Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 158, 1 (2019)	16-May-2019

Q(β^-)=−4580 *10*; S(n)=8431 *8*; S(p)=7287 *8*; Q(α)=−3552 *8* 2017Wa10
S(2n)=21224 *8*, S(2p)=12899 *7* (2017Wa10).
Mass measurement: 2011He10.
Additional information 1.

^{73}Se Levels

Cross Reference (XREF) Flags

A	^{73}Se IT decay (39.8 min)	E	^{60}Ni(^{16}O,n2pγ)
B	^{73}Br ε decay (3.4 min)	F	^{63}Cu(^{16}O,αpnγ)
C	^{51}V(^{28}Si,αpnγ)	G	^{70}Ge(α,nγ)
D	^{58}Ni(^{19}F,3pnγ)	H	^{72}Ge(α,3nγ)

E(level)[†]	J$^\pi$[#]	T$_{1/2}$[a]	XREF	Comments
0.0[g]	9/2$^+$	7.15 h *9*	ABCDEFGH	%ε+%β^+=100 μ=0.892 *13* (2001St31,2014StZZ) Strong absorption radius r$_0$=1.028 fm *23*; rms matter radius <r^2>$^{1/2}$=3.92 fm *17*, deduced from measured reaction σ_R in Si(^{73}Se,X),E≈50-60 MeV/nucleon and Glauber model analysis (2004Li29,2005Le43). J$^\pi$: spin from NMR and nuclear orientation (1988Be39). Parity from log *ft*=5.4 to 9/2$^+$. T$_{1/2}$: weighted average of 7.18 h *9* (1969Ma21) and 7.08 h *15* (1976Bo19). Others: 1967Ra08, 1960Ri09, 1955Ha85. μ: from 2001St31. Others: 0.87 *5* (1988Be39), 0.85 *7* (1987Ni13). All measurements used β-NMR method on oriented nuclei.
25.71[d] *4*	3/2$^-$	39.8 min *17*	ABCDEFGH	%ε+%β^+=27.4 *3*; %IT=72.6 *3* (1969Ma21,1980Te01) %ε+%IT: from growth and decay of ^{73}Se g.s. J$^\pi$: ε feeding to 3/2$^-$ and 5/2$^-$; E3 γ to 9/2$^+$ and RUL. T$_{1/2}$: weighted average of 40.5 min *17* (1976Bo19), 38.6 min *22* (1969Ma21). Others: 1960Ri09, 1968Ak03, 1969Mu03, 1970Me20.
26.32[‡] *13*	(3/2$^-$)		B E G	J$^\pi$: 166.1γ (E1) (ΔJ=1) from (5/2$^+$).
90.61 *7*	(1/2,3/2)$^-$[&]		B D GH	J$^\pi$: M1 γ to 3/2$^-$.
151.26[c] *7*	5/2$^-$	222 ps *33*	BCDEFGH	J$^\pi$: 125.6γ M1 (ΔJ=1) to 3/2$^-$; 354.3γ M1+E2 from 7/2$^-$. T$_{1/2}$: from RDM in (^{16}O,n2pγ). Other: 0.20 ns *14* from γ-rf in (α,nγ).
192.42[f] *8*	5/2$^+$	0.97 ns *21*	B E G	J$^\pi$: 192.4γ to 9/2$^+$, 446.9γ Q (ΔJ)=2 from 9/2$^+$; RUL gives 5/2$^+$ or 13/2$^+$ since negative parity would require an unreasonably large B(M2) value for 192.4γ; 13/2$^+$ is ruled out by 103.0γ from 7/2$^+$. T$_{1/2}$: γ-rf in (α,nγ).
295.41[h] *8*	7/2$^+$		C FG	J$^\pi$: 295.4γ M1+E2 (ΔJ=1) to 9/2$^+$; 703.7γ E2 (ΔJ=2) from 11/2$^+$.
400.27 *8*	(5/2$^-$)		B G	J$^\pi$: 374.7γ to 3/2$^-$, 105.1γ (M1+E2) from 7/2$^-$, 404.6γ (Q) from 9/2$^-$.
426.53 *8*	(1/2$^-$,3/2$^-$)[@]		B G	
505.48[d] *8*	7/2$^-$	4.7 ps *5*	CDEFGH	J$^\pi$: 479.7γ E2 (ΔJ=2) to 3/2$^-$; band assignment. T$_{1/2}$: RDM in (^{16}O,n2pγ).
565.78 *10*	(1/2,3/2)[&]		B	
574.76 *10*	5/2$^{(+)}$		G	J$^\pi$: 279.4γ D+Q (ΔJ=1) 7/2$^+$, 382.3γ (M1+E2) (ΔJ=0) to 5/2$^+$.
639.23[f] *12*	9/2$^+$		G	J$^\pi$: 639.3γ D(+Q) (ΔJ=0) to 9/2$^+$; 933.1γ from 13/2$^+$ and RUL forbids 9/2$^-$ since it would requires an unreasonably large B(M2);

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Adopted Levels, Gammas (continued)

^{73}Se Levels (continued)

E(level)[†]	Jπ[#]	$T_{1/2}$[a]	XREF	Comments
				band assignment.
641.04 *9*	(1/2⁻,3/2)[&]		B G	Jπ: 489.8γ to 5/2⁻.
644.82 *22*			G	Jπ: γ to 5/2⁺.
684.7[e] *4*	(5/2⁻)		G	Jπ: excitation function in (α,nγ); possible 658.7γ ΔJ=(1) to (3/2⁻).
724.62 *11*	7/2⁽⁺⁾		G	Jπ: 532.2γ D+Q (ΔJ=1) to 5/2⁺, 724.7γ to 9/2⁺.
790.38 *8*	(1/2⁻,3/2⁻)[@]		B G	
790.73[b] *17*	5/2⁻		C G	Jπ: 565.3γ E2 (ΔJ=2) from 9/2⁻; 765.0γ D+Q (ΔJ=1) to 3/2⁻.
804.80[c] *11*	9/2⁻	2.50 ps *14*	CDEFGH	Jπ: 653.6γ E2 (ΔJ=2) to 5/2⁻, 299.3γ M1+E2 to 7/2⁻; band assignment. $T_{1/2}$: RDM in (^{16}O,n2pγ). Other: 3.9 ps *7* (RDM in (^{19}F,3pnγ)).
940.11 *8*	(1/2⁻,3/2⁻)[@]		B G	
942.73 *14*	11/2⁺	0.97 ps *21*	G	Jπ: 942.7γ M1+E2 (ΔJ=1) to 9/2⁺, 629.8γ from 13/2⁺.
971.10[g] *16*	13/2⁺	0.88 ps *7*	CDEFG	Jπ: 971.0γ E2 (ΔJ=2) to 9/2⁺ g.s.; band assignment. $T_{1/2}$: average of 0.90 ps *7* (RDM in (^{16}O,n2pγ)), 0.83 ps *7* (DSAM in (α,nγ)), 1.3 ps *3* (RDM in (^{19}F,3pnγ)).
999.27[h] *15*	11/2⁺		C FG	Jπ: 999.6γ D+Q (ΔJ=1) to 9/2⁺ g.s., 574.0γ M1+E2 (ΔJ=1) from 13/2⁺; band assignment.
1021.96 *8*	(1/2⁻,3/2⁻)[@]		B G	
1091.63 *24*			G	Jπ: 452.4γ to 9/2⁺.
1091.81 *22*	(9/2)		G	Jπ: 796.4γ D+Q (ΔJ=1) to 7/2⁺.
1179.64[d] *15*	11/2⁻	1.52 ps *14*	CDEFGH	Jπ: 674.3γ E2 (ΔJ=2) to 7/2⁻, 374.3γ D+Q to 9/2⁻. $T_{1/2}$: from RDM in (^{16}O,n2pγ). Other: 2.5 ps *3* (RDM in (^{19}F,3pnγ)).
1230.13[e] *20*	(9/2⁻)		C G	Jπ: ΔJ=2, (E2+M3) 545.4γ to (5/2⁻), 724.7γ to 7/2⁻.
1295.0 *4*			G	Jπ: 999.6γ to 7/2⁺.
1356.36[b] *18*	9/2⁻		C G	Jπ: 551.8γ M1(+E2) (ΔJ=0) to 9/2⁻, 850.6γ D+Q (ΔJ=1) to 7/2⁻.
1550.76 *11*	(1/2,3/2)[&]		B	
1552.51[c] *13*	13/2⁻	1.08 ps *14*	CDEFG	Jπ: ΔJ=2, E2 747.7γ to 9/2⁻; ΔJ=1, M1+E2 373.1γ to 11/2⁻. $T_{1/2}$: weighted average of 1.01 ps *+17−16* (DSAM in (^{28}Si,αpnγ)), 1.32 ps *14* (RDM in (^{19}F,3pnγ)), 1.18 ps *21* (RDM in (^{16}O,n2pγ)), 0.83 ps *14* (DSAM in (α,nγ)).
1564.48 *23*			G	Jπ: 839.7γ to 7/2⁽⁺⁾ and 925.4γ to 9/2⁺.
1564.61 *24*	(11/2)		G	Jπ: ΔJ=1 472.8γ to (9/2).
1572.55[f] *16*	13/2⁺	1.3 ps *4*	G	Jπ: 601.9γ M1+E2 (ΔJ=0) to 13/2⁺; band assignment.
1619.4 *3*	(1/2,3/2)[&]		B	
1698.5 *5*			G	Jπ: 973.9γ to 7/2⁽⁺⁾.
1862.64[h] *16*	15/2⁺	0.14 ps *7*	C FG	Jπ: 919.8γ ΔJ=2, E2 to 11/2⁺; 891.4γ M1+E2 to 13/2⁺; band assignment.
1883.1 *4*	(11/2⁻)		G	Jπ: ΔJ=1 1078.3γ to 9/2⁻.
1932.5 *4*		1.7 ps *4*	G	Jπ: 961.4γ to 13/2⁺. $T_{1/2}$: effective $T_{1/2}$ from DSAM in (α,nγ).
2002.47[d] *15*	15/2⁻	0.49 ps *14*	CDEFG	Jπ: 822.8γ ΔJ=2, E2 to 11/2⁻; 450.0γ to 13/2⁻; band assignment. $T_{1/2}$: DSAM in (α,nγ). Others: 0.82 ps *10* (DSAM in (^{28}Si,αpnγ)), 0.8 ps *4* (RDM in (^{19}F,3pnγ)). Other: ≤1.4 ps (RDM in (^{16}O,n2pγ)).
2009.63[e] *21*	(13/2⁻)		C G	Jπ: 779.5γ ΔJ=2, E2 to (9/2⁻); 829.9γ to 11/2⁻.
2014.4[g] *3*	17/2⁺	0.18 ps *4*	CDEFG	Jπ: 1043.9γ ΔJ=2, E2 to 13/2⁺; band assignment. $T_{1/2}$: DSAM in (^{19}F,3pnγ). Others: 0.31 ps *7* (α,nγ), 0.37 ps *+4−5* (^{28}Si,αpnγ), ≤0.5 ps (RDM in (^{16}O,n2pγ)).
2041.2 *4*	(13/2⁺)		G	Jπ: 1098.5 γ ΔJ=1 to 11/2⁺.
2089.97[b] *20*	13/2⁻		C G	Jπ: 733.5γ ΔJ=2, E2 to 9/2⁻; 537.6γ to 13/2⁻; band assignment.
2210.02 *22*	(15/2⁺)	0.76 ps *21*	G	Jπ: 1210.7γ and 1267.6γ to 11/2⁺, 1238.4γ to 13/2⁺.
2267.4 *4*			G	Jπ: 1324.7γ to 11/2⁺.
2432.74[c] *18*	17/2⁻	0.44 ps *8*	CD FG	Jπ: ΔJ=2, E2 γ to 13/2⁻, 430.5γ M1+E2 to 15/2⁻; band assignment.

