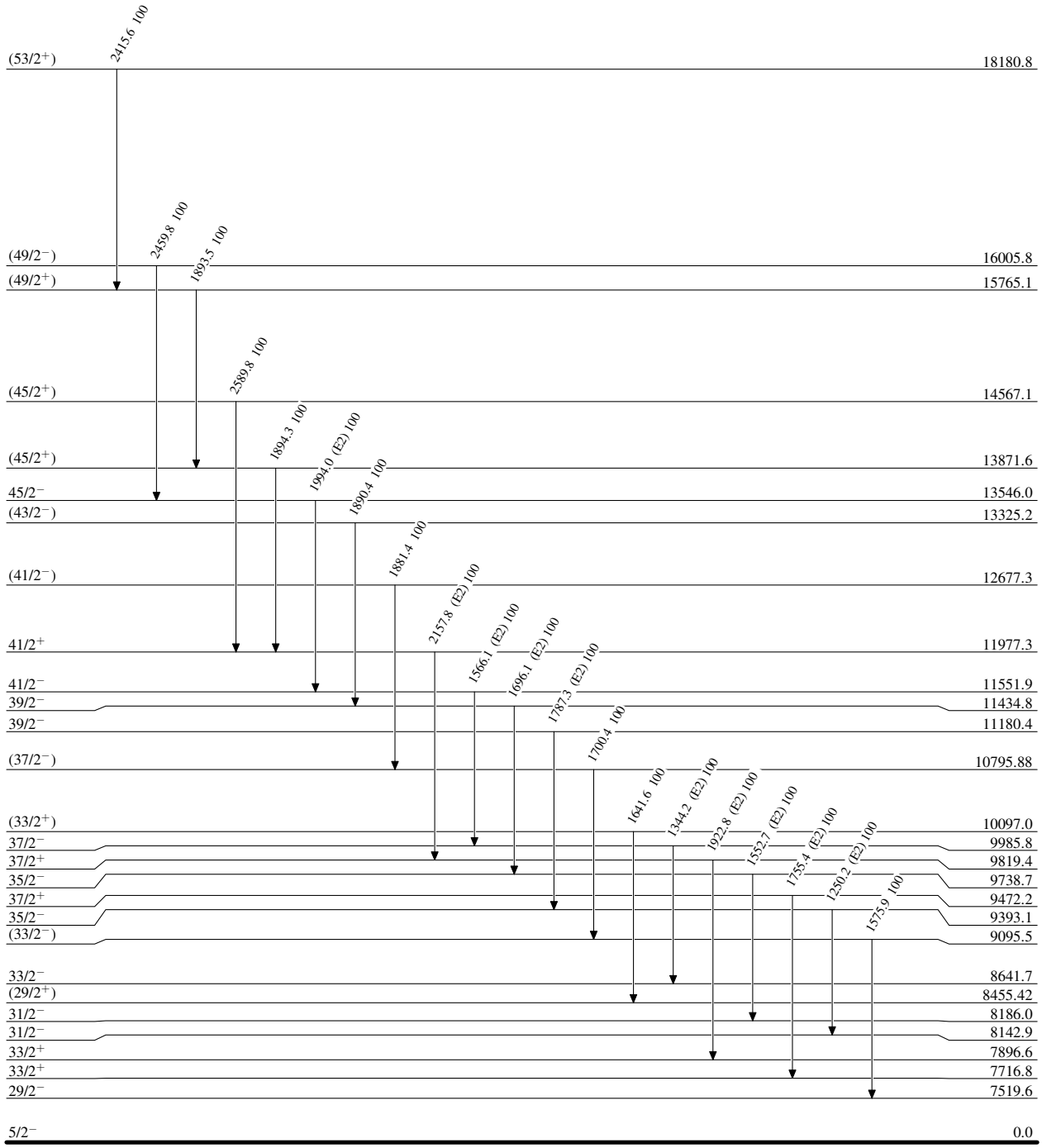
D from $\gamma(\theta)$(DCO) in $^{40}Ca(^{32}S,3p\gamma)$ (2004St23); $\Delta\pi$=yes from level scheme.
@ D from $\gamma(\theta)$(DCO) in $^{40}Ca(^{32}S,3p\gamma)$ (2004St23); $\Delta\pi$=no from level scheme.
& Q from $\gamma(\theta)$(DCO) in $^{40}Ca(^{32}S,3p\gamma)$ (2004St23); $\Delta\pi$=yes from level scheme.
a Q from $\gamma(\theta)$(DCO) in $^{40}Ca(^{32}S,3p\gamma)$ (2004St23); $\Delta\pi$=no from level scheme.
b D+Q from $\gamma(\theta)$(DCO) in $^{40}Ca(^{32}S,3p\gamma)$ (2004St23); $\Delta\pi$=yes from level scheme.
c D+Q from $\gamma(\theta)$(DCO) in $^{40}Ca(^{32}S,3p\gamma)$ (2004St23); $\Delta\pi$=no from level scheme.
d From 2009Ba30. Not seen by 2004St23.
e Additional information 40.
f Placement of transition in the level scheme is uncertain.

