Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 125,201 (2015)	31-Dec-2014

Q(β^-)=977 *4*; S(n)=9587 *4*; S(p)=8708 *4*; Q(α)=−7802 *7* 2012Wa38
S(2n)=17180 *4*; S(2p)=21058 *5* (2012Wa38).
α: Additional information 1.

^{83}Br Levels

Cross Reference (XREF) Flags

A	^{83}Se β^- decay (22.25 min)	E	^{82}Se(^{3}He,d)
B	^{83}Se β^- decay (70.1 s)	F	^{82}Se(^{7}Li,α2nγ)
C	^{80}Se(α,p)	G	^{84}Kr(pol d,^{3}He)
D	^{82}Se(p,p),(p,n) IAR		

E(level)[†]	J$^\pi$	T$_{1/2}$[‡]	XREF	Comments
0.0[a]	3/2$^-$	2.374 h *4*	ABC EFG	%β^-=100 J$^\pi$: L=1 and analyzing power in (pol d,^{3}He). T$_{1/2}$: weighted average of 2.373 h *3* (2015Kr02), 2.41 h *2* (1961Bo22), 2.48 h *5* (1962Cr08), 2.39 h *3* (1963Pa09), and 2.35 h *4* (1969Ph03).
356.703[a] *6*	5/2$^-$		ABC EFG	J$^\pi$: L=3 and analyzing power in (pol d,^{3}He).
799.190 *7*	(5/2,7/2)$^-$		AB E	J$^\pi$: L(^{3}He,d)=3.
866.878[a] *7*	7/2$^-$		AB F	J$^\pi$: M1(+E2) 510γ to 5/2$^-$, 867γ to 3/2$^-$, band assignment.
871.8? *21*	(1/2$^-$,3/2$^-$)		E	J$^\pi$: L(^{3}He,d)=(1).
988.022 *21*	1/2$^-$,3/2$^-$		AB E	J$^\pi$: L(^{3}He,d)=1.
1030.655 *21*	(3/2)$^-$		AB E	J$^\pi$: log *ft*=5.35 from 1/2$^-$ parent, 322γ from (5/2)$^+$.
1053.78 *8*	1/2$^-$,3/2$^-$		Bc E G	XREF: c(1100). J$^\pi$: L(^{3}He,d)=1.
1092.096 *8*	9/2$^+$	4.1 ns *1*	A c EF	XREF: c(1100). J$^\pi$: L(^{3}He,d)=4, stretched E1 225γ to 7/2$^-$. T$_{1/2}$: from $\gamma\gamma$(t) in ^{83}Se β^- decay (22.3 min).
1114 *3*			c E	XREF: c(1100).
1238.439 *11*	(5/2,7/2$^-$)		A	J$^\pi$: 372γ to 7/2$^-$, 1239γ to 3/2$^-$, 1456γ from (7/2)$^+$.
1352.779 *6*	(5/2)$^+$		A E	J$^\pi$: L(^{3}He,d)=2, 486γ to 7/2$^-$.
1421.038 *8*	(7/2$^-$,5/2$^+$)		A	J$^\pi$: 329.5γ to 9/2$^+$, 1421γ to 3/2$^-$; log *ft*=8.1 from 9/2$^+$ parent favors the 7/2$^-$ assignment.
1423.1 *20*	$^+$		E	J$^\pi$: L(^{3}He,d)=2+4.
1438.927[a] *9*	9/2$^-$	1.5 ps *4*	A F	J$^\pi$: E2 1082γ to 5/2$^-$, excitation function in (^{7}Li,α2nγ), band assignment.
1660.08 *9*	1/2$^-$,3/2$^-$		B E	J$^\pi$: L(^{3}He,d)=1.
1700.6 *11*	3/2$^-$		C G	J$^\pi$: L(α,p)=1, L(pol d,^{3}He)=(1). E(level): given the poor resolution in (α,p) and (pol d,^{3}He), could correspond to the 1660-keV level.
1701.538 *15*	13/2$^+$	21 ps *4*	A F	J$^\pi$: E2 609γ to 9/2$^+$; excitation function in (^{7}Li,α2nγ). E(level): see ^{83}Se β^- decay (22.25 min) dataset for discussion on possible doublet of levels at this energy.
1704.1 *18*	$^+$		E	J$^\pi$: L(^{3}He,d)=2+4.
1804.443 *8*	(7/2)		A	J$^\pi$: 452γ to (5/2)$^+$, 1447γ to 5/2$^-$; log *ft*=6.9 from 9/2$^+$ parent.
1810.356 *7*	(7/2$^+$)		A EF	XREF: E(1809.3). E(level): the 1809.3 level seen in (^{3}He,d) is probably identical to the 1810 level or a doublet containing the 1810 level. J$^\pi$: L(^{3}He,d)=2+4, 372γ to 9/2$^-$.
1915.51 *9*	1/2$^{(-)}$,3/2		B	J$^\pi$: log *ft*=5.9 from 1/2$^-$ parent, 1559γ to 5/2$^-$.

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Adopted Levels, Gammas (continued)

