Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, E. A. Mccutchan	NDS 165, 1 (2020)	1-Mar-2020

Q(β^-)=−9448.0 *40*; S(n)=13229.0 *50*; S(p)=6836 *24*; Q(α)=−4628 *5* 2017Wa10
S(2n)=23629 *5*; S(2p)=11122 *6*.
α: Additional information 1.

^{90}Mo Levels

Cross Reference (XREF) Flags

A	^{90}Tc ε decay (8.7 s)	F	^{92}Mo(p,t)
B	^{90}Tc ε decay (50.7 s)	G	^{90}Zr(^{3}He,3nγ)
C	^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ)	H	^{9}Be(^{124}Xe,Xγ)
D	^{66}Zn(^{28}Si,2p2nγ)	I	^{59}Co(^{35}Cl,2p2nγ)
E	^{58}Ni(^{40}Ca,α4pγ)		

E(level)[#]	J$^\pi$	T$_{1/2}$[@]	XREF	Comments
0.0[†]	0$^+$	5.56 h *9*	ABCDEFGHI	%ε+%β^+=100 T$_{1/2}$: weighted average of 5.67 h *5* (1966Pe10), 5.60 h *15* (1965Gr29), 5.32 h *7* (1969Ol01), and 5.7 h *2* (1953Di08).
948.02[†] *9*	2$^+$		ABCDEFGHI	J$^\pi$: from L(p,t)=2.
1896.53 *13*	2$^+$		C FG	J$^\pi$: from L(p,t)=2.
1979 *5*	0$^+$		F	J$^\pi$: from L(p,t)=0.
2002.12[†] *11*	4$^+$		BCDEFGHI	J$^\pi$: from L(p,t)=4.
2432.63 *17*	3$^-$		C FG	J$^\pi$: from L(p,t)=3.
2450 *5*	0$^+$		F	J$^\pi$: from L(p,t)=0.
2534.1 *7*	(2$^+$)		FG	XREF: F(2528). J$^\pi$: D(+Q) 1586.2γ to 2$^+$, possible 2534γ to 0$^+$.
2548.82 *12*	5$^-$	16 ps *3*	BCDEFGH	μ=5.5 *14* J$^\pi$: from L(p,t)=5. μ: From IMPAD (ion-implantation perturbed angular distribution) (1994We09,2014StZZ).
2613 *5*	2$^+$		F	J$^\pi$: from L(p,t)=2.
2706 *5*			F	
2811.69[†] *12*	6$^+$		BCDE GHI	J$^\pi$: E2 809.6γ to 4$^+$, assignment to ground state sequence.
2859.21[‡] *13*	5$^-$		BC FG	J$^\pi$: from L(p,t)=5.
2874.81[†] *15*	8$^+$	1.14 μs *5*	CDEFGHI	Q=0.61 *3*; μ=−1.391 *14* J$^\pi$: systematics of half-lives for J$^\pi$=8$^+$ member of g.s. rotational band in ^{88}Zr and ^{86}Sr. L(p,t)=(6) is in disagreement. 63γ to 6$^+$. T$_{1/2}$: weighted average of 1.14 μs *5* (1978Ha52), 1.05 μs *10* (1971Is04) and 1.15 μs *5* (2017Pa35), 1.14 μs *5* (2019Ha26, and 1.17 μs *+11−7* (2004Ch35). μ: from TDPAD (time-differential perturbed angular distribution) (1978Ha52, 2014StZZ). Q: from TDPAD (time-differential perturbed angular distribution) (1985Ra09, 2016St14).
2901.23 *19*	(4$^-$)		C FG	J$^\pi$: 468.6γ to 3$^-$.
2946.89 *14*	(6$^+$)		BC G	J$^\pi$: 944.8γ to 4$^+$, 135.2γ to 6$^+$.
3037.6 *10*			B	
3074 *7*	3$^-$		F	J$^\pi$: from L(p,t)=3.
3106.20 *16*	8$^+$	4.9 ps *13*	CDE G I	J$^\pi$: 231γ M1+E2 ΔJ=0 transition to 8$^+$.
3147.9 *10*	2$^+$		FG	J$^\pi$: from L(p,t)=2.
3150.0 *5*			B	E(level): possible ε+β^+ feeding from J$^\pi$=8$^+$ suggests that this level is different from the 3148 level.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{90}Mo Levels (continued)

E(level)[#]	J^π	$T_{1/2}$[@]	XREF	Comments
3185 *7*			F	
3293.86 *22*			BC FG	J^π: feeding from 8^+ parent in ^{90}Tc ε decay would suggest J=7,8,9. However, 1291.4γ to 4^+ and 482.3γ to 6^+ suggests J=4^+,5,6^+.
3355 *7*			F	
3367.38[‡] *13*	7^-	<0.69 ps	CDE G	J^π: E2 818.6γ to 5^-, assignment to negative parity sequence.
3446.22 *19*	(7^-)		C G	J^π: (E2) 897.4γ to 5^-.
3494 *7*			F	
3514 *7*			F	
3539.8 *8*			B	
3659.73 *16*	(7^-)		C G	J^π: (E2) 800.5γ to 5^-.
3683 *7*			F	
3736 *7*			F	
3834 *7*			F	
3936 *7*			F	
4078.91[†] *16*	10^+	14.6 ps *28*	CDE G I	J^π: E2 972.7γ to 8^+, assignment to ground state sequence.
4094.8 *5*			B	
4175.4 *8*			B	
4192.52 *15*	10^+	<3.5 ps	CDE G I	J^π: E2 1317.7γ to 8^+.
4297.75[‡] *15*	9^-	9.7 ps *21*	CDE G	J^π: E2 930.3γ to 7^-.
4357.5 *10*			B	
4555.86[†] *15*	12^+	526 ps *3*	CDE G I	μ=6.0 *7* μ: from g-factor=0.50 *6*, by IMPAD (ion-implantation perturbed angular distribution) (1994We09,2014StZZ). J^π: E2 476.95γ to 10^+.
4594.25 *25*	(9,10)		C G	J^π: D(+Q) 296.5γ to 9^-.
4789.37 *18*	10		C G	J^π: D+Q 491.7γ to 9^-.
4842.02[‡] *15*	11^-	39 ps *2*	CDE G	μ=+4.6 *14* μ: from g-factor=0.42 *13*, by IMPAD (ion-implantation perturbed angular distribution) (1994We09,2014StZZ). $T_{1/2}$: other: < 0.7 ps from (^{28}Si,2p2nγ). J^π: E2 544.2γ to 9^-.
4895.14 *18*	(11)		C G	J^π: 105.8γ to (10).
5377.24 *17*	(13^+)	1.8 ps *3*	CDE G I	J^π: D+Q 821.4γ to 12^+. $T_{1/2}$: weighted average of 1.0 ps *3* from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ) and 1.94 ps *13* from ^{59}Co(^{35}Cl,2p2nγ).
5499.42 *16*	(12)		C	J^π: D 657.4γ to 11^-.
5621.6 *3*	(14^+)		D	J^π: D 244.2γ to (13^+).
5625.02[†] *17*	14^+	0.76 ps *7*	CDE I	$T_{1/2}$: from ^{59}Co(^{35}Cl,2p2nγ), uncertainty increased by evaluators. Others: 2.7 ps *1* from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ) and 4.8 ps *14* from (^{28}Si,2p2nγ). J^π: E2 1069.1γ to 12^+.
5699.65[‡] *16*	13^-	1.4 ps *4*	CDE	J^π: E2 857.7γ to 11^-. $T_{1/2}$: other: < 0.7 ps in (^{28}Si,2p2nγ).
5863.75 *16*	(13)		C	J^π: 364.4γ to (12).
5903.74 *18*	14^+	1.5 ps *3*	C E I	J^π: M1+E2 526.5γ to 13^+. $T_{1/2}$: weighted average of 1.7 ps *4* from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ) and 1.39 ps *28* from ^{59}Co(^{35}Cl,2p2nγ).
6064.89 *19*	(13)		C	J^π: 565.5γ to (12).
6148.16 *18*	15^+	0.721 ps *49*	CDE I	$T_{1/2}$: from ^{59}Co(^{35}Cl,2p2nγ). Others: <0.3 ps from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ) and <1.4 ps in (^{28}Si,2p2nγ). J^π: M1+E2 244.5γ to 14^+.
6475.91 *16*	14^-	1.5 ps *10*	C E	J^π: M1+E2 776.2γ to 13^-.
6643.13[‡] *16*	15^-	1.3 ps *1*	CDE	J^π: E2 943.3γ to 13^-.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{90}Mo Levels (continued)

E(level)#	Jπ	$T_{1/2}$@	XREF	Comments
				$T_{1/2}$: other: < 0.7 ps in (^{28}Si,2p2nγ).
6746.10† *18*	16+	2.0 ps *3*	CDE I	Jπ: M1+E2 598.0γ to 15+. $T_{1/2}$: weighted average of 3.6 ps *7* from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ) and 1.91 ps *14* from ^{59}Co(^{35}Cl,2p2nγ).
7027.0? *4*	17		D	Jπ: D+Q 280.9γ to 16+.
7170.98 *19*	(16+)		C	Jπ: 1545.9γ to 14+.
7385.59 *19*	16−	6.6 ps *15*	C E	Jπ: M1+E2 742.5γ to 15−.
7515.01‡ *19*	17−	7.4 ps *3*	CDE	$T_{1/2}$: Other: 5.5 ps *7* from (^{28}Si,2p2nγ). Jπ: E2 872.0γ to 15−.
7629.61 *21*	(16)		C	Jπ: (D+Q) 1481.4γ to 15+.
7682.4? *4*	(18)		D	Jπ: (D+Q) 167.4γ to 17−.
8066.77 *19*	17+	0.60 ps *4*	C E	Jπ: E2 1918.6γ to 15+.
8123.55‡ *20*	(18−)		C E	Jπ: D+Q 608.5γ to 17−; assignment to negative parity sequence.
8281.85 *22*	(17+)		C	Jπ: 2133.7γ to 15+.
8525.30† *19*	18+	0.16 ps *2*	C E	Jπ: E2 1779.2γ to 16+.
8616.84 *20*	(17+)		C	Jπ: 1870.7γ to 16+, 2468.6γ to 15+.
8678.44‡ *23*	(19−)		C E	Jπ: D 554.9γ to (18−), assignment to negative-parity sequence.
9079.18 *20*	(18−)		C	Jπ: 1564.1γ to 17−, 1693.6γ to 16−.
9136.60 *19*	(18+)		C E	Jπ: (E2) 2390.5γ to 16+.
9319.01 *20*	(19−)		C E	Jπ: (E2) 1803.97γ to 17−.
9443.90 *20*	(19+)		C E	Jπ: D+Q 918.6γ to 18+, 1377.0γ to 17+.
9739.38 *19*	(19+)		C E	Jπ: (E2) 1672.5γ to 17+.
9787.96† *21*	(20+)		C E	Jπ: (E2) 1262.7γ to 18+.
9995.04 *21*	(20−)		C E	Jπ: D+Q 676.0γ to (19−), 1871.6γ to (18−).
10235.14 *20*	20+	0.21 ps *6*	C E	Jπ: E2 1709.9γ to 18+.
10477.36 *21*	(20+)		C E	Jπ: 738.0γ to (19+), 1952.0γ to 18+.
10537.91 *25*	(21)		C E	Jπ: D 542.9γ to (20−).
10855.61 *20*	21+	0.90 ps *14*	C E	Jπ: M1+E2 620.5γ to 20+.
11135.76† *21*	22+	<0.07 ps	C	Jπ: M1+E2 280.2γ to 21+.
11269.3 *7*	(21)		E	Jπ: 2590γ to (19).
11577.07 *23*	(22+)		C E	Jπ: E2 1789.1γ to (20+).
11735.5 *5*			E	
12016.61 *23*	23+	<1.2 ps	C E	Jπ: E2 1161.0γ to 21+.
12257.7 *10*			E	
12383.6 *3*	(23)		C E	Jπ: (E2) 1845.7γ to (21).
14279.8 *10*			E	
14412.1 *10*			E	
14486.6 *10*			E	

† Seq.(A): Ground state sequence.
‡ Seq.(B): Negative-parity sequence.
# From a least-squares fit to Eγ, by evaluators.
@ From recoil distance Doppler-shift and Doppler-shift attenuation methods in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), except where noted.

$\gamma(^{90}Mo)$

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	δ‡	α	Comments
948.02	2^+	948.01 *9*	100	0.0	0^+	E2		8.74×10^{-4}	α(K)=0.000768 *11*; α(L)=8.74×10^{-5} *13*; α(M)=1.559×10^{-5} *22*; α(N)=2.37×10^{-6} *4* α(O)=1.317×10^{-7} *19* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=no from level scheme.
1896.53	2^+	948.50 *10*		948.02	2^+	[M1+E2]		8.87×10^{-4} *19*	α(K)=0.000780 *17*; α(L)=8.79×10^{-5} *14*; α(M)=1.569×10^{-5} *25*; α(N)=2.39×10^{-6} *4*; α(O)=1.35×10^{-7} *4*
		1896.8		0.0	0^+	[E2]		4.64×10^{-4}	α(K)=0.000183 *3*; α(L)=2.02×10^{-5} *3*; α(M)=3.60×10^{-6} *5*; α(N)=5.49×10^{-7} *8*; α(O)=3.15×10^{-8} *5* E_γ: from (^{3}He,3nγ).
2002.12	4^+	1054.10 *7*	100	948.02	2^+	E2		6.86×10^{-4}	α(K)=0.000603 *9*; α(L)=6.82×10^{-5} *10*; α(M)=1.217×10^{-5} *17*; α(N)=1.85×10^{-6} *3*; α(O)=1.035×10^{-7} *15*
2432.63	3^-	536.10 *10*	57 *5*	1896.53	2^+				I_γ: from (^{3}He,3nγ).
		1484.7	100 *16*	948.02	2^+	E1+M2	−0.12 *8*	3.97×10^{-4} *11*	α(K)=0.000151 *13*; α(L)=1.66×10^{-5} *14*; α(M)=2.96×10^{-6} *25*; α(N)=4.5×10^{-7} *4*; α(O)=2.59×10^{-8} *22* E_γ,I_γ: from (^{3}He,3nγ). Mult.,δ: D+Q from $\gamma\gamma(\theta)$ in (^{3}He,3nγ), $\Delta\pi$=yes from level scheme.
2534.1	(2^+)	1586.2	100	948.02	2^+	D(+Q)	−0.13 *22*		E_γ,I_γ,Mult.,δ: from (^{3}He,3nγ).
		2534	≤5.6	0.0	0^+				E_γ,I_γ: from (^{3}He,3nγ).
2548.82	5^-	546.69 *4*	100	2002.12	4^+	E1		1.20×10^{-3}	α(K)=0.001055 *15*; α(L)=0.0001178 *17*; α(M)=2.10×10^{-5} *3*; α(N)=3.19×10^{-6} *5* α(O)=1.783×10^{-7} *25* B(E1)(W.u.)=1.29×10^{-4} *+30−20* Mult.: D from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=yes from level scheme.
2811.69	6^+	262.84 *17*	4.9 *3*	2548.82	5^-	E1		0.00790	α(K)=0.00695 *10*; α(L)=0.000785 *11*; α(M)=0.0001397 *20*; α(N)=2.11×10^{-5} *3* α(O)=1.145×10^{-6} *17* Mult.: D from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=yes from level scheme. I_γ: weighted average of 3.8 *12* from ^{90}Tc ε decay (50.7 s), 5.0 *3* from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), 12.5 *5* from ^{66}Zn(^{28}Si,2p2nγ), 8.9 *16* (^{40}Ca,α4pγ), and 4.6 *4* from (^{3}He,3nγ).
		809.57 *6*	100 *3*	2002.12	4^+	E2		1.28×10^{-3}	α(K)=0.001122 *16*; α(L)=0.0001289 *18*; α(M)=2.30×10^{-5} *4*; α(N)=3.49×10^{-6} *5*; α(O)=1.92×10^{-7} *3*
2859.21	5^-	310.39 *6*	100 *11*	2548.82	5^-				I_γ: from (^{3}He,3nγ).
		857.10 *12*	≈30	2002.12	4^+				I_γ: from (^{3}He,3nγ). Other <125 in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ).
2874.81	8^+	63.15 *9*	100	2811.69	6^+	[E2]		6.30	α(K)=4.64 *7*; α(L)=1.369 *21*; α(M)=0.250 *4*; α(N)=0.0343 *6*;

$^{90}_{42}Mo_{48}$-4

$\gamma(^{90}Mo)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	δ‡	α	Comments
									α(O)=0.000618 *9* B(E2)(W.u.)=2.84 *13*
2901.23	(4⁻)	468.60 *10*	100	2432.63	3⁻				
2946.89	(6⁺)	135.18 *8*	≈50	2811.69	6⁺				I_γ: from (^{3}He,3nγ). Other 80 *50* in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), 14.2 *22* in ^{90}Tc ε decay (50.7 s).
		944.80 *14*	100 *12*	2002.12	4⁺				I_γ: from (^{3}He,3nγ).
3037.6		1035.5# *10*	100#	2002.12	4⁺				
3106.20	8⁺	231.43 *8*	100	2874.81	8⁺	M1+E2	−0.04 *+10−40*	0.026 *6*	α(K)=0.023 *5*; α(L)=0.00267 *69*; α(M)=4.8×10^{-4} *13*; α(N)=7.3×10^{-5} *18*; α(O)=4.1×10^{-6} *7* B(M1)(W.u.)=0.35 *+9−12*
3147.9	2⁺	715.3	100	2432.63	3⁻				E_γ: from (^{3}He,3nγ).
3150.0		1147.9# *5*	100#	2002.12	4⁺				
3293.86		482.26 *20*	100 *7*	2811.69	6⁺				E_γ: weighted average of 481.7 *3* (^{90}Tc ε Decay (50.7 s)), 482.40 *15* (^{58}Ni(^{3}Ar,4pγ),(^{35}Cl,3pγ)), 482.4 *10* (^{90}Zr(^{3}He,3nγ)).
		1291.4 *5*	54 *5*	2002.12	4⁺				E_γ,I_γ: from ^{90}Tc ε decay (50.7 s).
3367.38	7⁻	508.20 *15*	≤13	2859.21	5⁻	[E2]		0.00452	α(K)=0.00395 *6*; α(L)=0.000473 *7*; α(M)=8.45×10^{-5} *12*; α(N)=1.271×10^{-5} *18*; α(O)=6.65×10^{-7} *10*
		555.65 *9*	30.8 *21*	2811.69	6⁺	E1		1.15×10^{-3}	α(K)=0.001016 *15*; α(L)=0.0001134 *16*; α(M)=2.02×10^{-5} *3*; α(N)=3.07×10^{-6} *5* α(O)=1.717×10^{-7} *24* I_γ: other: 15.5 *19* in (^{3}He,3nγ). Mult.: D from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=yes from level scheme.
		818.56 *10*	100 *7*	2548.82	5⁻	E2		1.24×10^{-3}	α(K)=0.001092 *16*; α(L)=0.0001254 *18*; α(M)=2.24×10^{-5} *4*; α(N)=3.39×10^{-6} *5*; α(O)=1.87×10^{-7} *3* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded by comparison to RUL.
3446.22	(7⁻)	897.40 *15*	100	2548.82	5⁻	(E2)@		9.95×10^{-4}	α(K)=0.000874 *13*; α(L)=9.98×10^{-5} *14*; α(M)=1.780×10^{-5} *25*; α(N)=2.70×10^{-6} *4* α(O)=1.497×10^{-7} *21*
3539.8		592.9# *8*	100#	2946.89	(6⁺)				
3659.73	(7⁻)	292.30 *24*	100 *8*	3367.38	7⁻				
		800.52 *15*	60 *4*	2859.21	5⁻	(E2)@		1.31×10^{-3}	α(K)=0.001154 *17*; α(L)=0.0001327 *19*; α(M)=2.37×10^{-5} *4*; α(N)=3.59×10^{-6} *5*; α(O)=1.97×10^{-7} *3*
4078.91	10⁺	972.73 *8*	100	3106.20	8⁺	E2		8.23×10^{-4}	α(K)=0.000724 *11*; α(L)=8.22×10^{-5} *12*; α(M)=1.467×10^{-5} *21*; α(N)=2.23×10^{-6} *4* α(O)=1.241×10^{-7} *18*

Adopted Levels, Gammas (continued)

$\gamma(^{90}$Mo) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α	Comments
									B(E2)(W.u.)=1.86 *+45−29* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded by comparison to RUL.
4094.8		801.2[#] *5*	100[#] *15*	3293.86					
		2091.7[#] *9*	68[#] *15*	2002.12	4$^+$				
4175.4		1363.7[#] *8*	100[#]	2811.69	6$^+$				
4192.52	10$^+$	113.64 *8*	1.8 *3*	4078.91	10$^+$				I_γ: others: 5.7 *6* in (^{40}Ca,α4pγ), ≈ 70 in (^{3}He,3nγ).
		1086.37 *12*	1.36 *21*	3106.20	8$^+$	[E2]		6.41×10^{-4}	α(K)=0.000564 *8*; α(L)=6.37×10^{-5} *9*; α(M)=1.136×10^{-5} *16*; α(N)=1.726×10^{-6} *25*; α(O)=9.68×10^{-8} *14*
		1317.68 *7*	100 *14*	2874.81	8$^+$	E2		4.54×10^{-4}	α(K)=0.000373 *6*; α(L)=4.18×10^{-5} *6*; α(M)=7.45×10^{-6} *11*; α(N)=1.133×10^{-6} *16*; α(O)=6.42×10^{-8} *9* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded by comparison to RUL.
4297.75	9$^-$	638.00 *15*	3.12 *23*	3659.73	(7$^-$)	(E2)		0.00237	α(K)=0.00208 *3*; α(L)=0.000243 *4*; α(M)=4.35×10^{-5} *6*; α(N)=6.56×10^{-6} *10*; α(O)=3.53×10^{-7} *5* B(E2)(W.u.)=0.70 *+21−14* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded by comparison to RUL.
		930.34 *9*	100 *7*	3367.38	7$^-$	E2		9.13×10^{-4}	α(K)=0.000803 *12*; α(L)=9.14×10^{-5} *13*; α(M)=1.631×10^{-5} *23*; α(N)=2.48×10^{-6} *4* α(O)=1.376×10^{-7} *20* B(E2)(W.u.)=3.4 *+10−6* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded by comparison to RUL.
4357.5		2355.3[#] *10*	100[#]	2002.12	4$^+$				
4555.86	12$^+$	363.33[#] *4*	58 *4*	4192.52	10$^+$	E2		0.01282	α(K)=0.01114 *16*; α(L)=0.001390 *20*; α(M)=0.000249 *4*; α(N)=3.71×10^{-5} *6*; α(O)=1.84×10^{-6} *3* B(E2)(W.u.)=2.57 *12* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded by comparison to RUL. I_γ: weighted average of 54 *8* from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), 64.3 *11* from ^{66}Zn(^{28}Si,2p2nγ), 53.6 *9* (^{40}Ca,α4pγ). Other: 7.0 *7* from (^{3}He,3nγ).
		476.95[#] *10*	100 *1*	4078.91	10$^+$	E2		0.00546	α(K)=0.00477 *7*; α(L)=0.000575 *8*; α(M)=0.0001028 *15*; α(N)=1.543×10^{-5} *22* α(O)=8.00×10^{-7} *12* B(E2)(W.u.)=1.142 *30* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded by comparison to RUL.
4594.25	(9,10)	296.50 *20*	100	4297.75	9$^-$	D(+Q)	−0.2 *+4−3*	0.0143 *18*	

$^{90}_{42}$Mo$_{48}$-6

Adopted Levels, Gammas (continued)

$\gamma(^{90}Mo)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	δ‡	α	Comments
4789.37	10	491.66 *14*	100	4297.75	9^-	D+Q		0.0045 *5*	
4842.02	11^-	544.22 *9*	100 *2*	4297.75	9^-	E2		0.00370	α(K)=0.00324 *5*; α(L)=0.000385 *6*; α(M)=6.88×10^{-5} *10*; α(N)=1.036×10^{-5} *15*; α(O)=5.47×10^{-7} *8* B(E2)(W.u.)=8.7 *7* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded by comparison to RUL.
		649.64 *16*	47 *10*	4192.52	10^+	E1		8.07×10^{-4}	α(K)=0.000712 *10*; α(L)=7.92×10^{-5} *11*; α(M)=1.410×10^{-5} *20*; α(N)=2.14×10^{-6} *3* α(O)=1.207×10^{-7} *17* B(E1)(W.u.)=1.00×10^{-5} *+15−17* I_γ: weighted average of 63.9 *22* from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), 34.3 *19* (^{40}Ca,α4pγ), and 46 *6* from (^{3}He,3nγ). Mult.: D from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=yes from level scheme.
4895.14	(11)	105.78 *9*	100	4789.37	10				
5377.24	(13^+)	821.37 *9*	100	4555.86	12^+	M1+E2	0.09 *4*	1.24×10^{-3}	α(K)=0.001088 *16*; α(L)=0.0001218 *17*; α(M)=2.17×10^{-5} *3*; α(N)=3.32×10^{-6} *5*; α(O)=1.90×10^{-7} *3* B(M1)(W.u.)=0.0219 *+44−32*; B(E2)(W.u.)=0.28 *+33−19* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=no from level scheme.
5499.42	(12)	604.33 *15*	52 *7*	4895.14	(11)	(D+Q)		0.00266 *16*	
		657.41 *5*	100 *26*	4842.02	11^-	D			
5621.6	(14^+)	244.2 *3*	100	5377.24	(13^+)	D			
5625.02	14^+	247.75 *8*	100 *2*	5377.24	(13^+)	M1(+E2)	0.04 *5*	0.0220 *4*	α(K)=0.0193 *3*; α(L)=0.00223 *4*; α(M)=0.000400 *7*; α(N)=6.08×10^{-5} *10*; α(O)=3.41×10^{-6} *6* B(M1)(W.u.)=1.07 *10* Mult.: D(+Q) from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=no from level scheme.
		1069.12 *21*	77 *2*	4555.86	12^+	E2		6.64×10^{-4}	α(K)=0.000585 *9*; α(L)=6.60×10^{-5} *10*; α(M)=1.178×10^{-5} *17*; α(N)=1.79×10^{-6} *3*; α(O)=1.003×10^{-7} *14* B(E2)(W.u.)=9.6 *+10−8* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded by comparison to RUL. I_γ: from (^{40}Ca,α4pγ). Other: 95 *14* from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ).
5699.65	13^-	857.52 *15*	100 *3*	4842.02	11^-	E2		1.11×10^{-3}	α(K)=0.000975 *14*; α(L)=0.0001116 *16*; α(M)=1.99×10^{-5} *3*; α(N)=3.02×10^{-6} *5* α(O)=1.668×10^{-7} *24* B(E2)(W.u.)=23 *+9−5* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded by comparison to RUL.

$^{90}_{42}Mo_{48}$-7

Adopted Levels, Gammas (continued)

$\gamma(^{90}Mo)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	δ‡	α	Comments
5699.65	13^-	1143.78 *10*	55 *2*	4555.86	12^+	E1		2.73×10^{-4}	α(K)=0.000227 *4*; α(L)=2.50×10^{-5} *4*; α(M)=4.46×10^{-6} *7*; α(N)=6.79×10^{-7} *10*; α(O)=3.88×10^{-8} *6* B(E1)(W.u.)=5.7×10^{-5} *+22−13* I_γ: weighted average of 54 *8* from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), 52 *4* from (^{28}Si,2p2nγ) and 57 *3* from (^{40}Ca,α4pγ). Mult.: D from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=yes from level scheme.
5863.75	(13)	364.36 *8*	100	5499.42	(12)				
5903.74	14^+	526.53 *8*	100	5377.24	(13^+)	M1+E2	0.13 *5*	0.00343	α(K)=0.00302 *5*; α(L)=0.000342 *5*; α(M)=6.11×10^{-5} *9*; α(N)=9.30×10^{-6} *14*; α(O)=5.29×10^{-7} *8* B(M1)(W.u.)=0.099 *+25−17*; B(E2)(W.u.)=6 *+6−4* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), E1+M2 excluded by comparison to RUL.
6064.89	(13)	365.20 *20*	100 *25*	5699.65	13^-				
		565.50 *30*	28.8 *25*	5499.42	(12)				
6148.16	15^+	244.46 *8*	58 *9*	5903.74	14^+	M1+E2	0.12 *3*	0.0231	α(K)=0.0203 *4*; α(L)=0.00236 *5*; α(M)=0.000422 *8*; α(N)=6.40×10^{-5} *12*; α(O)=3.57×10^{-6} *6* B(M1)(W.u.)=0.46 *6*; B(E2)(W.u.)=1.2×10^2 *+7−5* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), E1+M2 excluded by comparison to RUL. I_γ: weighted average of 44 *3* from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ) and 64 *2* from (^{40}Ca,α4pγ).
		523.11 *10*	100 *2*	5625.02	14^+	M1+E2	0.11 *3*	0.00348	α(K)=0.00306 *5*; α(L)=0.000347 *5*; α(M)=6.20×10^{-5} *9*; α(N)=9.44×10^{-6} *14*; α(O)=5.37×10^{-7} *8* B(M1)(W.u.)=0.081 *7*; B(E2)(W.u.)=3.8 *+24−18* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), E1+M2 excluded by comparison to RUL.
		526.4 *3*	100 *2*	5621.6	(14^+)	(M1+E2)	0.11 *3*	0.00343	α(K)=0.00302 *5*; α(L)=0.000342 *5*; α(M)=6.10×10^{-5} *9*; α(N)=9.30×10^{-6} *14*; α(O)=5.29×10^{-7} *8* B(M1)(W.u.)=0.080 *6*; B(E2)(W.u.)=3.7 *+22−18* I_γ: weighted average of 100 *15* from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ) and 100 *2* from (^{40}Ca,α4pγ). Other: 39 *3* from (^{28}Si,2p2nγ). Mult.: (D+Q) from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), E1+M2 excluded by comparison to RUL.
6475.91	14^-	411.00 *13*	14 *3*	6064.89	(13)	D			
		612.10 *8*	4.3 *3*	5863.75	(13)				
		776.24 *6*	100 *12*	5699.65	13^-	M1+E2	3.1 *+10−7*	1.42×10^{-3}	α(K)=0.001245 *18*; α(L)=0.0001431 *21*; α(M)=2.56×10^{-5} *4*; α(N)=3.87×10^{-6} *6*; α(O)=2.13×10^{-7} *3* B(M1)(W.u.)=0.0025 *+35−13*; B(E2)(W.u.)=43 *+47−19* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), E1+M2 excluded by comparison to RUL.