$^{69}_{33}As_{36}$-14

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

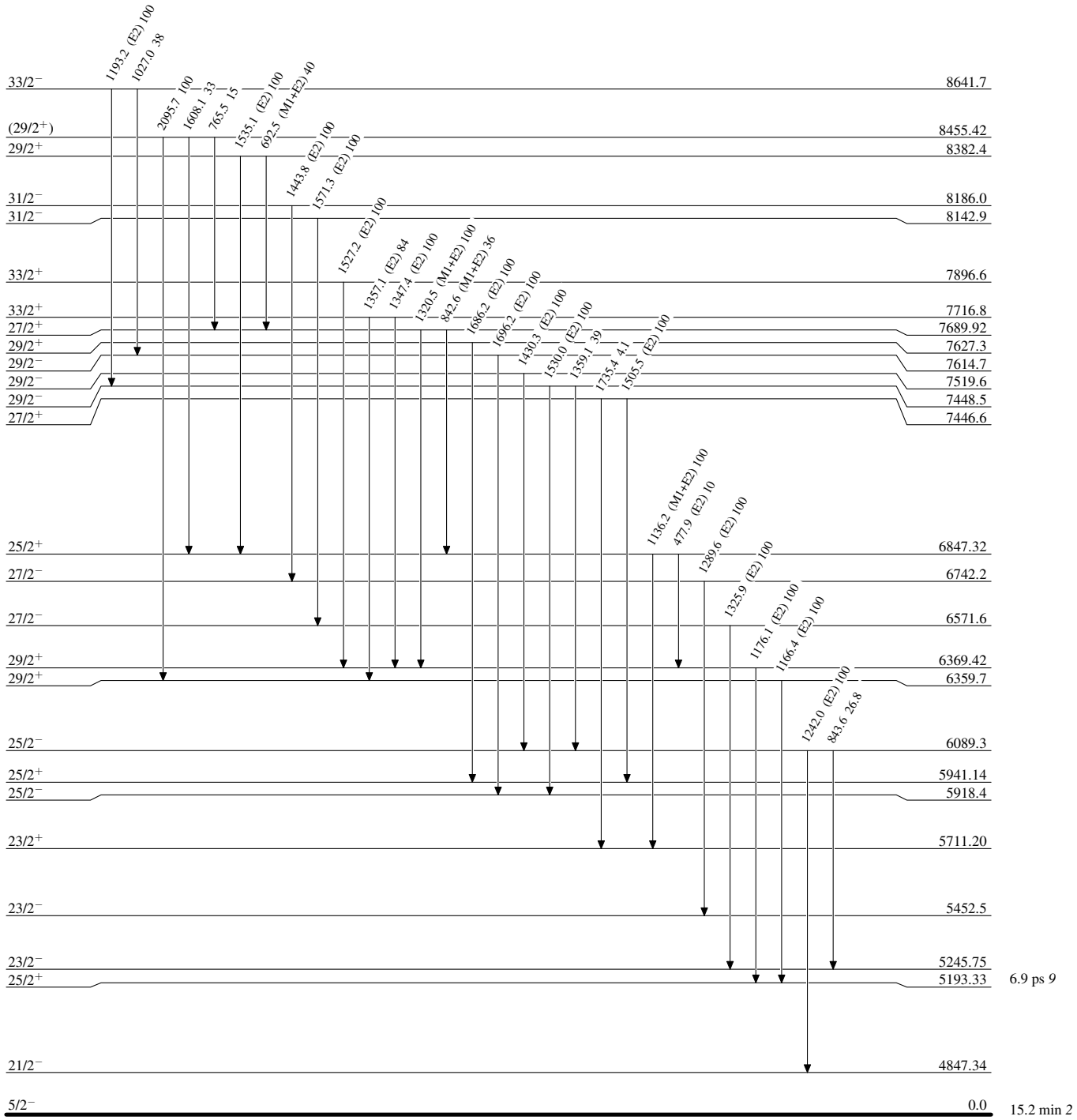


$^{69}_{33}As_{36}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{69}_{33}As_{36}$