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Adopted Levels, Gammas (continued)

^{73}Se Levels (continued)

E(level)[†]	Jπ[#]	$T_{1/2}$[a]	XREF	Comments
				$T_{1/2}$: DSAM in (^{19}F,3pnγ). Others: 0.28 ps *14* (α,nγ), 0.48 ps *9* (^{28}Si,αpnγ).
2485.6 *4*			G	Jπ: 933.1γ to 13/2⁻.
2626.5 *5*			G	Jπ: 1061.9γ to (11/2).
2638.5[f] *3*	(17/2⁺)	0.45 ps *14*	G	Jπ: 1065.8γ to 13/2⁺ and 624.2γ to 17/2⁺; band assignment.
2868.4[e] *5*	(17/2⁻)		C G	Jπ: 858.8γ to (13/2⁻); band assignment.
2872.6[h] *4*	(19/2⁺)	0.56 ps *14*	C FG	Jπ: 1009.1γ to 15/2⁺ and 858.8γ to 17/2⁺; band assignment.
2949.96[d] *22*	(19/2⁻)	0.20 ps *6*	CD FG	Jπ: 947.4γ ΔJ=(2), (E2) to 15/2⁻, 517.3γ to 17/2⁻; band assignment. $T_{1/2}$: DSAM in (^{19}F,3pnγ). Others: 0.28 ps *14* (α,nγ), 0.36 ps *+5−7* (^{28}Si,αpnγ).
3003.84[b] *20*	(17/2⁻)	0.76 ps *21*	C G	Jπ: 913.8γ to 13/2⁻ and 571.1γ to 17/2⁻; band assignment.
3097.9 *3*	19/2⁻	1.8 ps *6*	C G	Jπ: 1095.4γ ΔJ=2, E2 to 15/2⁻; 665.2γ D+Q to 17/2⁻. $T_{1/2}$: effective $T_{1/2}$ from DSAM in (α,nγ).
3170.8[g] *5*	(21/2⁺)	0.139 ps *35*	CD FG	Jπ: 1156.1γ ΔJ=(2), (E2) to 17/2⁺; 299.5 γ to (19/2⁺); band assignment. $T_{1/2}$: DSAM in (^{19}F,3pnγ). Others: 0.14 ps *7* (α,nγ), 0.18 ps *4* (^{28}Si,αpnγ).
3203.1 *5*		0.28 ps *14*	G	Jπ: 1188.7γ to 17/2⁺. $T_{1/2}$: effective $T_{1/2}$ from DSAM in (α,nγ).
3303.2 *5*	(15/2,19/2)	0.42 ps *14*	G	Jπ: 1288.8γ ΔJ=1 to 17/2⁺. $T_{1/2}$: effective $T_{1/2}$ from DSAM in (α,nγ).
3440.4[c] *4*	(21/2⁻)	0.125 ps *21*	CD FG	Jπ: 1007.9γ ΔJ=(2), (E2) to 17/2⁻; 490.4γ to (19/2⁻); band assignment. $T_{1/2}$: DSAM in (^{19}F,3pnγ). Others: 0.21 ps *10* (α,nγ), 0.312 ps *35* (^{28}Si,αpnγ).
3834.4 *11*			C	Jπ: 966γ to (17/2⁻).
3854.4[e] *6*			G	Jπ: 986.0γ to (17/2⁻).
3913.3[h] *8*	(23/2⁺)		C F	Jπ: 1041.7γ to (19/2⁺) and 742.5γ to (21/2⁺); band assignment.
4012.1[d] *5*	(23/2⁻)	0.104 ps *14*	CD FG	Jπ: 1061.9γ to (19/2⁻) and 572.7γ to (21/2⁻); band assignment. $T_{1/2}$: DSAM in (^{19}F,3pnγ). Others: 0.35 ps *21* (α,nγ), 0.33 ps *4* (^{28}Si,αpnγ).
4386.3[g] *9*	(25/2⁺)	0.062 ps *21*	CD F	Jπ: 1214.4γ to (21/2⁺) and 473.5γ to (23/2⁺); band assignment. $T_{1/2}$: DSAM in (^{19}F,3pnγ). Other: 0.062 ps *14* (^{28}Si,αpnγ).
4589.3[c] *7*	(25/2⁻)	0.062 ps *21*	CD F	Jπ: 1148.9γ to (21/2⁻) and 578.0γ to (23/2⁻); band assignment. $T_{1/2}$: DSAM in (^{19}F,3pnγ). Other: 0.187 ps *+28−21* (^{28}Si,αpnγ).
4944.5 *15*			C	Jπ: 1110γ to (21/2⁻).
4951.8[h] *10*	(27/2⁺)		C	Jπ: 1039γ to (23/2⁺) and 565.5γ to (25/2⁺); band assignment.
5218.9[d] *9*	(27/2⁻)	0.069 ps *14*	CD F	Jπ: 1206γ to (23/2⁻) and 630γ to (25/2⁻); band assignment. $T_{1/2}$: DSAM in (^{19}F,3pnγ). Other: 0.104 ps *14* (^{28}Si,αpnγ).
5636.0[g] *11*	(29/2⁺)	0.118 ps *14*	CD F	Jπ: γ's to (25/2⁺) and (27/2⁺); band assignment. $T_{1/2}$: DSAM in (^{19}F,3pnγ). Other: 0.111 ps *+21−28* (^{28}Si,αpnγ).
5852.9[c] *10*	(29/2⁻)	0.055 ps *14*	CD F	Jπ: γ's to (25/2⁻) and (27/2⁻); band assignment. $T_{1/2}$: DSAM in (^{19}F,3pnγ). Other: 0.083 ps *14* (^{28}Si,αpnγ).
5890.3? *13*			D	Jπ: 1504γ to (25/2⁺).
6526.3[d] *11*	(31/2⁻)	0.069 ps *14*	CD F	Jπ: γ's to (27/2⁻) and (29/2⁻); band assignment. $T_{1/2}$: DSAM in (^{19}F,3pnγ). Other: 0.132 ps *21* (^{28}Si,αpnγ).
7014.1[g] *15*	(33/2⁺)	0.090 ps *7*	CD F	Jπ: 1378.1γ to (29/2⁺); band assignment. $T_{1/2}$: effective $T_{1/2}$ (DSAM in (^{19}F,3pnγ)). Other: 0.21 ps *+3−6* (^{28}Si,αpnγ).
7232.1[c] *12*	(33/2⁻)	0.139 ps *14*	CD F	Jπ: γ's to (29/2⁻) and (31/2⁻); band assignment. $T_{1/2}$: effective $T_{1/2}$ (DSAM in (^{19}F,3pnγ)). Other: 0.159 ps *28* (^{28}Si,αpnγ).