$^{90}_{42}Mo_{48}$-8

$\gamma(^{90}Mo)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	δ‡	α	Comments
6643.13	15⁻	167.11 *9*	38 *2*	6475.91	14⁻	M1+E2		0.125 *64*	α(K)=0.107 *53*; α(L)=0.0151 *88*; α(M)=0.0027 *16*; α(N)=4.0×10^{-4} *23*; α(O)=1.70×10^{-5} *75* I_γ: weighted average of 39 *5* from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ) and 37 *2* from (^{40}Ca,α4pγ). Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=no from level scheme.
		779.43 *6*	7 *3*	5863.75	(13)	E2		1.40×10^{-3}	α(K)=0.001233 *18*; α(L)=0.0001421 *20*; α(M)=2.54×10^{-5} *4*; α(N)=3.84×10^{-6} *6*; α(O)=2.11×10^{-7} *3* B(E2)(W.u.)=2.1 *9* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded by comparison to RUL.
		943.5 *2*	100 *3*	5699.65	13⁻	E2		8.84×10^{-4}	α(K)=0.000777 *11*; α(L)=8.84×10^{-5} *13*; α(M)=1.577×10^{-5} *22*; α(N)=2.39×10^{-6} *4* α(O)=1.332×10^{-7} *19* B(E2)(W.u.)=11.8 *12* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded by comparison to RUL.
		1018.10 *12*	58 *11*	5625.02	14⁺	E1		3.20×10^{-4}	α(K)=0.000282 *4*; α(L)=3.12×10^{-5} *5*; α(M)=5.55×10^{-6} *8*; α(N)=8.45×10^{-7} *12*; α(O)=4.81×10^{-8} *7* B(E1)(W.u.)=6.9×10^{-5} *11* Mult.: D from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=yes from level scheme. I_γ: weighted average of 42 *6* from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), 41 *4* from (^{28}Si,2p2nγ) and 72 *3* from (^{40}Ca,α4pγ).
6746.10	16⁺	598.00 *10*	100	6148.16	15⁺	M1+E2	3.4 *5*	0.00281	α(K)=0.00246 *4*; α(L)=0.000289 *5*; α(M)=5.17×10^{-5} *8*; α(N)=7.80×10^{-6} *12*; α(O)=4.18×10^{-7} *6* B(M1)(W.u.)=0.0041 *+17−10*; B(E2)(W.u.)=142 *+24−20* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), E1+M2 excluded by comparison to RUL.
7027.0?	17	280.9[a] *3*	100[a]	6746.10	16⁺	(D+Q)			
7170.98	(16⁺)	1267.15 *17*	40 *8*	5903.74	14⁺				
		1545.92 *18*	100 *16*	5625.02	14⁺				
7385.59	16⁻	742.46 *14*	100	6643.13	15⁻	M1+E2	3.1 *8*	1.59×10^{-3}	α(K)=0.001392 *20*; α(L)=0.0001605 *24*; α(M)=2.87×10^{-5} *5*; α(N)=4.34×10^{-6} *7*; α(O)=2.38×10^{-7} *4* B(M1)(W.u.)=8×10^{-4} *+7−3*; B(E2)(W.u.)=14.3 *+41−31* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), E1+M2 excluded by comparison to RUL.
7515.01	17⁻	129.41 *7*	16.3 *10*	7385.59	16⁻	M1(+E2)	0.14 *14*	0.130 *19*	α(K)=0.113 *16*; α(L)=0.014 *3*; α(M)=0.0025 *6*; α(N)=0.00037 *8*; α(O)=1.99×10^{-5} *22* B(M1)(W.u.)=0.142 *+9−14*

$^{90}_{42}Mo_{48}$-9

Adopted Levels, Gammas (continued)

γ(^{90}Mo) (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	α	Comments
								Mult.: D(+Q) from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=no from level scheme. I_γ: from (^{40}Ca,α4pγ). Other: 15 *4* from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ).
7515.01	17$^-$	768.89 *10*	36.0 *15*	6746.10	16$^+$	E1	5.61$\times10^{-4}$	α(K)=0.000495 *7*; α(L)=5.49$\times10^{-5}$ *8*; α(M)=9.77$\times10^{-6}$ *14*; α(N)=1.486$\times10^{-6}$ *21*; α(O)=8.41$\times10^{-8}$ *12* B(E1)(W.u.)=2.33$\times10^{-5}$ *13* Mult.: D from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=yes from level scheme. I_γ: weighted average of 33.1 *23* from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), 38 *3* from (^{28}Si,2p2nγ) and 36.8 *15* from (^{40}Ca,α4pγ).
		872.0 *3*	100 *2*	6643.13	15$^-$	E2	1.07$\times10^{-3}$	α(K)=0.000936 *14*; α(L)=0.0001070 *15*; α(M)=1.91$\times10^{-5}$ *3*; α(N)=2.90$\times10^{-6}$ *4* α(O)=1.602$\times10^{-7}$ *23* B(E2)(W.u.)=4.10 *18* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded by comparison to RUL.
7629.61	(16)	458.70 *20*	≈100	7170.98	(16$^+$)			
		1481.40 *15*	35 *5*	6148.16	15$^+$	(D+Q)		
7682.4?	(18)	167.4[a] *3*	100[a]	7515.01	17$^-$	(D+Q)		
8066.77	17$^+$	437.20 *31*	12 *2*	7629.61	(16)			
		895.73 *8*	8.6 *13*	7170.98	(16$^+$)			
		1320.75 *11*	31 *11*	6746.10	16$^+$			I_γ: weighted average of 24 *3* from ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ) and 49 *5* from (^{40}Ca,α4pγ).
		1918.60 *20*	100 *4*	6148.16	15$^+$	E2	4.70$\times10^{-4}$	α(K)=0.000179 *3*; α(L)=1.98$\times10^{-5}$ *3*; α(M)=3.52$\times10^{-6}$ *5*; α(N)=5.38$\times10^{-7}$ *8*; α(O)=3.08$\times10^{-8}$ *5* B(E2)(W.u.)=1.00 *+11−9* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded by comparison to RUL.
8123.55	(18$^-$)	608.54 *9*	100	7515.01	17$^-$	D+Q	0.00261 *15*	
8281.85	(17$^+$)	2133.70 *20*	100	6148.16	15$^+$			
8525.30	18$^+$	458.59 *9*	100 *17*	8066.77	17$^+$	M1+E2	0.0055 *7*	α(K)=0.0048 *6*; α(L)=0.00056 *9*; α(M)=0.000101 *16*; α(N)=1.52$\times10^{-5}$ *23*; α(O)=8.2$\times10^{-7}$ *9* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=no from level scheme.
		1779.20 *17*	16.7 *22*	6746.10	16$^+$	E2	4.35$\times10^{-4}$	α(K)=0.000206 *3*; α(L)=2.28$\times10^{-5}$ *4*; α(M)=4.07$\times10^{-6}$ *6*; α(N)=6.20$\times10^{-7}$ *9*; α(O)=3.55$\times10^{-8}$ *5* B(E2)(W.u.)=1.18 *+31−22* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded by comparison to RUL. I_γ: other: 48 *4* from (^{40}Ca,α4pγ).
8616.84	(17$^+$)	335.00 *15*	100 *16*	8281.85	(17$^+$)			
		1446.0 *3*	40 *6*	7170.98	(16$^+$)			

$^{90}_{42}$Mo$_{48}$-10

$\gamma(^{90}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α	Comments
8616.84	(17+)	1870.70 *15*	100 *16*	6746.10	16+			
		2468.55 *19*	48 *6*	6148.16	15+			
8678.44	(19−)	554.90 *20*	100	8123.55	(18−)	D		
9079.18	(18−)	1564.10 *20*	<63	7515.01	17−			
		1693.60 *10*	100 *25*	7385.59	16−			
9136.60	(18+)	519.70 *30*	100 *15*	8616.84	(17+)	(M1+E2)	0.0039 *4*	α(K)=0.0034 *3*; α(L)=0.00040 *5*; α(M)=7.1×10^{-5} *9*; α(N)=1.07×10^{-5} *12*; α(O)=5.8×10^{-7} *4* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=no from level scheme.
		2390.46 *7*	35 *8*	6746.10	16+	(E2)[@]	6.32×10^{-4}	α(K)=0.0001206 *17*; α(L)=1.324×10^{-5} *19*; α(M)=2.36×10^{-6} *4*; α(N)=3.60×10^{-7} *5*; α(O)=2.07×10^{-8} *3*
9319.01	(19−)	239.83 *9*	15 *4*	9079.18	(18−)			
		640.60 *20*	11 *2*	8678.44	(19−)			
		1195.45 *10*	13 *4*	8123.55	(18−)	(M1+E2)	5.41×10^{-4} *16*	α(K)=0.000471 *15*; α(L)=5.26×10^{-5} *14*; α(M)=9.38×10^{-6} *25*; α(N)=1.43×10^{-6} *4*; α(O)=8.1×10^{-8} *3* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=no from level scheme.
		1803.97 *11*	100 *24*	7515.01	17−	(E2)[@]	4.41×10^{-4}	α(K)=0.000201 *3*; α(L)=2.22×10^{-5} *4*; α(M)=3.96×10^{-6} *6*; α(N)=6.04×10^{-7} *9*; α(O)=3.46×10^{-8} *5*
9443.90	(19+)	918.59 *7*	100 *15*	8525.30	18+	(M1+E2)	9.53×10^{-4} *19*	α(K)=0.000839 *17*; α(L)=9.46×10^{-5} *14*; α(M)=1.689×10^{-5} *25*; α(N)=2.57×10^{-6} *4*; α(O)=1.45×10^{-7} *4* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=no from level scheme.
		1377.00 *20*	2.4 *9*	8066.77	17+			
9739.38	(19+)	602.77 *10*	100 *4*	9136.60	(18+)	(M1+E2)	0.00263 *15*	α(K)=0.00231 *13*; α(L)=0.000267 *20*; α(M)=4.8×10^{-5} *4*; α(N)=7.2×10^{-6} *5*; α(O)=3.98×10^{-7} *15* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=no from level scheme.
		1214.10 *10*	23 *3*	8525.30	18+			
		1672.52 *14*	25 *3*	8066.77	17+	(E2)[@]	4.17×10^{-4}	α(K)=0.000232 *4*; α(L)=2.57×10^{-5} *4*; α(M)=4.59×10^{-6} *7*; α(N)=6.99×10^{-7} *10*; α(O)=3.99×10^{-8} *6*
9787.96	(20+)	344.00 *12*	100 *15*	9443.90	(19+)	(M1+E2)	0.012 *3*	α(K)=0.0109 *25*; α(L)=0.00132 *36*; α(M)=2.36×10^{-4} *64*; α(N)=3.54×10^{-5} *93*; α(O)=1.8×10^{-6} *4* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=no from level scheme.
		1262.70 *10*	42 *6*	8525.30	18+	(E2)[@]	4.82×10^{-4}	α(K)=0.000408 *6*; α(L)=4.57×10^{-5} *7*; α(M)=8.15×10^{-6} *12*; α(N)=1.240×10^{-6} *18*; α(O)=7.01×10^{-8} *10*
9995.04	(20−)	676.03 *9*	100 *23*	9319.01	(19−)	(M1+E2)	0.00197 *7*	α(K)=0.00173 *6*; α(L)=0.000198 *10*; α(M)=3.54×10^{-5} *17*; α(N)=5.38×10^{-6} *23*; α(O)=2.99×10^{-7} *6* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=no from level scheme.

$^{90}_{42}Mo_{48}$-11

$\gamma(^{90}$Mo) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. ‡	δ ‡	α	Comments
9995.04	(20⁻)	1871.6 *5*	19 *6*	8123.55	(18⁻)				
10235.14	20⁺	495.71 *11*	100 *14*	9739.38	(19⁺)	M1(+E2)	0.14 *23*	0.00396 *11*	α(K)=0.00348 *10*; α(L)=0.000396 *13*; α(M)=7.07×10^{-5} *24*; α(N)=1.08×10^{-5} *4*; α(O)=6.11×10^{-7} *14* B(M1)(W.u.)=0.43 *+15−13*; B(E2)(W.u.)=4×10^1 *+26−3* Mult.: D(+Q) from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=no from level scheme.
		1709.86 *11*	96 *13*	8525.30	18⁺	E2		4.23×10^{-4}	α(K)=0.000223 *4*; α(L)=2.47×10^{-5} *4*; α(M)=4.39×10^{-6} *7*; α(N)=6.70×10^{-7} *10*; α(O)=3.83×10^{-8} *6* B(E2)(W.u.)=3.8 *+15−9* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded by comparison to RUL.
10477.36	(20⁺)	738.00 *20*	70 *30*	9739.38	(19⁺)				
		1952.00 *20*	100 *13*	8525.30	18⁺				
10537.91	(21)	542.9 *2*	≤109	9995.04	(20⁻)	D			
		1859.45 *15*	100 *22*	8678.44	(19⁻)				
10855.61	21⁺	378.25 *8*	6.9 *13*	10477.36	(20⁺)				
		620.47 *4*	100 *14*	10235.14	20⁺	M1+E2	0.16 *9*	0.00234	α(K)=0.00206 *3*; α(L)=0.000232 *4*; α(M)=4.14×10^{-5} *7*; α(N)=6.32×10^{-6} *10*; α(O)=3.60×10^{-7} *5* B(M1)(W.u.)=0.093 *+16−14*; B(E2)(W.u.)=7 *+10−5* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), E1+M2 excluded from comparison to RUL.
11135.76	22⁺	280.15 *3*	100	10855.61	21⁺	M1+E2	0.12 *+8−6*	0.0162 *5*	α(K)=0.0143 *4*; α(L)=0.00165 *5*; α(M)=0.000295 *9*; α(N)=4.48×10^{-5} *13*; α(O)=2.51×10^{-6} *6* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), E1+M2 excluded from comparison to RUL.
11269.3	(21)	2590.0& *10*	100&	8678.44	(19⁻)				
11577.07	(22⁺)	1789.12 *20*	100	9787.96	(20⁺)	E2		4.37×10^{-4}	α(K)=0.000204 *3*; α(L)=2.26×10^{-5} *4*; α(M)=4.03×10^{-6} *6*; α(N)=6.14×10^{-7} *9*; α(O)=3.51×10^{-8} *5* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded from comparison to RUL.
11735.5		879.9& *5*	100&	10855.61	21⁺	&			
12016.61	23⁺	439.54 *8*	2.9 *3*	11577.07	(22⁺)				I_γ: other: 16 *3* in (^{40}Ca,α4pγ).

$^{90}_{42}$Mo$_{48}$-12

Adopted Levels, Gammas (continued)

$\gamma(^{90}Mo)$ (continued)

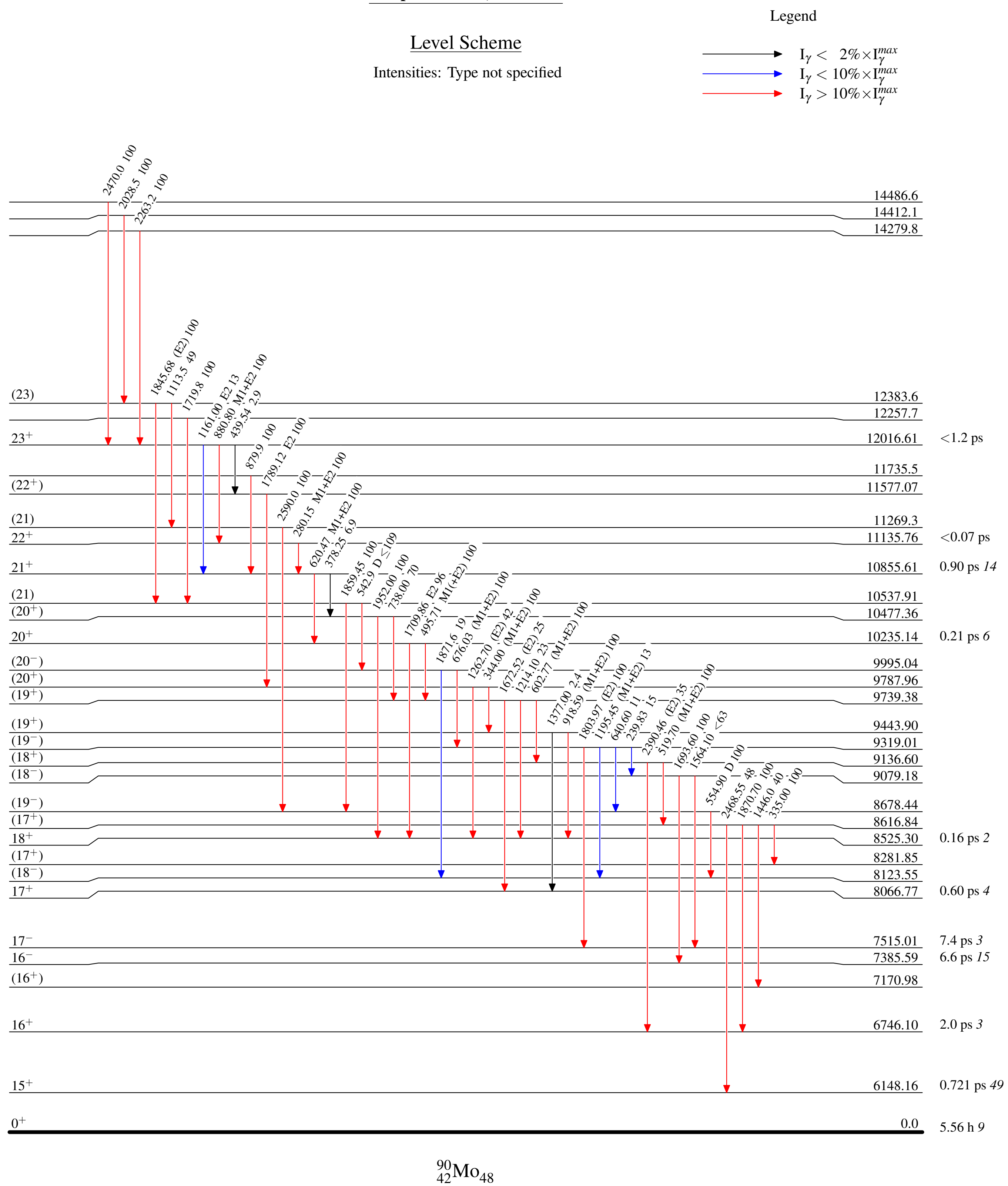
E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α	Comments
12016.61	23^+	880.80 *19*	100 *14*	11135.76	22^+	M1+E2	1.05×10^{-3} *2*	α(K)=0.000923 *16*; α(L)=0.0001043 *15*; α(M)=1.86×10^{-5} *3*; α(N)=2.83×10^{-6} *4*; α(O)=1.60×10^{-7} *4* Mult.: D+Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), $\Delta\pi$=no from level scheme.
		1161.00 *20*	13 *3*	10855.61	21^+	E2	5.58×10^{-4}	α(K)=0.000488 *7*; α(L)=5.49×10^{-5} *8*; α(M)=9.79×10^{-6} *14*; α(N)=1.488×10^{-6} *21*; α(O)=8.38×10^{-8} *12* Mult.: Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), M2 excluded from comparison to RUL.
12257.7		1719.8[&] *10*	100[&]	10537.91	(21)	[&]		
12383.6	(23)	1113.5[&] *10*	49[&] *7*	11269.3	(21)	[&]		
		1845.68 *10*	100	10537.91	(21)	(E2)[@]	4.50×10^{-4}	α(K)=0.000193 *3*; α(L)=2.13×10^{-5} *3*; α(M)=3.79×10^{-6} *6*; α(N)=5.78×10^{-7} *8*; α(O)=3.31×10^{-8} *5*
14279.8		2263.2[&] *10*	100[&]	12016.61	23^+	[&]		
14412.1		2028.5[&] *10*	100[&]	12383.6	(23)	[&]		
14486.6		2470.0[&] *10*	100[&]	12016.61	23^+	[&]		

† From ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), except where noted.
‡ From $\gamma(\theta)$ and DCO ratios in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl, 3pγ), except where noted.
# From ^{90}Tc ε decay (50.7 s).
@ Stretched Q from R(DCO) in ^{58}Ni(^{36}Ar,4pγ),(^{35}Cl,3pγ), assumed E2.
& From ^{58}Ni(^{40}Ca,α4pγ).
^{a} From ^{66}Zn(^{28}Si,2p2nγ).

Adopted Levels, Gammas

Level Scheme

Intensities: Type not specified



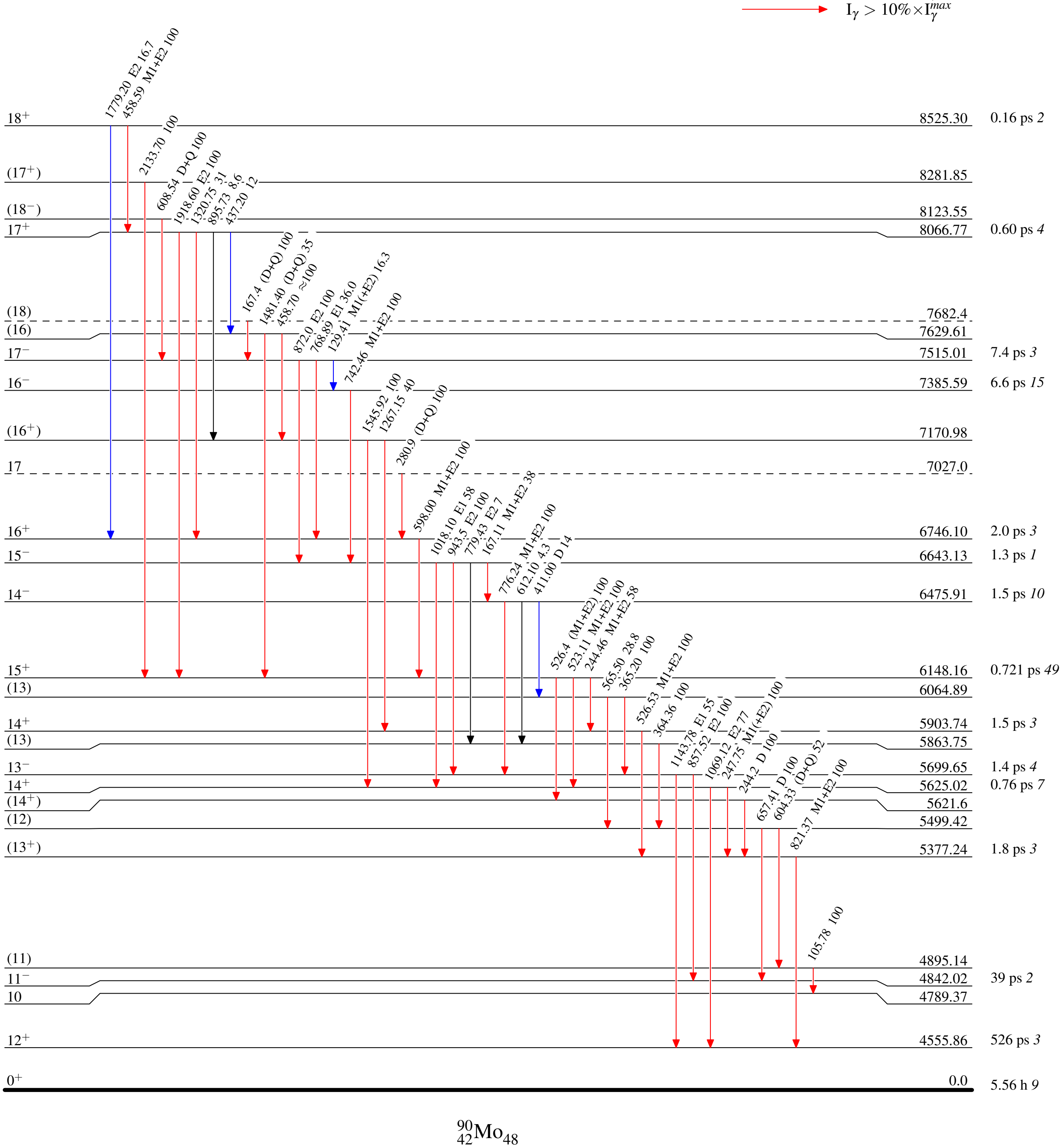
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

Legend

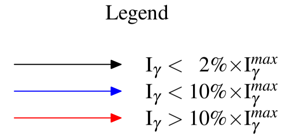
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$

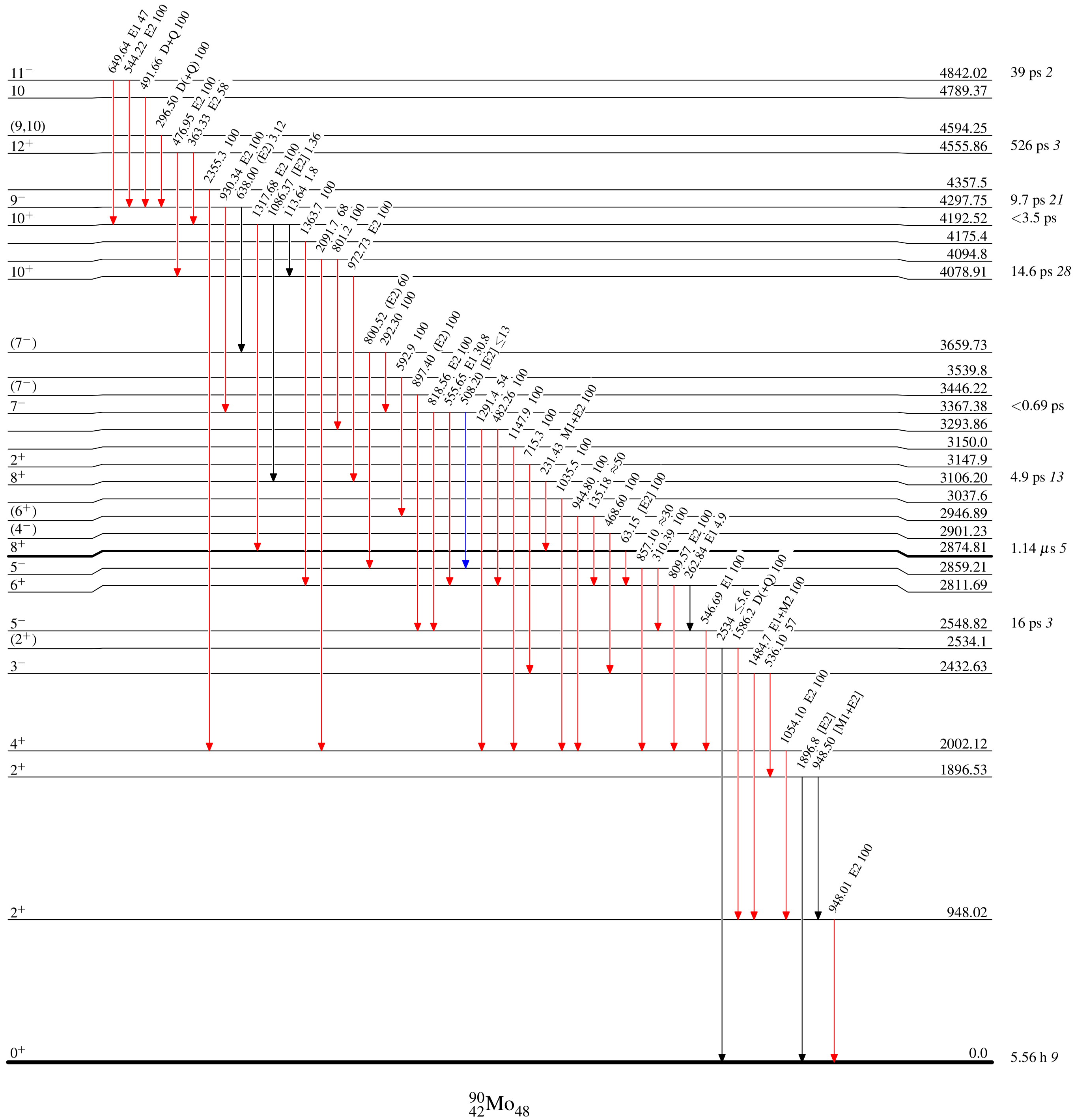


Adopted Levels, Gammas

Level Scheme (continued)

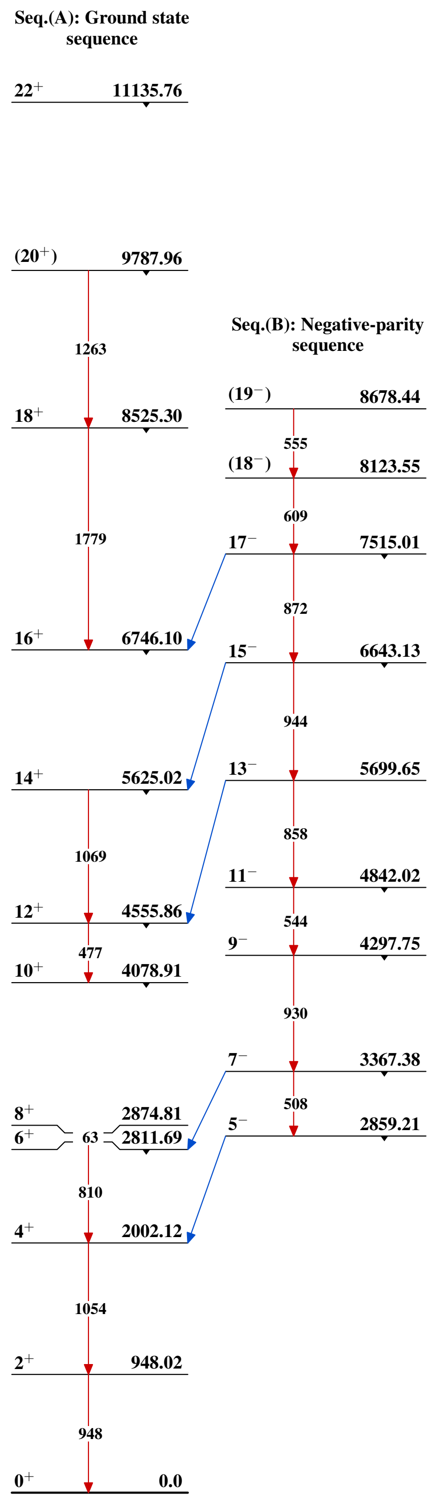
Intensities: Type not specified





$^{90}_{42}Mo_{48}$

Adopted Levels, Gammas



$^{90}_{42}Mo_{48}$

Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 113,2187 (2012)	15-Sep-2012

Q(β^-)=−7882 *4*; S(n)=12670 *7*; S(p)=7458 *4*; Q(α)=−5604 *6* 2012Wa38
Note: Current evaluation has used the following Q record −7885 5 *12672* 11 *7459* 5 −5605 6 2011AuZZ,2003Au03.
Q(β^-),S(p),Q(α): from 2011AuZZ; −7870 *26*, 7462 *5*, −5607 *11*, respectively, from 2003Au03.
A new, higher-precision ^{92}Mo mass measurement is available from 2012Ka13.
For theory or systematics see, e.g., 1972Bb08, 1974Gl01, 1977Ha44, 1992Si03, 1992Si14, 1993Ha37, 1999Zh32, 2009Zh11, 2009St05.