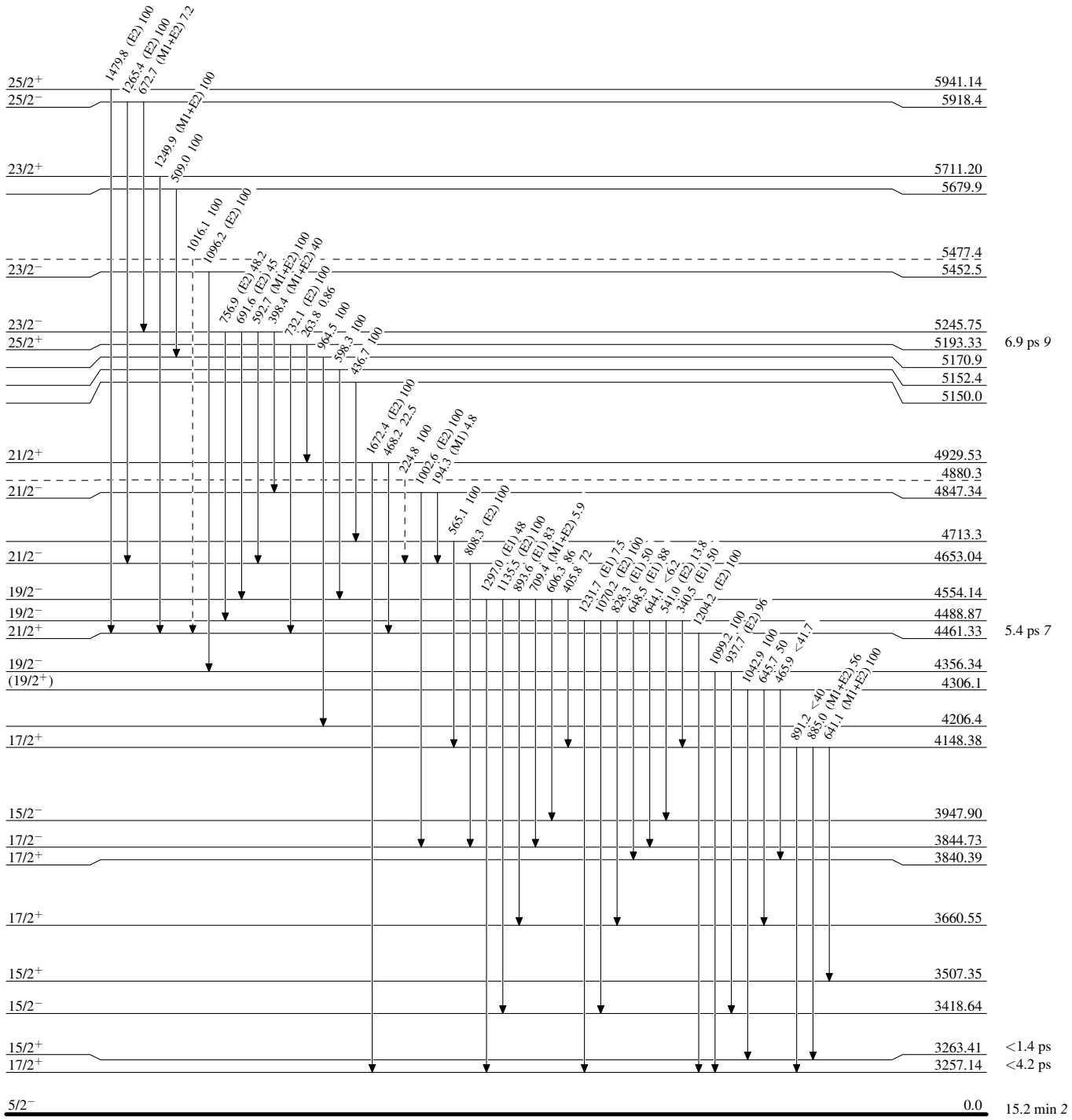
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{69}_{33}As_{36}$