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Adopted Levels, Gammas (continued)

^{73}Se Levels (continued)

E(level)[†]	J$^{\pi}$[#]	T$_{1/2}$[a]	XREF	Comments
7954.3[d] *15*	(35/2$^-$)	0.236 ps *21*	CD	J$^{\pi}$: 1428γ to (31/2$^-$); band assignment. T$_{1/2}$: effective T$_{1/2}$ (DSAM in (^{19}F,3pnγ)). Other: 0.117 ps *+21−28* (^{28}Si,αpnγ).
8530.1[g] *18*	(37/2$^+$)		C	J$^{\pi}$: 1516γ to (33/2$^+$); band assignment.
8754.1[c] *16*	(37/2$^-$)		C	J$^{\pi}$: 1522γ to (33/2$^-$); band assignment.
9532.3[d] *18*	(39/2$^-$)		C	J$^{\pi}$: 1578γ to (35/2$^-$); band assignment.
10214.1[g] *21*	(41/2$^+$)		C	J$^{\pi}$: 1684γ to (37/2$^+$); band assignment.
10467.1[c] *19*	(41/2$^-$)		C	J$^{\pi}$: 1713γ to (37/2$^-$); band assignment.

[†] From least-squares fit to Eγ data.

[‡] This level is proposed based on the energy difference of 192.4 level and its de-exciting 166.1γ (1976Ze05). The deexcitation mode of this level remains unknown. In $\gamma\gamma$ coin in (α,nγ) (1991Se11,1976Ze05) and in (γ)(ce) coin in (^{16}O,n2pγ) (1987He21), no evidence was found for a 26.3γ. However, in (α,nγ) (1991Se11), a weak 26.3 peak was observed in singles (1991Se11) but this peak could be contaminated by K x ray of cadmium. An estimate of photon intensity deduced from this observation suggested a conversion factor of >100, implying a multipole order of 2 or greater, and a corresponding lifetime in the μs region. From γ-rf(t) experiment of 1991Se11, no limit of lifetime could be established due to poor statistics. Another possibility is that this level decays to 25.7 level through a 0.6-keV transition (1987He21,1991Se11).

[#] In addition to the quoted arguments, the assignments are also based on probable band assignments. For levels populated in in-beam γ-ray studies, ascending spins are assumed as the excitation energy rises. This assumption is consistent with the population of yrast type structures in such reactions and observed decay modes.

[@] Possible allowed ε feeding from 1/2$^+$.

[&] Possible allowed/first-forbidden ε feeding from 1/2$^+$.

[a] From DSAM in (α,nγ), unless otherwise noted. DSAM values from (^{28}Si,αpnγ) (1997Mu23,1999MuZS) were generally not used since feeding times are not given explicitly, and the values are consistently higher than those from 1999Lo17 in (^{19}F,3pnγ).

[b] Band(A): 5/2$^-$ band,α=+1/2.

[c] Band(B): ν3/2[301],α=+1/2.

[d] Band(b): ν3/2[301],α=−1/2.

[e] Band(C): (5/2$^-$) band,α=+1/2.

[f] Band(D): 5/2$^+$ band,α=+1/2.

[g] Band(E): νg$_{9/2}$,α=+1/2.

[h] Band(e): νg$_{9/2}$,α=−1/2.

Adopted Levels, Gammas (continued)

γ(^{73}Se)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
25.71	3/2⁻	25.71 *4*	100	0.0	9/2⁺	E3		5250 *90*	B(E3)(W.u.)=0.0412 *20* E_γ,Mult.: from ^{73}Se IT decay, Mult. from measured ce data.
26.32	(3/2⁻)	(0.6)		25.71	3/2⁻				The decay through 0.6-keV transition is not established. It is only implied from the lack of observation of a 26.4γ to g.s. from Iγ(26.4)/Iγ(166.2)<0.018 (1987He21), <0.008 (1991Se11); and no conversion electrons seen in coin with 166.2γ (1987He21).
90.61	(1/2,3/2)⁻	65.0 *1*	100	25.71	3/2⁻	M1		0.337	E_γ: weighted average of 65.0 *1* from ^{73}Br ε decay (3.4 m), 64.9 *1* from ^{70}Ge(α,nγ), and 65.0 *2* from ^{72}Ge(α,3nγ). Mult.: from α(K)exp in ^{73}Br ε decay.
151.26	5/2⁻	125.6 *1*	100	25.71	3/2⁻	M1		0.0548	B(M1)(W.u.)=0.047 *+9−6* E_γ: from ^{73}Br ε decay and (α,nγ). Mult.: from α(K)exp in ε decay; D+Q from γ(θ) in (α,nγ) and γ(DCO) in (^{16}O,αpnγ); D(+Q) from γ(θ) in (α,3nγ).
192.42	5/2⁺	166.1 *1*	100 *5*	26.32	(3/2⁻)	(E1)		0.0175	B(E1)(W.u.)=6.9×10^{-5} *+23−15* E_γ: weighted average of 166.2 *2* from ^{73}Br ε decay (3.4 m) and 166.1 *1* from ^{70}Ge(α,nγ). I_γ: from ^{70}Ge(α,nγ). Other: 100 *15* from ^{73}Br ε decay. Mult.: D from γ(θ) in (α,nγ). used to determine J^π(26).
		192.4 *1*	22 *3*	0.0	9/2⁺	[E2]		0.07346	B(E2)(W.u.)=21 *+10−7* E_γ: weighted average of 192.6 *2* from ^{73}Br ε decay (3.4 m) and 192.4 *1* from ^{70}Ge(α,nγ). I_γ: weighted average of 23 *8* from ^{73}Br ε decay (3.4 m) and 22 *3* from ^{70}Ge(α,nγ). Mult.: M2 is impossible based on RUL since it would require an unreasonably large B(M2).
295.41	7/2⁺	103.0 *2*	≈1.8	192.42	5/2⁺	(D)			E_γ,I_γ: from (α,nγ). used to determine J^π(192).
		295.4 *1*	100 *5*	0.0	9/2⁺	M1+E2	−0.16 *+3−1*	0.0063	E_γ,I_γ: from (α,nγ).
400.27	(5/2⁻)	249.2 *1*	15.0 *17*	151.26	5/2⁻				E_γ: weighted average of 249.4 *2* from ^{73}Br ε decay (3.4 m) and 249.1 *1* from ^{70}Ge(α,nγ). I_γ: from ^{73}Br ε decay (3.4 m).
		374.7 *2*	100 *10*	25.71	3/2⁻				E_γ: weighted average of 374.7 *2* from ^{73}Br ε decay (3.4 m) and 374.8 *3* from ^{70}Ge(α,nγ). I_γ: from ^{73}Br ε decay (3.4 m).
426.53	(1/2⁻,3/2⁻)	275.2 *1*	25 *3*	151.26	5/2⁻				E_γ: weighted average of 275.2 *1* from ^{73}Br ε decay (3.4 m) and 275.1 *3* from ^{70}Ge(α,nγ). I_γ: weighted average of 25.9 *21* from ^{73}Br ε decay (3.4 m) and 18 *5* from ^{70}Ge(α,nγ).
		335.9 *1*	100 *4*	90.61	(1/2,3/2)⁻				E_γ: weighted average of 335.9 *1* from ^{73}Br ε decay (3.4 m) and 336.0 *3* from ^{70}Ge(α,nγ). I_γ: from ^{73}Br ε decay (3.4 m). Other: 100 *5* from ^{70}Ge(α,nγ).

400.9 *1*	57.5 *25*	25.71	3/2$^-$	E_γ: weighted average of 400.9 *1* from ^{73}Br ε decay (3.4 m)

$^{73}_{34}Se_{39}$-6

Adopted Levels, Gammas (continued)