Other Reactions:

(HI,xnγ) (1985Ra09): E(^{12}C,^{13}C)=48 MeV, E(^{16}O)=56 MeV. Measured 148γ(θ,H,t) in single-crystal Zr; θ=0°, 90°. Determined Q=0.34 for 2760, 8$^+$ level.

^{64}Ni+^{28}Si, E=137 MeV (1990Gu20); ^{16}O+^{76}Se, E=50, 72.2 MeV (1992Ki01): measured high-energy γ spectra and $\gamma(\theta)$ from decay of GDR built on highly-excited high-spin states. Deduced Γ(GDR)=7.6 MeV *1* (1992Ki01), 8.6 MeV *2* (1992Ki01), 12.1 MeV *10* (1990Gu20) for average spins of 9ħ, 19.5ħ, 33ħ, respectively.

^{92}Mo Levels

Cross Reference (XREF) Flags

A	^{92}Tc ε decay	I	^{92}Mo(p,p′), (pol p,p′)	Q	^{90}Zr(^{12}C,^{10}Be), (^{16}O,^{14}C)
B	^{64}Ni(^{32}S,2n2pγ),	J	^{92}Mo(d,d′), (pol d,d)	R	^{92}Mo(^{14}C,^{14}C′), (^{14}N,^{14}N′)
C	^{90}Zr(α,2nγ)	K	^{92}Mo(^{3}He,dp)	S	^{92}Mo(γ,xn), (γ,pn)
D	^{92}Mo(γ,γ'), (pol γ,γ')	L	^{92}Mo(α,α')	T	^{92}Mo(^{3}He,^{3}He′)
E	^{92}Mo($\alpha,\alpha'\gamma$)	M	^{94}Mo(p,t), (pol p,t)	U	^{92}Mo(^{16}O,^{16}O′)
F	^{92}Mo(p,p′γ)	N	^{59}Co(^{37}Cl,2p2nγ),	V	^{93}Ru εp decay
G	^{92}Mo(n,n′), (n,n′γ)	O	^{90}Zr(^{3}He,n)	W	^{74}Ge(^{28}Si,2α2nγ)
H	^{92}Mo(e,e′)	P	Coulomb excitation	X	^{82}Se(^{16}O,6nγ)

E(level)†	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0&	0$^+$	stable	ABCDEFGHIJKLMNOPQR TU WX	T$_{1/2}$: For (0ν+2ν) double β decay, 1997Ba35 report (at 90% confidence level) lower limits of 1.9×10^{20} y, 8.9×10^{20} y and 8.1×10^{20} y, respectively, for $\beta^+\varepsilon$(to Zr g.s.), $\varepsilon\varepsilon$(to Zr 449 level) and $\varepsilon\varepsilon$(Zr 935 level); these data supersede earlier data from the same research group (1995Au09). For neutrinoless double β decay of ^{92}Mo, 2011Le23 report a lower limit of 2.3×10^{20} y at 90% confidence level. Other lower limits on T$_{1/2}$: 3×10^{17} y, from nonobservation of β^+,ε(2ν) double β decay (1985No03); 2.7×10^{18} y for β^+,ε(0ν) (1987El13); 3×10^{18} y for double-ε decay (1982Be20). <r^2>$^{1/2}$(charge)=4.3156 fm *11* (2004An14).
1509.51& *3*	2$^+$	0.35 ps *2*	ABCDEFGHIJKLMNOPQR TU WX	μ=+2.3 *3* μ: From g=+1.15 *14*, weighted average of +1.3 *5* (2001Ma17, transient field) from Coulomb excitation and +1.14 *14* from reevaluation by 2001Ma17 of g=1.07 *19* (TDPAD) from 1978HaYJ. The g-factor is consistent with that expected for a $g^2_{9/2}$ configuration. J$^\pi$: E2 1509γ to 0$^+$ g.s. T$_{1/2}$: weighted average of 0.344 ps *20* from Coulomb excitation, 0.331 ps *15* from (e,e′) and 0.404 ps *25* (1977Me01) in (γ,γ') is 0.348 ps *19*. Others: 0.36 ps *+8−5* (p,p′γ), 0.30 ps *+15−10* ($\alpha,\alpha'\gamma$).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{92}Mo Levels (continued)

E(level)[†]	J^π	$T_{1/2}$	XREF	Comments
2282.61[&] *5*	4^+	>3.4 ps	ABC FGHIJKLMN WX	B(E4)↑=0.0034 *9* (1987MiZL) J^π: L=4 in (p,p′), (α,α′), (p,t). $T_{1/2}$: from (p,p′γ).
2519.53 *21*	0^+	>3.4 ps	D FG k M O	J^π: L=0 in (p,t), (^{3}He,n). $T_{1/2}$: from (p,p′γ).
2526.96[a] *6*	5^-	1.55 ns *4*	ABC FGHIJkL N X	B(E5)↑=0.00341 *17* (1987MiZL) XREF: k(2530). J^π: L=5 in (p,p′), (α,α′). $T_{1/2}$: from 1971Co08 in (p,p′γ).
2612.41[&] *6*	6^+	1.53 ns *4*	A C FGHI L N WX	B(E6)↑=0.00027 *5* (1987MiZL) J^π: L=6 in (α,α′). $T_{1/2}$: from ^{92}Tc ε decay.
2634.2?[#] *15*	(1)[@]		D	
2760.52[&] *14*	8^+	190 ns *3*	A C GHI N WX	Q=−0.34; μ=+11.30 *5* Q: differential perturbed angular distribution (1989Ra17 from 1985Ra09). Sign of Q from 1991Ha04 (TDPAD) in ^{59}Co(^{37}Cl,2p2nγ)). μ: from (α,2nγ); TDPAD (1977Ha49). Other: +11.35 *8* (1989Ra17, recalculation of datum from 1977Ku22, TDPAD). μ calculation: 1998Jo17. J^π: E8 excitation in (e,e′). $T_{1/2}$: weighted average of 192 ns *7* (^{92}Tc decay), 206 ns *11* and 191 ns *7* and 219 ns *22* in (α,2nγ), and 184 ns *5* and 195 ns *13* from (n,n′γ).
2838.6?[#] *5*	(1)[@]		D	
2849.81 *5*	3^-	0.27 ps *+10−5*	EFGHIJKLM R	B(E3)↑=0.0760 *25* (1987MiZL) J^π: L=3 in (p,p′), (α,α′), (p,t), (^{14}C,^{14}C′). $T_{1/2}$: weighted average from (α,α′γ), (p,p′γ). For summary of B(E3)↑ data, see 1989Sp01; recommended value is 0.070 *24* based on b_3 from angular distribution in (p,p′). This corresponds to 5.3% *18* of energy-weighted E3 sum rule.
2922.6?[#] *6*	(1)[@]		D	
3006.96 *8*	$(4,5)^-$		C FG I	J^π: D+Q 480γ to 5^- 2527; weak 157γ to 3^- 2850; level population in (n,n′γ) rules out J=6 and favors J=4 (2010Go15). L=5 in (p,p′) but level only weakly excited.
3063.63 *7*	(4^-)		C FG I	J^π: D+Q 537γ to 5^- 2527; 214γ to 3^- 2850; δ(537γ)=14 *3* makes π=+ unlikely; 1123γ from (6^+) 4187. However, B(M2)(W.u.) for 306γ from 4^+ 3369 exceeds RUL, unless $T_{1/2}$(3369) exceeds 80 ns (which seems far too large to have remained unobserved); alternatively, the 305γ may be complex in (n,n′γ) making δ unreliable (see comment on 305γ).
3091.35 *6*	2^+[@]	27 fs *3*	DEFGHIJ LM	XREF: J(3120). $T_{1/2}$: unweighted average of 22 fs *12* (1971Yo02), 35 fs *3* (1973DoZB in (p,p′γ)), 30.3 fs *21* from B(E2) (1987MiZL in (e,e′)), 27 fs *3* (1977Me01 in (γ,γ′)), and 21 fs *6* (1975Pa19 in (p,p′γ)).
3368.68 *7*	(4^+)	>3.4 ps	C FGHI	B(E4)↑=0.00037 *11* (1987MiZL) J^π: E4 excitation of 3369 level in (e,e′). Also: Q 1859γ to 2^+ 1510, D+Q 362γ to $(4,5)^-$ 3007 and

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{92}Mo Levels (continued)

E(level)[†]	J$^{\pi}$	$T_{1/2}$	XREF	Comments
				D+Q 1086γ to 4$^+$ 2283. However, δ(362γ) and δ(305γ) are too large for $\Delta\pi$=yes transitions, unless the 3369 level has a significantly long half-life. $T_{1/2}$: from (p,p$'\gamma$).
3380.4 *8*	(6$^-$)		W	J$^{\pi}$: M2 1098γ to 4$^+$ 2283.
3384.5?[#] *8*	(1)[@]		D	
3542.31 *7*	2$^+$	35 fs *16*	D FGHI M	J$^{\pi}$: L=2 in (p,t), (p,p$'$); E2 3542γ to 0$^+$ g.s. $T_{1/2}$: from B(E2)=0.0020 *6* in (e,e$'$) and adopted branching. Others: 90 fs *+40−30* (1973DoZB), 61 fs *+24−17* (1975Pa19) in (p,p$'\gamma$).
3579.81 *6*	3$^-$	>0.21 ps	FGHI L	B(E3)↑=0.0044 *4* (1987MiZL) J$^{\pi}$: L=3 in (α,α'), (p,p$'$). $T_{1/2}$: from (p,p$'\gamma$).
3621.06 *7*	(≤4)	>0.21 ps	FG i	J$^{\pi}$: 2112γ to 2$^+$ 1510. $T_{1/2}$: from (p,p$'\gamma$).
3624.13[a] *17*	7$^-$		BC GHi N WX	J$^{\pi}$: E7 excitation in (e,e$'$).
3651.8?[#] *11*	(1)[@]		D	
3688.77 *7*	1$^{(-)}$,2,3	>0.69 ps	FG	J$^{\pi}$: D(+Q) 2179γ to 2$^+$ 1510; 838γ to 3$^-$ 2850. $T_{1/2}$: from (p,p$'\gamma$).
3692 *7*	4$^+$		I	J$^{\pi}$: L(p,p$'$)=4.
3753.2 *8*			C	J$^{\pi}$: 385γ to 4$^+$ 3369, 689γ to (4$^-$) 3064 so J$^{\pi}$=(3,4,5).
3757.25 *10*			C G I	XREF: I(3765). J$^{\pi}$: 1230γ to 5$^-$ 2527 suggests J=(3 to 7).
3814.58 *8*	2,3	>0.48 ps	FG I	J$^{\pi}$: D(+Q) 2305γ to 2$^+$ 1510; D(+Q) 965γ to 3$^-$ 2850. $T_{1/2}$: from (p,p$'\gamma$).
3841.87 *12*	0$^+$	>0.21 ps	FG I M	J$^{\pi}$: L=0 in (p,t). $T_{1/2}$: from DSAM in (p,p$'\gamma$).
3871.5 *10*	(≤4)		C	J$^{\pi}$: 2362γ ray to 2$^+$ 1510.
3876.62 *9*	4$^+$		FGHI	B(E4)↑=0.0015 *3* (1987MiZL) J$^{\pi}$: L(p,p$'$)=4; Q 2367γ to 2$^+$ 1510.
3926.36 *9*	2$^+$[@]	10.6 fs *12*	D FGHI LM	$T_{1/2}$: weighted average of 10.7 fs *22* from (γ,γ') and 10.5 fs *13* from B(E2)=0.0188 *20* in (e,e$'$), with uncertainty (1.1 fs) increased to that for most precise measurement. Others: 17 fs *+17−10* (1973DoZB), 20 fs *+20−12* (1975Pa19).
3944.92 *13*	1[@]	6 fs *4*	D FG i	XREF: i(3952). $T_{1/2}$: from (γ,γ'); value rises to 9.7 fs *14* if only the 3945γ deexcites this level. Others: 10 fs *+10−3* (1973DoZB), 21 fs *+20−12* (1975Pa19) in (p,p$'\gamma$).
3953.2? *4*			G i	XREF: i(3952). J$^{\pi}$: 1341γ to 6$^+$ 2612, so J=(4 to 8).
3963.19 *16*	4$^+$	>0.21 ps	FG I	J$^{\pi}$: L=4 in (p,p$'$). $T_{1/2}$: from DSAM in (p,p$'\gamma$).
3964.3? *13*	(2)[@]		D	
4019.31 *11*			GHI	J$^{\pi}$: 1492γ to 5$^-$ 2527, so J=(3 to 7).
4115.81 *10*	3$^{(-)}$,4		GHI	J$^{\pi}$: D(+Q) 1833γ to 4$^+$ 2283; D+Q 1266γ to 3$^-$ 2850. 1589γ to 5$^-$ 2527 makes 3$^+$ unlikely.
4140 *5*	4$^+$		M	J$^{\pi}$: L(p,t)=4.
4148.08 *15*	1$^{(-)}$		D G i l	XREF: i(4159)l(4160). J$^{\pi}$: D 2639γ to 2$^+$ 1509; D, $\Delta\pi$=(yes) 4148γ to 0$^+$ g.s.
4150.36 *9*	4$^{(+)}$,5$^{(-)}$		G i l	XREF: i(4159)l(4160). J$^{\pi}$: D+Q 1623γ to 5$^-$ 2527; D(+Q) 1868γ to 4$^+$ 2283;

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{92}Mo Levels (continued)

E(level)[†]	J^π	$T_{1/2}$	XREF	Comments
				1301γ to 3^- 2850. L(p,p′)=4+5 for E=4159 *7*; probably this is L=4 component.
4159.47 *15*	5^-		GHi	B(E5)↑=0.0048 *4* (1987MiZL) XREF: i(4159). J^π: L(p,p′)=4+5 for E=4159 *7* doublet. E5 excitation in (e,e′).
4187.20 *18*	(6^+)		GHI	J^π: L=(6) in (p,p′); Q 1905γ to 4^+ 2283.
4241.29 *16*	5,6,7		G	J^π: D(+Q) 1629γ to 6^+ 2612.
4251.0[a] *3*	9^-		BC G N WX	J^π: stretched E2 627γ to 7^- 3624.
4280.73 *14*			G I	J^π: 1998γ to 4^+ 2283 so J=(2 to 6).
4300 *5*	2^+		lM	XREF: l(4310). J^π: L=2 in (p,t).
4307.44 *10*	2,3		G	J^π: D(+Q) 2798γ to 2^+ 1510; D(+Q) 1458γ to 3^- 2850.
4315.2 *4*	5^-		GHI l	B(E5)↑=0.00035 *5* (1987MiZL) XREF: l(4310). J^π: E5 excitation in (e,e′).
4328.5? *10*			C G l	XREF: l(4310). J^π: 1568γ to 8^+ 2761, so J=(6 to 10); J=7,8 favored by level population in (n,n′γ).
4345.78 *19*			GHI	J^π: 2063γ to 4^+ 2283; 1339γ to $(4,5)^-$ 3007.
4429.51 *11*	3		G I	J^π: D+Q 2147γ to 4^+ 2283; D(+Q) 1579γ to 3^- 2850; 2920γ to 2^+ 1510; γ(θ) in (n,n′γ) rules out J=4 (2010Go15).
4436.05 *13*	3,4,5		G	J^π: D+Q 2154γ to 4^+ 2283; 1372γ to (4^-) 3064.
4436.42 *16*			G	J^π: 1429γ to $(4,5)^-$ 3007.
4455.01 *15*	(3,4,5)		G	J^π: 2173γ to 4^+ 2283, 1391γ to (4^-) 3064.
4477.80 *18*	$3^{(-)},4^{(+)},5$		G	J^π: D+Q 2195γ to 4^+ 2283 allows J=3,5, but makes $J^\pi=4^-$ unlikely; 1951γ to 5^- 2527; absence of level in (e,e′) possibly suggests an unnatural parity state, thereby favoring $J^\pi=5^+$.
4483.36 *22*			G	J^π: 1956γ to 5^- 2527, so J=(3 to 7).
4486.0[a] *3*	11^-	8.74 ns *18*	BC N WX	μ=+13.9 *3* J^π: E2 235γ to 9^- 4251. $T_{1/2}$: weighted average of 8.7 ns *2* (1971Le19), 9.2 ns *5* (1977Ha49), 8.2 ns *8* (from (α,2nγ), (^{32}S,2n2pγ) and (^{16}O,6nγ), respectively). μ: differential perturbed angular distribution (1989Ra17 from 1977Ha49), if J=11, from (^{32}S,2n2pγ). Other: +14.17 *13* (1989Ra17, revision of datum from 1977Ku22), TDPAD.
4493.92 *17*	2^+		D GHI M	B(E2)↑=0.0065 *7* (1987MiZL) J^π: L=2 in (p,t).
4509.6 *10*	4^+		E L	E(level): ΔE(level) assumes unstated ΔE for 3000γ is 3 keV. J^π: L(α,α′)=4.
4544.40 *17*			G	J^π: 2262γ to 4^+ 2283, so J=(2 to 6).
4554 *7*	7^-		HI	B(E7)↑=0.000107 *11* (1987MiZL) J^π: E7 excitation in (e,e′).
4573.3 *3*	(≤4)		G	J^π: 3064γ to 2^+ 1510.
4589.64 *23*	$2^{(+)}$		D GHI L	B(E2)↑=0.052 *12* (1987MiZL) XREF: I(4598). J^π: (E2) excitation in (e,e′); Q 4590γ to 0^+ g.s.
4630.65 *19*	$(2^+,3,4^+)$		G	J^π: 3121γ to 2^+ 1510; 2349γ to 4^+ 2283.
4633.73 *10*	(1^-)[@]	3.7 fs *6*	D GHI	$T_{1/2}$: from (γ,γ′), assuming only 2 gammas deexcite

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{92}Mo Levels (continued)

E(level)†	Jπ	$T_{1/2}$	XREF	Comments
				level. However, see comment on 3125γ from this level.
4652.7 *3*	(≤4)		G I	Jπ: 3143γ to 2+ 1510; 1803γ to 3− 2850, so Jπ=(1−,2,3,4+).
4663.2 *6*	1@		D	
4685.1 *3*	(6−)		GHI	Jπ: (M6) excitation in (e,e′); D+Q 2158γ to 5− 2527.
4702.73 *24*	(≤4)		G	Jπ: 3193γ to 2+ 1510.
4725.2 *3*	4+		GHI	B(E4)↑=0.0012 *3* (1987MiZL) Jπ: L=4 in (p,p′).
4734.3? *4*			G	Jπ: 1366γ to 4+ 3369.
4781.51 *21*	(2,3+,4+)		G I	Jπ: 3272γ(θ) to 2+ 1510 in (n,n′γ) allows Jπ=2,3+,4+ (2010Go15).
4848.3 *10*	(10+)		W	Jπ: stretched Q 2088γ to 8+ 2760.
4874 *7*			HI	
4893.3 *3*	4+		GHI	Jπ: L=4 in (p,p′).
4917.9 *5*	7+		A H	Jπ: M7 excitation in (e,e′).
4924 *7*	3−		I lM	XREF: l(4940). Jπ: L=3 in (p,t).
4936.1 *6*	(1)@		D	
4944.7 *10*	(1)@		D	
4948.7 *3*	(3,4+)		G	Jπ: 3440γ to 2+ 1510; 2666γ to 4+ 2283; 1941γ to (4,5)− 3007; level population is not consistent with 2+.
4970.7 *5*	(1,2+)		D GHI l	XREF: I(4964)l(4940). Jπ: (D) 3462γ to 2+ 1510; excitation in resonance fluorescence.
4979	4		H	Jπ: E4,M4 excitation in (e,e′).
5003.6 *4*	(2)+@	22 fs *15*	D G i	$T_{1/2}$: from DSAM in (p,p′γ).
5007	(1−)		Hi	B(E1)↑=0.0005 *4* (1987MiZL) XREF: H(5007). Jπ: (E1) excitation in (e,e′).
5076.6 *3*	4+		G I lm	XREF: l(5090)m(5090). Jπ: L=4 in (p,p′).
5088 *6*	4+		HI lm	B(E4)↑=0.0032 *4* (1987MiZL) XREF: l(5090)m(5090). Jπ: E4 excitation in (e,e′). Predominant configuration=$((\pi\ 1g_{9/2})^{-1}(\pi\ 2d_{5/2}))$.
5121.7 *4*	(10+)	<0.7 ps	C N WX	$T_{1/2}$: from RDM in (^{30}Si,2p2nγ). Jπ: stretched Q 2361γ to 8+ 2760.
5150 *5*	0+		M	Jπ: L=0 in (p,t).
5151.3 *4*	(10−,11−,12−)		C	Jπ: (M1) transition to (11−) level.
5174 *7*			I	
5190 *7*			I	
5271 *7*			I	
5283.0 *21*	(1)@		D	
5289 *7*	(5−)		I	Jπ: L=(5) in (p,p′).
5312.6 *10*			C	Jπ: γ to (8)+ in (α,2nγ), so J=(6 to 10).
5316 *6*	3−		I LM	Jπ: L=3 in (α,α′), (p,t).
5331.7 *9*	(1)@		D	
5353 *7*			I	
5388 *7*			I	E(level): doublet in (p,p′).
5432 *7*			I	
5451.6 *9*	(1)@		D I	
5462.9 *5*	(7,8)+		A	Jπ: log *ft*=5.7 for ε decay from (8)+ ^{92}Tc. Feeds 6+

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{92}Mo Levels (continued)

E(level)[†]	J^π	$T_{1/2}$	XREF	Comments
				and 8^+ levels.
5467 *7*	(4^+)		I	L(p,p′)=(4).
5517? *7*			I	
5527.4 *5*	(1)[@]		D	
5601 *7*			I m	XREF: m(5620). J^π: L(p,t)=3 for level with E=5620 *25*.
5611.2 *15*			W	J^π: 763γ to (10^+) 4848.
5623.8 *10*	(1)[@]		D	
5629.9 *19*	1[@]		D	
5631 *7*	$(2^+,3^-)$		I lm	XREF: l(5656)m(5620). J^π: L(p,p′)=(2,3). L(p,t)=3 for level whose E=5620 *25*.
5658 *7*			I l	XREF: l(5656).
5679 *7*			I l	XREF: l(5656).
5703.4 *4*	1[@]		D	
5710 *7*			I	
5745 *7*			I l	XREF: l(5780).
5784 *7*	$(3^-,2^+)$		I l	XREF: l(5780). J^π: L(p,p′)=(3,2).
5789.1 *3*	1[@]		D	
5801.3 *7*	(1)[@]		D	
5806 *7*	(0^+)		I	J^π: L(p,p′)=(0).
5841.7 *11*	1[@]		D	
5844 *7*	3^-		I M	E(level): doublet in (p,p′). J^π: L=3 in (p,t).
5861.9 *4*	(12^+)	35 ps *3*	C N WX	J^π: stretched E2 740γ to (10^+) 5122; 1374γ to 11^- 4486. $T_{1/2}$: from RDM in (^{30}Si,2p2nγ).
5894 *7*	(3^-)		I L	J^π: L=(3) in (α,α′).
5950 *7*	5^-		I M	J^π: L(p,t)=5.
5981.4 *4*	1[@]		D	
6100 *25*	$(2^+,4^+)$		M	J^π: L(2,4) in (p,t).
6125.92 *20*	$1^{(-)}$[@]		D	
6184.3 *25*	(2)[@]		D	
6191.52 *20*	1^-[@]		D	
6300.2 *3*	1^-[@]		D	
6329.9 *11*	(1)[@]		D	
6362.7 *6*	(1)[@]		D	
6377.6 *3*	1^-[@]		D	
6400.0 *15*			W	J^π: 1552γ to (10^+) 4848.
6524.45 *20*	1^-[@]		D	
6550.3[‡b] *4*	(12^-)	<0.7 ps	C N WX	J^π: M1 2064γ to (11^-) 4487. $T_{1/2}$: from RDM in (^{30}Si,2p2nγ).
6566.2 *6*	1[@]		D	
6606.4 *3*	1^-[@]		D	
6608.5 *11*			W	J^π: 2122γ to 11^- 4486.
6645.6 *5*	$1^{(-)}$[@]		D	
6661.5[‡b] *5*	(13^-)	22 ps *3*	C N WX	J^π: D 112γ to (12^-) 6550; D 800γ to (12^+) 5862. $T_{1/2}$: from RDM in (^{30}Si,2p2nγ).
6718.5 *9*	(2^-)[@]		D	
6761.4 *4*	$1^{(-)}$[@]		D	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{92}Mo Levels (continued)