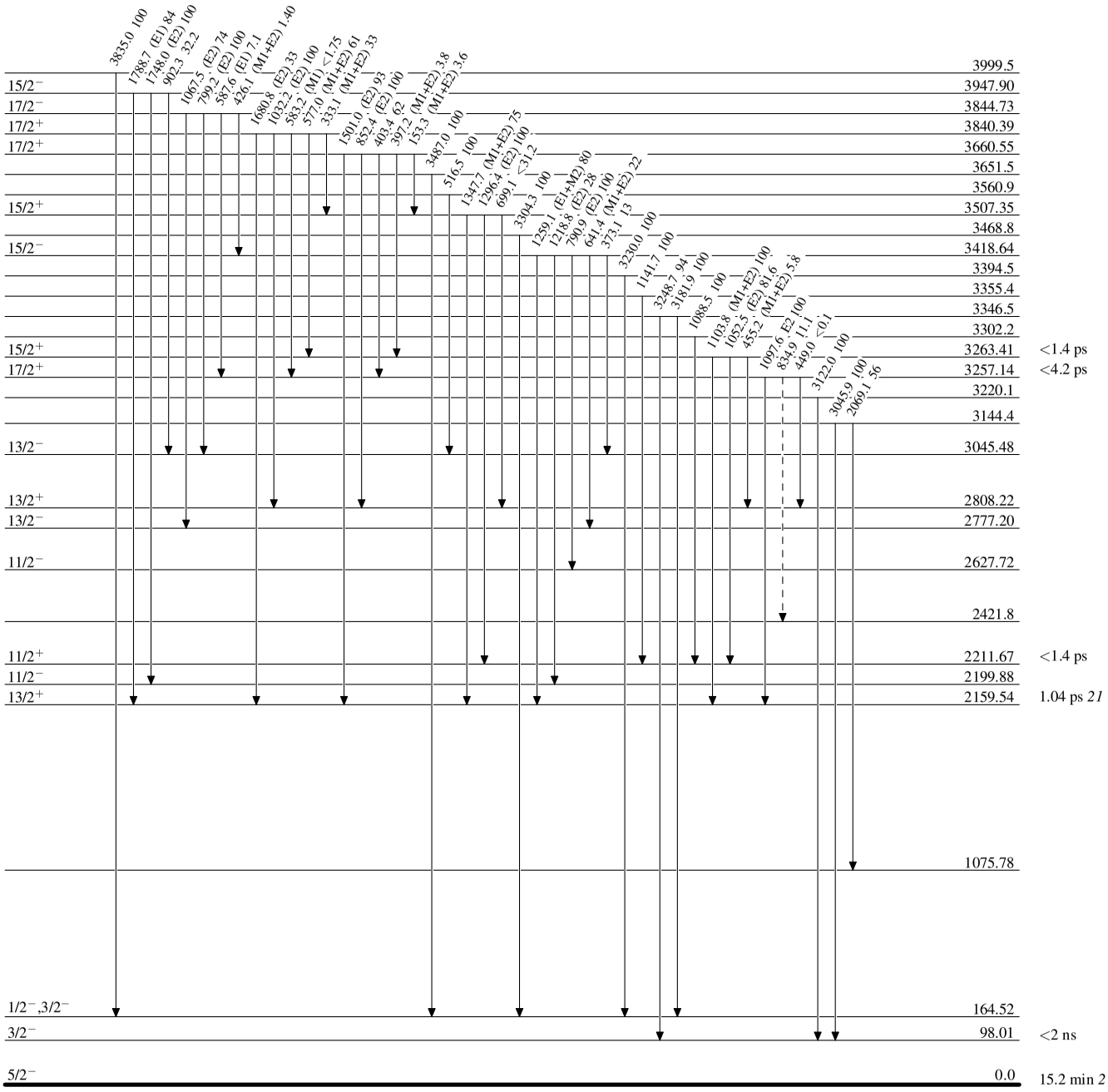
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{69}_{33}As_{36}$