γ(^{73}Se) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
									and 400.6 *4* from ^{70}Ge(α,nγ).
									I_γ: weighted average of 57.1 *25* from ^{73}Br ε decay (3.4 m) and 63 *9* from ^{70}Ge(α,nγ).
505.48	7/2$^-$	105.1 *2*	≈3.6	400.27	(5/2$^-$)	(M1+E2)		0.4 *3*	Mult.: deduced from γ(θ) in (α,nγ) by evaluators. used to determine J^π(400).
		354.3 *1*	100 *4*	151.26	5/2$^-$	M1+E2	−0.38 *+3−1*	0.0045	B(M1)(W.u.)=0.065 *+13−10*; B(E2)(W.u.)=107 *+25−28* δ: other: −0.59 *14* from γ(θ) in (^{19}F,3pnγ), <0.2 from γ(θ) in (α,3nγ). Additional information 2.
		479.7 *1*	35 *2*	25.71	3/2$^-$	E2		0.0031	B(E2)(W.u.)=65 *+15−12*
565.78	(1/2,3/2)	540.0[@] *1*	100[@]	25.71	3/2$^-$				E_γ: from ^{73}Br ε decay (3.4 m).
574.76	5/2$^{(+)}$	279.4 *1*	100 *9*	295.41	7/2$^+$	D+Q	+0.3 *+4−2*		Mult.,δ: from γ(θ) in (α,nγ), ΔJ=1.
		382.3 *1*	60 *9*	192.42	5/2$^+$	(M1+E2)	+0.8 *1*	0.0045	Mult.,δ: from γ(θ,pol) in (α,nγ), ΔJ=0.
639.23	9/2$^+$	344.0 *3*	16.2 *14*	295.41	7/2$^+$	D+Q	−0.35 *+4−5*		
		446.9 *2*	10.9 *14*	192.42	5/2$^+$	Q			used to determine J^π(192).
		639.3[&] *3*	≈100[&]	0.0	9/2$^+$	D(+Q)	+0.04 *3*		
641.04	(1/2$^-$,3/2)	489.8 *1*	48 *7*	151.26	5/2$^-$				E_γ: weighted average of 489.8 *1* from ^{73}Br ε decay (3.4 m) and 489.7 *5* from ^{70}Ge(α,nγ). I_γ: weighted average of 50 *7* from ^{73}Br ε decay (3.4 m) and 34 *17* from ^{70}Ge(α,nγ).
		550.5 *2*	32 *18*	90.61	(1/2,3/2)$^-$				E_γ: weighted average of 550.6 *2* from ^{73}Br ε decay (3.4 m) and 550.1 *5* from ^{70}Ge(α,nγ). I_γ: from ^{73}Br ε decay (3.4 m). Other: 17 from ^{70}Ge(α,nγ).
		615.3 *1*	100 *5*	25.71	3/2$^-$				E_γ: weighted average of 615.3 *1* from ^{73}Br ε decay (3.4 m) and 614.9 *6* from ^{70}Ge(α,nγ). I_γ: from ^{73}Br ε decay (3.4 m). Other: 100 *4* from ^{70}Ge(α,nγ).
644.82		452.4[&] *2*	100[&]	192.42	5/2$^+$				
684.7	(5/2$^-$)	658.7[a] *2*	100	26.32	(3/2$^-$)	D+Q	−0.35 *+8−9*		
724.62	7/2$^{(+)}$	429.1 *2*	26 *3*	295.41	7/2$^+$				
		532.2 *1*	100 *5*	192.42	5/2$^+$	D+Q	−1.1 *2*		
		724.7[&] *3*	≈82[&]	0.0	9/2$^+$				
790.38	(1/2$^-$,3/2$^-$)	363.9 *2*	9 *2*	426.53	(1/2$^-$,3/2$^-$)				
		390.4 *2*	10 *9*	400.27	(5/2$^-$)				
		639.0 *1*	11 *2*	151.26	5/2$^-$				
		699.8 *2*	100 *3*	90.61	(1/2,3/2)$^-$				E_γ: weighted average of 699.8 *1* from ^{73}Br ε decay (3.4 m) and 698.2 *7* from ^{70}Ge(α,nγ).
		764.7 *1*	8 *5*	25.71	3/2$^-$				
790.73	5/2$^-$	639.3[&] *3*	≈100[&]	151.26	5/2$^-$				

$^{73}_{34}Se_{39}$-7

Adopted Levels, Gammas (continued)

γ(^{73}Se) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
790.73	5/2⁻	765.0 *2*	≈67	25.71	3/2⁻	D+Q	−0.6 *+2−3*		
804.80	9/2⁻	299.3 *1*	73 *3*	505.48	7/2⁻	M1+E2	−0.21 *+3−1*		B(M1)(W.u.)=0.129 *+15−12*; B(E2)(W.u.)=90 *+18−29* E_γ: weighted average of 299.3 *1* from ^{70}Ge(α,nγ) and 299.3 *2* from ^{72}Ge(α,3nγ). I_γ: weighted average of 74 *3* from (^{16}O,n2pγ), 69 *5* from (α,nγ), and 79 *8* from (α,3nγ). Others: 40 *2* in (^{19}F,3pnγ) and 39 *4* in (^{16}O,αpnγ). δ: other: −0.8 *+4−3* from γ(θ) in (^{19}F,3pnγ).
		404.6 *2*	4.5 *8*	400.27	(5/2⁻)	(E2)		0.0054	B(E2)(W.u.)=30 *8* E_γ,I_γ: from (α,nγ) only. Mult.: (Q) from γ(θ) in (α,nγ). used to determine J^π(400).
		653.6 *2*	100.0 *16*	151.26	5/2⁻	E2			B(E2)(W.u.)=59 *4* E_γ: weighted average of 653.5 *2* from ^{70}Ge(α,nγ) and 653.6 *2* from ^{72}Ge(α,3nγ). Mult.: Q also from γ(DCO) in (^{16}O,αpnγ), γ(θ) in (^{19}O,3pnγ) and (α,3nγ).
940.11	(1/2⁻,3/2⁻)	540.0[@] *1*	<40[@]	400.27	(5/2⁻)				
		788.8 *1*	15 *12*	151.26	5/2⁻				
		849.4 *2*	100 *5*	90.61	(1/2,3/2)⁻				
		914.3 *1*	88 *3*	25.71	3/2⁻				
942.73	11/2⁺	303.6 *2*	13.7 *16*	639.23	9/2⁺	(M1)		0.0057	B(M1)(W.u.)=0.10 *+6−3* Mult.: D from γ(θ) in (α,nγ).
		942.7 *2*	100 *11*	0.0	9/2⁺	M1+E2	+2.2 *+2−1*		B(M1)(W.u.)=0.0041 *+17−13*; B(E2)(W.u.)=31 *+11−7*
971.10	13/2⁺	971.0 *2*	100	0.0	9/2⁺	E2			B(E2)(W.u.)=41.1 *33*
999.27	11/2⁺	360.3 *3*	≤11	639.23	9/2⁺				
		703.7 *2*	100 *7*	295.41	7/2⁺	E2			Additional information 3.
		999.6[&] *3*	≈160[&]	0.0	9/2⁺	D+Q	−0.07 *+1−3*		
1021.96	(1/2⁻,3/2⁻)	595.3 *3*	<9	426.53	(1/2⁻,3/2⁻)				
		870.7 *1*	22 *2*	151.26	5/2⁻				
		931.4 *1*	100 *5*	90.61	(1/2,3/2)⁻				
		996.2 *1*	33 *3*	25.71	3/2⁻				
1091.63		452.4[&] *2*	100[&]	639.23	9/2⁺				
1091.81	(9/2)	796.4 *2*	100	295.41	7/2⁺	D+Q	−0.40 *+9−14*		
1179.64	11/2⁻	374.3 *5*	48 *2*	804.80	9/2⁻	(M1+E2)	+0.082 *18*		B(M1)(W.u.)=0.089 *+14−12*; B(E2)(W.u.)=6.1 *+43−28* E_γ: unweighted average of 374.8 *3* from (α,nγ) and 373.8 *2* from (α,3nγ). I_γ: from (^{19}F,2pnγ). Other: ≈51 from (α,nγ), 88 *4* from (^{16}O,n2pγ). Mult.: D+Q from γ(θ) in (^{19}F,3pnγ) and (α,3nγ). δ: from (^{19}F,3pnγ).
		674.3 *2*	100 *2*	505.48	7/2⁻	E2			B(E2)(W.u.)=100 *9*

Adopted Levels, Gammas (continued)

γ(^{73}Se) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
									E_γ: weighted average of 674.1 *2* from (α,nγ) and 673.4 *2* from (α,3nγ). I_γ: from (^{19}F,2pnγ). Other: 100 *3* from (α,nγ), 100 *7* from (^{16}O,n2pγ). Mult.: Q also from γ(DCO) in (^{16}O,αpnγ), γ(θ) in (α,3nγ) and (^{19}F,2pnγ).
1230.13	(9/2$^-$)	545.4 *3*	100 *8*	684.7	(5/2$^-$)	(E2+M3)	+0.6 *+3−4*		
		724.7[&] *3*	≈500[&]	505.48	7/2$^-$				
		829.9[&] *3*	≈250[&]	400.27	(5/2$^-$)				
1295.0		999.6[&] *4*	100[&]	295.41	7/2$^+$				
1356.36	9/2$^-$	551.8 *3*	50 *3*	804.80	9/2$^-$	M1(+E2)	0.0 *3*		
		565.3 *4*	68 *6*	790.73	5/2$^-$	E2			Additional information 4.
		850.6 *3*	100 *24*	505.48	7/2$^-$	D+Q	−0.3 *+2−3*		
1550.76	(1/2,3/2)	984.7 *2*	31 *13*	565.78	(1/2,3/2)				
		1460.2 *1*	100 *9*	90.61	(1/2,3/2)$^-$				
1552.51	13/2$^-$	373.1 *3*	41 *3*	1179.64	11/2$^-$	M1+E2	−0.17 *+5−6*		B(M1)(W.u.)=0.111 *+27−22*; B(E2)(W.u.)=33 *+39−19* E_γ: from (α,nγ). I_γ: weighted average of 35 *3* from (^{16}O,n2pγ), 39 *16* from (^{16}O,αpnγ), 40 *4* from (α,nγ) and 47 *3* from (^{19}F,3pnγ). δ: other: −0.066 *18* from γ(θ) in (^{19}F,3pnγ).
		747.7 *1*	100.0 *20*	804.80	9/2$^-$	E2			B(E2)(W.u.)=88 *+16−12* E_γ: from (α,nγ). I_γ: from (α,nγ). Others: 100 *6* from (^{16}O,n2pγ), 100 *10* from (^{16}O,αpnγ). Mult.: Q also from γ(θ) in (^{19}F,3pnγ).
1564.48		839.7 *3*	19 *3*	724.62	7/2$^{(+)}$				
		925.4 *3*	100 *9*	639.23	9/2$^+$				
1564.61	(11/2)	472.8 *1*	100	1091.81	(9/2)	D(+Q)	−0.08 *+8−20*		
1572.55	13/2$^+$	574.0 *8*	100 *17*	999.27	11/2$^+$	M1+E2			Additional information 5.
		601.9 *7*	58 *15*	971.10	13/2$^+$	M1+E2	+1.1 *+2−1*		B(M1)(W.u.)=0.008 *+12−5*; B(E2)(W.u.)=39 *+58−22*
		629.8 *2*	23 *3*	942.73	11/2$^+$	(M1+E2)	+0.2 *1*		B(M1)(W.u.)=0.006 *+8−3*; B(E2)(W.u.)=0.9 *+32−8* Additional information 6.
		933.1[&] *3*	≈67[&]	639.23	9/2$^+$	[E2]			B(E2)(W.u.)=9 *+11−6* Additional information 7.
1619.4	(1/2,3/2)	1528.8 *3*	100	90.61	(1/2,3/2)$^-$				
1698.5		973.9 *4*	100	724.62	7/2$^{(+)}$				
1862.64	15/2$^+$	290.1 *1*	10 *4*	1572.55	13/2$^+$	(M1+E2)		0.012 *6*	
		863.8 *5*	63 *13*	999.27	11/2$^+$	(E2)			B(E2)(W.u.)=1.4×10^2 *+23−7* Mult.: (Q) from γ(θ) in (α,nγ); M2 ruled out by RUL.
		891.4 *2*	100 *25*	971.10	13/2$^+$	M1+E2	−0.27 *+3−5*		B(M1)(W.u.)=0.10 *+14−5*; B(E2)(W.u.)=13 *+30−8*