E(level)[†]	J^{π}	$T_{1/2}$	XREF	Comments
6787.3 *4*	1^{-}[@]		D	
6818.1 *4*	1^{-}[@]		D	
6883.1 *4*	1^{-}[@]		D	
6995.89 *20*	1^{-}[@]	0.38 fs *5*	D	$T_{1/2}$: from DSAM in (p,p′γ).
7031.3 *3*	1^{-}[@]	0.57 fs *12*	D	$T_{1/2}$: from DSAM in (p,p′γ).
7069.6 *4*	1^{-}[@]		D	
7076.9 *12*	1[@]		D	
7134.1 *10*	(14^{+})		W	J^{π}: E1 472γ to (13^{-}) 6662.
7239.7 *11*	$1^{(-)}$[@]		D	
7271.7 *5*	$-$[@]		D	
7279.0 *11*	(2)[@]		D	
7312.4[‡b] *5*	(14^{-})	<1.4 ps	C N WX	J^{π}: M1 651γ to (13^{-}) 6662. $T_{1/2}$: from RDM in (^{30}Si,2p2nγ).
7384.3 *6*	1[@]		D	
7394.4 *4*	1[@]		D	
7422.5 *11*			D	
7447.2 *16*			D	
7469.1 *4*	$1^{(-)}$[@]	0.7 fs *3*	D	$T_{1/2}$: from (p,p′γ).
7486.6 *5*	$1^{(-)}$[@]		D	
7518.4 *6*	1^{-}[@]		D	
7573.6 *7*	1[@]		D	
7604.4 *7*	(1)[@]		D	
7619.5 *9*	(1)[@]		D	
7681.1 *5*	1^{-}[@]		D	
7711.3 *5*	1[@]		D	
7731.7 *5*	1^{-}[@]		D	
7782.3 *9*	1[@]		D	
7784.0 *6*	(2)[@]		D	
7787.6 *10*	(1)[@]		D	
7808.1 *11*	1[@]		D	
7831.4 *13*			D	
7837.7 *15*	(2)[@]		D	
7856.6 *5*	1^{-}[@]		D	
7877.6 *10*	(1)[@]	0.34 fs *20*	D	$T_{1/2}$: from DSAM in (p,p′γ).
7881.8 *5*	1[@]		D	
7894.3 *7*	1[@]		D	
7919.4 *10*	(1)[@]		D	
7931.4 *9*	1[@]		D	
7950.4 *4*	$1^{(+)}$[@]	0.70 MeV *5*	D I	J^{π}: D 7950γ to 0^{+} g.s.; M1 resonance from (p,p′); possible conf=$(\nu\ g_{7/2})(\nu\ g_{9/2})^{-1}$ (1982Dj04). $T_{1/2}$: Γ from (p,p′).
7963.3 *7*			D	
8007.0 *14*	1^{-}[@]		D	
8042.0 *12*	1[@]	0.66 fs *18*	D	$T_{1/2}$: from DSAM in (p,p′γ).
8063.4 *11*	$1^{(-)}$[@]		D	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{92}Mo Levels (continued)

E(level)†	Jπ	$T_{1/2}$	XREF	Comments
8088.1 *10*	(2)@		D	
8096.4 *10*	1@		D	
8168.4 *5*	1^-@		D	
8211.0 *11*	1@	0.42 fs *12*	D	$T_{1/2}$: from DSAM in (p,p′γ).
8220.8 *10*	(1)@		D	
8221.2‡ *12*	(14)		N W	Jπ: D γ to (13^-) 6662.
8229.9 *7*	1^-@		D	
8319.5 *6*	1@		D	
8355.1 *16*	1@		D	
8381.7 *8*	(1)@		D	
8387.4‡ *6*	(15^+)	<1.4 ps	N WX	Jπ: E1 1075γ to (14^-) 7312. $T_{1/2}$: from RDM (1994Da15) in (^{30}Si,2p2nγ).
8422.2 *9*	($^-$)@		D	
8486.5 *14*	1@		D	
8501.0 *17*	1@		D	
8553.0 *13*	1@		D	
8594.7 *11*			W	
8606.6 *8*	(1)@		D	
8660.4 *3*	1^-@		D	
8695.2 *14*	1@		D	
8763.4 *5*	1@		D	
8774.4 *4*	1^-@		D	
8791.5 *8*	(1)@		D	
8819.8 *6*	1@		D	
8834.3 *20*	(1)@		D	
8902.5 *9*	1@		D	
8924.0‡ *7*	(16^+)	<1.4 ps	N WX	Jπ: (M1) 537γ to (15^+) 8387. $T_{1/2}$: from RDM in (^{30}Si,2p2nγ).
8926.3 *15*	(1)@		D	
8955.5 *6*	$1^{(-)}$@		D	
9.00×10^3 *10*	(1^+)	1.1 MeV *1*	I	Jπ: M1 resonance in (p,p′); possible conf=(ν $g_{7/2}$)(ν $g_{9/2}$)$^{-1}$ (1982Dj04). $T_{1/2}$: Γ from (p,p′).
9022.1 *8*			D	
9096.6 *6*	1^-@		D	
9126.5 *10*	1@		D	
9187.0 *8*	1@		D	
9206.4 *8*	$1^{(-)}$@		D	
9237.4 *8*	1@		D	
9280.2 *23*	(2)@		D	
9296 *3*	(2)@		D	
9337.6 *8*	1@		D	
9359.3 *10*	(15^+)		W	Jπ: M1 2225γ to (14^+) 7134; D 2048γ to (14^-) 7312.
9360.9 *7*	1@		D	
9418.9 *12*	($^-$)@		D	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{92}Mo Levels (continued)

E(level)[†]	J^{π}	$T_{1/2}$	XREF	Comments
9443.2 *8*	1[@]		D	
9481.0[‡] *8*	(17^{+})	<1.4 ps	N WX	J^{π}: M1 557γ to (16^{+}) 8924. $T_{1/2}$: from RDM in (^{30}Si,2p2nγ).
9502.8 *8*	1[@]		D	
9559.3 *13*	(1)[@]		D	
9592.3 *10*	(1^{-})[@]		D	
9646.7 *13*	(1)[@]		D	
9691 *3*			D	
9710.6 *11*	1[@]		D	
9827.0 *17*	1[@]		D	
9843.0 *10*	(1)[@]		D	
10020.3 *14*	(16^{+})		W	J^{π}: M1 661γ to (15^{+}) 9359.
10102.9[‡] *13*	(18^{+})		N W	J^{π}: M1 622γ to (17^{+}) 9481.
10579.2 *17*	(17^{+})		W	J^{π}: M1 559γ to (16^{+}) 10020.
11215.5 *20*	(18^{+})		W	J^{π}: D 636γ to (17^{+}) 10579.
14.13×10^{3} *20*	2^{+}	4.6 MeV *3*	L T	J^{π}: L(α,α')=2. $T_{1/2}$: Γ from (α,α'). GQR; E=14550, Γ=5.0 MeV *4* in (^{3}He,^{3}He$'$).
16.22×10^{3} *20*	0^{+}	4.8 MeV *3*	L	J^{π}: L(α,α')=0. $T_{1/2}$: Γ from (α,α'). GMR.
16.65×10^{3} *5*	1^{-}	4.14 MeV	S	GDR; Γ from (γ,xn). Not a discrete state.

[†] From least-squares fit to adopted Eγ, except as noted, whenever deexciting gammas have been observed; from cross-referenced reactions otherwise.
[‡] Note that E(level) here differs significantly from that deduced in source data set on account of the cumulative effect of apparently systematically low Eγ values in that data set.
[#] Absence of level in (n,n$'\gamma$) makes its existence highly questionable; possibly the γ observed in (γ,γ') was an inelastic one.
[@] From resonance fluorescence.
[&] Band(A): π=+, ΔJ=2 sequence.
[a] Band(B): π=−, ΔJ=2 sequence.
[b] Band(C): sequence based on 12^{-}.

Adopted Levels, Gammas (continued)

$\gamma(^{92}Mo)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[†]	δ[‡]	α[i]	Comments
1509.51	2^+	1509.50 *3*	100	0.0	0^+	E2			B(E2)(W.u.)=8.4 *5* E_γ: other $E\gamma$: 1509.58 *13* in (α,2nγ), 1509.47 *3* in (p,p$'\gamma$), 1509.68 *15* in (^{32}S,2p2nγ). Mult.: from Coulomb excitation; Q from $\gamma(\theta)$ in (α,2nγ).
2282.61	4^+	773.09 *3*	100	1509.51	2^+	E2[f]			B(E2)(W.u.)<24 E_γ: weighted average of 773.09 *3* in (n,n$'\gamma$), 773.05 *12* in (α,2nγ), 773.10 *8* in (p,p$'\gamma$), 772.97 *15* in (^{32}S,2p2nγ). δ(Q,O)=−0.12 *+22−14* from (p,p$'\gamma$).
2519.53	0^+	1010.02 *20*	100	1509.51	2^+	[E2]			B(E2)(W.u.)<6.4 E_γ: unweighted average of 1010.22 *7* in (p,p$'\gamma$) and 1009.82 *3* in (n,n$'\gamma$).
2526.96	5^-	244.39 *9*	100	2282.61	4^+	(E1(+M2))	<0.05[@]	0.0098	B(E1)(W.u.)=1.45×10^{-5} *4*; B(M2)(W.u.)<2.9 E_γ: unweighted average of 244.30 *5* in (n,n$'\gamma$) and 244.47 *7* in (p,p$'\gamma$). Others: 244.5 *2* in (α,2nγ), 243.6 *3* in (^{37}Cl,2p2nγ), 243.7 *6* in ε decay. Mult.: D(+Q) from (n,n$'\gamma$); $\Delta\pi$=yes from level scheme.
2612.41	6^+	85.38 *14*	13.5 *16*	2526.96	5^-	(E1)		0.200	B(E1)(W.u.)=4.0×10^{-5} *5* E_γ: weighted average of 85.25 *20* in (n,n$'\gamma$), 85.5 *2* in (α,2nγ). Others: 84.3 *3* in (^{37}Cl,2p2nγ), 85.0 *5* in ε decay, 84.6 from (^{16}O,6nγ). I_γ: unweighted average of 11.9 *3* in (α,2nγ), 15.1 *10* in ε decay. Mult.: E1 or M1 from RUL; adopted $\Delta\pi$=yes.
		329.82 *5*	100.0 *5*	2282.61	4^+	E2		0.01761	B(E2)(W.u.)=3.26 *11* E_γ: weighted average of 329.83 *5* in (n,n$'\gamma$), 329.76 *12* in (α,2nγ). Others: 329.1 *3* in (^{37}Cl,2p2nγ), 329.3 *3* in ε decay, 330.9 *4* in (p,p$'\gamma$). I_γ: from (α,2nγ). Mult.: Q from (α,2nγ); not M2 from RUL.
2634.2?	(1)	2634.2[hj] *15*	100	0.0	0^+	(D)[g]			
2760.52	8^+	148.14 *13*	100	2612.41	6^+	E2		0.291	B(E2)(W.u.)=1.311 *22* Other Eγ: 148.0 *2* in (α,2nγ), 147.3 *3* in (^{37}Cl,2p2nγ). Mult.: stretched Q from $\gamma(\theta)$ in (^{37}Cl,2p2nγ); not M2 from α(exp)=0.24 *10* in (α,2nγ).
2838.6?	(1)	2838.6[hj] *5*	100	0.0	0^+	(D)[g]			
2849.81	3^-	567.3 *2*	3.3 *5*	2282.61	4^+	[E1]			B(E1)(W.u.)=0.00022 *+6−9* E_γ,I_γ: from (n,n$'\gamma$). Other Eγ (Iγ): Eγ=567.05 *12* (19.0 *24*) from (p,p$'\gamma$).
		1340.26 *4*	100 *5*	1509.51	2^+	(E1+M2)	−0.015[@] *10*		B(E1)(W.u.)=0.00049 *+10−19*; B(M2)(W.u.)=0.3 *+4−3* Other δ: −0.09 *+5−21* from $\gamma(\theta)$ in (p,p$'\gamma$); $\delta\leq$0.04 from RUL. Mult.: D+Q from $\gamma(\theta)$ in (p,p$'\gamma$) and (n,n$'\gamma$); adopted $\Delta\pi$=yes.

$^{92}_{42}Mo_{50}$-10

Adopted Levels, Gammas (continued)

$\gamma(^{92}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[†]	δ[‡]	Comments
2922.6?	(1)	2922.6[hj] *6*	100	0.0	0^+	(D)[g]		
3006.96	$(4,5)^-$	157.03 *11*	1.0 *5*	2849.81	3^-			
		480.01 *8*	100 *6*	2526.96	5^-	D+Q	−0.10[@] *4*	E_γ: weighted average of 479.95 *11* from (n,n′γ), 480.12 *14* from (p,p′γ) and 480.0 *2* from (α,2nγ). δ: D+Q from $\gamma(\theta)$ in (n,n′γ).
3063.63	(4^-)	213.85 *11*	7.3 *7*	2849.81	3^-			
		536.88 *19*	100 *7*	2526.96	5^-	D+Q	+14[@] *3*	E_γ: unweighted average of 537.07 *4* in (p,p′γ) and 536.69 *2* in (n,n′γ).
3091.35	2^+	1581.83 *7*	21.6 *19*	1509.51	2^+	(E2+M1)	+0.63 *11*	B(M1)(W.u.)=0.026 *5*; B(E2)(W.u.)=4.3 *13* I_γ: unweighted average of 19.7 *11* in (n,n′γ) and 23.5 *25* in (p,p′γ). Mult.,δ: D+Q from $\gamma(\theta)$ in (p,p′γ); adopted $\Delta\pi$=no. Other δ: +2.5 *+6−4* or possibly −0.04 *+7−6* from $\gamma(\theta)$ in (n,n′γ), neither of which is consistent with the (p,p′γ) result.
		3091.30 *8*	100.0 *25*	0.0	0^+	E2		B(E2)(W.u.)=2.5 *3* I_γ: from (p,p′γ). Mult.: Q to 0^+ from $\gamma(\theta)$ in (p,p′γ); not M2, from RUL.
3368.68	(4^+)	305.06 *3*	100 *5*	3063.63	(4^-)	D+Q	@	Additional information 1. Other Eγ: 304.8 *2* in (p,p′γ). Mult.,δ: D+Q from $\gamma(\theta)$ in (n,n′γ). Adopted $\Delta\pi$=yes; however, if δ=−0.73 *10* as reported in (n,n′γ), B(M2)(W.u.) will exceed RUL, unless $T_{1/2}$(3369) exceeds 80 ns. Alternatively, 305γ may be complex in (n,n′γ), possibly making δ unreliable; the 305γ branch is relatively stronger in (n,n′γ) than in (p,p′γ).
		361.65 *11*	27.5 *21*	3006.96	$(4,5)^-$	D+Q	−0.44 *15*	B(M1)(W.u.)<0.013; B(E2)(W.u.)<29 Other Eγ (Iγ): 362.3 *2* (49 *6*) in (p,p′γ). Mult.: D+Q from $\gamma(\theta)$ in (n,n′γ); adopted $\Delta\pi$=no.
		842.1[j] *2*	106 *6*	2526.96	5^-			E_γ,I_γ: from (p,p′γ). Placement is considered to be tentative since no evidence for this γ could be found from excit or $\gamma\gamma$ coin in (n,n′γ).
		1085.88 *11*	23.2 *21*	2282.61	4^+	(M1+E2)		B(M1)(W.u.)<0.00052; B(E2)(W.u.)<0.12 Other Eγ (Iγ): 1086.4 *2* (32 *5*) in (p,p′γ). Mult.: D+Q from $\gamma(\theta)$ in (p,p′γ) and (n,n′γ); adopted $\Delta\pi$=no. δ: +0.27 *+51−24* from (p,p′γ) but −0.6 *2* or possibly +4 *+4−2* from $\gamma(\theta)$ in (n,n′γ).
		1858.5 *7*	4.8 *12*	1509.51	2^+	(E2)		B(E2)(W.u.)<0.0056 Mult.: Q from (n,n′γ); adopted $\Delta\pi$=no.
3380.4	(6^-)	1097.9[d]	100[d]	2282.61	4^+	M2[f]		
3384.5?	(1)	3384.4[hj] *8*	100	0.0	0^+	(D)[g]		
3542.31	2^+	2032.80 *6*	100 *4*	1509.51	2^+	E2+M1	−1.7 *+9−26*	B(M1)(W.u.)=0.017 *16*; B(E2)(W.u.)=12 *7* Mult.: D+Q from $\gamma(\theta)$ in (n,n′γ); $\Delta\pi$=no from RUL. δ: other δ: −0.80 *7* or possibly −3.7 *7* from (n,n′γ).
		3541.96 *24*	14.1 *15*	0.0	0^+	E2		B(E2)(W.u.)=0.15 *7* Mult.: Q from $\gamma(\theta)$ in (n,n′γ); E1, M1 or E2 from RUL.

$^{92}_{42}Mo_{50}$-11

Adopted Levels, Gammas (continued)

$\gamma(^{92}Mo)$ (continued)

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.†	α[i]	Comments
3579.81	3^-	1052.88 *8*	100 *5*	2526.96	5^-	(E2)		B(E2)(W.u.)<38 Other Eγ: 1053.4 *2* from (p,p′γ). Mult.: Q from γ(θ) in (p,p′γ); adopted Δπ=no. δ(Q,O)=−0.12 *+19−32* from (p,p′γ).
		1297.22 *9*	87 *5*	2282.61	4^+	(E1)		B(E1)(W.u.)<0.00029 Other Eγ: 1297.6 *2* from (p,p′γ). Mult.,δ: D, δ(D,Q)=0.00 *6* from γ(θ) in (n,n′γ); Δπ=yes from level scheme.
		2070.21 *9*	≈33	1509.51	2^+			
3621.06	(≤4)	2111.53 *6*	100	1509.51	2^+			
3624.13	7^-	243.8		3380.4	(6^-)	(M1)	0.0229	Eγ,Mult.: from ^{74}Ge(^{28}Si,2α2nγ).
		1097.10 *16*	100	2526.96	5^-	(E2)		Other Eγ: 1097.7 *2* in (α,2nγ), 1098 *1* in (^{32}S,2p2nγ), 1096.8 *3* in (^{37}Cl,2p2nγ). Mult.: yrast cascade γ, mult=Q to 5^-, from (α,2nγ), (^{32}S,2n2pγ).
3651.8?	(1)	3651.7[hj] *11*	100	0.0	0^+	(D)[g]		
3688.77	$1^{(-)}$,2,3	838.9 *2*	15.8 *15*	2849.81	3^-			Other Iγ: 92 *6* from (p,p′γ).
		2179.24 *6*	100 *4*	1509.51	2^+	D(+Q)		Other Eγ: 2178.48 *13* from (p,p′γ). δ: −0.02 *6* or +2.5 *5* if J(3689)=2; +0.35 *4* if J(3689)=3 (2010Go15) in (n,n′γ).
3753.2		385# *1*		3368.68	(4^+)			
		689# *1*		3063.63	(4^-)			
3757.25		1230.28 *8*	100	2526.96	5^-			
3814.58	2,3	234.83 *13*	91 *9*	3579.81	3^-			Other Iγ: 58 *9* from 2000Ga30 in (n,n′γ).
		750.8[j]		3063.63	(4^-)			Eγ: from (p,p′γ).
		807.7[j]	36.1 *12*	3006.96	$(4,5)^-$			Eγ: tentative placement from (p,p′γ). Eγ=807.7 *3*, branching=36.1 *12* from (n,n′γ) if correctly placed.
		964.59 *11*	94 *9*	2849.81	3^-	D(+Q)		Other Iγ: 82 *5* in (p,p′γ); 119 *18* (2000Ga30) in (n,n′γ). Mult.,δ: δ(D,Q)=0.00 *12* or −6 *+2−15* if J(3815)=2; from (n,n′γ).
		2305.20 *12*	100 *6*	1509.51	2^+	D(+Q)		Other Eγ: 2304.3 *3* in (p,p′γ). Mult.,δ: δ(D,Q)=−0.01 *+15−11* or +2.3 *+9−7* if J(3815)=2; from γ(θ) in (n,n′γ).
3841.87	0^+	2332.33 *11*	100	1509.51	2^+	[E2]		B(E2)(W.u.)<1.6
3871.5	(≤4)	2362# *1*	100	1509.51	2^+			
3876.62	4^+	1593.76 *13*	33 *3*	2282.61	4^+			I(1594γ):I(2367γ)=61 *11*:100 *11* in (p,p′γ).
		2367.22 *10*	100 *4*	1509.51	2^+	(E2)		Mult.: Q from γ(θ) in (n,n′γ); Δπ=no from level scheme.
3926.36	2^+	1643.9 *5*	13.6 *13*	2282.61	4^+			
		2416.86 *12*	54.8 *24*	1509.51	2^+	D+Q		Other Eγ: 2416.9 *5* in (γ,γ′), 2415.5 *5* in (p,p′γ). Other Iγ: 49 *24* in (γ,γ′) for uncertain γ, 54 *8* from (p,p′γ). Mult.,δ: from γ(θ) in (n,n′γ); δ=+0.30 *+17−10* or +1.15 *26*.
		3926.22 *13*	100 *11*	0.0	0^+	(E2)		B(E2)(W.u.)=1.38 *24*

$^{92}_{42}Mo_{50}$-12

$\gamma(^{92}Mo)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.†	δ‡	Comments
								Other Eγ: 3924.9 *5* in (p,p′γ), 3925.7 *2* in (γ,γ′). Mult.: Q from (γ,γ′); not M2 from RUL.
3944.92	1	3944.83 *13*	100	0.0	0^+	D		Other Eγ: 3943.96 *17* in (p,p′γ), 3944.1 *3* in (γ,γ′). Iγ: % photon branching=78 *28* from (γ,γ′). However, no other γ is known to deexcite this level. Mult.: from (γ,γ′) and (n,n′γ).
3953.2?		1340.8[j] *4*	100	2612.41	6^+			Placement shown as uncertain because γ seen by 2000Ga30 was not reported by 2010Go15 in (n,n′γ).
3963.19	4^+	594.9[j]		3368.68	(4^+)			Eγ: from (p,p′γ).
		899.3 *5*	100 *8*	3063.63	(4^-)			Iγ: from (p,p′γ). Other Eγ: 898.0 *2* in (p,p′γ).
		1113.2 *3*	55 *6*	2849.81	3^-			Iγ: from (p,p′γ).
		2453.77 *20*	49 *6*	1509.51	2^+			Iγ: from (p,p′γ).
3964.3?	(2)	3964.2[hj] *13*	100	0.0	0^+	(Q)[g]		
4019.31		1492.33 *9*	100	2526.96	5^-			
4115.81	$3^{(-)}$,4	747.7 *9*	19 *5*	3368.68	(4^+)			
		1266.06 *13*	100 *8*	2849.81	3^-	D+Q	+0.07[@] *4*	
		1589.00 *19*	23 *4*	2526.96	5^-			
		1832.99 *15*	45 *5*	2282.61	4^+	D(+Q)	+0.4[@] *5*	
4148.08	$1^{(-)}$	1864.86[j] *23*	67 *14*	2282.61	4^+			
		2638.53 *16*	80 *8*	1509.51	2^+	D		
		4148.0 *4*	100 *14*	0.0	0^+	(E1)		Mult.: D from (n,n′γ); Δπ=(yes) from (γ,γ′).
4150.36	$4^{(+)},5^{(-)}$	1300.91 *14*	13 *3*	2849.81	3^-			
		1623.15 *17*	30 *4*	2526.96	5^-	D+Q	−0.9[@] *+4−8*	
		1867.58 *12*	100 *6*	2282.61	4^+	D(+Q)	−0.08[@] *12*	
4159.47	5^-	1309.7 *8*	16 *5*	2849.81	3^-			
		1632.49 *14*	100 *9*	2526.96	5^-	D(+Q)	+0.3[@] *+4−3*	
4187.20	(6^+)	1122.9 *9*	27 *11*	3063.63	(4^-)			Other Iγ: 89 *13* from 2000Ga30 in (n,n′γ).
		1574.6 *6*	24 *7*	2612.41	6^+			
		1904.61 *18*	100 *7*	2282.61	4^+	Q		
4241.29	5,6,7	1628.87 *14*	100	2612.41	6^+	D(+Q)		
4251.0	9^-	626.8[b] *2*	100	3624.13	7^-	E2		Other Eγ: 628.25 *11* from 2000Ga30 in (n,n′γ), but this γ was not confirmed by 2010Go15 in that reaction. Mult.: Q yrast decay γ ray to 7^-, from (α,2nγ), (^{32}S,2n2pγ). Electric from positive IPDCO in (^{28}Si,2α2nγ).
4280.73		912.04 *12*	100 *8*	3368.68	(4^+)			
		1998.3 *5*	15 *5*	2282.61	4^+			
4307.44	2,3	1215.8 *7*	27 *8*	3091.35	2^+			

From ENSDF

Adopted Levels, Gammas (continued)

$\gamma(^{92}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[†]	δ[‡]	α[i]	Comments
4307.44	2,3	1457.57 13	≈96	2849.81	3^-	D(+Q)			δ: −0.02 +9−11 or −5 +2−5 if J(4308)=2; +0.14 5 if J(4308)=4 (2010Go15) from (n,n′γ).
		2797.94 13	100 12	1509.51	2^+	D(+Q)			δ: +0.1 +4−2 or +1.7 +11−9 if J(4308)=2 (2010Go15) from (n,n′γ).
4315.2	5^-	1703.3 4	100 8	2612.41	6^+				
		1787.3 5	86 9	2526.96	5^-				
4328.5?		1568[#j] 1	100	2760.52	8^+				
4345.78		1339.1 5		3006.96	$(4,5)^-$				Reported in (n,n′γ) by 2000Ga30, but not by 2010Go15 (possibly unresolved from strong 1340γ there).
		2063.1 2	100 10	2282.61	4^+				
4429.51	3	1579.27 22	95 11	2849.81	3^-	D(+Q)	+0.3[@] +1−4		Other Iγ: 80 12 from 2000Ga30 in (n,n′γ).
		2147.08 14	100 11	2282.61	4^+	D+Q			δ: +0.25 14 or +8 +70−4 from (n,n′γ).
		2919.84 23	42 9	1509.51	2^+				
4436.05	3,4,5	1371.91 24	47 12	3063.63	(4^-)				Other Iγ: 28.9 22 from 2000Ga30 in (n,n′γ).
		2153.59 14	100 10	2282.61	4^+	D+Q			
4436.42		1429.45 14	100	3006.96	$(4,5)^-$				
4455.01	(3,4,5)	1391.31 16	100 18	3063.63	(4^-)				
		2172.50 23	75 10	2282.61	4^+				Other Iγ: 59 9 from 2000Ga30 in (n,n′γ).
4477.80	$3^{(-)},4^{(+)},5$	1951.4 10	19 8	2526.96	5^-				
		2195.15 17	100 7	2282.61	4^+	D+Q			Mult.: γ(θ) in (n,n′γ) excludes pure Q or pure D, ΔJ=0. Other Eγ: 2195.54 14 from 2000Ga30 in (n,n′γ).
4483.36		1956.37 21	100	2526.96	5^-				
4486.0	11^-	234.9[b] 2	100	4251.0	9^-	E2[f]		0.0562	B(E2)(W.u.)=3.47 8
4493.92	2^+	2984.29 17	100 10	1509.51	2^+	D+Q			Other E: 2983.6 6 in (γ,γ′). δ: +0.23 +24−15 or +1.3 +5−6 (2010Go15) from (n,n′γ).
		4494.7[h] 6	≤43	0.0	0^+	(E2)[g]			Mult.: Q from γ(θ) in (γ,γ′); Δπ=no from level scheme.
4509.6	4^+	3000	100	1509.51	2^+				E_γ: from (α,α′γ).
4544.40		2261.76 16	100	2282.61	4^+				
4573.3	(≤4)	3063.75 25	100	1509.51	2^+				
4589.64	$2^{(+)}$	3080.05 24	92 13	1509.51	2^+				δ(D,Q)=0.0 +6−12 or 1/δ=+0.3 +16−7 from (n,n′γ).
		4589.7 7	100 19	0.0	0^+	Q			Other Eγ: 4590.8 9 in (γ,γ′).
4630.65	$(2^+,3,4^+)$	2348.6 11	13 5	2282.61	4^+				
		3121.07 19	100 16	1509.51	2^+				
4633.73	(1^-)	3124.7[h] 8	11 9	1509.51	2^+	(E1)[g]			B(E1)(W.u.)=2.9×10^{-4} 25 E_γ: from (γ,γ′). Eγ=3121.07 19 from (n,n′γ) is too low for this placement, suggesting the presence of a second level near 4630 keV (as adopted here). I_γ: from (γ,γ′). Mult.: (D) from (γ,γ′); Δπ=(yes) from level scheme.
		4633.6[h] 1	100 9	0.0	0^+	(E1)[g]			B(E1)(W.u.)=0.00081 18