^{83}Br Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[‡]	XREF	Comments
2051.47 *7*	1/2⁻,3/2⁻		B e	E(level): the 2050.1-keV level seen in (^{3}He,d) with L=(1+2) is assumed to be a doublet including the 2051-keV and 2058-keV levels. Jπ: log *ft*=4.8 from 1/2⁻ parent.
2058.746 *9*	(5/2⁺,7/2,9/2⁺)		A C e	XREF: C(?). Jπ: 706γ to (5/2)⁺, 996γ to 9/2⁺.
2073.301 *11*	(5/2⁻,7/2⁻)		A	Jπ: 635γ to 9/2⁻, 2073γ to 3/2⁻.
2127.33[a] *13*	11/2⁻	1.2 ps *4*	F	Jπ: E2 1260.5γ to 7/2⁻, band assignment.
2134.414 *19*	11/2⁺	0.3 ps *2*	A F	Jπ: M1+E2 433γ to 13/2⁺, M1+E2 1042γ to 9/2⁺.
2240	(1/2⁻,3/2⁻)		G	Jπ: L(pol d,^{3}He)=(1).
2338.06 *18*	(11/2⁺)		F	Jπ: 527γ to (7/2⁺), M1+E2 637γ to 13/2⁺.
2398.023 *11*	9/2⁺,7/2⁺		A C E	XREF: C(2450). Jπ: L(^{3}He,d)=4, σ(θ) in (α,p) favors Jπ=9/2⁺.
2531.552 *11*			A	
2647.146 *8*	(7/2)⁺		A	Jπ: log *ft*=4.8 from 9/2⁺ parent, 2290γ to 5/2⁻.
2694.261 *8*	(7/2)⁺		A c	Jπ: log *ft*=4.9 from 9/2⁺ parent, 2337.5γ to 5/2⁻.
2729.6 *18*	1/2⁻,3/2⁻		c E	Jπ: L(^{3}He,d)=1.
2738.330 *8*	(9/2)⁺		A	Jπ: log *ft*=5.0 from 9/2⁺ parent, 1036.5γ to 13/2⁺, 1384γ to (5/2)⁺.
2759.9 *24*	(1/2⁻,3/2⁻)		E	Jπ: L(^{3}He,d)=(1).
2765.83 *20*	17/2⁺	1.4 ps *2*	F	Jπ: E2 1064γ to 13/2⁺.
2777.077 *22*	(7/2,9/2)		A	Jπ: log *ft*=6.2 from 9/2⁺ parent, 2420γ to 5/2⁻.
2788.97 *17*	13/2⁺	1.0 ps *4*	F	Jπ: M1+E2 655γ to 11/2⁺.
2809.71 *19*	1/2⁻,3/2⁻		B E	XREF: E(2813). Jπ: L(^{3}He,d)=1.
2811.70[a] *15*	13/2⁻		F	Jπ: E2 1373γ to 9/2⁻, band assignment.
2946.750 *9*	9/2⁺,11/2⁺		A	Jπ: log *ft*=4.8 from 9/2⁺ parent, 1245γ to 13/2⁺.
2953.3 *17*	3/2⁺,5/2⁺		E	Jπ: L(^{3}He,d)=2.
2993.8 *22*			E	
3024.21 *18*			F	
3034.6 *20*	3/2⁺,5/2⁺		E	Jπ: L(^{3}He,d)=2.
3050.66 *14*	15/2⁽⁺⁾		F	Jπ: 916γ to 11/2⁺, (M1+E2) 1349γ to 13/2⁺.
3069.2 *4*	(19/2⁻)	0.7 μs *1*	F	$T_{1/2}$: from γ(t) in ^{198}Pt(^{76}Ge,Xγ) (1997Is13). Other: 0.6 μs *2* from αγ(t) in (^{7}Li,α2nγ). Jπ: D(+Q) 303γ to 17/2⁺, excitation function in (^{7}Li,α2nγ), systematics of neighboring Rb isotopes.
3091.3 *3*	1/2⁻,3/2⁻		B	Jπ: log *ft*=5.7 from 1/2⁻ parent.
3130.6 *23*	1/2⁺		E	Jπ: L(^{3}He,d)=0.
3135.35 *20*	(17/2)		F	Jπ: 1434γ to 13/2⁺.
3137.724 *15*	9/2⁺,11/2⁺		A C	Jπ: log *ft*=5.0 from 9/2⁺ parent, 1436γ to 13/2⁺.
3260.37 *20*			F	
3333.63[a] *22*	15/2⁻		F	Jπ: E2 1206γ to 11/2⁻; band assignment.
3369.0 *22*			E	
3418.7 *4*	(15/2⁺)		F	Jπ: (M1+E2) 630γ to 13/2⁺.
3441.0 *27*			E	
3534.0 *4*			F	
3548.4 *23*			E	
3613.7 *22*			E	
3667.8 *22*			E	
3749.3 *22*			E	
3804.9 *22*			E	
3875.1 *5*			EF	
3967.5 *22*			E	
4016.3 *22*			E	
4049.2 *26*			E	
4097.6 *25*			E	

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Adopted Levels, Gammas (continued)

^{83}Br Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[‡]	XREF	Comments
4160.3 *22*			E	
4194.1 *27*			E	
4222.3 *3*	(21/2$^+$)	0.3 ps *1*	F	Jπ: (E2) 1456γ to 17/2$^+$.
4582.9 *4*			F	
5118.6 *6*			F	
5391.1 *7*			F	
5635.4 *8*			F	
S(p)+4861[#] *21*		28[@] keV *6*	D	
S(p)+4917[#] *7*		25[@] keV *6*	D	
S(p)+5079[#] *6*	1/2$^+$[&]	38[@] keV *1*	D	
S(p)+5121[#] *6*	5/2$^+$[&]	37[@] keV *2*	D	
S(p)+5400[#]			D	
S(p)+5640[#] *7*	(5/2)$^+$[&]	45[@] keV *11*	D	
S(p)+5903[#] *10*	5/2$^+$[&]	14[@] keV *2*	D	
S(p)+6233[#] *10*	5/2$^+$[&]	33[@] keV *2*	D	
S(p)+6267?[#] *10*	1/2$^+$[&]	32[@] keV *1*	D	
S(p)+6917[#] *10*	5/2$^+$[&]	20[@] keV *6*	D	
S(p)+7056[#] *10*	(3/2$^+$)[&]	58[@] keV *3*	D	
S(p)+7075[#] *10*	(1/2$^+$)[&]	64[@] keV *4*	D	
S(p)+7341[#] *10*	5/2$^+$[&]	23[@] keV *4*	D	
S(p)+7460[#] *10*			D	
S(p)+7531[#] *10*	5/2$^+$[&]	42[@] keV *22*	D	

[†] From a least-squares fit to Eγ, by evaluator, for levels with ΔE<1 keV. From (^{3}He,d) if ΔE≥1 keV, except where noted.
[‡] From Doppler Shift Attenuation method (DSAM) in (^{7}Li,α2nγ), except where noted.
[#] IAR′s from (p,p),(p,n).
[@] Γ of IAR′s from (p,p),(p,n).
[&] J^π of IAR′s from (p,p),(p,n).
[a] Band(A): Band based on 3/2$^-$ ground state.

Adopted Levels, Gammas (continued)

γ(^{83}Br)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[#]	α	Comments
356.703	5/2⁻	356.73[a] *1*	100	0.0	3/2⁻	M1(+E2)	+0.02 *16*	0.00428 *16*	α(K)=0.00381 *14*; α(L)=0.000407 *16*; α(M)=6.47×10^{-5} *25*; α(N)=6.05×10^{-6} *22*
799.190	(5/2,7/2)⁻	442.494[@] *14*	7.35[@] *9*	356.703	5/2⁻				
		799.225[@] *10*	100[@] *1*	0.0	3/2⁻				
866.878	7/2⁻	510.204[@] *14*	100[@a] *1*	356.703	5/2⁻	M1(+E2)	−0.04 *12*	0.00184 *4*	α(K)=0.00164 *3*; α(L)=0.000174 *4*; α(M)=2.76×10^{-5} *6*; α(N)=2.59×10^{-6} *5* Mult.: D(+Q) from R(DCO) in (^{7}Li,α2nγ), M1(+E2) from assumed band structure.
		866.912[@] *17*	17.8[@a] *21*	0.0	3/2⁻	[E2]		6.45×10^{-4}	α(K)=0.000574 *8*; α(L)=6.10×10^{-5} *9*; α(M)=9.68×10^{-6} *14*; α(N)=9.01×10^{-7} *13*
988.022	1/2⁻,3/2⁻	188.9[&] *1*	1.12[&] *11*	799.190	(5/2,7/2)⁻				
		631.2[&] *1*	2.88[&] *16*	356.703	5/2⁻				
		988.05[&] *12*	100[&] *4*	0.0	3/2⁻				
1030.655	(3/2)⁻	231.5[&] *1*	1.54[&] *8*	799.190	(5/2,7/2)⁻				
		673.98[&] *11*	71.9[&] *25*	356.703	5/2⁻				
		1030.6[&] *1*	100[&] *3*	0.0	3/2⁻				
1053.78	1/2⁻,3/2⁻	1053.7[&] *1*	100[&]	0.0	3/2⁻				
1092.096	9/2⁺	225.219[a] *11*	100[a] *2*	866.878	7/2⁻	E1(+M2)	−0.07 *7*	0.0080 *10*	α(K)=0.0072 *9*; α(L)=0.00076 *10*; α(M)=0.000120 *16*; α(N)=1.11×10^{-5} *15* B(E1)(W.u.)=7.3×10^{-6} *3*
		735.375[a] *14*	2.13[a] *15*	356.703	5/2⁻	[M2]		0.00216	α(K)=0.00191 *3*; α(L)=0.000207 *3*; α(M)=3.29×10^{-5} *5*; α(N)=3.08×10^{-6} *5* B(M2)(W.u.)=0.038 *3*
1238.439	(5/2,7/2⁻)	371.671[@] *14*	80.9[@] *12*	866.878	7/2⁻				
		439.39[@] *3*	25.0[@] *12*	799.190	(5/2,7/2)⁻				
		881.957[@] *21*	100[@] *1*	356.703	5/2⁻				
		1238.72[@] *5*	25.6[@] *11*	0.0	3/2⁻				
1352.779	(5/2)⁺	322.07[@] *4*	3.25[@] *22*	1030.655	(3/2)⁻				
		485.894[@] *14*	49.4[@] *4*	866.878	7/2⁻				
		553.608[@] *17*	75.6[@] *7*	799.190	(5/2,7/2)⁻				