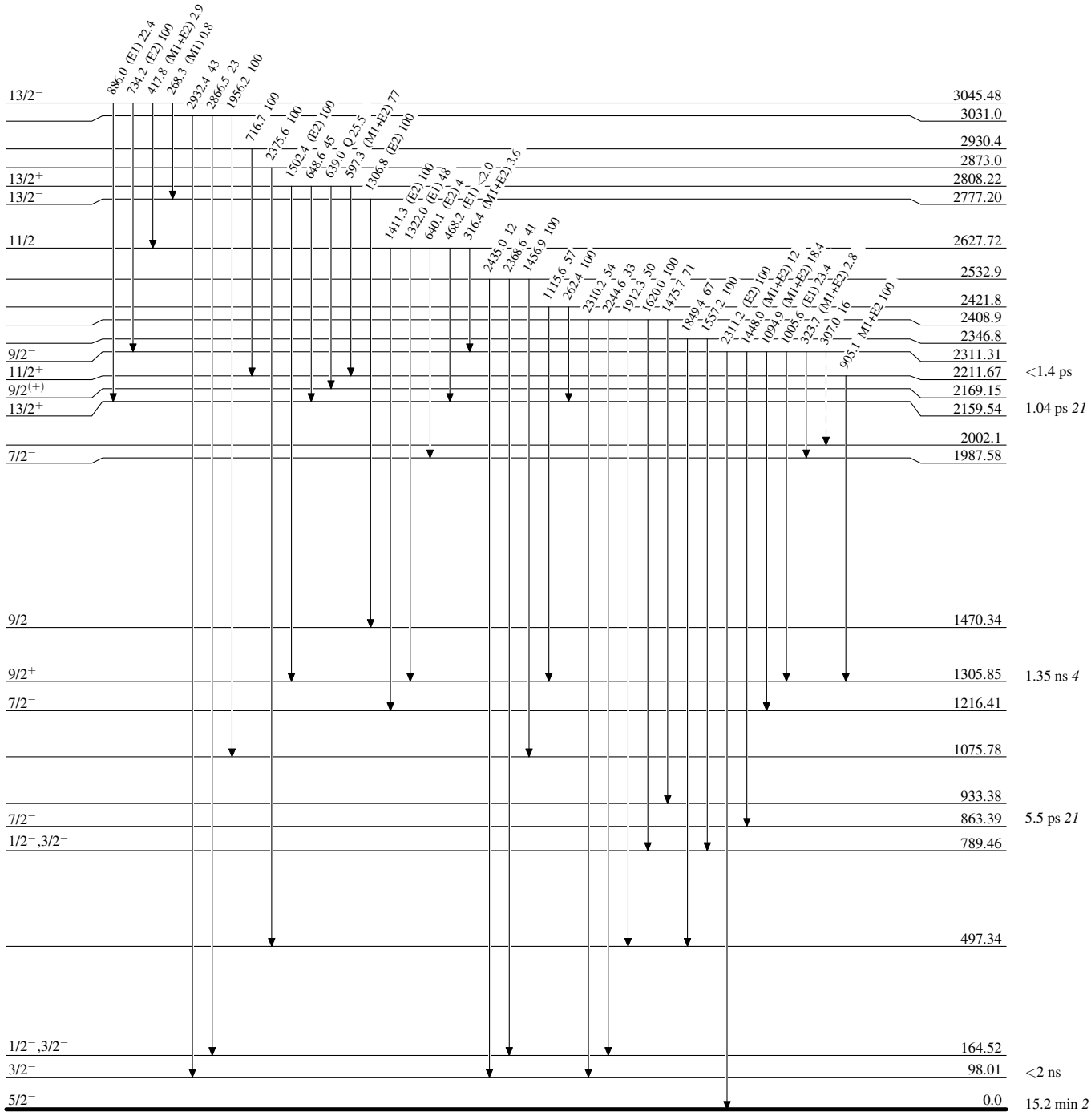
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