$^{73}_{34}Se_{39}$-9

Adopted Levels, Gammas (continued)

γ(^{73}Se) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	Comments
1862.64	15/2$^+$	919.8 *3*	40 *3*	942.73	11/2$^+$	E2		B(E2)(W.u.)=6×10^1 *+11−3* Mult.: Q from γ(θ) in (α,nγ); M2 ruled out by RUL.
1883.1	(11/2$^-$)	1078.3 *3*	100	804.80	9/2$^-$	D+Q	+0.06 *+5−6*	
1932.5		961.4 *3*	100	971.10	13/2$^+$			
2002.47	15/2$^-$	450.0 *1*	40 *4*	1552.51	13/2$^-$	M1+E2	−0.24 *+4−5*	B(M1)(W.u.)=0.13 *+8−4*; B(E2)(W.u.)=50 *+70−30* δ: other: −0.038 *23* from γ(θ) in (^{19}F,3pnγ). I_γ: weighted average of 37 *4* from (α,nγ) and 43 *4* from (^{19}F,3pnγ). Other: 26 *2* in (^{16}O,αpnγ).
		822.8 *2*	100 *5*	1179.64	11/2$^-$	E2		B(E2)(W.u.)=1.2×10^2 *+6−3* I_γ: from (^{19}F,3pnγ). Others: 100 *11* in (α,nγ), 100 *8* in (^{16}O,αpnγ).
2009.63	(13/2$^-$)	779.5 *1*	100 *14*	1230.13	(9/2$^-$)	E2		
		829.9[&] *3*	≈32[&]	1179.64	11/2$^-$			
2014.4	17/2$^+$	1043.8 *4*	100	971.10	13/2$^+$	E2		B(E2)(W.u.)=140 *+40−26*
2041.2	(13/2$^+$)	1098.5 *3*	100	942.73	11/2$^+$	D		
2089.97	13/2$^-$	537.6 *3*	≈28	1552.51	13/2$^-$			
		733.5 *2*	100 *6*	1356.36	9/2$^-$	E2		
		910.4 *4*	≈56	1179.64	11/2$^-$			
2210.02	(15/2$^+$)	1210.7 *3*	100 *20*	999.27	11/2$^+$	[E2]		B(E2)(W.u.)=6.8 *+50−27*
		1238.4 *4*	54 *10*	971.10	13/2$^+$			
		1267.6 *3*	80 *20*	942.73	11/2$^+$	[E2]		B(E2)(W.u.)=4.3 *+35−19*
2267.4		1324.7 *3*	100	942.73	11/2$^+$			
2432.74	17/2$^-$	430.5 *2*	20 *6*	2002.47	15/2$^-$	M1+E2	−0.16 *+3−4*	B(M1)(W.u.)=0.10 *+7−4*; B(E2)(W.u.)=20 *+30−12* I_γ: unweighted average of 14.3 *16* from ^{63}Cu(^{16}O,αpnγ) and 26.2 *23* from ^{70}Ge(α,nγ).
		880.1 *2*	100 *8*	1552.51	13/2$^-$	E2		B(E2)(W.u.)=112 *+34−24* I_γ: from (^{16}O,αpnγ). Other: 100 *30* from (α,nγ).
2485.6		933.1[&] *3*	100[&]	1552.51	13/2$^-$			
2626.5		1061.9[&] *4*	100[&]	1564.61	(11/2)			
2638.5	(17/2$^+$)	624.2 *2*	30 *7*	2014.4	17/2$^+$			
		1065.8 *3*	100 *33*	1572.55	13/2$^+$	[E2]		B(E2)(W.u.)=39 *+24−14*
2868.4	(17/2$^-$)	858.8[&] *4*	100[&]	2009.63	(13/2$^-$)			
2872.6	(19/2$^+$)	858.8[&] *4*	≈25[&]	2014.4	17/2$^+$			
		1009.1 *7*	100 *25*	1862.64	15/2$^+$	[E2]		B(E2)(W.u.)=43 *+22−14*
2949.96	(19/2$^-$)	517.3 *3*	46 *3*	2432.74	17/2$^-$			I_γ: from (^{16}O,αpnγ).
		947.4 *2*	100 *9*	2002.47	15/2$^-$	(E2)		B(E2)(W.u.)=1.4×10^2 *+7−4* I_γ: from (^{16}O,αpnγ).
3003.84	(17/2$^-$)	571.1 *1*	100 *18*	2432.74	17/2$^-$			
		913.8 *4*		2089.97	13/2$^-$	[E2]		
		1001.4 *4*	≈182	2002.47	15/2$^-$			
3097.9	19/2$^-$	665.2 *3*	55 *8*	2432.74	17/2$^-$	(M1+E2)	−0.4 *1*	B(M1)(W.u.)=0.013 *+12−6*; B(E2)(W.u.)=7 *+11−4* Mult.,δ: D+Q from γ(θ) in (α,nγ).

$^{73}_{34}Se_{39}$-10

Adopted Levels, Gammas (continued)

γ(^{73}Se) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	Comments
3097.9	19/2$^-$	1095.4 *4*	100 *15*	2002.47	15/2$^-$	E2	B(E2)(W.u.)=7.1 *+46−24*
3170.8	(21/2$^+$)	299.5	12	2872.6	(19/2$^+$)		I_γ: from (^{28}Si,αpnγ).
		1156.1 *4*	100	2014.4	17/2$^+$	(E2)	B(E2)(W.u.)=97 *+36−21*
							Mult.: (Q) from $\gamma(\theta)$ in (α,nγ) and γ(DCO) in (^{16}O,αpnγ).
3203.1		1188.7 *4*	100	2014.4	17/2$^+$		
3303.2	(15/2,19/2)	1288.8 *3*	100	2014.4	17/2$^+$	D	
3440.4	(21/2$^-$)	490.4	23 *3*	2949.96	(19/2$^-$)		E_γ,I_γ: from (^{16}O,αpnγ).
		1007.9 *4*	100 *10*	2432.74	17/2$^-$	(E2)	B(E2)(W.u.)=195 *+50−36*
							I_γ: from (^{16}O,αpnγ).
3834.4		966	100	2868.4	(17/2$^-$)		
3854.4		986.0 *4*	100	2868.4	(17/2$^-$)		
3913.3	(23/2$^+$)	742.5	100	3170.8	(21/2$^+$)		E_γ: from (^{16}O,αpnγ).
		1041.7	100	2872.6	(19/2$^+$)		E_γ: from (^{16}O,αpnγ).
4012.1	(23/2$^-$)	572.7	64 *5*	3440.4	(21/2$^-$)		E_γ,I_γ: from (^{16}O,αpnγ).
		1061.9[&] *4*	100[&] *16*	2949.96	(19/2$^-$)	[E2]	B(E2)(W.u.)=136 *+35−28*
							I_γ: from (^{16}O,αpnγ).
4386.3	(25/2$^+$)	473.5	11	3913.3	(23/2$^+$)		E_γ,I_γ: from (^{28}Si,αpnγ).
		1214.4	100	3170.8	(21/2$^+$)	[E2]	B(E2)(W.u.)=1.7×10^2 *+9−5*
							E_γ: from (^{16}O,αpnγ).
							I_γ: from (^{28}Si,αpnγ).
4589.3	(25/2$^-$)	578.0	51 *27*	4012.1	(23/2$^-$)		E_γ,I_γ: from (^{16}O,αpnγ).
		1148.9	100 *18*	3440.4	(21/2$^-$)	[E2]	B(E2)(W.u.)=1.7×10^2 *+15−7*
							E_γ,I_γ: from (^{16}O,αpnγ).
4944.5		1110	100	3834.4			
4951.8	(27/2$^+$)	565.5	67	4386.3	(25/2$^+$)		
		1039	100	3913.3	(23/2$^+$)		
5218.9	(27/2$^-$)	630	25	4589.3	(25/2$^-$)		E_γ,I_γ: from (^{28}Si,αpnγ).
		1206	100	4012.1	(23/2$^-$)	[E2]	B(E2)(W.u.)=142 *+44−29*
							E_γ,I_γ: from (^{28}Si,αpnγ).
5636.0	(29/2$^+$)	684.7	18	4951.8	(27/2$^+$)		E_γ,I_γ: from (^{28}Si,αpnγ).
		1249.2	100	4386.3	(25/2$^+$)	[E2]	B(E2)(W.u.)=74 *+13−10*
							E_γ,I_γ: from (^{28}Si,αpnγ).
5852.9	(29/2$^-$)	634	38	5218.9	(27/2$^-$)		E_γ,I_γ: from (^{28}Si,αpnγ).
		1264	100	4589.3	(25/2$^-$)	[E2]	B(E2)(W.u.)=1.3×10^2 *+6−3*
							E_γ,I_γ: from (^{28}Si,αpnγ).
5890.3?		1504	100	4386.3	(25/2$^+$)		
6526.3	(31/2$^-$)	672	33	5852.9	(29/2$^-$)		E_γ,I_γ: from (^{28}Si,αpnγ).
		1307	100	5218.9	(27/2$^-$)	[E2]	B(E2)(W.u.)=89 *+29−19*
							E_γ,I_γ: from (^{28}Si,αpnγ).
7014.1	(33/2$^+$)	1378.1	100	5636.0	(29/2$^+$)	[E2]	B(E2)(W.u.)=70 *6*
							E_γ: from (^{16}O,αpnγ).
7232.1	(33/2$^-$)	704	29	6526.3	(31/2$^-$)		E_γ,I_γ: from (^{28}Si,αpnγ).