$^{83}_{35}Br_{48}$-4

Adopted Levels, Gammas (continued)

γ(^{83}Br) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.‡	δ#	α	Comments
1352.779	$(5/2)^+$	996.054@ *14*	32.8@ *3*	356.703	$5/2^-$				
		1352.799@ *10*	100@ *1*	0.0	$3/2^-$				
1421.038	$(7/2^-,5/2^+)$	329.599@b *18*	8.11@ *18*	1092.096	$9/2^+$				E_γ: questionable placement as measured energy disagrees with level energy difference 329.0 keV; not included in least-squares fitting.
		433.03@ *5*	3.00@ *15*	988.022	$1/2^-,3/2^-$				
		621.796@ *14*	11.47@ *18*	799.190	$(5/2,7/2)^-$				
		1064.336@ *14*	100@ *1*	356.703	$5/2^-$				
		1421.014@ *20*	21.2@ *3*	0.0	$3/2^-$				
1438.927	$9/2^-$	572.015a *10*	100a *1*	866.878	$7/2^-$	M1(+E2)	−0.07 *13*	0.00142 *3*	α(K)=0.001264 *25*; α(L)=0.000134 *3*; α(M)=2.12×10^{-5} *5*; α(N)=1.99×10^{-6} *4* B(M1)(W.u.)=0.048 *13* Mult.: D(+Q) from R(DCO) in (^{7}Li,α2nγ), Δπ=no from level scheme.
		1082.247a *14*	63a *4*	356.703	$5/2^-$	E2		3.81×10^{-4}	α(K)=0.000339 *5*; α(L)=3.57×10^{-5} *5*; α(M)=5.67×10^{-6} *8*; α(N)=5.30×10^{-7} *8* B(E2)(W.u.)=4.6 *13* Mult.: Q from R(DCO) in (^{7}Li,α2nγ), M2 excluded by comparison to RUL.
1660.08	$1/2^-,3/2^-$	1303.3& *3*	45& *3*	356.703	$5/2^-$				
		1660.1& *1*	100& *10*	0.0	$3/2^-$				
1701.538	$13/2^+$	609.369@ *14*	100@	1092.096	$9/2^+$	E2		0.00166 *12*	α(K)=0.00147 *11*; α(L)=0.000159 *12*; α(M)=2.52×10^{-5} *18*; α(N)=2.33×10^{-6} *17* B(E2)(W.u.)=15 *4*
1804.443	(7/2)	451.666@ *10*	31.7@ *4*	1352.779	$(5/2)^+$				
		712.344@ *10*	100.0@ *11*	1092.096	$9/2^+$				
		1447.73@ *3*	17.0@ *3*	356.703	$5/2^-$				
1810.356	$(7/2^+)$	389.293@ *15*	4.46@ *6*	1421.038	$(7/2^-,5/2^+)$				
		457.592@ *10*	24.0@ *3*	1352.779	$(5/2)^+$				
		718.253@ *10*	100@ *1*	1092.096	$9/2^+$	M1+E2	−0.12 *10*	8.56×10^{-4} *14*	α(K)=0.000762 *12*; α(L)=8.03×10^{-5}

$^{83}_{35}Br_{48}$-5

Adopted Levels, Gammas (continued)

γ(^{83}Br) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[#]	α	Comments
									13; α(M)=1.275×10^{-5} *21*; α(N)=1.196×10^{-6} *19* Mult.: D+Q from R(DCO) in (^{7}Li,α2nγ), Δπ=no from level scheme.
1810.356	(7/2$^+$)	943.480[@] *15*	5.14[@] *5*	866.878	7/2$^-$				
1915.51	1/2$^{(-)}$,3/2	884.5[&] *5*	17[&] *6*	1030.655	(3/2)$^-$				
		1116.3[&] *1*	57[&] *4*	799.190	(5/2,7/2)$^-$				
		1558.9[&] *2*	100[&] *6*	356.703	5/2$^-$				
2051.47	1/2$^-$,3/2$^-$	391.5[&] *2*	1.09[&] *14*	1660.08	1/2$^-$,3/2$^-$				
		997.6[&] *1*	10.9[&] *5*	1053.78	1/2$^-$,3/2$^-$				
		1020.75[&] *15*	19.3[&] *14*	1030.655	(3/2)$^-$				
		1063.7[&] *2*	31.7[&] *9*	988.022	1/2$^-$,3/2$^-$				
		1694.7[&] *2*	7.0[&] *5*	356.703	5/2$^-$				
		2051.5[&] *2*	100[&] *3*	0.0	3/2$^-$				
2058.746	(5/2$^+$,7/2,9/2$^+$)	705.94[@] *3*	7.2[@] *2*	1352.779	(5/2)$^+$				
		966.74[@] *5*	4.0[@] *2*	1092.096	9/2$^+$				
		1191.861[@] *14*	100[@] *1*	866.878	7/2$^-$				
		1259.603[@] *14*	22.7[@] *2*	799.190	(5/2,7/2)$^-$				
2073.301	(5/2$^-$,7/2$^-$)	634.55[@] *4*	15.5[@] *12*	1438.927	9/2$^-$				
		652.26[@] *5*	16.1[@] *9*	1421.038	(7/2$^-$,5/2$^+$)				
		834.789[@] *14*	100[@] *2*	1238.439	(5/2,7/2$^-$)				
		1085.264[@] *22*	73.6[@] *12*	988.022	1/2$^-$,3/2$^-$				
		1206.46[@] *4*	58.4[@] *15*	866.878	7/2$^-$				
		1274.20[@] *4*	21.6[@] *10*	799.190	(5/2,7/2)$^-$				
		2073.35[@] *5*	40.5[@] *12*	0.0	3/2$^-$				
2127.33	11/2$^-$	688.3 *2*	100 *3*	1438.927	9/2$^-$	M1+E2	−0.19 *16*	9.46×10^{-4} *23*	α(K)=0.000841 *20*; α(L)=8.88×10^{-5} *22*; α(M)=1.41×10^{-5} *4*; α(N)=1.32×10^{-6} *4* B(M1)(W.u.)=0.028 *9* Mult.: D+Q from R(DCO) in (^{7}Li,α2nγ), Δπ=no from level scheme.
		1260.5 *2*	97 *3*	866.878	7/2$^-$	E2		2.91×10^{-4}	α(K)=0.000242 *4*; α(L)=2.54×10^{-5} *4*; α(M)=4.04×10^{-6} *6*; α(N)=3.78×10^{-7} *6* B(E2)(W.u.)=3.4 *12* Mult.: Q from R(DCO) in (^{7}Li,α2nγ), M2 excluded by comparison to RUL.