γ(^{92}Mo) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[†]	Comments
							Mult.: D, $\Delta\pi$=(yes) from (γ,γ'). Other Eγ: 4634.1 *8* in (n,n$'\gamma$).
4652.7	(≤4)	1802.8 *6*	29 *14*	2849.81	3^-		
		3143.1 *3*	100 *18*	1509.51	2^+		
4663.2	1	4663.1[h] *6*	100	0.0	0^+	D[g]	
4685.1	(6^-)	1677.5 *13*	86 *21*	3006.96	$(4,5)^-$		
		2158.1 *3*	100 *20*	2526.96	5^-	D+Q	
4702.73	(≤4)	1612.5 *11*	31 *13*	3091.35	2^+		
		3193.11 *24*	100 *14*	1509.51	2^+		
4725.2	4^+	1661.4 *3*	≤291	3063.63	(4^-)		
		2443.8 *10*	100 *16*	2282.61	4^+		
4734.3?		1365.6[j] *3*	100	3368.68	(4^+)		
4781.51	($2,3^+,4^+$)	3271.94 *20*	100	1509.51	2^+		
4848.3	(10^+)	2087.8[d]	100[d]	2760.52	8^+	Q[f]	
4893.3	4^+	3383.7 *3*	100	1509.51	2^+		
4917.9	7^+	2157.0[c] *6*	100[c] *8*	2760.52	8^+		
		2305.8[c] *6*	77[c] *7*	2612.41	6^+		
4936.1	(1)	4936.0[h] *6*	100	0.0	0^+	(D)[g]	
4944.7	(1)	4944.6[h] *10*	100	0.0	0^+	(D)[g]	
4948.7	($3,4^+$)	1940.8 *6*	100 *21*	3006.96	$(4,5)^-$		
		2666.1 *5*	41 *18*	2282.61	4^+		
		3439.8 *5*	22 *6*	1509.51	2^+		
4970.7	($1,2^+$)	3461.1 *5*	100	1509.51	2^+	(D)	E_γ: weighted average of 3461.3 *7* in (n,n$'\gamma$) and 3460.9 *7* in (γ,γ'). Mult.: from (γ,γ').
5003.6	$(2)^+$	3493.78[j] *24*	45 *33*	1509.51	2^+	(M1)	B(M1)(W.u.)=0.007 *+8−7* E_γ: weighted average of 3494.1 *4* in (γ,γ') and 3493.6 *3* in (n,n$'\gamma$). I_γ: from (γ,γ'). Mult.: (D) in (γ,γ'); $\Delta\pi$=no from level scheme.
		5003.5[h] *4*	100 *33*	0.0	0^+	(E2)[g]	B(E2)(W.u.)=0.23 *19* I_γ: from (γ,γ'). Mult.: (Q), $\Delta\pi$=no from (γ,γ').
5076.6	4^+	2793.5 *18*	17 *10*	2282.61	4^+		
		3567.0 *3*	≈100	1509.51	2^+		
5121.7	(10^+)	2361.4[a] *3*	100	2760.52	8^+	(E2)	B(E2)(W.u.)>0.45 Mult.: stretched Q, from $\gamma(\theta)$ in (^{37}Cl,2p2nγ).
5151.3	($10^-,11^-,12^-$)	665.3[b] *2*	100	4486.0	11^-	(M1)	Mult.: from $\gamma(\theta)$ in (α,2nγ).
5283.0	(1)	5282.8[h] *21*	100	0.0	0^+	(D)[g]	
5312.6		2552[#] *1*	100	2760.52	8^+		

$^{92}_{42}$Mo$_{50}$-15

$\gamma(^{92}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[†]	Comments
5331.7	(1)	5331.5[h] *9*	100	0.0	0^+	(D)[g]	
5451.6	(1)	5451.4[h] *9*	100	0.0	0^+	(D)[g]	
5462.9	$(7,8)^+$	2702.4[c] *6*	100[c] *16*	2760.52	8^+		
		2850.3[c] *6*	91[c] *16*	2612.41	6^+		
5527.4	(1)	5527.2[h] *5*	100	0.0	0^+	(D)[g]	
5611.2		762.9[d]	100[d]	4848.3	(10^+)		
5623.8	(1)	5623.6[h] *10*	100	0.0	0^+	(D)[g]	
5629.9	1	5629.7[h] *19*	100	0.0	0^+	D[g]	
5703.4	1	5703.2[h] *4*	100	0.0	0^+	D[g]	
5789.1	1	5788.9[h] *3*	100	0.0	0^+	D[g]	
5801.3	(1)	5801.1[h] *7*	100	0.0	0^+	(D)[g]	
5841.7	1	5841.5[h] *11*	100	0.0	0^+	D[g]	
5861.9	(12^+)	740.3 *2*	100 *14*	5121.7	(10^+)	E2	B(E2)(W.u.)=2.2 *5* E_γ: from (α,2nγ). I_γ: from (^{16}O,6nγ). Mult.: stretched Q from $\gamma(\theta)$ in (^{37}Cl,2p2nγ); not M2 from RUL.
		1374.7[e]	36[e] *14*	4486.0	11^-	E1[f]	B(E1)(W.u.)=1.0×10^{-6} *4*
5981.4	1	4473.2[hj] *11*		1509.51	2^+	(D)[g]	
		5981.2[h] *4*	100	0.0	0^+	D[g]	
6125.92	$1^{(-)}$	6125.7[h] *2*	100	0.0	0^+	(E1)[g]	α(IPF)=0.00232 *4* Mult.: D, $\Delta\pi$=(yes) in (γ,γ').
6184.3	(2)	6184.1[h] *25*	100	0.0	0^+	(Q)[g]	
6191.52	1^-	6191.3[h] *2*	100	0.0	0^+	E1[g]	α(IPF)=0.00234 *4*
6300.2	1^-	6300.0[h] *3*	100	0.0	0^+	E1[g]	α(IPF)=0.00236 *4*
6329.9	(1)	6329.7[h] *11*	100	0.0	0^+	(D)[g]	
6362.7	(1)	6362.5[h] *6*	100	0.0	0^+	(D)[g]	
6377.6	1^-	4868.8[hj] *10*		1509.51	2^+	(D)[g]	
		6377.4[h] *3*	100	0.0	0^+	E1[g]	α(IPF)=0.00238 *4*
6400.0		1551.6[d]	100[d]	4848.3	(10^+)		
6524.45	1^-	6524.2[h] *2*	100	0.0	0^+	E1[g]	α(IPF)=0.00242 *4*
6550.3	(12^-)	2064.1[a] *3*	100	4486.0	11^-	M1[f]	B(M1)(W.u.)>0.0036 Eγ=2085.4 *20* in (α,2nγ) is presumed to be erroneous. Other Eγ: 2064.5 in (^{28}Si,2α2nγ).
6566.2	1	6565.9[h] *6*	100	0.0	0^+	D[g]	

$^{92}_{42}Mo_{50}$-16

$\gamma(^{92}Mo)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.†	α[i]	Comments
6606.4	1^-	6606.1[h] 3	100	0.0	0^+	E1[g]		α(IPF)=0.00244 4
6608.5		2122.4[d]	100[d]	4486.0	11^-			
6645.6	$1^{(-)}$	6645.3[h] 5	100	0.0	0^+	(E1)[g]		α(IPF)=0.00244 4 Mult.: D, $\Delta\pi$=(yes) in (γ,γ').
6661.5	(13^-)	111.2[b] 2	100 9	6550.3	(12^-)	(M1+E2)	0.5 4	Other Eγ: 110.4 from (^{16}O,6nγ), 110.7 from (^{28}Si,2α2nγ). I_γ: from (^{28}Si,2α2nγ). Mult.: D from $\gamma(\theta)$ and anisotropy in (^{37}Cl,2p2nγ); authors assume ΔJ=1 transitions are M1(+E2).
		800.7[d]	9[d] 4	5861.9	(12^+)	D[f]		Other Iγ: 118 27 from (^{16}O,6nγ).
6718.5	(2^-)	6718.2[h] 9	100	0.0	0^+	(M2)[g]		α(IPF)=0.001520 22 Mult.: $\Delta\pi$=(yes) for (Q) transition in (γ,γ').
6761.4	$1^{(-)}$	6761.1[h] 4	100	0.0	0^+	(E1)[g]		α(IPF)=0.00246 4 Mult.: D, $\Delta\pi$=(yes) in (γ,γ').
6787.3	1^-	6787.0[h] 4	100	0.0	0^+	E1[g]		α(IPF)=0.00247 4
6818.1	1^-	6817.8[h] 4	100	0.0	0^+	E1[g]		α(IPF)=0.00248 4
6883.1	1^-	6882.8[h] 4	100	0.0	0^+	E1[g]		α(IPF)=0.00249 4
6995.89	1^-	5487.0[hj] 10	6 9	1509.51	2^+	(E1)[g]		B(E1)(W.u.)=0.0003 +5−3 I_γ: from (γ,γ'). Mult.: (D) from (γ,γ'); $\Delta\pi$=yes from level scheme.
		6995.6[h] 2	100 9	0.0	0^+	E1[g]		α(IPF)=0.00252 4 B(E1)(W.u.)=0.0024 5 I_γ: from (γ,γ').
7031.3	1^-	5519.8[j] 17	8 11	1509.51	2^+	(E1)		B(E1)(W.u.)=0.0003 +4−3 I_γ,E_γ: from (γ,γ'). Mult.: (D) from (γ,γ'); $\Delta\pi$=yes from level scheme.
		7031.0[h] 3	100 11	0.0	0^+	E1[g]		α(IPF)=0.00253 4 B(E1)(W.u.)=0.0016 5 I_γ: from (γ,γ').
7069.6	1^-	7069.3[h] 4	100	0.0	0^+	E1[g]		α(IPF)=0.00254 4
7076.9	1	7076.6[h] 12	100	0.0	0^+	D[g]		
7134.1	(14^+)	471.9[d]	100[d]	6661.5	(13^-)	E1[f]		
7239.7	$1^{(-)}$	7239.4[h] 11	100	0.0	0^+	(E1)[g]		α(IPF)=0.00257 4 Mult.: D, $\Delta\pi$=(yes) in (γ,γ').
7271.7	$^-$	7271.4 5	100	0.0	0^+			From (γ,γ'); $\Delta\pi$=yes.
7279.0	(2)	7278.7[h] 11	100	0.0	0^+	(Q)[g]		
7312.4	(14^-)	650.9[b] 2	100	6661.5	(13^-)	M1[f]		B(M1)(W.u.)>0.057
7384.3	1	7384.0[h] 6	100	0.0	0^+	D[g]		

$^{92}_{42}Mo_{50}$-17

$\gamma(^{92}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[†]	Comments
7394.4	1	7394.1[h] *4*	100	0.0	0^+	D[g]	
7422.5		7422.2 *11*	100	0.0	0^+		E_γ: from (γ,γ').
7447.2		7446.9 *16*	100	0.0	0^+		E_γ: from (γ,γ').
7469.1	$1^{(-)}$	4950.7[hj] *14*	52 *24*	2519.53	0^+	(E1)[g]	B(E1)(W.u.)=0.0013 *9* Mult.: (D) from (γ,γ'); $\Delta\pi$=(yes) from level scheme.
		7468.8[h] *4*	100 *24*	0.0	0^+	(E1)[g]	α(IPF)=0.00261 *4* B(E1)(W.u.)=0.0007 *4* Mult.: D, $\Delta\pi$=(yes) from (γ,γ').
7486.6	$1^{(-)}$	7486.3[h] *5*	100	0.0	0^+	(E1)[g]	α(IPF)=0.00261 *4* Mult.: D, $\Delta\pi$=(yes) in (γ,γ').
7518.4	1^-	7518.1[h] *6*	100	0.0	0^+	E1[g]	α(IPF)=0.00262 *4*
7573.6	1	7573.3[h] *7*	100	0.0	0^+	D[g]	
7604.4	(1)	7604.1[h] *7*	100	0.0	0^+	(D)[g]	
7619.5	(1)	7619.2[h] *9*	100	0.0	0^+	(D)[g]	
7681.1	1^-	7680.8[h] *5*	100	0.0	0^+	E1[g]	α(IPF)=0.00265 *4*
7711.3	1	7711.0[h] *5*	100	0.0	0^+	D[g]	
7731.7	1^-	7731.4[h] *5*	100	0.0	0^+	E1[g]	α(IPF)=0.00266 *4*
7782.3	1	7781.9[h] *9*	100	0.0	0^+	D[g]	
7784.0	(2)	7783.6[h] *6*	100	0.0	0^+	(Q)[g]	
7787.6	(1)	7787.2[h] *10*	100	0.0	0^+	(D)[g]	
7808.1	1	7807.7[h] *11*	100	0.0	0^+	D[g]	
7831.4		7831.0 *13*	100	0.0	0^+		E_γ: from (γ,γ').
7837.7	(2)	7837.3[h] *15*	100	0.0	0^+	(Q)[g]	
7856.6	1^-	7856.2[h] *5*	100	0.0	0^+	E1[g]	α(IPF)=0.00269 *4*
7877.6	(1)	4954.2[hj] *12*	100 *14*	2922.6?	(1)	(D)[g]	I_γ: from (γ,γ').
		7877.2[h] *10*	43 *14*	0.0	0^+	(D)[g]	I_γ: from (γ,γ').
7881.8	1	7881.4[h] *5*	100	0.0	0^+	D[g]	
7894.3	1	7893.9[h] *7*	100	0.0	0^+	D[g]	
7919.4	(1)	7919.0[h] *10*	100	0.0	0^+	(D)[g]	
7931.4	1	7931.0[h] *9*	100	0.0	0^+	D[g]	
7950.4	$1^{(+)}$	7950.0[h] *4*	100	0.0	0^+	(M1)[g]	Mult.: D, $\Delta\pi$=(no) in (γ,γ').
7963.3		7962.9 *7*	100	0.0	0^+		E_γ: from (γ,γ').
8007.0	1^-	8006.6[h] *14*	100	0.0	0^+	E1[g]	
8042.0	1	6532.2[hj] *8*	33 *19*	1509.51	2^+	D[g]	I_γ: from (γ,γ').
		8041.6[h] *12*	100 *19*	0.0	0^+	D[g]	I_γ: from (γ,γ').

Adopted Levels, Gammas (continued)

$\gamma(^{92}Mo)$ (continued)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[†]	E_f	J^{π}_f	Mult.[†]	Comments
8063.4	$1^{(-)}$	8063.0[h] *11*	100	0.0	0^+	(E1)[g]	Mult.: D, $\Delta\pi$=(yes) in (γ,γ').
8088.1	(2)	8087.7[h] *10*	100	0.0	0^+	(Q)[g]	
8096.4	1	8096.0[h] *10*	100	0.0	0^+	D[g]	
8168.4	1^-	8168.0[h] *5*	100	0.0	0^+	E1[g]	
8211.0	1	6701.2[hj] *15*	37 *18*	1509.51	2^+	(D)[g]	I_{γ}: from (γ,γ').
		8210.6[h] *11*	100 *18*	0.0	0^+	D[g]	I_{γ}: from (γ,γ').
8220.8	(1)	8220.4[h] *10*	100	0.0	0^+	(D)[g]	
8221.2	(14)	1559.7[a]	100	6661.5	(13^-)	D[&]	
8229.9	1^-	8229.5[h] *7*	100	0.0	0^+	E1[g]	
8319.5	1	8319.1[h] *6*	100	0.0	0^+	D[g]	
8355.1	1	8354.7[h] *16*	100	0.0	0^+	D[g]	
8381.7	(1)	8381.3[h] *8*	100	0.0	0^+	(D)[g]	
8387.4	(15^+)	1075.0[a] *3*	100	7312.4	(14^-)	E1[f]	B(E1)(W.u.)>0.00019
8422.2	$(^-)$	8421.8 *9*	100	0.0	0^+		From (γ,γ'); $\Delta\pi$=(yes).
8486.5	1	8486.1[h] *14*	100	0.0	0^+	D[g]	
8501.0	1	8500.6[h] *17*	100	0.0	0^+	D[g]	
8553.0	1	8552.6[h] *13*	100	0.0	0^+	D[g]	
8594.7		1933.2[d]	100[d]	6661.5	(13^-)		
8606.6	(1)	8606.2[h] *8*	100	0.0	0^+	(D)[g]	
8660.4	1^-	8660.0[h] *3*	100	0.0	0^+	E1[g]	
8695.2	1	8694.8[h] *14*	100	0.0	0^+	D[g]	
8763.4	1	8763.0[h] *5*	100	0.0	0^+	D[g]	
8774.4	1^-	8774.0[h] *4*	100	0.0	0^+	E1[g]	
8791.5	(1)	8791.0[h] *8*	100	0.0	0^+	(D)[g]	
8819.8	1	8819.3[h] *6*	100	0.0	0^+	D[g]	
8834.3	(1)	8833.8[h] *20*	100	0.0	0^+	(D)[g]	
8902.5	1	8902.0[h] *9*	100	0.0	0^+	D[g]	
8924.0	(16^+)	536.6[a] *3*	100	8387.4	(15^+)	(M1)[f]	B(M1)(W.u.)>0.10
8926.3	(1)	8925.8[h] *15*	100	0.0	0^+	(D)[g]	
8955.5	$1^{(-)}$	8955.0[h] *6*	100	0.0	0^+	(E1)[g]	Mult.: D, $\Delta\pi$=(yes) in (γ,γ').
9022.1		9021.6 *8*	100	0.0	0^+		E_{γ}: from (γ,γ').
9096.6	1^-	9096.1[h] *6*	100	0.0	0^+	E1[g]	
9126.5	1	9126.0[h] *10*	100	0.0	0^+	D[g]	

$^{92}_{42}Mo_{50}$-19

γ(^{92}Mo) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[†]	Comments
9187.0	1	9186.5[h] *8*	100	0.0	0^+	D[g]	
9206.4	$1^{(-)}$	9205.9[h] *8*	100	0.0	0^+	(E1)[g]	Mult.: D, $\Delta\pi$=(yes) in (γ,γ').
9237.4	1	9236.9[h] *8*	100	0.0	0^+	D[g]	
9280.2	(2)	9279.7[h] *23*	100	0.0	0^+	(Q)[g]	
9296	(2)	9295[h] *3*	100	0.0	0^+	(Q)[g]	
9337.6	1	9337.1[h] *8*	100	0.0	0^+	D[g]	
9359.3	(15^+)	2047.6[d]	100[d] *10*	7312.4	(14^-)	D[f]	
		2224.5[d]	53[d] *19*	7134.1	(14^+)	M1[f]	
9360.9	1	9360.4[h] *7*	100	0.0	0^+	D[g]	
9418.9	$(^-)$	9418.4 *12*	100	0.0	0^+		$E\gamma$ from (γ,γ'); $\Delta\pi$=(yes) in (γ,γ').
9443.2	1	9442.7[h] *8*	100	0.0	0^+	D[g]	
9481.0	(17^+)	557.0[a] *3*	100	8924.0	(16^+)	M1[f]	
9502.8	1	9502.3[h] *8*	100	0.0	0^+	D[g]	
9559.3	(1)	9558.8[h] *13*	100	0.0	0^+	(D)[g]	
9592.3	(1^-)	9591.8[h] *10*	100	0.0	0^+	(E1)[g]	
9646.7	(1)	9646.2[h] *13*	100	0.0	0^+	(D)[g]	
9691		9690 *3*	100	0.0	0^+		$E\gamma$ from (γ,γ').
9710.6	1	9710.0[h] *11*	100	0.0	0^+	D[g]	
9827.0	1	9826.4[h] *17*	100	0.0	0^+	D[g]	
9843.0	(1)	9842.4[h] *10*	100	0.0	0^+	(D)[g]	
10020.3	(16^+)	660.7[d]	100[d]	9359.3	(15^+)	M1[f]	
10102.9	(18^+)	621.9[d]	100[d]	9481.0	(17^+)	M1[f]	
10579.2	(17^+)	559.2[d]	100[d]	10020.3	(16^+)	M1[f]	
11215.5	(18^+)	636.3[d]	100[d]	10579.2	(17^+)	D[f]	

[†] From (n,n′γ), except as noted. Note, however, that stated $I\gamma$ from 2000Ga30 may be subject to an additional uncertainty of as much as 15% due to angular distribution effects and, in this evaluation, this has been combined in quadrature with the statistical uncertainty in those data. The $I\gamma$(125°) data of 2010Go15 should not have been significantly influenced by such effects.

[‡] From $\gamma(\theta)$ in (p,p′γ), except as noted.

[#] From (α,2nγ). ΔE_γ not stated by authors; uncertainty assigned by evaluator.

[@] From $\gamma(\theta)$ in (n,n′γ).

[&] D or (D) from $\gamma(\theta)$ in (^{37}Cl,2p2nγ), (^{30}Si,2p2nγ), (^{16}O,4nγ); ΔJ=1 transitions assumed by 1992Si03 to be M1(+E2).

[a] From (^{37}Cl,2p2nγ); note that $E\gamma$ values appear to be systematically low in this study.

$^{92}_{42}$Mo$_{50}$-20

Adopted Levels, Gammas (continued)

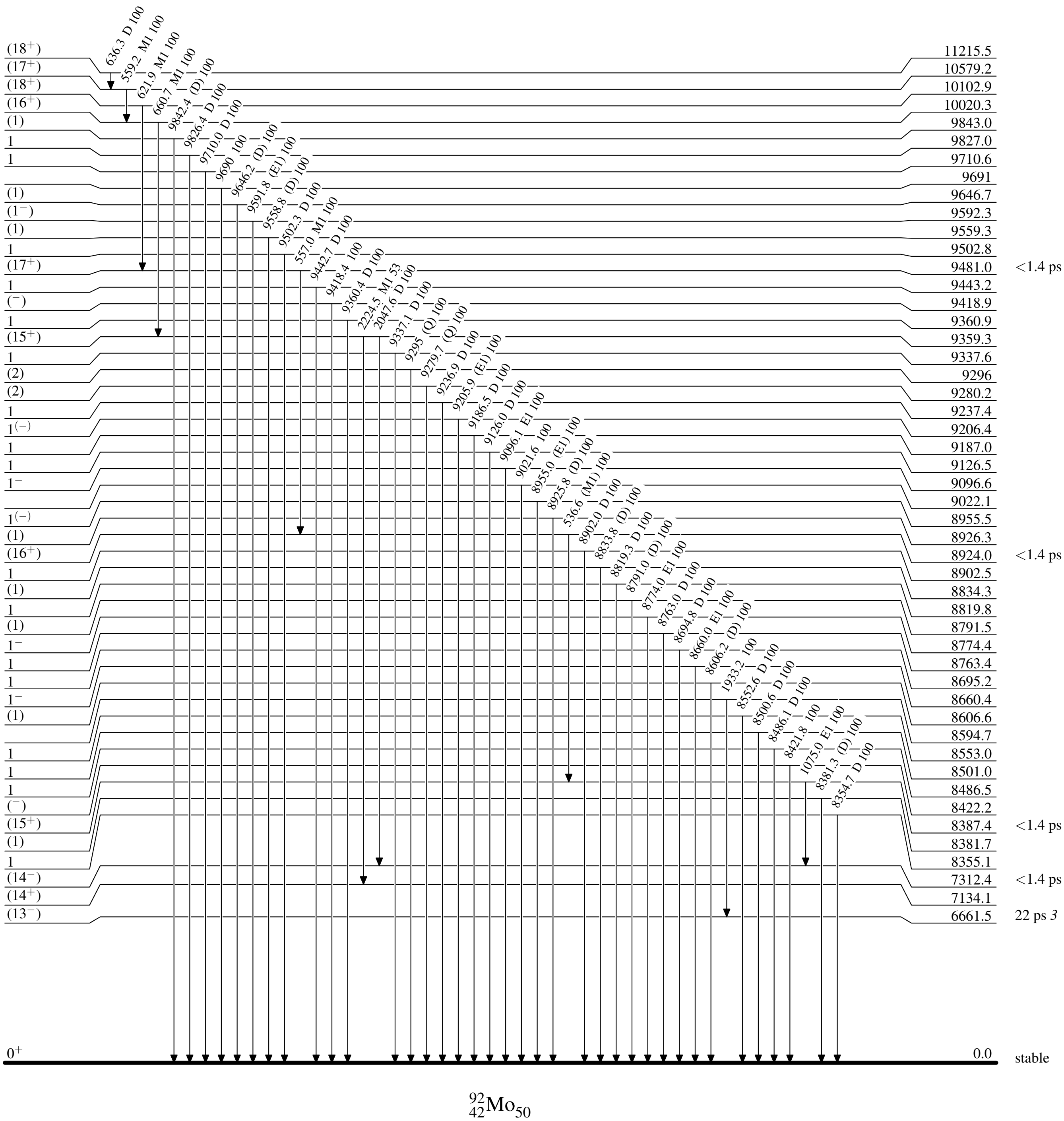
γ(^{92}Mo) (continued)

[b] From (α,2nγ).
[c] From ^{92}Tc ε decay.
[d] From ^{74}Ge(^{28}Si,2α2nγ).
[e] From (^{16}O,6nγ).
[f] From DCO ratios and γ asymmetry parameters from polarization measurements in ^{74}Ge(^{28}Si,2α2nγ).
[g] From (γ,γ'), (pol γ,γ'). $\Delta\pi$ (if given) is based on comparison between polarized and unpolarized photon data; ΔJ is from measured $\gamma(\theta)$.
[h] From (γ,γ').
[i] 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.
[j] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