$^{73}_{34}Se_{39}$-11

Adopted Levels, Gammas (continued)

γ(^{73}Se) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	Comments
7232.1	(33/2$^-$)	1381	100	5852.9	(29/2$^-$)	[E2]	B(E2)(W.u.)=35 *5* E_γ,I_γ: from (^{28}Si,αpnγ).
7954.3	(35/2$^-$)	1428	100	6526.3	(31/2$^-$)	[E2]	B(E2)(W.u.)=22.3 *20*
8530.1	(37/2$^+$)	1516	100	7014.1	(33/2$^+$)		
8754.1	(37/2$^-$)	1522	100	7232.1	(33/2$^-$)		
9532.3	(39/2$^-$)	1578	100	7954.3	(35/2$^-$)		
10214.1	(41/2$^+$)	1684	100	8530.1	(37/2$^+$)		
10467.1	(41/2$^-$)	1713	100	8754.1	(37/2$^-$)		

[†] From (α,nγ) up to 3441 level and from (^{16}O,αpnγ) or (^{28}Si,αpnγ) above that, unless otherwise noted. Some precise values given in (^{19}F,3pnγ) (1983Li16) were not used due to significant differences between Eγ's from 1983Li16 and those from other studies. Furthermore, the Eγ precision claimed by 1983Li16 does not seem realistic.

[‡] From $\gamma(\theta$,pol) in (α,nγ), unless otherwise noted. In cases where level lifetimes are known, RUL limits ΔJ=2 transitions to E2 as opposed to M2, and ΔJ=1 (or 0) transitions with large admixtures to M1+E2 rather than E1+M2.

[#] 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.

[@] Multiply placed with undivided intensity.

[&] Multiply placed with intensity suitably divided.

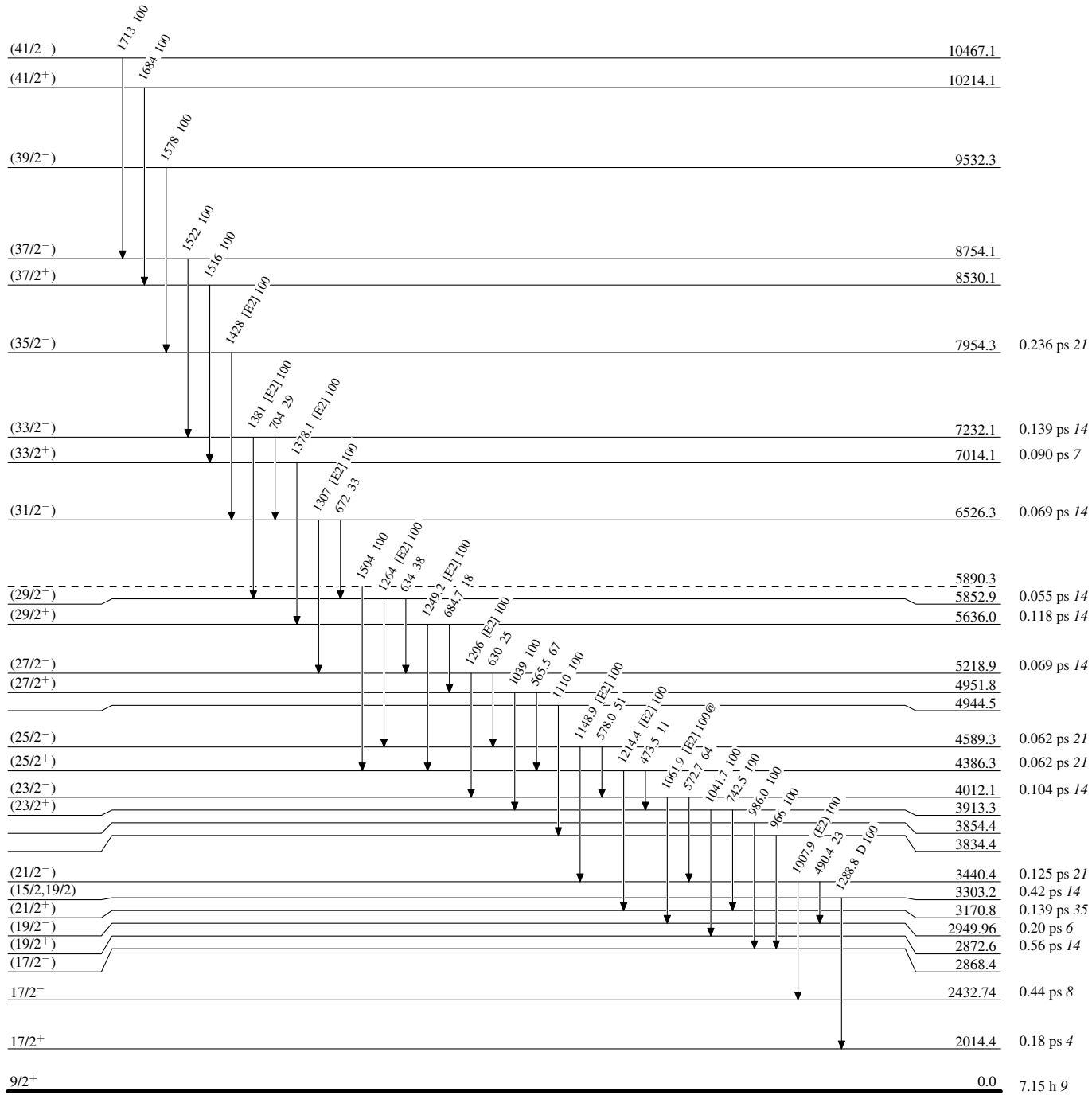
[a] Placement of transition in the level scheme is uncertain.