$^{83}_{35}Br_{48}$-6

Adopted Levels, Gammas (continued)

γ(^{83}Br) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[#]	α	Comments
2134.414	11/2$^+$	432.9 *2*	17.3 *13*	1701.538	13/2$^+$	M1+E2	0.6 *4*	0.0032 *5*	α(K)=0.0029 *4*; α(L)=0.00031 *5*; α(M)=4.9×10^{-5} *8*; α(N)=4.5×10^{-6} *7* B(M1)(W.u.)=0.10 *8* Mult.: D+Q from R(DCO) in (^{7}Li,α2nγ), Δπ=no from level scheme.
		1042.3 *2*	100 *3*	1092.096	9/2$^+$	M1+E2	≈−1.1	≈4.02×10^{-4}	α(K)≈0.000358; α(L)≈3.76×10^{-5}; α(M)≈5.97×10^{-6}; α(N)≈5.59×10^{-7} B(E2)(W.u.)≈33; B(M1)(W.u.)≈0.025 Mult.: D+Q from R(DCO) in (^{7}Li,α2nγ), E1+M2 excluded by comparison to RUL.
2338.06	(11/2$^+$)	527.4 *4* 636.6 *2*	21 *2* 100 *2*	1810.356 1701.538	(7/2$^+$) 13/2$^+$	M1+E2	0.36 *24*	0.00115 *6*	α(K)=0.00103 *5*; α(L)=0.000109 *6*; α(M)=1.73×10^{-5} *9*; α(N)=1.62×10^{-6} *8* Mult.: D+Q from R(DCO) in (^{7}Li,α2nγ), Δπ=no from level scheme.
2398.023	9/2$^+$,7/2$^+$	593.580[@] *14*	100[@] *1*	1804.443	(7/2)				
		1305.930[@] *23*	98.2[@] *18*	1092.096	9/2$^+$				
		1531.09[@] *6*	26.6[@] *11*	866.878	7/2$^-$				
2531.552		472.84[@] *4*	32.9[@] *16*	2058.746	(5/2$^+$,7/2,9/2$^+$)				
		1092.538[@] *14*	66.4[@] *24*	1438.927	9/2$^-$				
		1110.44[@] *3*	100[@] *3*	1421.038	(7/2$^-$,5/2$^+$)				
		1664.66[@] *3*	99.1[@] *23*	866.878	7/2$^-$				
		2174.95 *7*	21.2 *14*	356.703	5/2$^-$				
2647.146	(7/2)$^+$	573.71[@] *7*	1.13[@] *8*	2073.301	(5/2$^-$,7/2$^-$)				
		836.797[@] *10*	100[@] *1*	1810.356	(7/2$^+$)				
		1208.22[@] *4*	4.10[@] *11*	1438.927	9/2$^-$				
		1226.124[@] *14*	11.69[@] *12*	1421.038	(7/2$^-$,5/2$^+$)				
		1294.324[@] *14*	19.9[@] *3*	1352.779	(5/2)$^+$				
		1408.73[@] *9*	0.75[@] *7*	1238.439	(5/2,7/2$^-$)				
		1555.019[@] *14*	22.4[@] *3*	1092.096	9/2$^+$				

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Adopted Levels, Gammas (continued)

γ(^{83}Br) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α	Comments
2647.146	(7/2)$^+$	1780.22[@] *2*	22.0[@] *3*	866.878	7/2$^-$			
		1847.97[@] *2*	8.92[@] *12*	799.190	(5/2,7/2)$^-$			
		2290.40[@] *2*	75.9[@] *6*	356.703	5/2$^-$			
2694.261	(7/2)$^+$	296.23[@] *3*	3.85[@] *14*	2398.023	9/2$^+$,7/2$^+$			
		559.99[@] *5*	2.06[@] *11*	2134.414	11/2$^+$			
		636.57[@b] *3*	5.24[@] *13*	2058.746	(5/2$^+$,7/2,9/2$^+$)			E_γ: questionable placement as measured energy disagrees with level energy difference 635.5 keV; not included in least-squares fitting.
		883.897[@] *10*	100[@] *1*	1810.356	(7/2$^+$)			
		889.85[@] *3*	3.99[@] *14*	1804.443	(7/2)			
		992.37[@b] *4*	2.91[@] *12*	1701.538	13/2$^+$			E_γ: questionable placement as adopted J^π's lead to M3 or E4 multipolarity for the transition.
		1341.498[@] *10*	73.3[@] *7*	1352.779	(5/2)$^+$			
		1455.66[@] *5*	3.69[@] *14*	1238.439	(5/2,7/2$^-$)			
		1827.318[@] *23*	20.7[@] *2*	866.878	7/2$^-$			
		1895.05[@] *2*	100[@] *1*	799.190	(5/2,7/2)$^-$			
		2337.53[@] *2*	43.8[@] *5*	356.703	5/2$^-$			
2738.330	(9/2)$^+$	340.316[@] *16*	8.96[@] *18*	2398.023	9/2$^+$,7/2$^+$			
		603.91[@] *6*	2.21[@] *16*	2134.414	11/2$^+$			
		665.007[@] *14*	62.9[@] *7*	2073.301	(5/2$^-$,7/2$^-$)			
		679.578[@] *14*	22.3[@] *3*	2058.746	(5/2$^+$,7/2,9/2$^+$)			
		928.02[@] *8*	2.77[@] *16*	1810.356	(7/2$^+$)			
		933.878[@] *15*	14.15[@] *13*	1804.443	(7/2)			
		1036.45[@] *4*	6.5[@] *2*	1701.538	13/2$^+$			
		1299.419[@] *14*	100[@] *1*	1438.927	9/2$^-$			
		1317.259[@] *14*	81.9[@] *8*	1421.038	(7/2$^-$,5/2$^+$)			
		1385.35[@] *6*	4.9[@] *2*	1352.779	(5/2)$^+$			
		1646.17[@] *5*	4.18[@] *13*	1092.096	9/2$^+$			
		1871.49[@] *2*	32.6[@] *3*	866.878	7/2$^-$			
2765.83	17/2$^+$	1064.3 *2*	100	1701.538	13/2$^+$	E2	3.96×10^{-4}	α(K)=0.000352 *5*; α(L)=3.72×10^{-5} *6*; α(M)=5.90×10^{-6} *9*; α(N)=5.51×10^{-7} *8* B(E2)(W.u.)=13.8 *20* Mult.: Q from R(DCO) in (^{7}Li,α2nγ), M2 excluded by comparison to RUL.