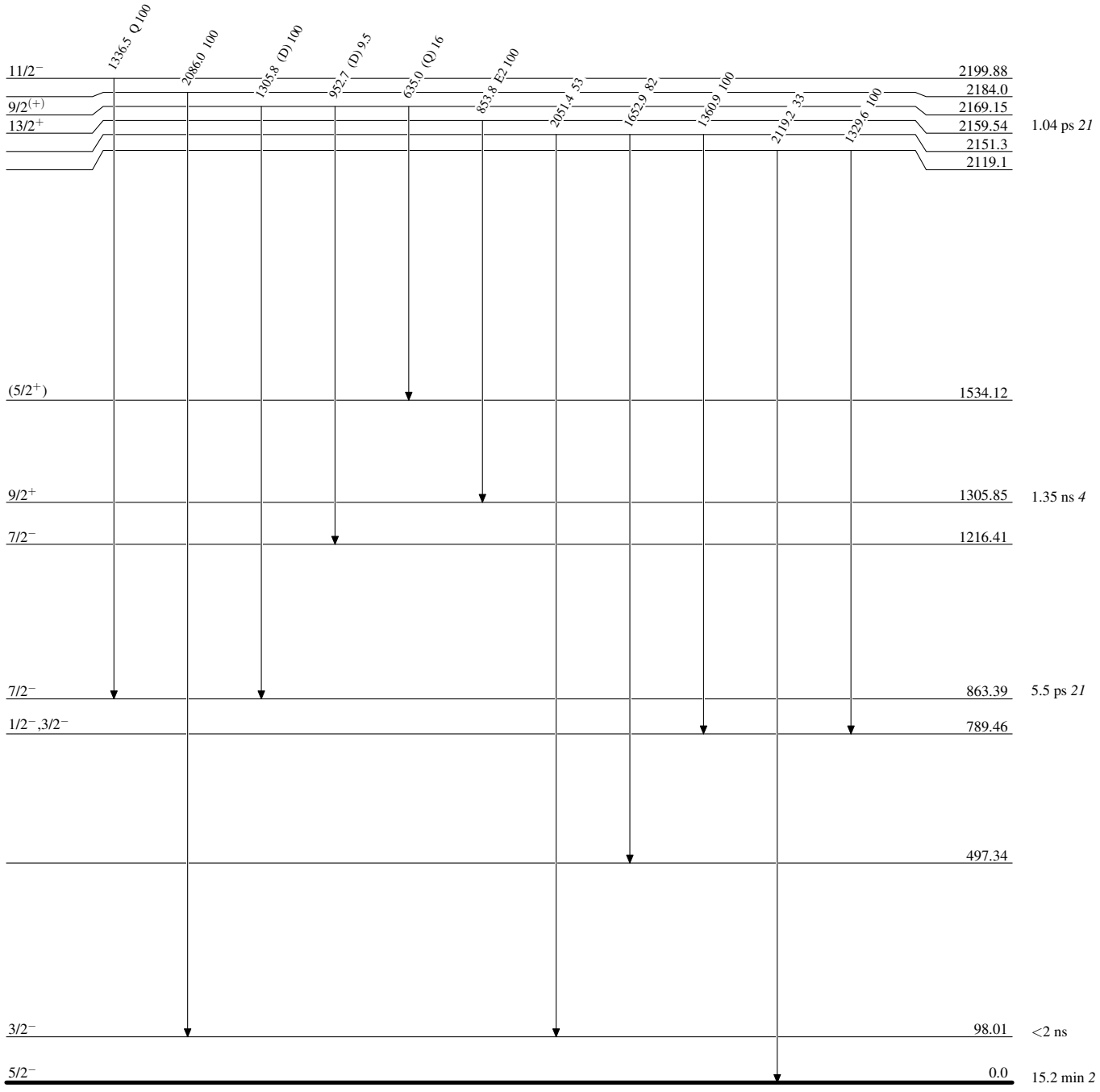


$^{69}_{33}As_{36}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{69}_{33}As_{36}$