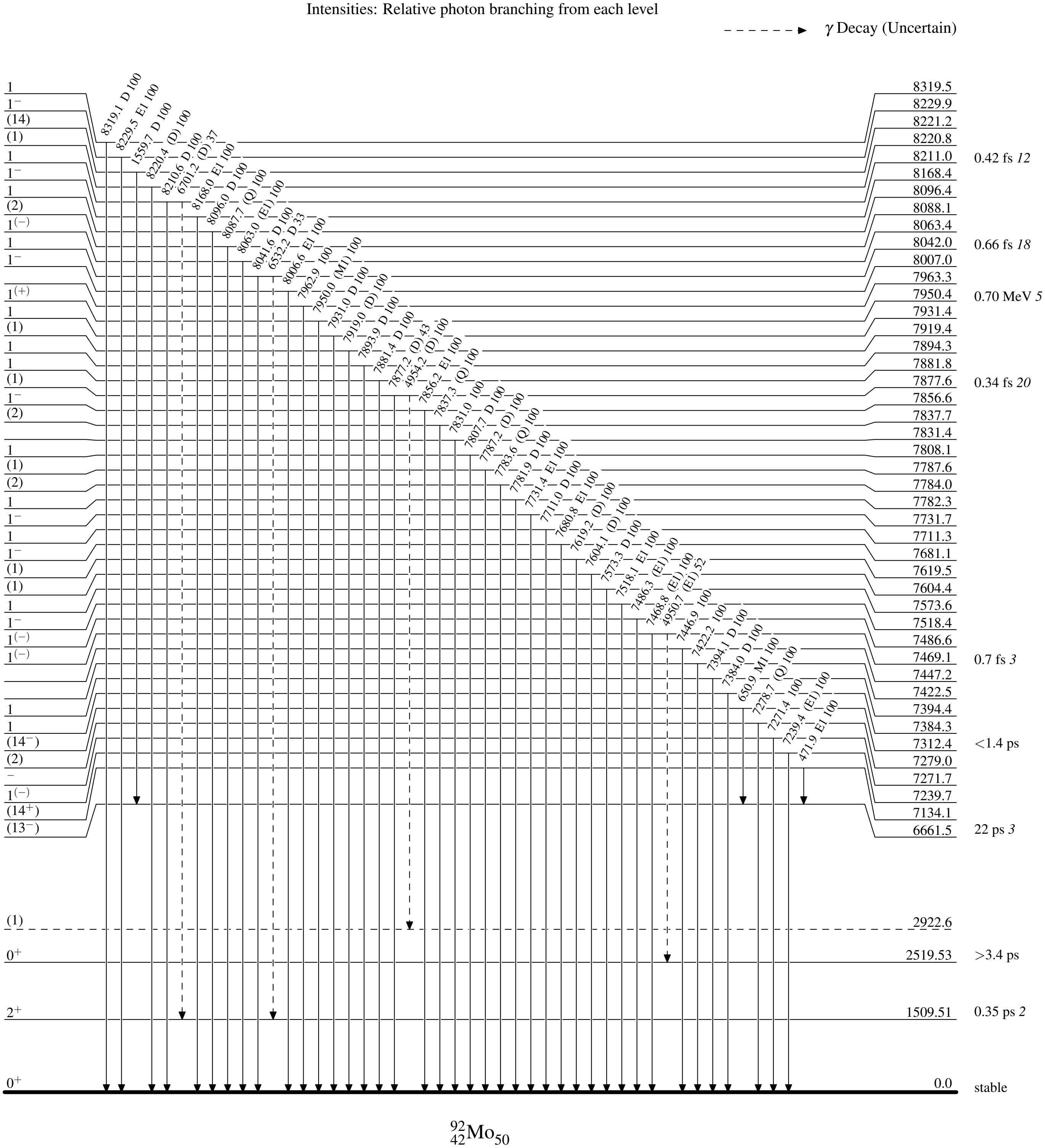


Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

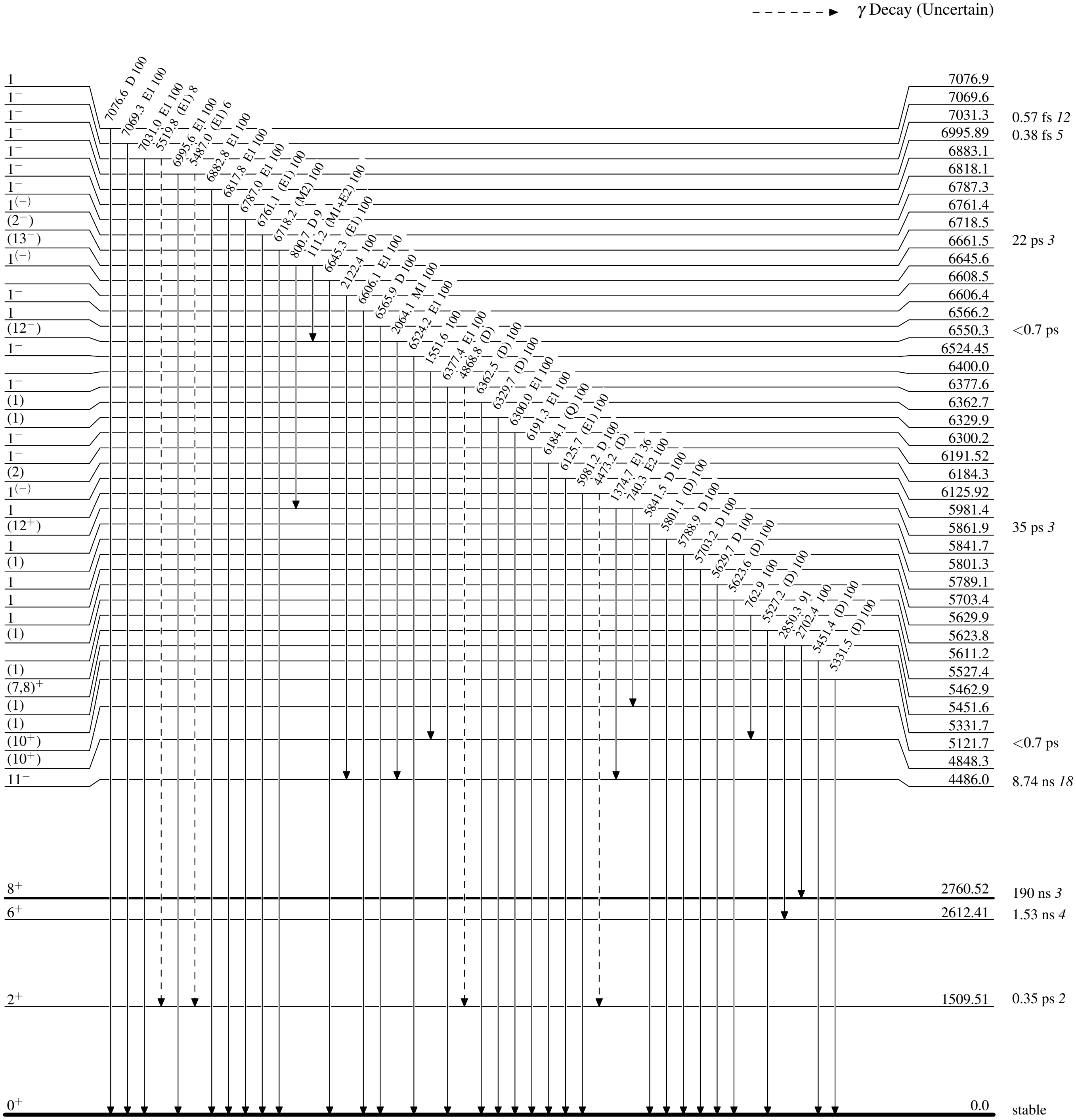


Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level



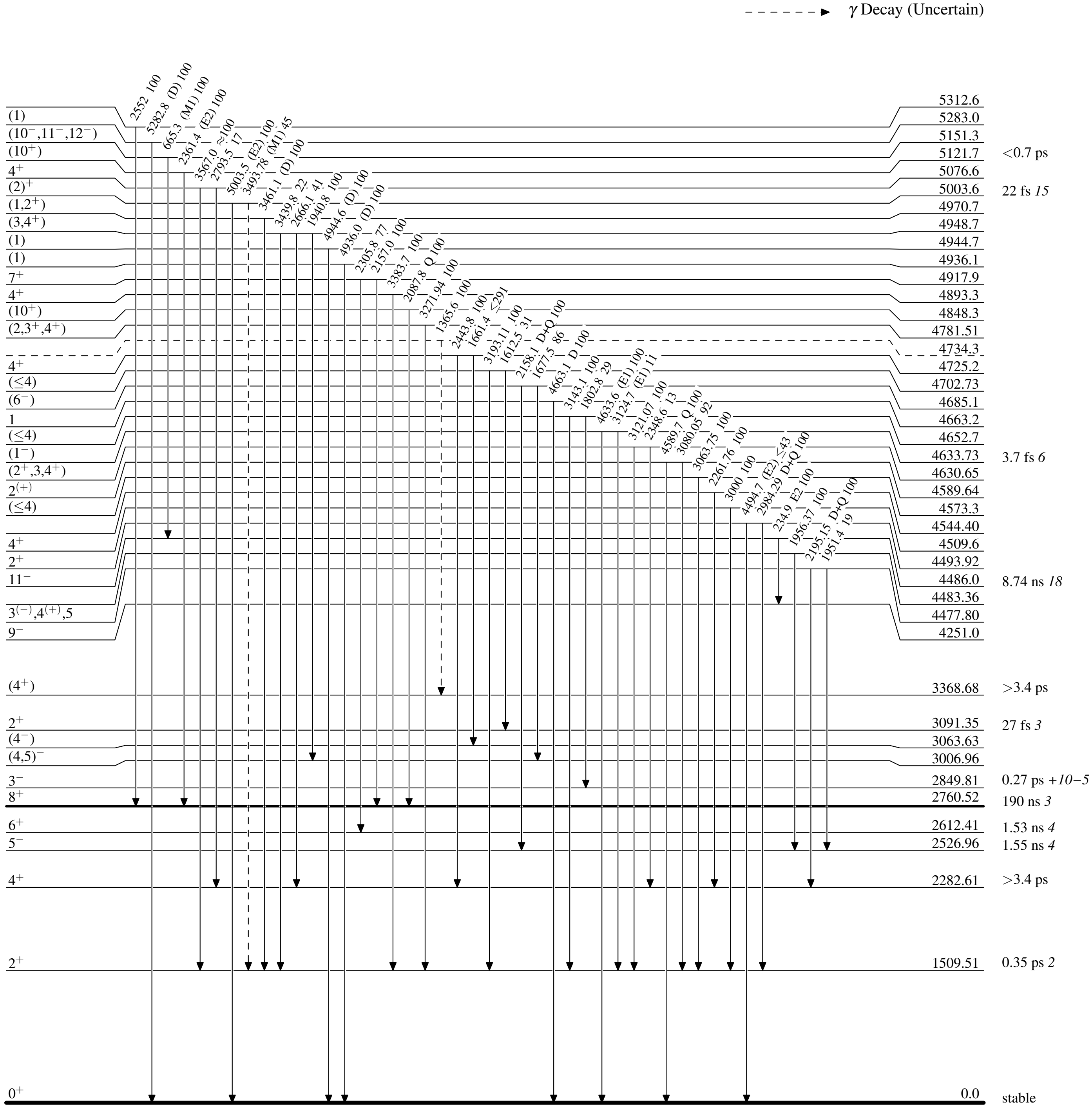
$^{92}_{42}Mo_{50}$

Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{92}_{42}Mo_{50}$

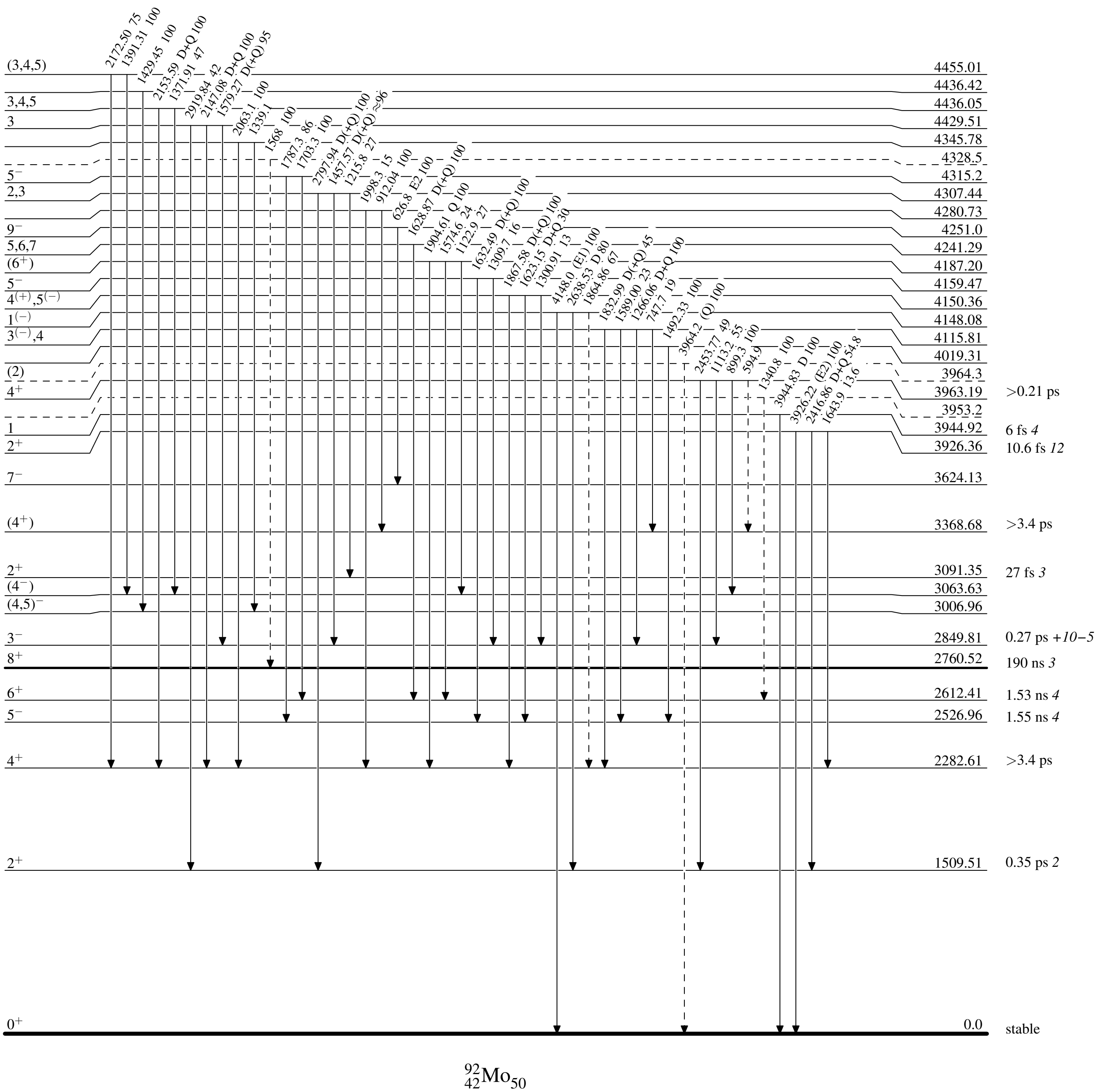
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{92}_{42}\mathrm{Mo}_{50}$

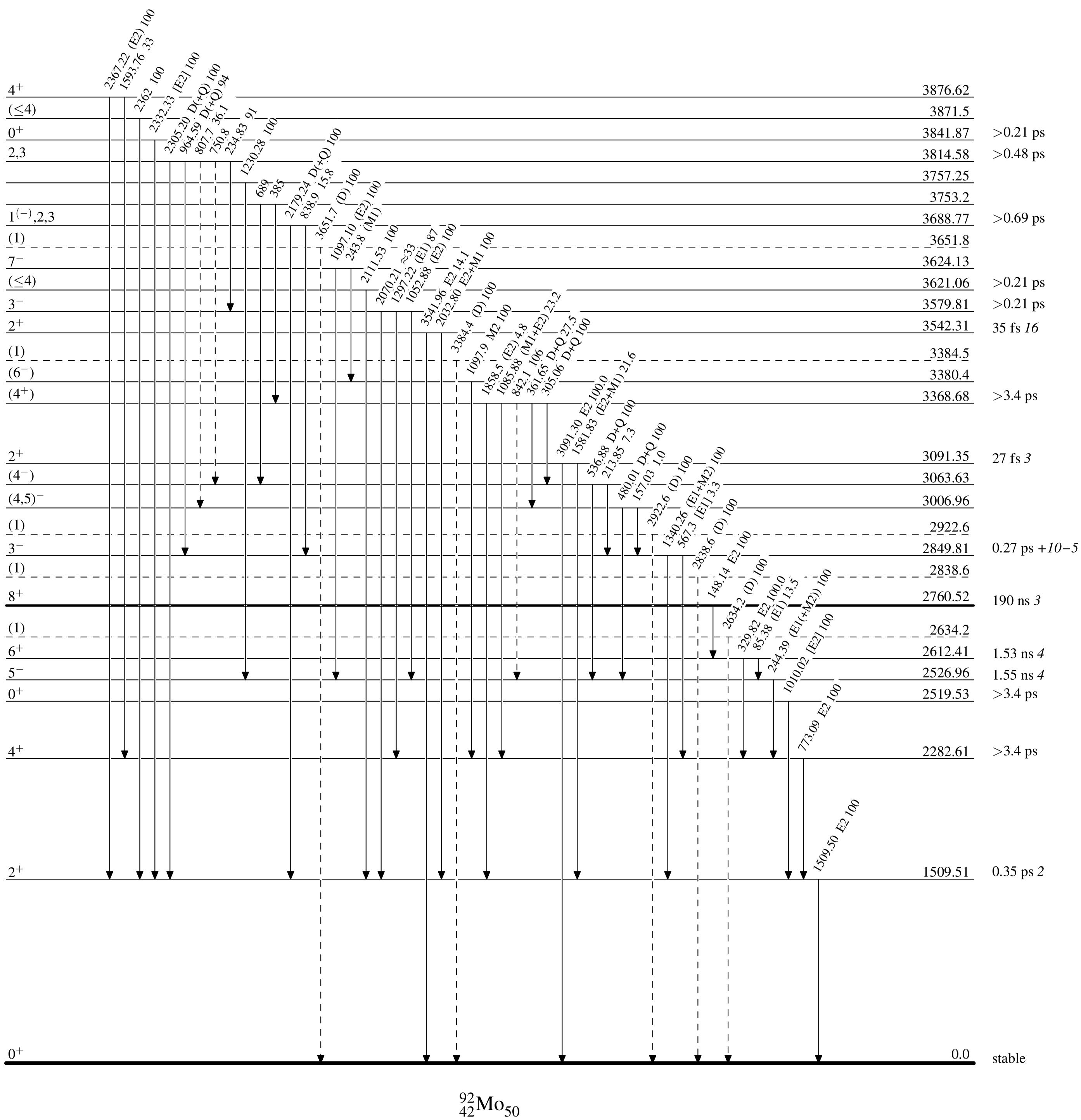
Adopted Levels, Gammas

Legend

Level Scheme (continued)

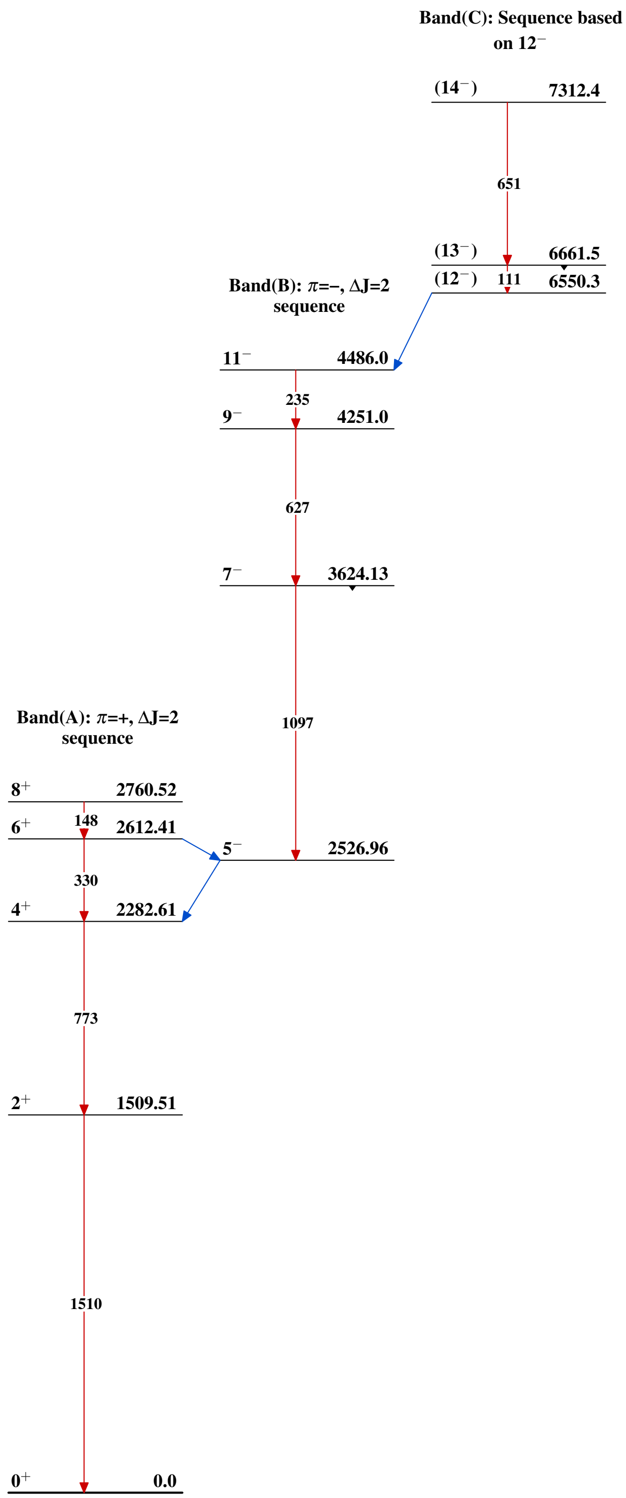
Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{92}_{42}Mo_{50}$

Adopted Levels, Gammas



$^{92}_{42}Mo_{50}$

Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. Abriola(a), A. A. Sonzogni	NDS 107,2423 (2006)	1-Jan-2006

Q(β^-)=−4256 *4*; S(n)=9677.8 *9*; S(p)=8488.8 *18*; Q(α)=−2064.2 *19* 2012Wa38
Note: Current evaluation has used the following Q record −4256 4 *9678* 4 *8490.4* *20*−2067.4 *21* 2003Au03.

^{94}Mo Levels

Cross Reference (XREF) Flags

A	^{94}Tc ε decay (52.0 min)	J	^{96}Mo(p,t)	S	^{90}Zr(^{16}O,^{12}Cγ)
B	^{94}Tc ε decay (293 min)	K	^{93}Nb(p,n),(p,p′) IAR	T	^{94}Zr(α,4nγ)
C	^{94}Tc ε decay: mixed source	L	^{91}Zr(α,nγ)	U	^{94}Mo(p,p′γ)
D	^{94}Nb β^- decay (6.263 min)	M	^{92}Mo(t,p)	V	^{94}Mo(d,d′)
E	^{94}Nb β^- decay (2.03×10^4 y)	N	^{65}Cu(^{36}S,αp2nγ)	W	Coulomb excitation
F	^{94}Mo(γ,γ′)	O	^{95}Mo(d,t)	X	^{96}Ru(^{14}C,^{16}O)
G	^{94}Mo(n,n′γ)	P	^{92}Zr(α,2nγ)	Y	^{92}Zr(^{3}He,n)
H	^{94}Mo(n,n′), (n,n′γ)	Q	^{94}Mo(α,α′)		
I	^{94}Mo(p,p′)	R	^{93}Nb(^{3}He,d)		

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	XREF	Comments
0.0[@]	0$^+$	stable	ABCDEFGHIJ LMNOPQRSTUVWXY	<r^2>$^{1/2}$=4.3518 fm 9 from 2004An14.
871.098[@] *16*	2$^+$	2.77 ps *6*	ABCDEFGHIJ LMNOPQRSTUVWX	Q=−0.13 *8* (1989Ra17) J$^\pi$: L(t,p)=2. Vector analyzing power (pol p,p′) (1981Pl07). T$_{1/2}$: from B(E2)=0.203 *4* (see Coulomb Excitation). Q: −0.13 *8* or +0.01 *8* (1989Ra17). Q=−0.13 *8* from Coulomb excitation if the excitation to higher excited states interferes constructively, as is usual in this mass region. Q=+0.01 *8* for destructive interference.
1573.76[@] *4*	4$^+$	5.0 ps *7*	BCDE GHIJ LMNOPQRSTUVW	J$^\pi$: L(t,p)=4. T$_{1/2}$: from B(E2)(2$^+$ to 4$^+$)=0.120 *18* (see Coulomb excitation).
1741.65 *15*	0$^+$		C FGHI M O V	J$^\pi$: L(t,p)=0.
1864.31 *5*	2$^+$	0.20 ps *+5−3*	A CD FGHIJ LM O QRS UVW	J$^\pi$: L(t,p)=2. T$_{1/2}$: weighted average of 0.13 ps *+7−3* (p,p′γ) and 0.28 ps *+6−5* (n,n′γ).
2067.35 *6*	2$^+$	35 fs *3*	A C FGHIJ LM O QRS UVW	XREF: R(2080). T$_{1/2}$: from (n,n′γ), other: 32 fs *+10−5* (p,p′γ). J$^\pi$: L(t,p)=2.
2121 *5*			I	
2294.79 *16*	4$^+$	76[a] fs *11*	C GHIJ LM OP R V	J$^\pi$: L(t,p)=4.
2322 *2*	(6$^+$)[#]		I V	
2393.02 *6*	2$^+$	83[a] fs *+12−10*	A C FGHIJ LM O RS V	J$^\pi$: L(t,p)=2.
2423.45[@] *9*	6$^+$		BC G IJ LMNOPQRST V	J$^\pi$: L(t,p)=6.
2533.87 *12*	3$^-$	0.52[a] ps *+9−8*	C GHIJ LM O QR UVW	J$^\pi$: L(t,p)=3.
2564.98 *19*	4$^+$	0.16[a] ps *+5−3*	GHIJ LM O R V	J$^\pi$: L(t,p)=4.
2580 *5*	(3$^-$)[#]		I N V	
2610.57[&] *16*	(5)$^-$	0.44[a] ps *+11−8*	C GHIJ LMN P R V	J$^\pi$: L(^{3}He,d)=1 on 9/2$^+$ target; E1 γ to 4$^+$.
2703 *5*	(3$^-$)[#]		I V	
2739.91 *7*	1$^+$	53[a] fs *5*	A C FGHI PQ S V	J$^\pi$: observed in (γ,γ′), M1+E2 γ to 2$^+$.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{94}Mo Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	XREF	Comments
2767.61 *19*	4+	107[a] fs *12*	GHIJ LM R V	Jπ: L(α,α′)=4 for a level at 2740 *30*, E2 γ to 2+.
2780.51 *21*	(0+)	0.48[a] ps *+12−9*	G	
2805.04 *19*	3+	0.35[a] ps *+5−4*	C GH L O	Jπ: M1+E2 γ′s to 2+ and 4+.
2834.91 *24*	(4)−		GHI L R V	Jπ: M1+E2 γ to 3−, E1 γ to 4+.
2853 *5*	(4+)[#]		I V	
2869.90 *8*	2+	91[a] fs *10*	A C GHIJ LM O Q	Jπ: L=2 in (α,α′).
2872.40 *11*	6+		BC G L P R T	Jπ: log *ft*=6.3 from 7+, M1+E2 γ to 6+, possible γ to (5)−.
2955.55[@] *13*	8+	98 ns *2*	BC L N P R T	μ=+10.46 *7* (1989Ra17) Jπ: log *ft*=6.1 from 7+, E2 to 6+. $T_{1/2}$: from (α,2nγ). Other: 104 ns *4* from (α,4nγ).
2960 *5*	(4+)[#]		I V	
2965.41 *6*	3+	52[a] fs *6*	A C GH L O	Jπ: M1+E2 γ′s to 2+ and 4+.
2993.10 *19*	2+	151[a] fs *+19−17*	G I L O V	Jπ: L(d,t)=0 on 5/2+ target, M1+E2 γ′s to 2+, γ to 0+.
3011.51 *16*	3−	0.22[a] ps *+6−4*	GH LM QR V	Jπ: L(t,p)=3.
3026.90 *20*	(3)		G R	
3032 *5*	(4+)[#]		I V	
3072.42 *17*	(2,3+)	0.35[a] ps *+7−6*	G	
3082.46 *24*	(3)+	0.70[a] ps *+28−17*	GHI L V	Jπ: M1+E2 γ to 2+, no γ to 0+.
3128.66 *7*	1+	6.5[a] fs *4*	A C FGHI O V	Jπ: observed in (γ,γ′), M1+E2 γ to 2+.
3163.29 *19*	(3)+	63[a] fs *7*	A C GH L	Jπ: M1+E2 γ to 2+,3+, no γ to 0+.
3165.77 *9*	6+	322[a] fs *35*	BC I LM Q V	Jπ: log *ft*=5.9 from 7+. γ to 4+.
3171 *10*	2+,3+		O	Jπ: L(d,t)=0 on 5/2+ target.
3201.11 *23*	(4)	44[a] fs *+6−5*	G I LM V	Jπ: L(t,p)=4.
3243.2 *5*	(5)+	92[a] fs *+16−15*	G L	Jπ: M1+E2 γ to 4+.
3260.9 *5*	1−	40[a] fs *4*	FGHI M V	Jπ: L(t,p)=1.
3307.1 *4*	(2)+	0.40[a] ps *+14−9*	GHI L V	
3320 *5*	0+		J M	Jπ: a clear L=0 distribution was seen in (p,t), while in (t,p) an unresolved group was observed at this energy with no indication for an L=0 contribution.
3320.7 *3*			L P	
3331.74 *17*	3+	52[a] fs *6*	C G L	Jπ: M1+E2 γ′s to 2+ and 4+.
3339.54 *17*	6+	126[a] fs *21*	BC I LM V	Jπ: log *ft*=5.4 from 7+, γ to 4+.
3359.8 *10*	(8+)		P	Jπ: (E2) γ to 6+.
3366.5 *4*	(3+,4)	0.61[a] ps *7*	L	
3368.1[&] *3*	(7−)		L N P	
3371.1 *3*	(2,3,4)	0.14[a] ps *+7−4*	G	
3376 *3*	(4+)		IJ O V	E(level): weighted average of 3375 *5* from (p,t), 3376 *5* from (p,p′) and (d,d′), and 3378 *10* from (d,t). Jπ: L(p,t)=(5); *J*π=(4+) from analysis in (p,p′) and (d,d′); L(d,t)=4 gives *J*π=1+ to 7+.
3380 *20*			M	Jπ: L(t,p)=(5); however, (t,p) shows a group composed of several states partly resolved.
3389.4 *5*	(5)−	0.49[a] ps *12*	I L V	XREF: I(3396)V(3396). Jπ: E1 γ to 4+.
3398.3 *4*	(3,4)	35[a] fs *+7−6*	G L	
3400.83 *17*		22.9[a] fs *28*	A GH J M O Q	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{94}Mo Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$	XREF	Comments
3429.1 *8*			G	
3435 *5*	(2^+)[#]		I V	
3447.6 *4*	$(1,2^+)$	35[a] fs *+5−4*	A C GHIJ LM V	J^{π}: γ's to 0^+ and 2^+.
3448.7 *4*	5^+	0.45[a] ps *14*	L	J^{π}: M1+E2 γ's to 4^+, 6^+.
3456 *5*	2^+		V	J^{π}: from $\sigma(\theta)$ in (d,d′).
3462 *10*	$(3)^-$		I O Q V	XREF: I(3465)Q(3.48E+3). J^{π}: L(d,t)=1 on $5/2^+$ target. $J^{\pi}=(3^-,5^-)$ from analysis in (p,p′) and (d,d′).
3511.86 *14*	$1^{(+)}$	9[a] fs *+6−3*	A C FGH	J^{π}: observed in (γ,γ'), γ's to 0^+, 2^+.
3531.5 *4*	$(1,2^+)$		G	
3534.32 *9*	2^+	105[a] fs *28*	C LM	J^{π}: L(t,p)=2.
3539 *5*	(1^-)[#]		I V	
3588 *5*	(2^+)[#]		I V	
3588.6 *5*			G	
3602 *11*	+		O	J^{π}: L(d,t)=2 on $5/2^+$ target.
3604 *5*	(3^-)[#]		I V	
3620 *12*	(5^-)		E HIJ M O Q	XREF: Q(3.68E+3). J^{π}: L(t,p)=5; L(α,α')=5 for level at 3680 keV *30*.
3627 *5*	(3^-)[#]		I V	
3647 *5*	$(2)^+$		I O V	J^{π}: (2) from analysis in (p,p′) and (d,d′); π=+ from L(d,t)=2 on a $5/2^+$ target.
3693.4 *5*	(3,4)	0.105[a] fs *35*	L	
3700 *5*	0^+		IJ V	see comment on the 3714 level. J^{π}: L(p,t)=0.
3707 *5*	(4^+)[#]		I V	
3714 *10*			M	Complex group observed in (t,p) with no indication of L=0 contribution.
3730 *5*	(4^+)[#]		I V	
3792.87 *15*	2^+		A C M	J^{π}: L(t,p)=2.
3800 *5*	3^-		J	J^{π}: L(p,t)=3.
3802 *5*	(2^+)[#]		I V	
3805.0 *6*	(8,10)		L P	
3847.3 *7*	4^+	136[a] fs *28*	I LM V	J^{π}: L(t,p)=4.
3866.8? *4*	(9^+)		L P	
3869 *5*	(5^-)[#]		I V	
3892.16 *7*	$(1,2^+)$		A C	
3895 *12*			M	
3897.1[@] *6*	(10^+)		N P T	J^{π}: (E2) γ to (8^+).
3897.5 *10*	$(3^+,5^+)$	78[a] fs *28*	L	
3901 *5*	(2^+)[#]		I V	
3917 *5*			I V	
3928 *5*	(2^+)[#]		I V	
3932.4 *7*	$(7)^+$	126[a] fs *21*	L	J^{π}: M1+E2 γ to 6^+.
3995 *5*	2^+		IJ M V	XREF: M(3984). J^{π}: L(p,t)=2.
4004 *5*	(2^+)[#]		I V	
4007.8 *8*			P	
4024 *5*	5^-		I M V	J^{π}: L(t,p)=5; $(5^-,6^+)$ from analysis in (p,p′) and (d,d′).
4062 *5*	(3^-)[#]		I V	
4093 *5*	4^+		IJ M Q V	XREF: M(4079)Q(4.11E+3).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{94}Mo Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$	XREF	Comments
				J^{π}: L(t,p)=4.
4096.8[&] *5*	(9$^-$)		N	
4105.5 *10*		91[a] fs *28*	L	
4113 *5*	(3$^-$)[#]		I V	
4120 *12*	2$^+$,3$^-$		J M	J^{π}: L(t,p)=2,3.
4128 *5*	(3$^-$)[#]		I V	
4139 *5*	2$^+$		IJ V	J^{π}: L(p,t)=2.
4174 *12*	6$^+$		M	J^{π}: L(t,p)=6.
4190.1 *8*			P	
4191 *5*	(2$^+$)[#]		I V	
4191.5[@] *6*	(12$^+$)		N	
4223 *12*	4$^+$		M	J^{π}: L(t,p)=4.
4237.5 *12*		62[a] fs *28*	L	
4264.5 *6*			N	
4293 *12*			M	
4317 *5*	(2$^+$)[#]		I M V	
4388 *15*			M	
4436 *12*			M Q	
4475 *12*	(2$^+$)		M	J^{π}: L(t,p)=(2).
4495.6 *9*			P	
4499.3 *6*			N	
4565 *12*			M	
4602 *5*			I M	
4636 *12*			M	
4729 *15*			M	
4749.9[&] *5*	(11$^-$)		N	
4755 *12*			M	
4804 *12*			M	
4833 *12*			M	
4886 *12*			M	
4921 *12*			M	
4975 *12*			M	
5059 *15*			M	
5734.2[&] *6*	(13$^-$)		N	
5804.1 *10*	(13$^+$)		N	
6397.3[&] *8*	(14$^-$)		N	
6555.1 *5*	(1,2$^+$)		F	J^{π}: γ to 0$^+$.
6580.3 *10*	(13$^+$)		N	
6962.7 *9*	(15$^-$)		N	
7021.2[&] *9*	(15$^-$)		N	
7067.6 *11*	(13$^+$)		N	
7518.0 *9*	(16$^-$)		N	
7554.6 *10*	(14$^+$)		N	
7795.7 *11*	(15$^+$)		N	
7899.9 *11*	(14$^+$)		N	
8239.0 *12*	(16$^+$)		N	
8452.6 *9*			N	
8614.6 *11*	(15$^+$)		N	
9030.2 *12*	(17$^+$)		N	
9162.8 *12*	(16$^+$)		N	
9209.9[&] *13*	(16$^-$)		N	
9956.0 *11*	(16$^+$)		N	
9979.1 *15*	(17$^+$)		N	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{94}Mo Levels (continued)