Adopted Levels, Gammas (continued)

γ(^{83}Br) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[#]	α	Comments
2777.077	(7/2,9/2)	1684.94[@] *3*	100[@] *3*	1092.096	$9/2^+$				
		2420.36[@] *3*	97.6[@] *15*	356.703	$5/2^-$				
2788.97	$13/2^+$	654.5 *2*	100	2134.414	$11/2^+$	M1+E2	−1.1 *4*	0.00121 *7*	α(K)=0.00108 *6*; α(L)=0.000115 *7*; α(M)=1.83×10^{-5} *11*; α(N)=1.70×10^{-6} *10* B(E2)(W.u.)=1.2×10^2 *7*; B(M1)(W.u.)=0.035 *20* Mult.: D+Q from R(DCO) in (^{7}Li,α2nγ), E1+M2 excluded by comparison to RUL.
2809.71	$1/2^-$,$3/2^-$	1779.0[&] *2*	≤600[&]	1030.655	$(3/2)^-$				
		2453.2[&] *7*	100[&] *28*	356.703	$5/2^-$				
		2809.9[&] *7*	31[&] *7*	0.0	$3/2^-$				
2811.70	$13/2^-$	684.3 *2*	73 *13*	2127.33	$11/2^-$	M1+E2	−0.17 *25*	0.00096 *4*	α(K)=0.00085 *3*; α(L)=9.0×10^{-5} *4*; α(M)=1.43×10^{-5} *6*; α(N)=1.34×10^{-6} *5* Mult.: D+Q from R(DCO) in (^{7}Li,α2nγ), Δπ=no from level scheme.
		1372.8 *2*	100 *7*	1438.927	$9/2^-$	E2		2.73×10^{-4}	α(K)=0.000202 *3*; α(L)=2.12×10^{-5} *3*; α(M)=3.37×10^{-6} *5*; α(N)=3.15×10^{-7} *5* Mult.: Q from R(DCO) in (^{7}Li,α2nγ), E2 from assumed band structure.
2946.750	$9/2^+$,$11/2^+$	208.40[@] *1*	44.7[@] *9*	2738.330	$(9/2)^+$				
		415.112[@] *14*	41.0[@] *4*	2531.552					
		812.31[@] *2*	11.3[@] *3*	2134.414	$11/2^+$				
		888.031[@] *10*	100[@] *1*	2058.746	$(5/2^+,7/2,9/2^+)$				
		1136.21[@] *6*	3.5[@] *2*	1810.356	$(7/2^+)$				
		1245.38[@b] *2*	18.7[@] *2*	1701.538	$13/2^+$				
		1507.81[@] *3*	12.1[@] *3*	1438.927	$9/2^-$				
		1854.61[@] *3*	48.9[@] *5*	1092.096	$9/2^+$				
3024.21		235.2 *4*	21 *7*	2788.97	$13/2^+$				
		889.8 *2*	100 *7*	2134.414	$11/2^+$				
3050.66	$15/2^{(+)}$	261.5 *4*	28 *4*	2788.97	$13/2^+$				
		916.2 *2*	48 *4*	2134.414	$11/2^+$				

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Adopted Levels, Gammas (continued)

γ(^{83}Br) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[#]	α	Comments
3050.66	15/2(+)	1349.2 *2*	100 *4*	1701.538	13/2+	(M1+E2)	≈−1.1	≈2.68×10^{-4}	α(K)≈0.000207; α(L)≈2.17×10^{-5}; α(M)≈3.44×10^{-6}; α(N)≈3.23×10^{-7} Mult.: D+Q from R(DCO) in (^{7}Li,α2nγ), large δ value favors M1+E2 character.
3069.2	(19/2−)	303.4 *4*	100	2765.83	17/2+	E1(+M2)	−0.04 *7*	0.0034 *3*	α(K)=0.00300 *23*; α(L)=0.00032 *3*; α(M)=5.0×10^{-5} *5*; α(N)=4.7×10^{-6} *4* B(E1)(W.u.)=1.8×10^{-8} *3*; B(M2)(W.u.)=0.00144 *21* Mult.: D(+Q) from R(DCO) in (^{7}Li,α2nγ), Δπ=no from level scheme.
3091.3	1/2−,3/2−	2734.7[&] *3*	100.[&] *19*	356.703	5/2−				
		3090.7[&] *5*	81[&] *13*	0.0	3/2−				
3135.35	(17/2)	1433.8 *2*	100	1701.538	13/2+	(Q)		0.00018	
3137.724	9/2+,11/2+	1436.18[@] *2*	100.0[@] *14*	1701.538	13/2+				
		1716.61[@b] *3*	69.9[@] *12*	1421.038	(7/2−,5/2+)				
		2045.62[@] *2*	99.3[@] *14*	1092.096	9/2+				
3260.37		495 *1*	18 *9*	2765.83	17/2+				
		1558.8 *2*	100 *9*	1701.538	13/2+				
3333.63	15/2−	521.9 *2*	100 *8*	2811.70	13/2−				
		1206.4 *4*	77 *8*	2127.33	11/2−	E2		3.08×10^{-4}	α(K)=0.000266 *4*; α(L)=2.80×10^{-5} *4*; α(M)=4.44×10^{-6} *7*; α(N)=4.16×10^{-7} *6* Mult.: Q from R(DCO) in (^{7}Li,α2nγ), E2 from assumed band structure.
3418.7	(15/2+)	629.7 *4*	100	2788.97	13/2+	(M1+E2)	−1.2 *7*	0.00136 *15*	α(K)=0.00121 *13*; α(L)=0.000129 *15*; α(M)=2.05×10^{-5} *23*; α(N)=1.90×10^{-6} *21* Mult.: D+Q from R(DCO) in (^{7}Li,α2nγ); large δ value favors M1+E2 character.
3534.0		398.6 *4*	100	3135.35	(17/2)				
3875.1		805.9 *2*	100	3069.2	(19/2−)				
4222.3	(21/2+)	1456.4 *2*	100	2765.83	17/2+	(E2)		2.71×10^{-4}	α(K)=0.000179 *3*; α(L)=1.88×10^{-5} *3*; α(M)=2.98×10^{-6} *5*; α(N)=2.79×10^{-7} *4* B(E2)(W.u.)=13 *5* Mult.: (Q) from R(DCO) in

$^{83}_{35}Br_{48}$-10

Adopted Levels, Gammas (continued)

γ(^{83}Br) (continued)

E_i(level)	E_γ †	I_γ †	E_f	J^π_f	Comments
					(^{7}Li,α2nγ), M2 excluded by comparison to RUL.
4582.9	360 *1*	100 *19*	4222.3	(21/2$^+$)	
	1817.1 *4*	44 *6*	2765.83	17/2$^+$	
5118.6	1243.5 *4*	100	3875.1		
5391.1	272.4 *4*	100	5118.6		
5635.4	244.3 *4*		5391.1		
	517 *1*		5118.6		

† From (^{6}Li,α2nγ), except where noted.
‡ From R(DCO) and linear polarization measurements in (^{6}Li,α2nγ), except where noted.
# From R(DCO) in (^{6}Li,α2nγ).
@ From ^{83}Se β$^-$ decay (22.25 min).
& From ^{83}Se β$^-$ decay (70.1 s).
[a] Weighted average of ^{83}Se β$^-$ decay (22.25 min) and (^{6}Li,α2nγ).
[b] Placement of transition in the level scheme is uncertain.