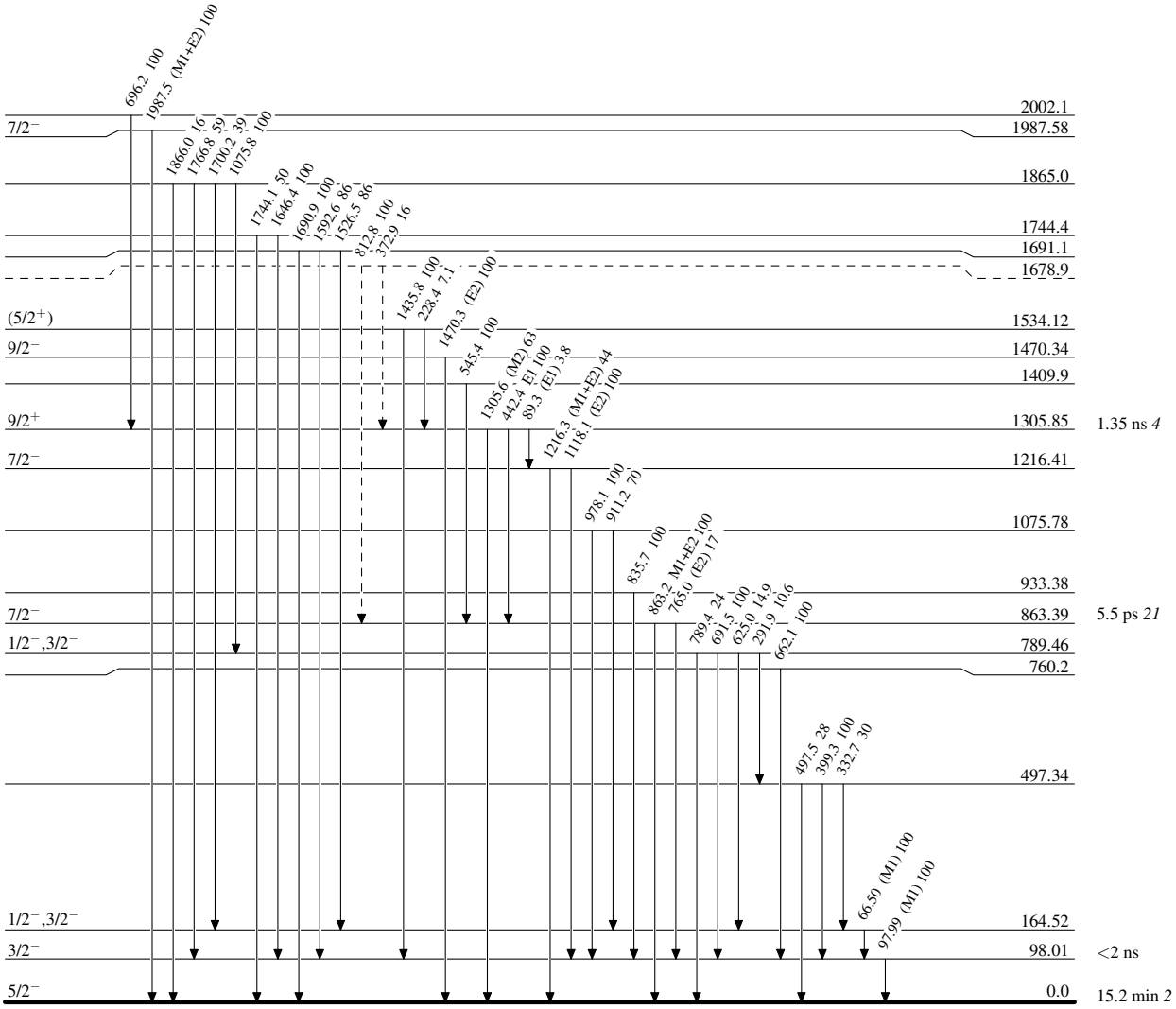
Adopted Levels, Gammas

Legend

Level Scheme (continued)

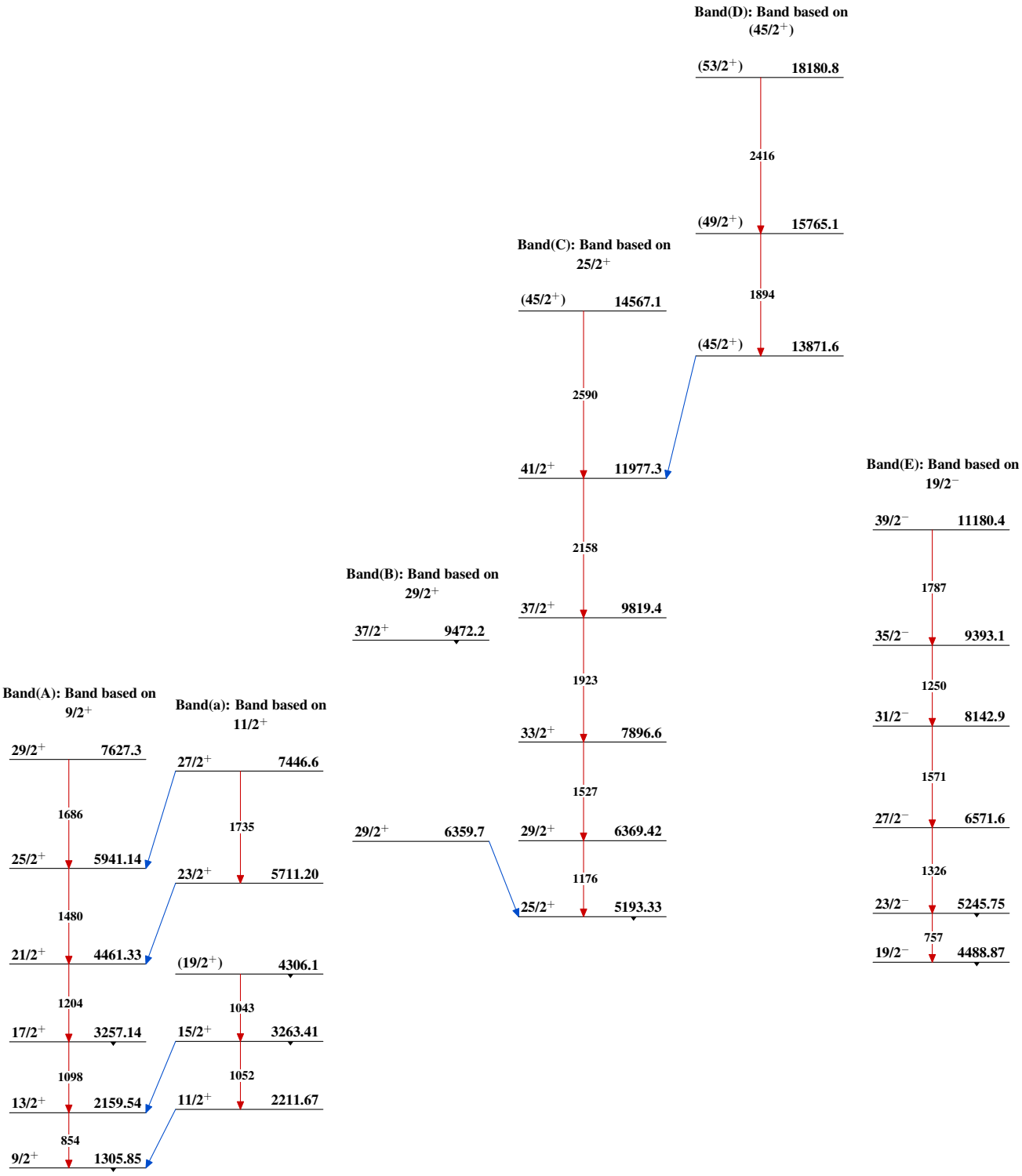
Intensities: Relative photon branching from each level