$^{73}_{34}Se_{39}$-12

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

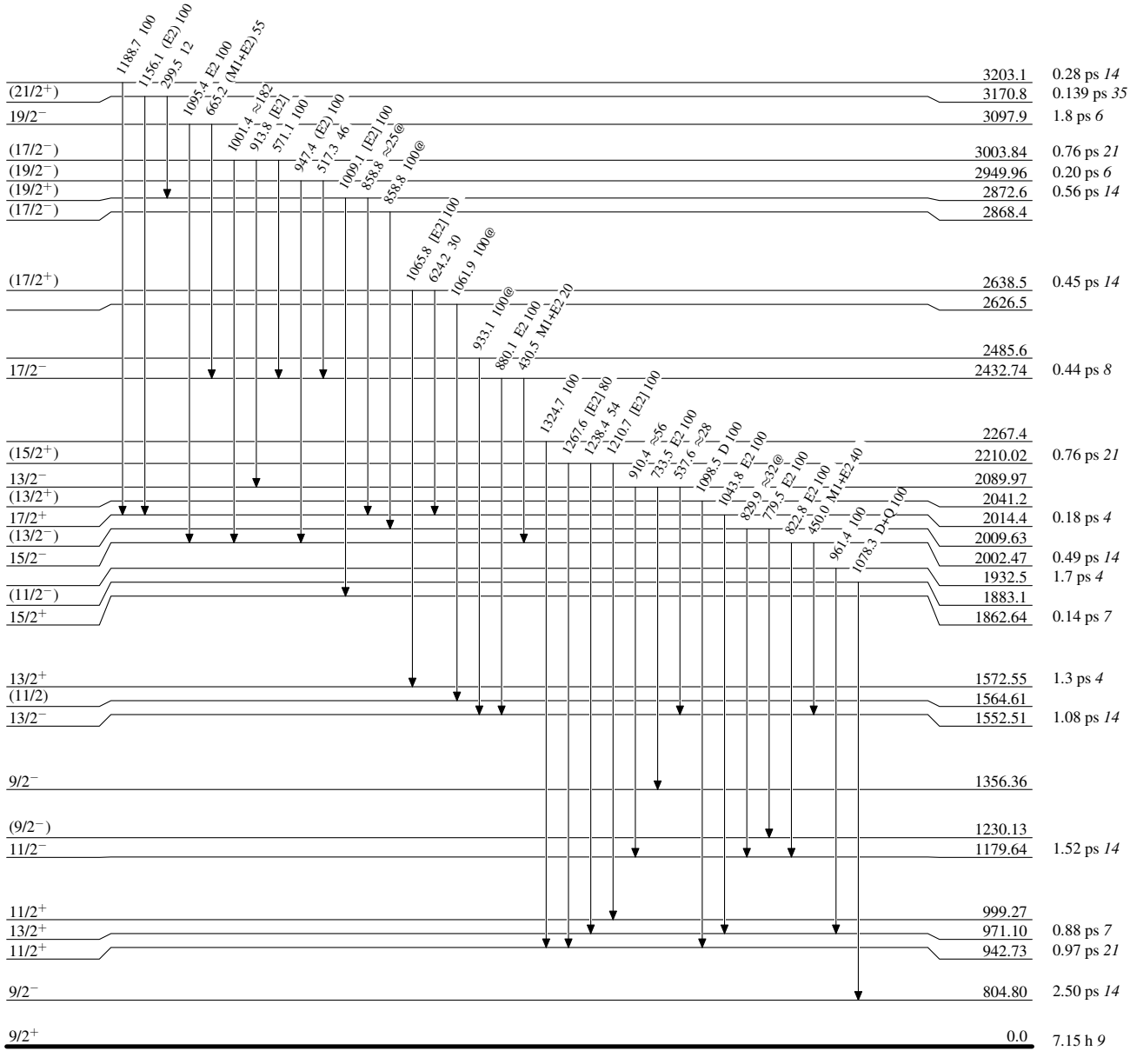


$^{73}_{34}Se_{39}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

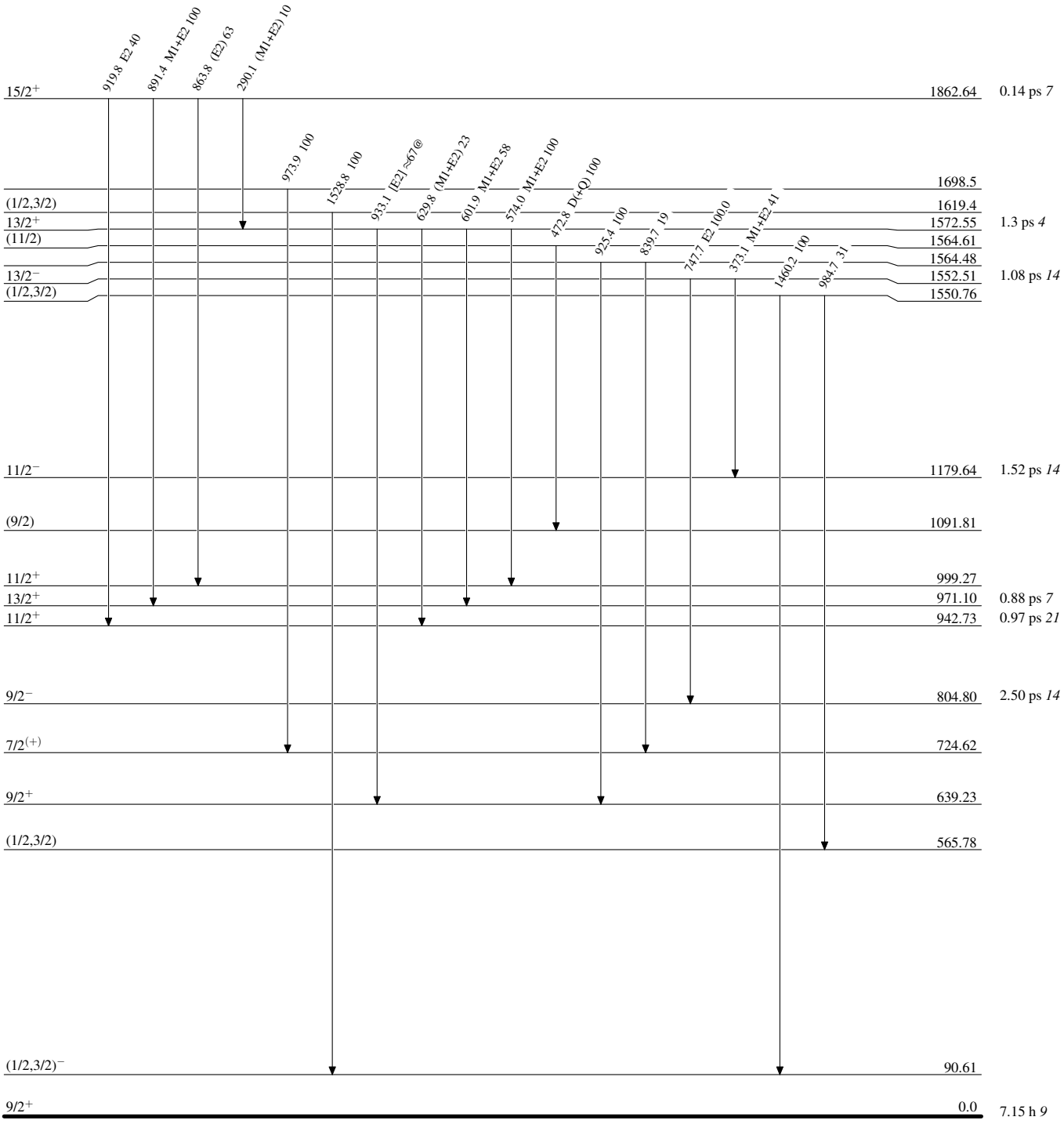


$^{73}_{34}Se_{39}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

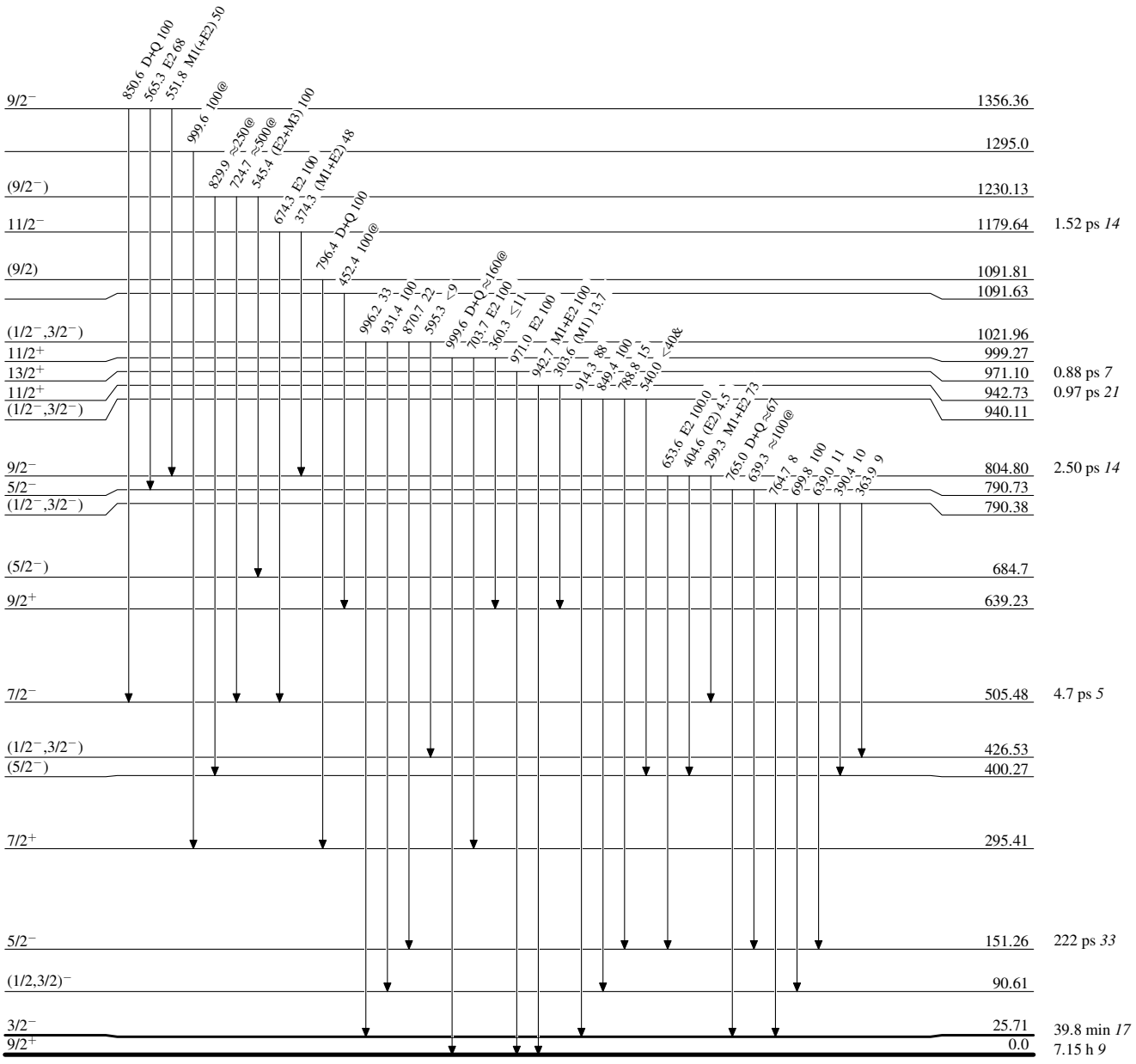


$^{73}_{34}Se_{39}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