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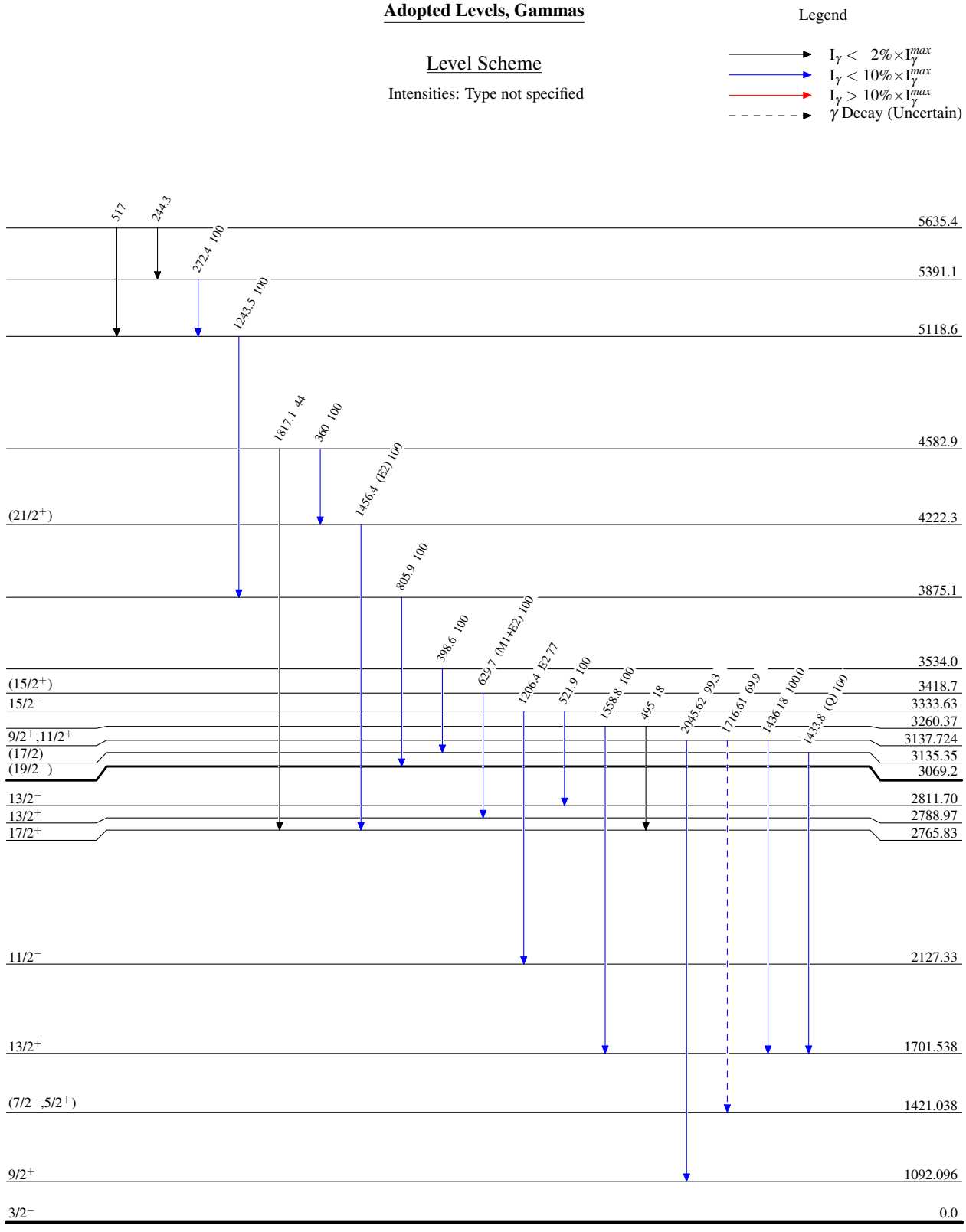
Adopted Levels, Gammas

Level Scheme

Intensities: Type not specified



$^{83}_{35}Br_{48}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

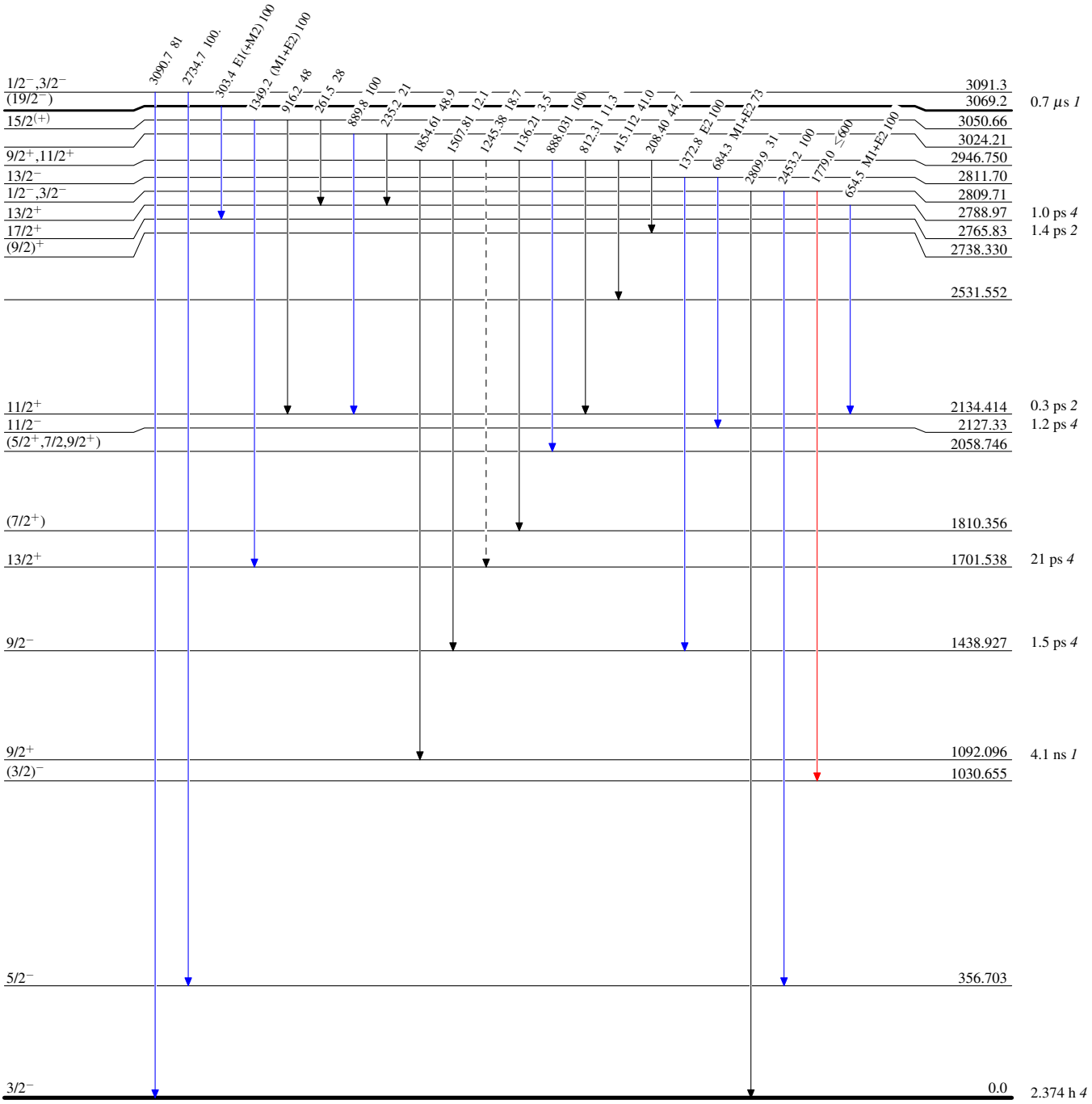
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$