E(level)[†]	J^{π}[‡]	XREF	Comments
10052.3 *14*		N	
10272.4[&] *14*	(17^-)	N	
10275.2 *13*	(18^+)	N	
11588.3 *18*	(18^+)	N	
S(p)+4769	$(6)^+$	K	IAS: ^{94}Nb g.s.
S(p)+4812	3^+	K	IAS: 40.9 keV.
S(p)+4830	$(4)^+$	K	IAS: 58.7 keV.
S(p)+4848	$(5,6,7)^+$	K	IAS: 78.7 keV.
S(p)+4882	$(5)^+$	K	IAS: 113.4 keV.
S(p)+5083	$(4,5)^+$	K	IAS: 311.8 keV.
S(p)+5110	$(3)^+$	K	IAS: 334.1 keV.
S(p)+5738		K	
S(p)+5808		K	
S(p)+5847	$(5)^+$	K	IAS: 957.4 keV (1972Ke32); however, E(res)=5738 gives better energy agreement as IAS of 957.4 level.
S(p)+5966		K	
S(p)+5986	$(2,3,4)^+$	K	IAS: 1232 keV.
S(p)+6085	$4^+,5^+$	K	IAS: 1281 keV & 1321 keV.
S(p)+6292		K	IAS: 1499 keV & 1519 keV.
S(p)+6391		K	
S(p)+6441		K	
S(p)+6530		K	
S(p)+6619		K	
S(p)+6738		K	
S(p)+6856		K	

† Level energies with ΔE<5 keV are calculated from the adopted γ's by a least-squares fit. The other are from (d,t), (t,p), and (p,t). Some of the high-energy levels are unresolved multiplets (see, *e.g.*, (t,p)).

‡ Arguments are given in comments for each level. For the IAR′s at S(p)+4769 and higher energies, the J^{π} assigned are from the corresponding IAS′s.

From coupled-channels analysis in (p,p′) and (d,d′).

@ Band(A): Yrast band.

& Band(B): Negative parity band.

a From the ^{94}Tc ε decay: mixed source, ^{91}Zr(α,nγ), ^{94}Mo(n,n′γ) and ^{94}Mo(γ,γ') datasets.

Adopted Levels, Gammas (continued)

$\gamma(^{94}Mo)$

E_i(level)	J^π_i	E_γ[†]	I_γ	E_f	J^π_f	Mult.[‡]	δ[‡]	α[d]	Comments
871.098	2^+	871.089 *17*	100	0.0	0^+	E2		0.00108	α(K)=0.00094 *3*; α(L)=0.00011 B(E2)(W.u.)=16.0 *4* Mult.: Q from $\gamma(\theta)$ in (p,p′γ); E2 from RUL.
1573.76	4^+	702.65 *4*	100	871.098	2^+	E2		0.00186	α(K)=0.00161 *5*; α(L)=0.00019 *1* B(E2)(W.u.)=26 *4* Mult.: from $\gamma\gamma(\theta)$ and polarization correlation in ^{94}Nb β^- decay.
1741.65	0^+	871.4[b] *5*	100	871.098	2^+				
1864.31	2^+	993.15 *7*	100.0 *8*	871.098	2^+	M1+E2	−2.0 *3*	0.00080	α(K)=0.00070 B(E2)(W.u.)=85 *5*; B(M1)(W.u.)=0.021 *5* Mult.: D+Q from $\gamma\gamma(\theta)$ in β^+ decay (52.0 min); M1+E2 from RUL. δ: −0.87 *+9−17* or −3.2 *+7−9* from $\gamma(\theta)$ in (p,p′γ).
		1864.3[b] *2*	8.9 *11*	0.0	0^+	E2			B(E2)(W.u.)=0.40 *+8−12* Mult.: Q from $\gamma(\theta)$ in (p,p′γ); E2 from RUL.
2067.35	2^+	1196.2[a] *1*	100.0 *7*	871.098	2^+	M1+E2	+0.15 *4*	0.00048	α(K)=0.00048 B(E2)(W.u.)=5 *3*; B(M1)(W.u.)=0.31 *3*
		2067.4[a] *1*	15.1 *7*	0.0	0^+	E2			B(E2)(W.u.)=2.21 *22*
2294.79	4^+	721.0[a] *2*	100.0 *2*	1573.76	4^+	M1(+E2)	+0.03 *4*	0.00168	α(K)=0.00146; α(L)=0.00016 B(M1)(W.u.)=0.68 *10*
		1423.7[a] *3*	13.3 *2*	871.098	2^+	E2(+M3)	+0.08 *8*	0.00032 *2*	α(K)=0.00032 *2* B(E2)(W.u.)=5.8 *9*
2393.02	2^+	325.7[a] *3*	0.61 *14*	2067.35	2^+				
		528.7[a] *3*	0.72 *3*	1864.31	2^+				
		1521.8[a] *1*	100.0 *20*	871.098	2^+	M1+E2	−0.12 *3*		B(E2)(W.u.)=0.42 *21*; B(M1)(W.u.)=0.0660 *5*
		2393.1[a] *1*	11.11 *22*	0.0	0^+				
2423.45	6^+	849.7[b] *1*	100	1573.76	4^+	E2(+M3)	−0.04 *5*	0.00116 *4*	α(K)=0.00100 *3*; α(L)=0.00011
2533.87	3^-	466.4[a] *3*	57.3 *10*	2067.35	2^+	E1(+M2)	0.00 *3*	0.009 *7*	α(K)=0.008 *6*; α(L)=0.0009 *8* B(E1)(W.u.)=0.00132
		669.6[a] *2*	31.9 *13*	1864.31	2^+	E1(+M2)	−0.03 *13*	0.00077 *12*	α(K)=0.00067 *10* B(E1)(W.u.)=0.0002472 *20*
		960.1[a] *3*	81 *3*	1573.76	4^+	E1(+M2)	0.00 *2*	0.0013 *9*	α(K)=0.0011 *8*; α(L)=0.00012 *9* B(E1)(W.u.)=0.00021
		1662.7[a] *3*	100.0 *22*	871.098	2^+	E1(+M2)	+0.03 *7*		B(E1)(W.u.)=5.062×10^{-5} *22*
2564.98	4^+	991.2[a] *2*	100.0 *8*	1573.76	4^+	M1(+E2)	+0.10 *+25−17*	0.00083	α(K)=0.00072 B(E2)(W.u.)=1.3; B(M1)(W.u.)=0.125 *7*
		1693.9[a] *7*	11.8 *8*	871.098	2^+	E2(+M3)	−0.01 *10*		B(E2)(W.u.)=1.0543 *21*
2610.57	$(5)^-$	1036.8[a] *2*	100	1573.76	4^+	E1(+M2)	0.00 *4*	0.0009 *7*	α(K)=0.0009 *7* B(E1)(W.u.)=0.00067
2739.91	1^+	672.0[a] *7*	3.0 *5*	2067.35	2^+				

$^{94}_{42}Mo_{52}$-6

γ(^{94}Mo) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ	E_f	J^π_f	Mult.[‡]	δ[‡]	α[d]	Comments
2739.91	1+	875.5[a] *2*	24.4 *5*	1864.31	2+	M1+E2	−0.10 *2*	0.00109	α(K)=0.00095; α(L)=0.00011 B(E2)(W.u.)=1.0 *4*; B(M1)(W.u.)=0.076 *8*
		998.2[a] *2*	4.44 *10*	1741.65	0+				
		1868.8[a] *1*	100.0 *20*	871.098	2+	M1+E2	−0.12 *2*		B(E2)(W.u.)=0.13 *5*; B(M1)(W.u.)=0.032 *3*
		2739.9[a] *1*	65.4 *13*	0.0	0+				
2767.61	4+	1193.8[a] *5*	71 *4*	1573.76	4+				
		1896.5[a] *2*	100 *4*	871.098	2+	E2(+M3)	+0.02 *3*		B(E2)(W.u.)=5.0 *7*
2780.51	(0+)	916.2[a] *2*	100	1864.31	2+				
2805.04	3+	940.7[a] *4*	63 *4*	1864.31	2+	M1+E2	+2.3 *+7−5*	0.00090	α(K)=0.00079 B(E2)(W.u.)=19.2 *19*; B(M1)(W.u.)=0.0032 *17*
		1231.2[a] *3*	100 *5*	1573.76	4+	M1+E2	+8 *+5−3*	0.00043	α(K)=0.00043 B(E2)(W.u.)=9.27 *18*; B(M1)(W.u.)=0.00022 *+27−22*
		1933.9[a] *4*	76 *3*	871.098	2+	M1+E2			
2834.91	(4)−	224.2[a] *5*	7.2 *10*	2610.57	(5)−	M1+E2		0.048 *20*	α(K)=0.041 *16*; α(L)=0.0053 *25*; α(N+..)=0.00017 *8*
		301.1[a] *3*	13.1 *12*	2533.87	3−	M1+E2	+0.12 *10*	0.0137 *4*	α(K)=0.0119 *3*; α(L)=0.00136 *5*
		1261.1[a] *5*	100.0	1573.76	4+	E1(+M2)	+0.06 *7*	0.00019 *1*	α(K)=0.00019 *1*
2869.90	2+	802.6[a] *2*	26.2 *15*	2067.35	2+				
		1005.5[a] *1*	100 *4*	1864.31	2+	M1+E2	−0.05 *4*	0.00070	α(K)=0.00070 B(E2)(W.u.)=0.4 *+6−4*; B(M1)(W.u.)=0.152 *19*
		1998.9[a] *2*	13.1 *6*	871.098	2+	M1+E2	+1.3 *+14−4*		B(E2)(W.u.)=0.4 *4*; B(M1)(W.u.)=0.0009 *9*
		2870.0[a] *2*	17.3 *5*	0.0	0+				
2872.40	6+	261.7[e] *10*	4 *2*	2610.57	(5)−				E_γ: observed only in ^{92}Zr(α,2nγ).
		449.0[b] *1*	100 *8*	2423.45	6+	M1+E2	+0.14 *9*	0.00510 *5*	α(K)=0.00443 *4*; α(L)=0.00050 *1*
2955.55	8+	83.6 *10*	9. *2*	2872.40	6+	E2		2.32	α(K)=1.83 *6*; α(L)=0.408 *13*; α(M)=0.0738 *23*; α(N+..)=0.0120 *4* B(E2)(W.u.)=4.6 *12* Mult.: from α(exp) in (α,2nγ), Eγ from same dataset.
		532.1[b] *1*	100. *11*	2423.45	6+	E2(+M3)	−0.03 *5*	0.00402 *14*	α(K)=0.00347 *13*; α(L)=0.00041 *2* B(E2)(W.u.)=0.0049 *8*
2965.41	3+	898.1[a] *1*	23.0 *12*	2067.35	2+	M1+E2		0.00102 *1*	α(K)=0.00088 *1*; α(L)=9.9×10^{-5} *1* δ: +2.0 *+12−6* or +0.39 *25*.
		1101.1[a] *1*	100.0 *23*	1864.31	2+	M1+E2	−0.09 *6*	0.00058	α(K)=0.00058 B(E2)(W.u.)=1.0 *+13−10*; B(M1)(W.u.)=0.141 *17*
		1391.6[a] *1*	63.0 *24*	1573.76	4+	M1+E2	−0.08 *6*	0.00035	α(K)=0.00035 B(E2)(W.u.)=0.15 *+22−15*; B(M1)(W.u.)=0.044 *6*
		2094.3[a] *1*	36.9 *14*	871.098	2+	M1+E2	+1.1 *+10−4*		B(E2)(W.u.)=1.0 *8*; B(M1)(W.u.)=0.003 *3*
2993.10	2+	925.8[&] *3*	45 *3*	2067.35	2+	M1(+E2)	−0.07 *+7−6*	0.00096	α(K)=0.00084 B(M1)(W.u.)=0.0382 *4*
		1128.6[&] *5*	100 *4*	1864.31	2+	M1+E2	−3.4 *+7−9*	0.00052	α(K)=0.00052 B(E2)(W.u.)=34.4 *12*; B(M1)(W.u.)=0.0037 *15*

$^{94}_{42}$Mo$_{52}$-7

γ(^{94}Mo) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ	E_f	J^π_f	Mult.[‡]	δ[‡]	α[d]	Comments
2993.10	2^+	2122.0[&] 3	63.7 15	871.098	2^+	M1+E2	−2.6 +6−7		B(E2)(W.u.)=0.88 6; B(M1)(W.u.)=0.00058 24
		2993.0[&] 10	6.8 9	0.0	0^+				
3011.51	3^-	477.5[&] 5	50.9 17	2533.87	3^-	M1(+E2)	−0.10 19	0.00439 8	α(K)=0.00382 7; α(L)=0.00043 1 B(M1)(W.u.)=0.219 9
		944.3[&] 6	11.9 16	2067.35	2^+				
		1147.3[&] 5	11.5 15	1864.31	2^+	E1(+M2)	+0.01 6	0.00023 1	α(K)=0.00023 1 B(E1)(W.u.)=5.359×10^{-5} 7
		1437.6[&] 5	37 3	1573.76	4^+	E1(+M2)	+0.04 6	0.00015 1	α(K)=0.00015 1 B(E1)(W.u.)=8.75×10^{-5} 5
		2140.4[&] 2	100.0 23	871.098	2^+	E1(+M2)	+0.03 5		B(E1)(W.u.)=7.172×10^{-5} 22
3026.90	(3)	416.4[a] 3	100 4	2610.57	$(5)^-$				
		493.0[a] 2	60 4	2533.87	3^-				
3072.42	$(2,3^+)$	538.5[a] 7	11.5 23	2533.87	3^-				
		1208.1[a] 2	100 5	1864.31	2^+				
		2201.3[a] 3	37.3 22	871.098	2^+				
3082.46	$(3)^+$	1218.2[&] 4	14.2 21	1864.31	2^+	M1+E2	+0.09 5	0.00047	α(K)=0.00047 B(E2)(W.u.)=0.012 +13−12; B(M1)(W.u.)=0.002146 20
		2211.3[&] 3	100.0 21	871.098	2^+	M1(+E2)	−0.01 6		B(M1)(W.u.)=0.002547 3
3128.66	1^+	1061.1[a] 5	1.16 11	2067.35	2^+	M1+E2		0.00061 2	α(K)=0.00061 2
		1264.3[a] 1	18.3 4	1864.31	2^+	M1+E2	−0.08 3	0.00043	α(K)=0.00043 B(E2)(W.u.)=1.0 8; B(M1)(W.u.)=0.246 17
		2257.6[a] 1	4.29 10	871.098	2^+	M1+E2	+0.74 +21−17		B(E2)(W.u.)=0.7 3; B(M1)(W.u.)=0.0066 14
		3128.5[a] 2	100.0 3	0.0	0^+				
3163.29	$(3)^+$	358.0[&] 5	16.7 13	2805.04	3^+	M1+E2	−0.35 12	0.0093 4	α(K)=0.0081 3; α(L)=0.00094 5 B(E2)(W.u.)=9.E+2 6; B(M1)(W.u.)=0.97 16
		2292.2[&] 2	100.0 13	871.098	2^+	M1+E2	+0.17 4		B(E2)(W.u.)=0.13 7; B(M1)(W.u.)=0.024 3
3165.77	6^+	293.4[&] 1	79.4 25	2872.40	6^+	M1+E2	+0.18 5	0.0149 2	α(K)=0.0129 2; α(L)=0.00148 3 B(E2)(W.u.)=3.8×10^2 21; B(M1)(W.u.)=1.00 12
		742.2[&] 2	29.4 11	2423.45	6^+	M1+E2	+0.15 7	0.00158	α(K)=0.00137; α(L)=0.00015 B(E2)(W.u.)=1.0 9; B(M1)(W.u.)=0.023 3
		1592.0[&] 1	100 4	1573.76	4^+	E2(+M3)	−0.01 6		B(E2)(W.u.)=3.2 4
3201.11	(4)	906.3[&] 2	100.0 22	2294.79	4^+	D(+Q)	0.00 6		
		1627.4[&] 5	29.4 22	1573.76	4^+	D(+Q)	+0.2 2		
3243.2	$(5)^+$	1669.4[&] 5	100	1573.76	4^+	M1+E2	+0.71 14		B(E2)(W.u.)=6.3 17; B(M1)(W.u.)=0.034 5
3260.9	1^-	2392.8[e] 20	67 17	871.098	2^+				E_γ: not seen in (γ,γ') or (n,n$'\gamma$).
		3260.7[a] 5	100 17	0.0	0^+				

Adopted Levels, Gammas (continued)

$\gamma(^{94}Mo)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π	Mult.[‡]	δ[‡]	α[d]	Comments
3307.1	(2)$^+$	2436.0[&] *4*	100	871.098	2$^+$	M1+E2			
3320.7		365.2[&] *3*	100	2955.55	8$^+$	(M1+E2)	+2.2 *3*	0.0120 *2*	α(K)=0.0103 *2*; α(L)=0.00127 *3*
3331.74	3$^+$	1467.3[&] *3*	48 *3*	1864.31	2$^+$	M1+E2	+0.3 *+29−2*	0.00032 *2*	α(K)=0.00032 *2* B(E2)(W.u.)=2 *+29−16*; B(M1)(W.u.)=0.04 *+6−4*
		1758.0[&] *2*	100 *6*	1573.76	4$^+$	M1+E2	−0.10 *3*		B(E2)(W.u.)=0.16 *10*; B(M1)(W.u.)=0.050 *7*
		2460.8[&] *8*	7.4 *11*	871.098	2$^+$				
3339.54	6$^+$	916.10 *15*	100 *5*	2423.45	6$^+$	M1(+E2)[#]	−0.04 *4*	0.00099	α(K)=0.00086 B(M1)(W.u.)=0.22 *4*
		1765.6 *7*	3.8 *7*	1573.76	4$^+$				
3359.8	(8$^+$)	936.3 *10*	100	2423.45	6$^+$	(E2)[@]		0.00091	α(K)=0.00079 *2*
3366.5	(3$^+$,4)	401.1[&] *5*	24 *4*	2965.41	3$^+$				
		1071.6[&] *5*	100 *4*	2294.79	4$^+$				
3368.1	(7$^-$)	757.5[c] *4*	100	2610.57	(5)$^-$				
		944.7[c] *4*	50 *3*	2423.45	6$^+$				
3371.1	(2,3,4)	405.8[a] *5*	83 *7*	2965.41	3$^+$				
		806.1[a] *5*	93 *8*	2564.98	4$^+$				
		1303.7[a] *7*	26 *4*	2067.35	2$^+$				
		1797.4[a] *5*	100 *7*	1573.76	4$^+$				
3389.4	(5)$^-$	1094.6[&] *5*	100	2294.79	4$^+$	E1(+M2)	−0.01 *3*	0.00025	α(K)=0.00025 B(E1)(W.u.)=0.00051 *13*
3398.3	(3,4)	1824.5[&] *4*	100	1573.76	4$^+$				
3400.83		1536.5[a] *2*	4.2 *8*	1864.31	2$^+$				
		2529.7[a] *3*	100.0 *8*	871.098	2$^+$				
3429.1		2558.0[a] *8*	100	871.098	2$^+$				
3447.6	(1,2$^+$)	2576.5[&] *5*	100.0 *3*	871.098	2$^+$	D+Q			
		3447.5[&] *10*	5.1 *3*	0.0	0$^+$				
3448.7	5$^+$	576.7[&] *5*	33 *7*	2872.40	6$^+$	M1(+E2)	+0.03 *5*	0.00281	α(K)=0.00244; α(L)=0.00027 B(M1)(W.u.)=0.063 *25*
		1874.6[&] *5*	100 *7*	1573.76	4$^+$	M1+E2	−0.75 *25*		B(E2)(W.u.)=0.6 *4*; B(M1)(W.u.)=0.0036 *15*
3511.86	1$^{(+)}$	1770.4[a] *2*	49 *9*	1741.65	0$^+$				
		2640.7[a] *3*	51.6 *13*	871.098	2$^+$				
		3511.6[a] *2*	100.0 *11*	0.0	0$^+$				
3531.5	(1,2$^+$)	1789.8[a] *5*	78 *5*	1741.65	0$^+$				
		2660.1[a] *10*	100 *8*	871.098	2$^+$				
		3532.0[a] *10*	19.8 *25*	0.0	0$^+$				
3534.32	2$^+$	1670.0[&] *1*	56.1 *20*	1864.31	2$^+$	M1(+E2)	+0.15 *19*		B(M1)(W.u.)=0.015 *5*

From ENSDF

Adopted Levels, Gammas (continued)

$\gamma(^{94}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ	E_f	J^π_f	Mult.[‡]	δ[‡]	α[d]	Comments
3534.32	2^+	2663.2[&] 2	100.0 23	871.098	2^+	M1+E2	−0.3 2		B(E2)(W.u.)=0.08 8; B(M1)(W.u.)=0.0063 19
		3534.0[&] 4	5.1 6	0.0	0^+				
3588.6		978.0[a] 5	100	2610.57	$(5)^-$				
3693.4	(3,4)	925.8[&] 5	100 22	2767.61	4^+				
		2822.1[&] 15	95 22	871.098	2^+				
3792.87	2^+	1399.9[b] 2	55 3	2393.02	2^+				
		1928.5[b] 2	100 4	1864.31	2^+				
		3792.3[b] 10	77.8 20	0.0	0^+				
3805.0	(8,10)	484.5 10	100	3320.7					
3847.3	4^+	1552.5[&] 7	100	2294.79	4^+				
3866.8?	(9^+)	61.7[e] 10	≈0.7	3805.0	(8,10)				E_γ: observed only in (α,2nγ).
		911.3[&] 4	100 17	2955.55	8^+	(M1+E2)	+6.6 +33−16	0.00097	α(K)=0.00084
3892.16	$(1,2^+)$	1499.1[b] 1	79.4 22	2393.02	2^+				
		1824.9[b] 3	25.8 10	2067.35	2^+				
		2027.9[b] 2	22.3 10	1864.31	2^+				
		3021.0[b] 1	100.0 24	871.098	2^+				
		3891.6[b] 10	17.4 9	0.0	0^+				
3897.1	(10^+)	941.3 10	100	2955.55	8^+	(E2)[@]		0.00090	α(K)=0.00078 2
3897.5	$(3^+,5^+)$	1602.7[&] 10	100.0	2294.79	4^+				
3932.4	$(7)^+$	1508.9[&] 7	100	2423.45	6^+	M1+E2			
4007.8		202.8 10	14 6	3805.0	(8,10)				
		1052.3 10	100 14	2955.55	8^+				
4096.8	(9^-)	728.7 4	23.7	3368.1	(7^-)				DCO=1.9 3.
4105.5		1810.7[&] 10	100	2294.79	4^+				
4190.1		292.8 10	100 8	3897.1	(10^+)				
		385.4[e] 10	5 2	3805.0	(8,10)				
4191.5	(12^+)	294.4 4	100	3897.1	(10^+)				
4237.5		1942.7[&] 12	100	2294.79	4^+				
4264.5		367.4 4	100	3897.1	(10^+)				
4495.6		305.6 10	100 8	4190.1					
		598.4 10	71 17	3897.1	(10^+)				
4499.3		307.8 4	100	4191.5	(12^+)				
4749.9	(11^-)	250.6 4	20 10	4499.3					
		485.4 4	29 15	4264.5					
		653.1 4	100	4096.8	(9^-)				
5734.2	(13^-)	984.3 4	100	4749.9	(11^-)				

$^{94}_{42}Mo_{52}$-10

Adopted Levels, Gammas (continued)

$\gamma(^{94}Mo)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π
5734.2	(13⁻)	1542.7 *10*	7 *4*	4191.5	(12⁺)
5804.1	(13⁺)	1612.3 *10*	100	4191.5	(12⁺)
6397.3	(14⁻)	663.1 *4*	27.6	5734.2	(13⁻)
6555.1	(1,2⁺)	4487	79 *15*	2067.35	2⁺
		4692	15 *7*	1864.31	2⁺
		5683	100 *15*	871.098	2⁺
		6555	93	0.0	0⁺
6580.3	(13⁺)	2389.0 *10*	100	4191.5	(12⁺)
6962.7	(15⁻)	565.4 *4*	100	6397.3	(14⁻)
7021.2	(15⁻)	623.9 *4*	100	6397.3	(14⁻)
7518.0	(16⁻)	555.3 *4*	100	6962.7	(15⁻)
7554.6	(14⁺)	487.0 *4*	92 *23*	7067.6	(13⁺)
		974.4 *4*	23 *6*	6580.3	(13⁺)
		1750.3 *10*	100 *23*	5804.1	(13⁺)
7795.7	(15⁺)	241.1 *4*	100	7554.6	(14⁺)
7899.9	(14⁺)	2095.6 *10*	100	5804.1	(13⁺)
8239.0	(16⁺)	443.3 *4*	100	7795.7	(15⁺)
8452.6		1431.3 *4*		7021.2	(15⁻)
8614.6	(15⁺)	714.7 *4*	1.0×10² *5*	7899.9	(14⁺)
		1060.0 *4*	100 *23*	7554.6	(14⁺)
9030.2	(17⁺)	791.2 *4*	100	8239.0	(16⁺)
9162.8	(16⁺)	1367.1 *4*	100	7795.7	(15⁺)
9209.9	(16⁻)	2188.6 *10*	4.0 *10*	7021.2	(15⁻)
9956.0	(16⁺)	1341.4 *4*	6.0 *15*	8614.6	(15⁺)
9979.1	(17⁺)	1740.1 *10*	3.0 *10*	8239.0	(16⁺)
10052.3		1599.7 *10*	1.0	8452.6	
10272.4	(17⁻)	1062.5 *4*	11.0	9209.9	(16⁻)
10275.2	(18⁺)	1245.0 *4*	≤1	9030.2	(17⁺)
11588.3	(18⁺)	1609.1 *10*	3.0 *10*	9979.1	(17⁺)

† Weighted averages of all available data, unless otherwise indicated.

‡ From ^{94}Tc ε decay: mixed source, $\gamma\gamma(\theta)$ in ^{94}Nb β^- decay or ^{94}Tc β^+ decay datasets, unless stated otherwise.

From $\gamma\gamma(\theta)$ and ΔJ^π of initial and final levels.

@ Stretched E2 assumed on the basis of $\gamma(\theta)$ in (α,2nγ).