γ Decay (Uncertain)



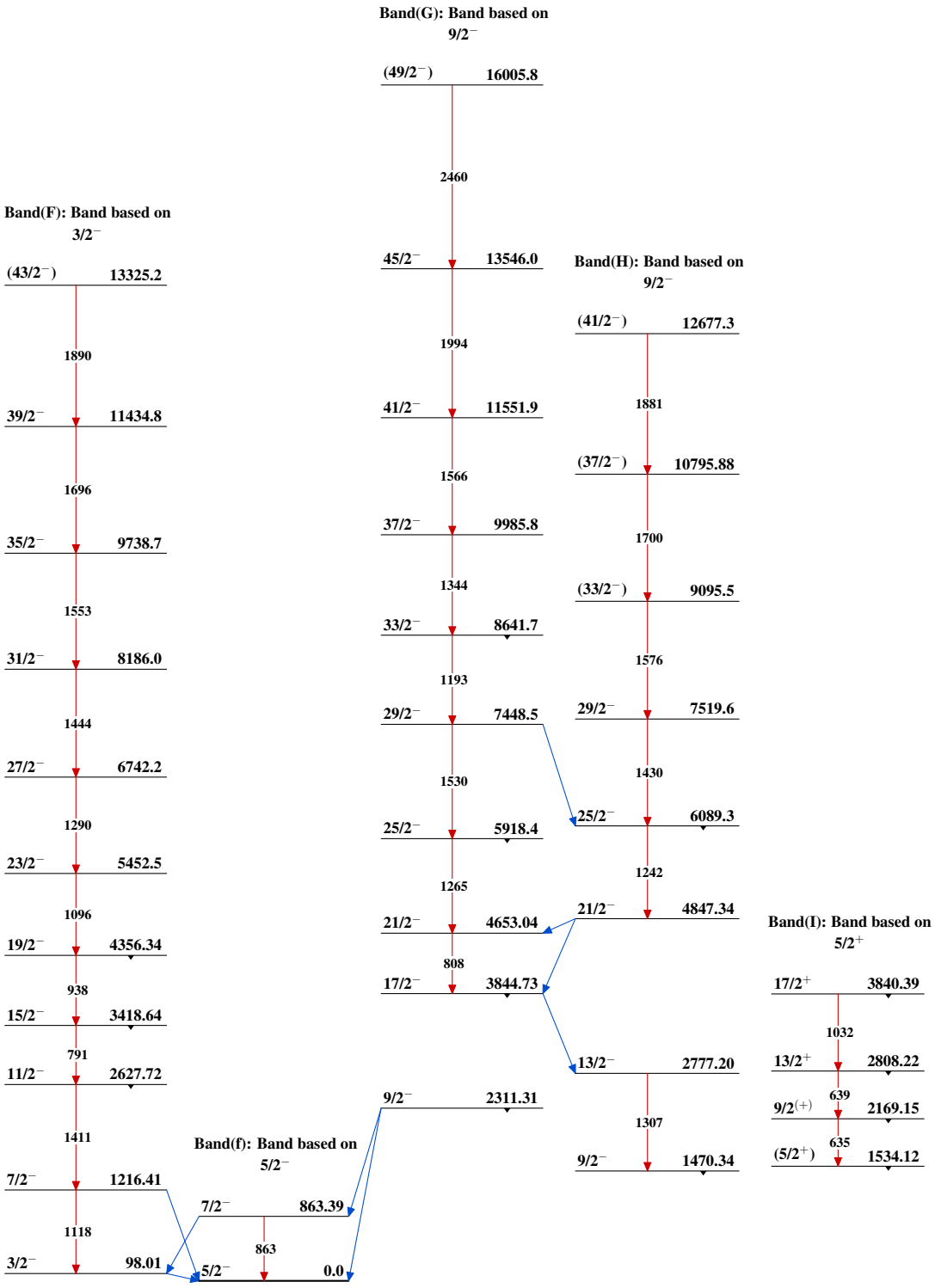
$^{69}_{33}As_{36}$

Adopted Levels, Gammas



$^{69}_{33}As_{36}$

Adopted Levels, Gammas (continued)



$^{69}_{33}As_{36}$