γ Decay (Uncertain)

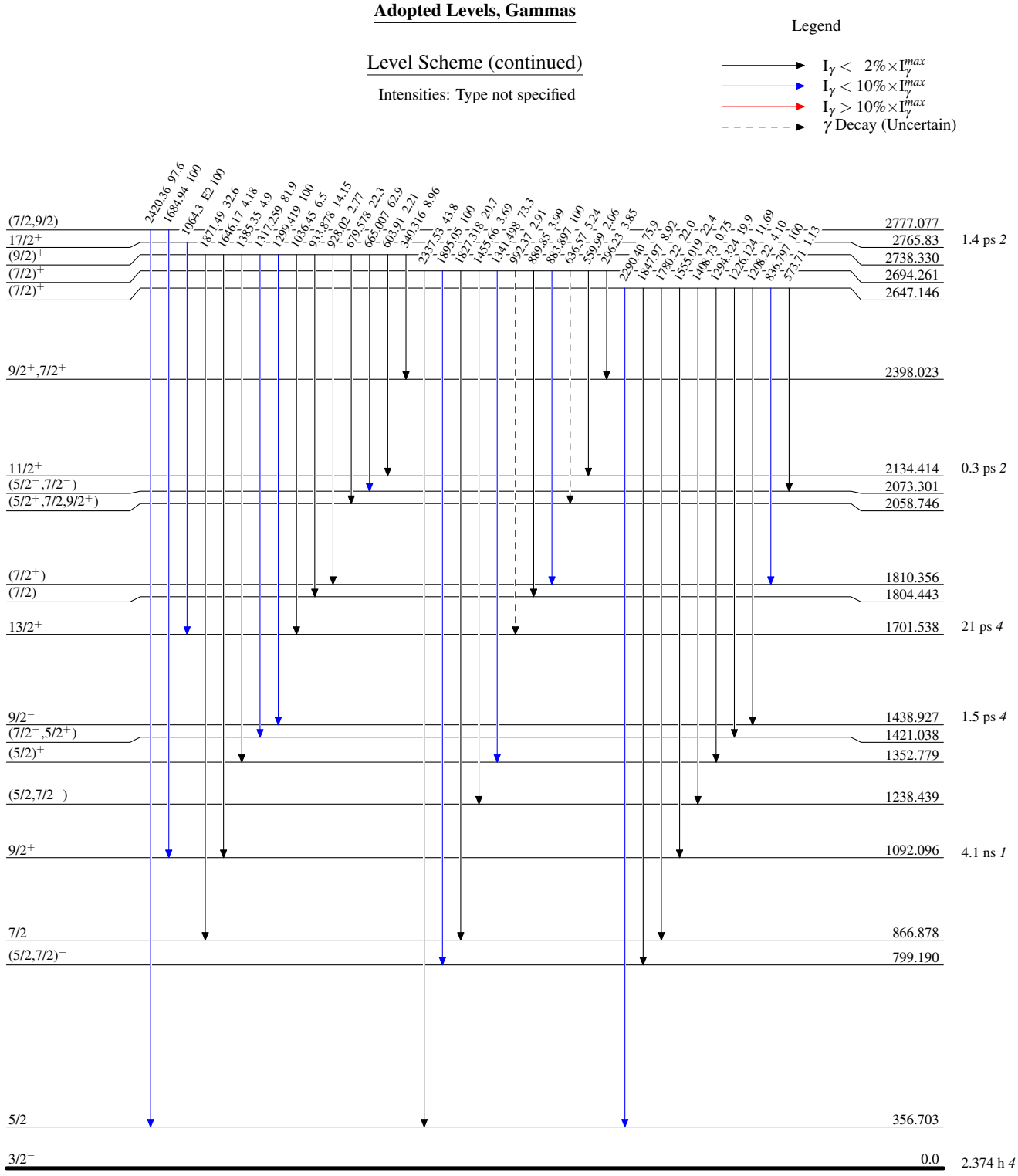


$^{83}_{35}Br_{48}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

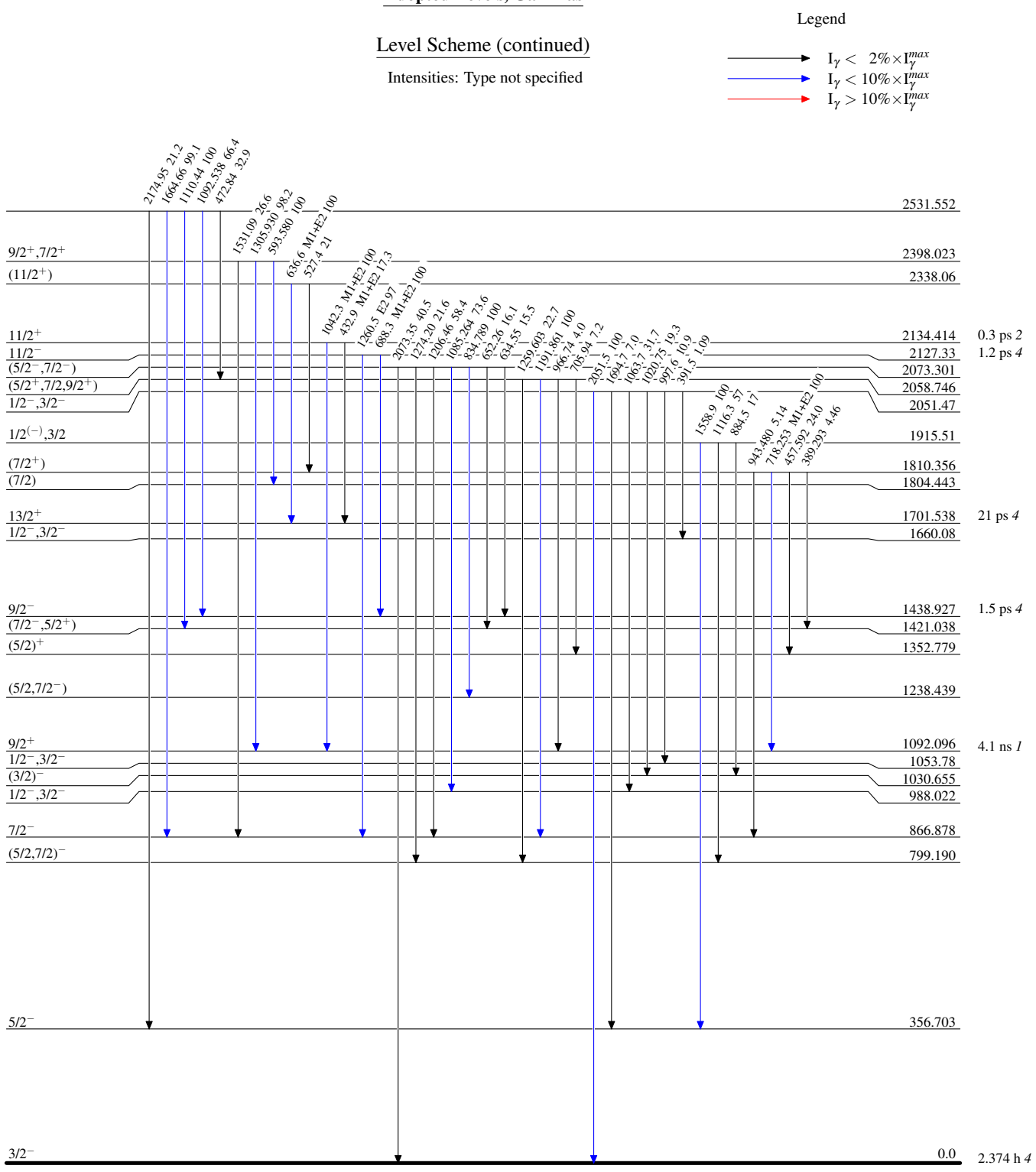


$^{83}_{35}Br_{48}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



$^{83}_{35}Br_{48}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