$^{73}_{34}Se_{39}$

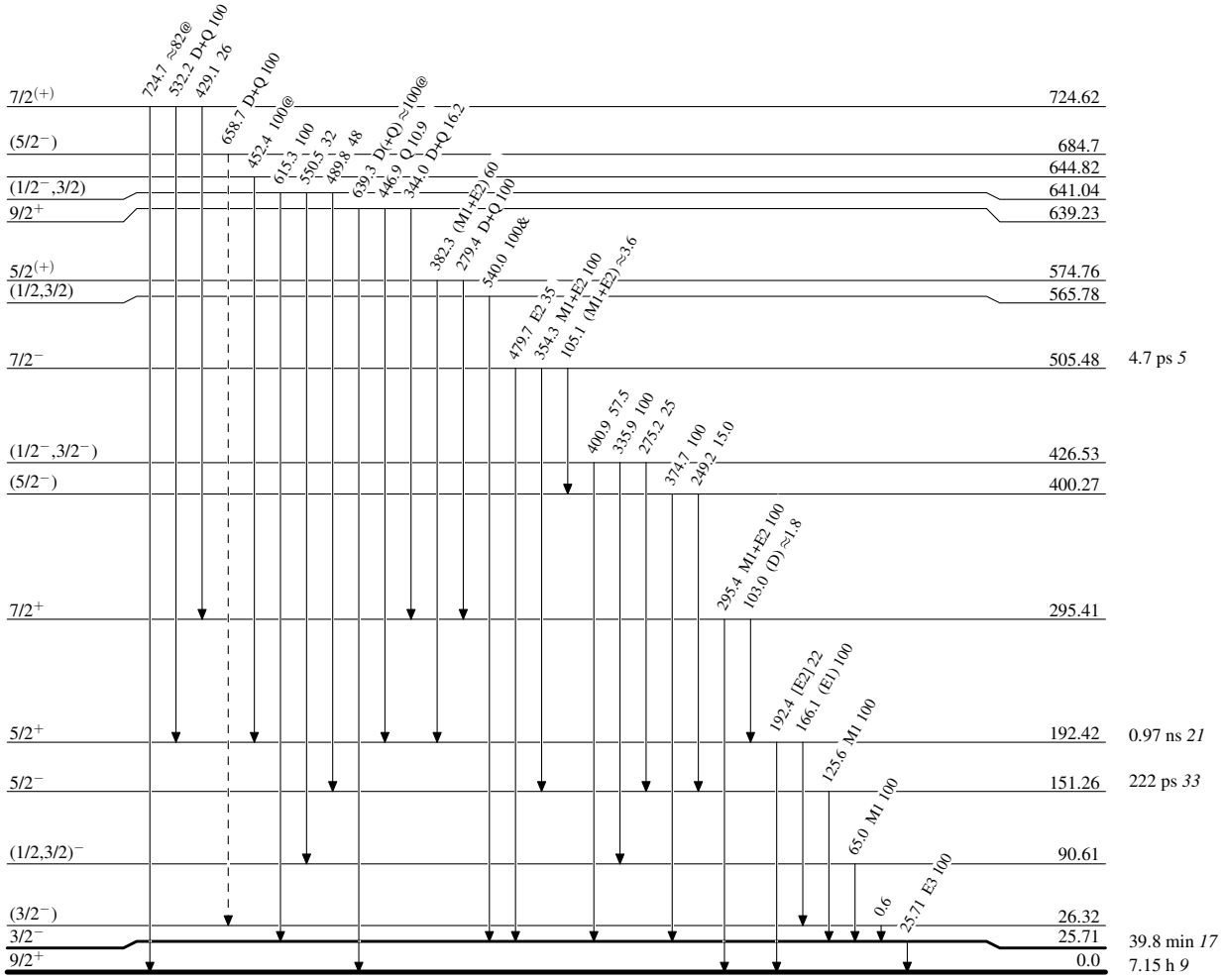
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

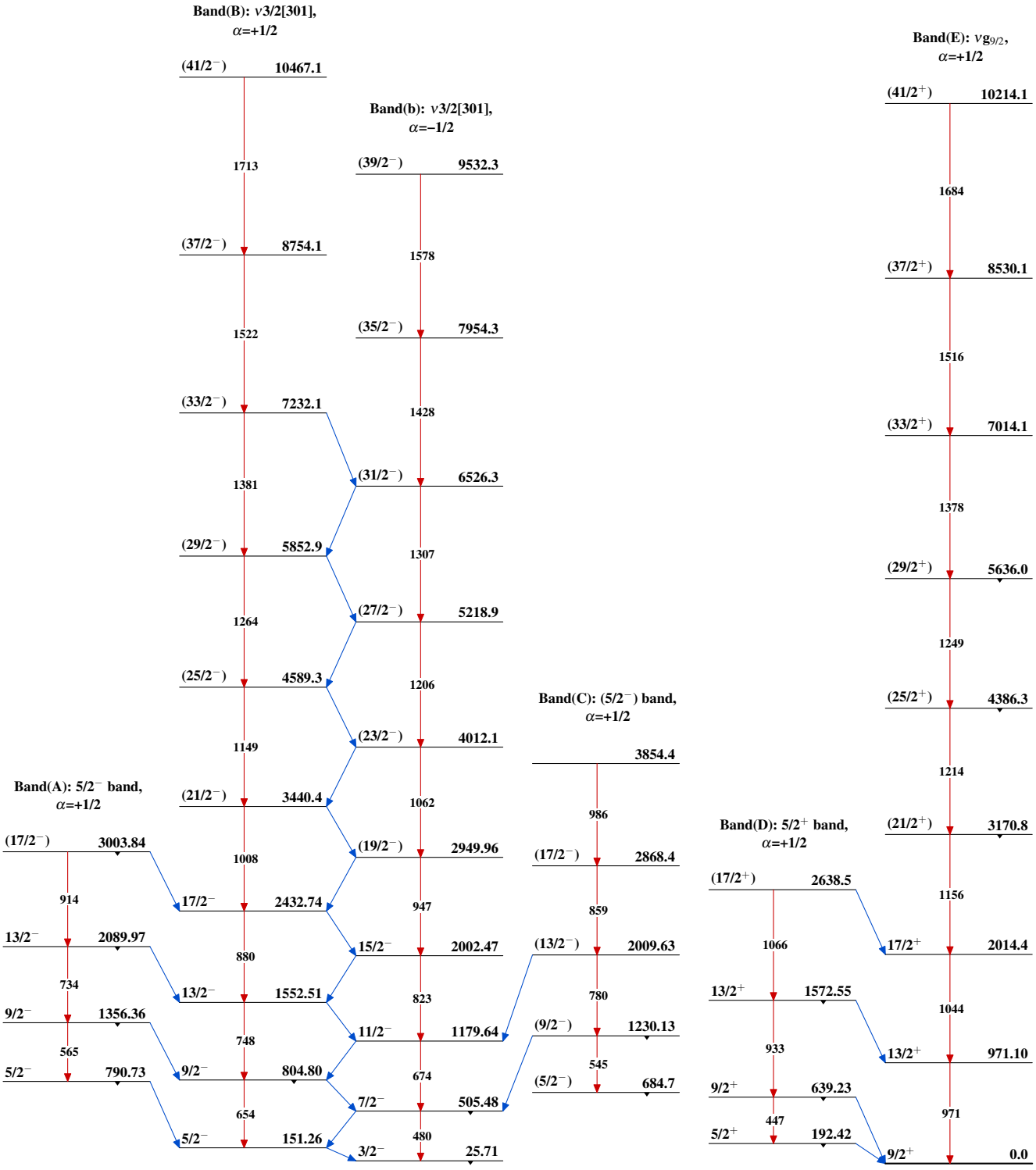
Legend

- - - - - - ► γ Decay (Uncertain)



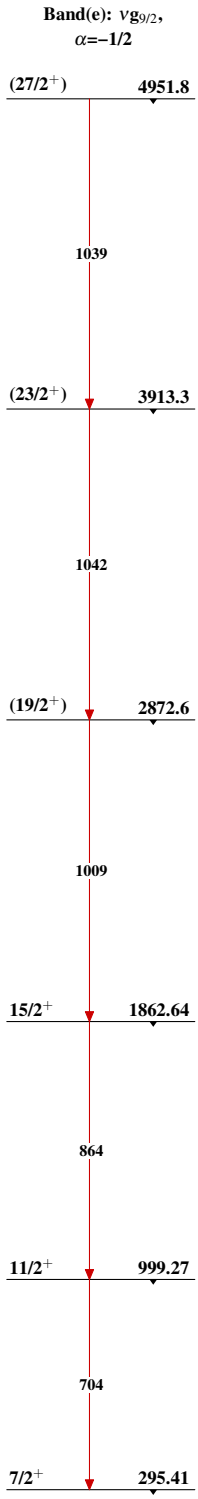
$^{73}_{34}Se_{39}$

Adopted Levels, Gammas



$^{73}_{34}Se_{39}$

Adopted Levels, Gammas (continued)



$^{73}_{34}Se_{39}$