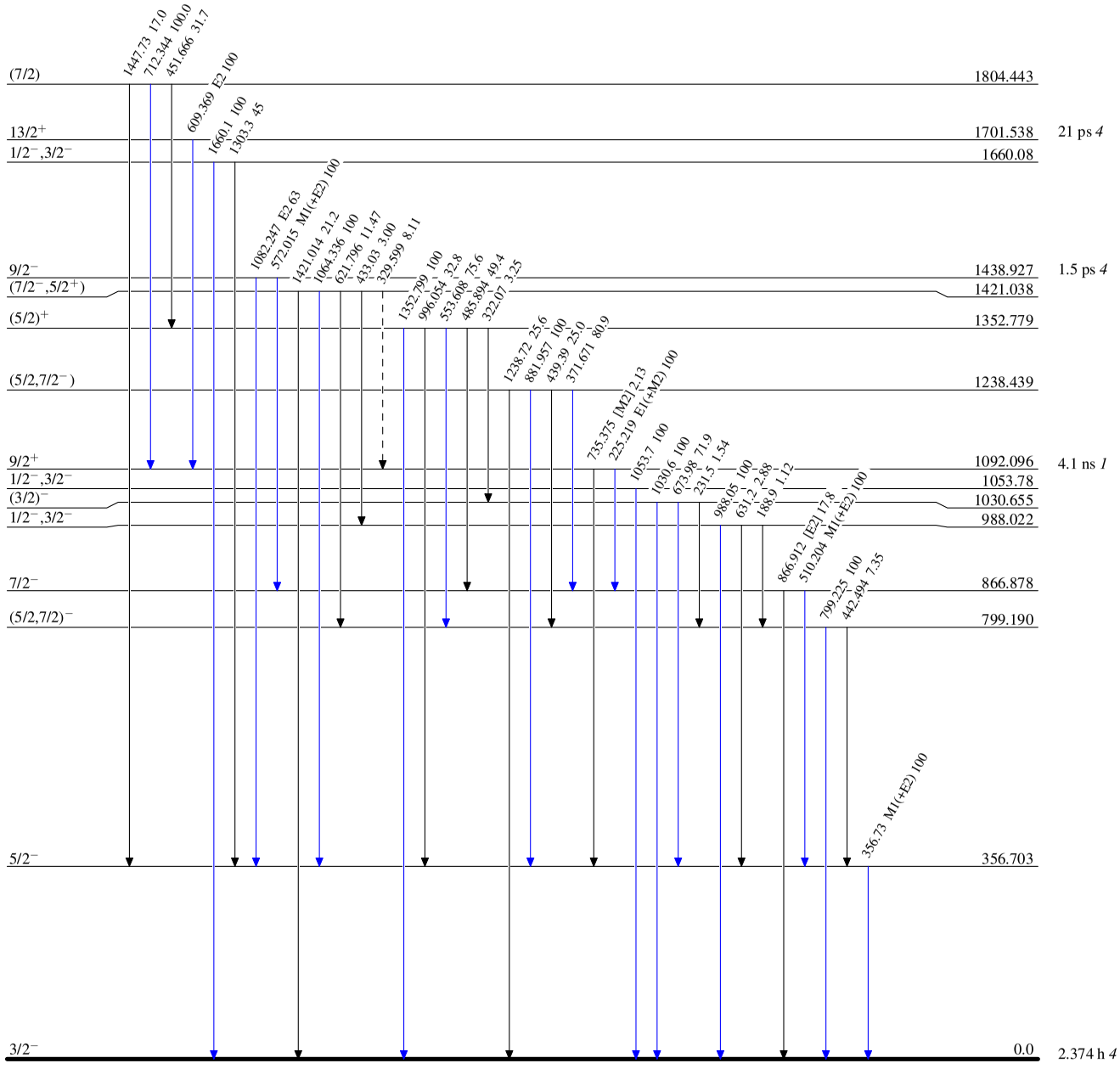
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

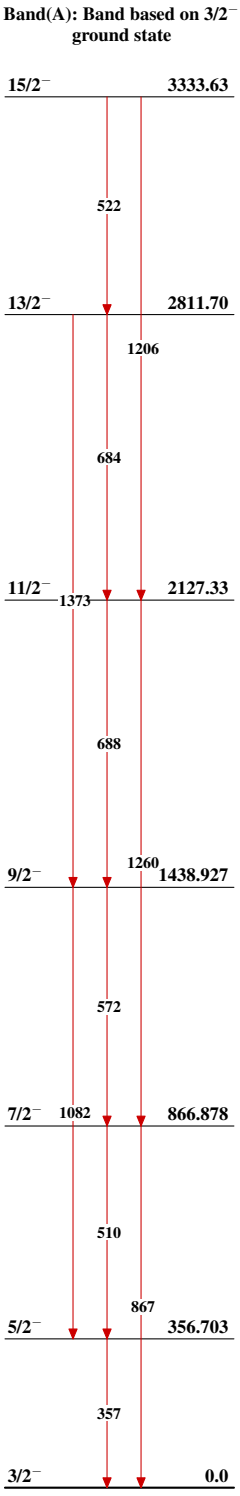
$I_\gamma > 10\% \times I_\gamma^{max}$

γ Decay (Uncertain)



$^{83}_{35}Br_{48}$

Adopted Levels, Gammas



$^{83}_{35}Br_{48}$