& From ^{91}Zr(α,nγ).

a From ^{94}Mo(n,n′γ).

b From ^{94}Tc ε decay: mixed source.

c From ^{65}Cu(^{36}S,αp2nγ).

d 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.

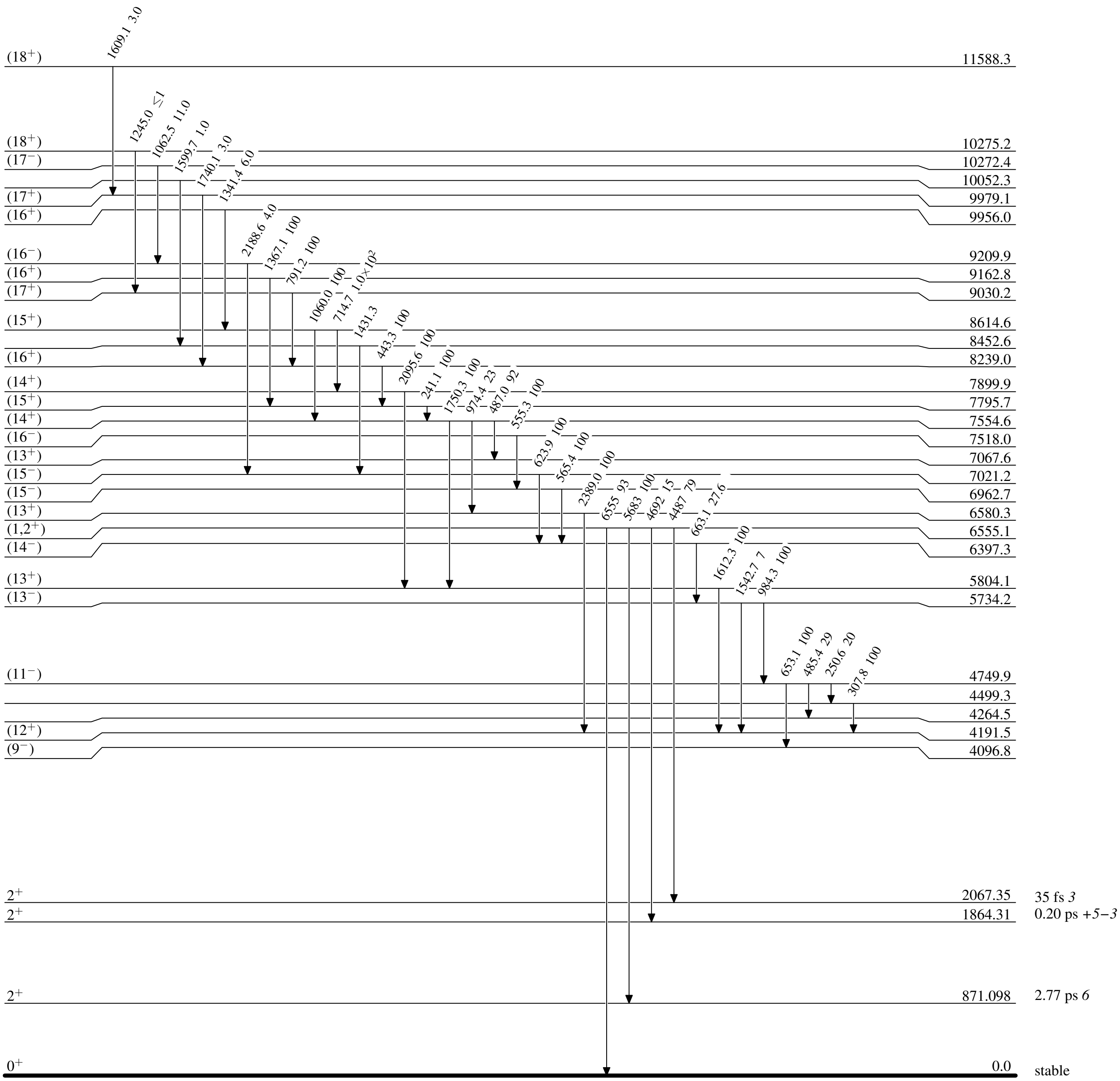
e Placement of transition in the level scheme is uncertain.

$^{94}_{42}Mo_{52}$-11

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{94}_{42}Mo_{52}$

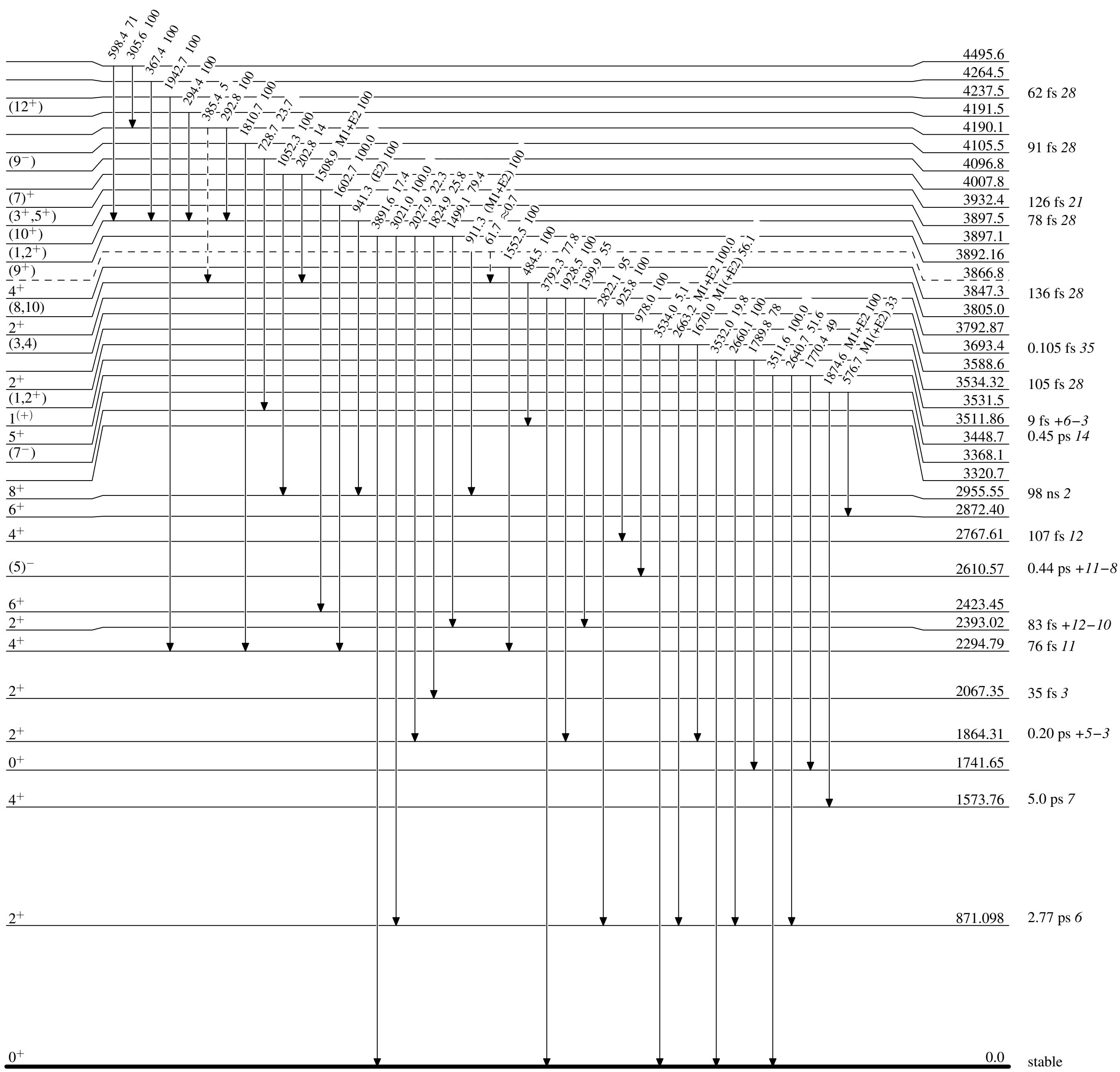
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{94}_{42}Mo_{52}$

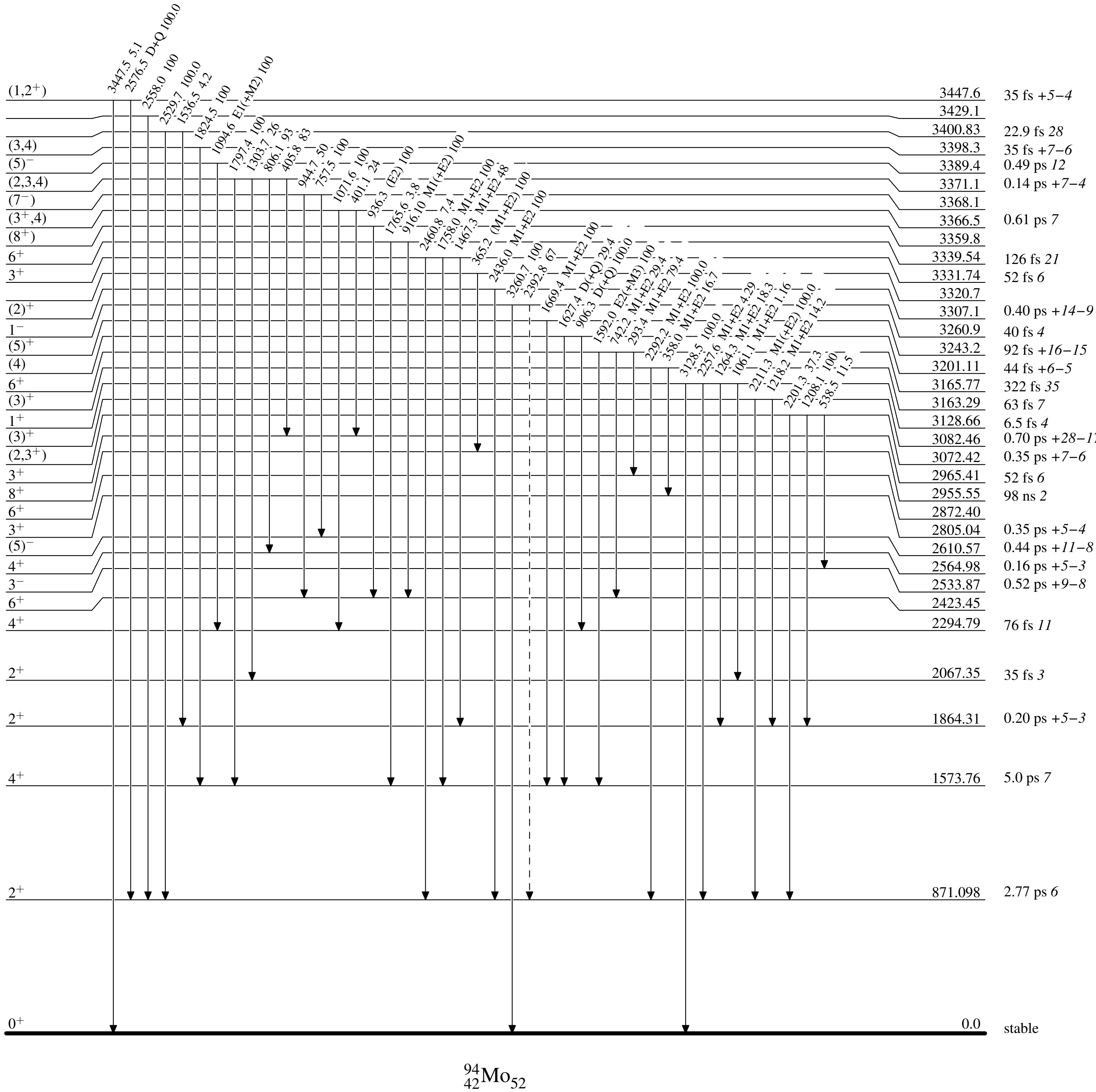
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



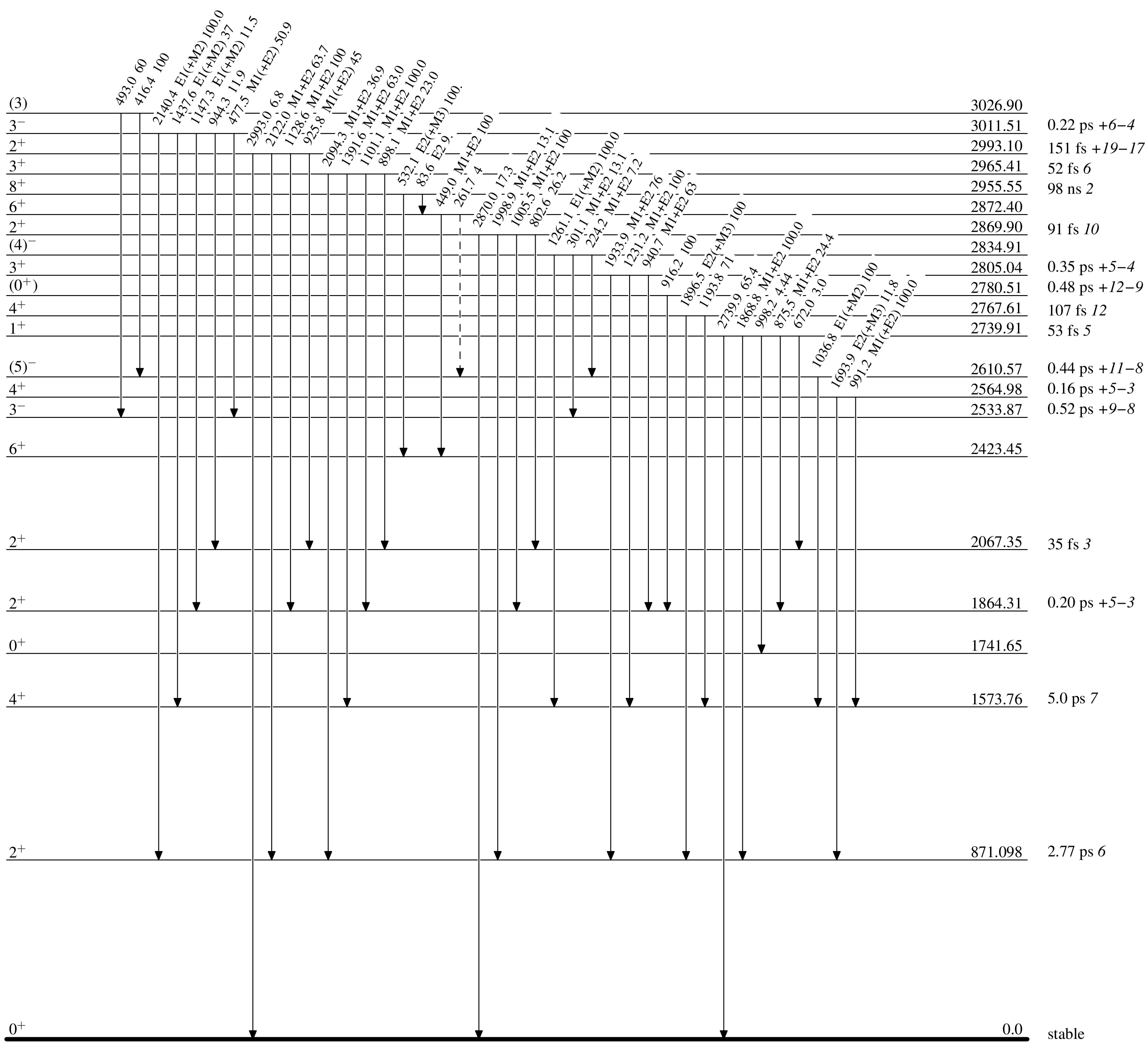
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

Legend

γ Decay (Uncertain)

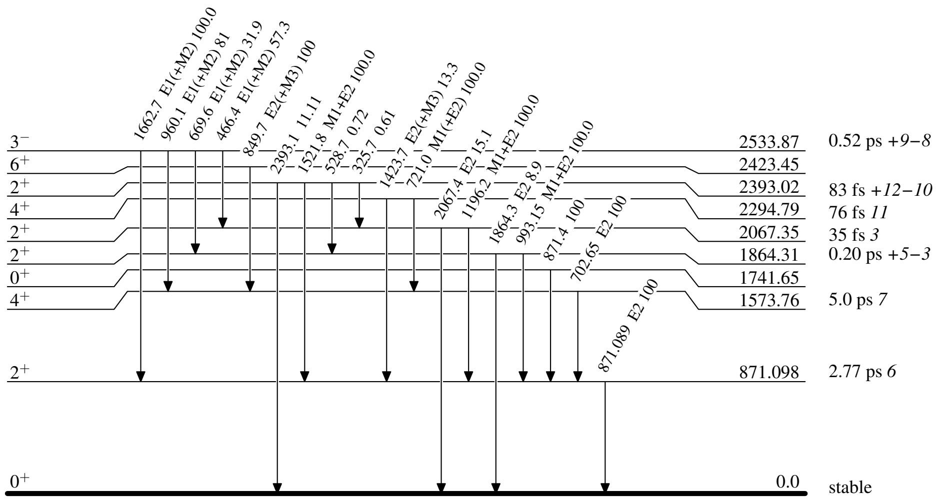


$^{94}_{42}Mo_{52}$

Adopted Levels, Gammas

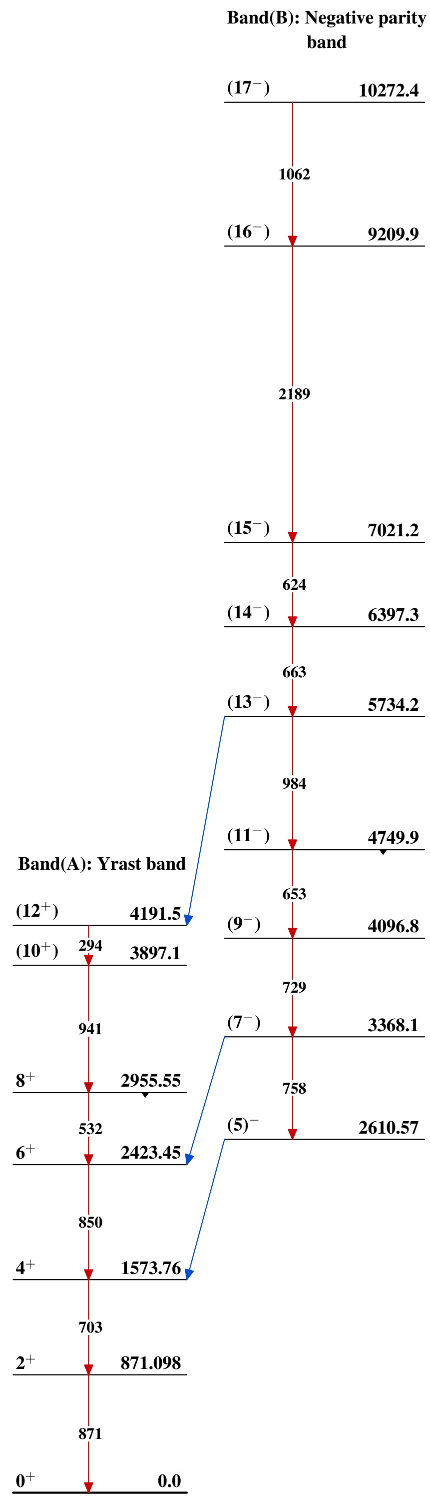
Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{94}_{42}Mo_{52}$

Adopted Levels, Gammas



$^{94}_{42}Mo_{52}$

Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. Abriola(a), A. A. Sonzogni	NDS 109,2501 (2008)	1-Apr-2008

Q(β^-)=−2973 *6*; S(n)=9154.32 *5*; S(p)=9297.5 *5*; Q(α)=−2758.9 *19* 2012Wa38
Note: Current evaluation has used the following Q record −2973 5 *9154.32 5* 9297.6 *5* −2761.5 *20* 2003Au03.
α: Additional information 1.

^{96}Mo Levels

Cross Reference (XREF) Flags

A	^{96}Nb β^- decay	H	^{95}Mo(n,γ) E=25 keV	O	^{98}Mo(p,t), (pol p,t)
B	^{96}Tc ε decay (4.28 d)	I	^{96}Mo(n,n′γ)	P	^{100}Ru(d,^{6}Li)
C	^{96}Tc ε decay (51.5 min)	J	^{96}Mo(p,p′)	Q	^{94}Mo(t,p)
D	^{94}Zr(^{3}He,n)	K	^{96}Mo(d,d′)	R	^{82}Se(^{18}O,4nγ)
E	^{94}Zr(α,2nγ)	L	^{96}Mo(α,α′)	S	^{96}Mo(pol γ,γ′)
F	^{95}Mo(n,γ) E=thermal	M	Coulomb excitation		
G	^{95}Mo(n,γ) E=2 keV	N	^{97}Mo(p,d)		

E(level)[#]	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0[†]	0$^+$	stable	ABCDEFGHIJKLMNOPQRS	<r^2>$^{1/2}$(charge)=4.3841 *8* (2004An14).
778.237[†] *10*	2$^+$	3.67 ps *6*	ABC EFGHIJKLMNOPQR	μ=+0.79 *6* (2001Ma17) J$^\pi$: γ to 0$^+$ is E2. T$_{1/2}$: from B(E2)=0.270 *4* (Coul. ex). Q=−0.20 *8* or +0.04 *8* (1976Pa13). μ measured using transient field method following Coulomb excitation.
1148.13 *7*	0$^+$	61 ps *8*	F IJK MN PQ	T$_{1/2}$: from B(E2)(2$^+$ to 0$^+$)=0.0270 *35* (Coul. ex). J$^\pi$: L=0 in (t,p).
1330? *50*	0$^+$		D	J$^\pi$: L=0 in (^{3}He,n).
1497.787 *10*	2$^+$	0.78 ps *7*	ABC EFGHIJKLMNOPQR	J$^\pi$: L(p,p′)=2. T$_{1/2}$: From B(E2)(0$^+$ to 2$^+$)=0.0156 *13* (Coul. ex), other 0.74 ps *+63−25* from DSAM in (n,n′γ).
1625.905 *16*	2$^+$	>0.90[‡] ps	ABC F I K M OP R	J$^\pi$: $\gamma\gamma(\theta)$ in (n,γ) (1970He27); M1 γ from 3$^+$; γ to 0$^+$.
1628.188[†] *13*	4$^+$	1.2 ps *2*	ABC EFGHIJKLMN PQ	J$^\pi$: L(p,p′)=4. T$_{1/2}$: from B(E2)(2$^+$ to 4$^+$)=0.190 *36* (Coul. ex).
1869.576 *12*	4$^+$	6.4 ps *+28−15*	ABC EFGHIJKLMNOPQR	J$^\pi$: L=4 in (t,p). T$_{1/2}$: from B(E2)(2$^+$ to 4$^+$)=0.0090 *27* (Coul. ex).
1978.450 *14*	3$^+$	>2.29[‡] ps	ABC EFGHI R	J$^\pi$: $\gamma\gamma(\theta)$ in ε decay (1971Ba59); M1 γ to 2$^+$.
2095.77 *4*	2$^+$	97[‡] fs *11*	C F IJ NOP	J$^\pi$: L(p,t)=2.
2219.425 *14*	4$^+$	>0.38[‡] ps	ABC F I N	J$^\pi$: γ from 6$^+$; γ to 2$^+$.
2234.63 *4*	3$^-$	>0.277[‡] ps	FGHIJKLM OPQ	J$^\pi$: L(d,d′)=3.
2398.9 *10*			C k	
2426.14 *4*	2$^+$	0.19[‡] ps *+4−3*	F IJk Q	J$^\pi$: L=2 in (t,p).
2438.477 *15*	5$^+$	>0.139[‡] ps	ABC EF I R	J$^\pi$: $\gamma\gamma(\theta)$ in β^- decay (1971Ba59); M1+E2 γ to 4$^+$.
2440.76[†] *3*	6$^+$	>0.208[‡] ps	AB EF I R	J$^\pi$: stretched E2 cascade in (α,2nγ).
2476 *8*	4$^+$		L Q	J$^\pi$: L=4 in (t,p) and (α,α′).
2481.06 *6*	(4)$^+$	>1.01[‡] ps	C FG IJK OP	J$^\pi$: M1+E2 γ to 3$^+$, E2 γ to 2$^+$.
2501.58 *5*	(1)	97[‡] fs *13*	FG I Q	J$^\pi$: $\gamma(\theta)$ in (n,n′γ), γ to 0$^+$.
2540.46 *5*	(3$^+$)	69[‡] fs *10*	FG IJ	J$^\pi$: (2,3) from $\gamma(\theta)$ in (n,n′γ), γ from 5$^+$.
2594.39 *4*	3$^+$	0.8[‡] ps *+43−4*	C F I	J$^\pi$: M1+E2 γ′s to 2$^+$ and 4$^+$.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{96}Mo Levels (continued)

E(level)[#]	Jπ	T1/2	XREF	Comments
2611.51 *10*		>0.194[‡] ps	C I P	Jπ: L=2 in (d,^{6}Li) for E=2610 consistent with γ decay.
2622.51 *10*	(0)$^+$	0.6[‡] ps *+6−2*	I	Jπ: From σ(E) in (n,n′γ).
2625.19 *13*	4$^+$	0.5[‡] ps *+8−2*	C F IJ L O Q	Jπ: L(p,p′)=4.
2700.21 *6*	2$^+$	103[‡] fs *14*	F I	Jπ: E2 γ to g.s., σ(E) in (n,n′γ).
2712.68 *10*			R	
2734	(5$^-$)		J P	Jπ: L=(5) in (p,p′).
2734.57 *6*	(4,5)$^+$	>0.25[‡] ps	EF I R	Jπ: γ′s to 6$^+$ and 4$^+$. A questionable gamma feeds a 2$^+$ level. The ^{82}Se(^{18}O,4nγ) dataset assigns J=5$^+$, while the remaining datasets assign j=4$^+$.
2735.91 *9*	3$^+$	121[‡] fs *+18−17*	C I	Jπ: log *ft*=6.2 from 4$^+$ ^{96}Tc isomer; M1+E2 γ to 2$^+$.
2742	0$^+$		OPQ	Jπ: L=0 in (t,p), (p,t).
2748.65 *7*	(0$^+$)	0.17[‡] ps *+4−3*	I	Jπ: σ(E) in (n,n′γ).
2755.08 *3*	6$^+$	>0.194[‡] ps	AB EF I L O QR	Jπ: log *ft*=5.0 from 7$^+$ ^{96}Tc g.s.; E2 γ to 4$^+$; however L=(5) in (α,α′) and (t,p).
2787.12 *5*	2$^+$	0.15[‡] ps *+4−3*	FG I Q	Jπ: L=2 in (t,p).
2790.21 *6*	(2,4)[@]	>0.68[‡] ps	F IJK	
2794.50 *6*	1$^+$	31[‡] fs *3*	I S	Jπ: M1 γ to 0$^+$ g.s.
2806.25 *6*	(1)	114[‡] fs *+21−18*	I	Jπ: γ′s to 0$^+$ and 2$^+$.
2818.49 *8*	4$^+$	59[‡] fs *+16−12*	F IJ Q	Jπ: L=4 in (t,p); conflict with L=(3) in (p,p′).
2875.48 *4*	7$^+$,6$^+$		AB E J Q	Jπ: log *ft*=5.6 from 7$^+$ ^{96}Tc g.s.; M1 γ to 6$^+$; L=(4,6) in (p,p′).
2975.28 *7*	5$^+$		A F I	Jπ: log *ft*=7.5 from 6$^+$ ^{96}Nb g.s., primary γ from 2$^+$,3$^+$ capture state.
2978.37[†] *8*	8$^+$		E R	Jπ: stretched E2 cascade in (α,2nγ).
2986.80 *5*	2$^+$	104[‡] fs *+15−14*	F IJ	Jπ: E2 γ to 0$^+$ g.s. and M1+E2 γ to 3$^+$.
3006.45 *10*	0$^+$	90[‡] fs *+19−15*	I Q	Jπ: L=0 in (t,p).
3020 *5*			J Q	J L=5 in (t,p); L=4 in (p,p′).
3024.58 *5*	2$^+$	83[‡] fs *+13−12*	F I KL	Jπ: L=2 in (α,α′).
3053.23 *8*	(4$^+$)	69[‡] fs *+14−11*	F I	Jπ: primary γ from 2$^+$,3$^+$; γ to 6$^+$.
3087.66 *6*	3$^+$	0.33[‡] ps *+53−14*	F I	Jπ: M1+E2 γ′s to 2$^+$ and 4$^+$.
3088 *5*	(4$^+$,5$^-$)		J	Jπ: L=(4,5) in (p,p′).
3089.62 *7*	2,3[@]	66[‡] fs *+10−8*	I	
3134.29 *8*		76[‡] fs *10*	F IJ	
3154.15 *11*	1[@]	73[‡] fs *+10−9*	I	
3178.69 *6*	3$^-$	142[‡] fs *+24−21*	F IJ L Q	Jπ: E1 γ′s to 2$^+$, L=3 in (p,p′) and (α,α′).
3186.81 *19*	4$^+$		F Q	Jπ: primary γ from 2$^+$,3$^+$; γ to 6$^+$.
3202.85 *12*			F	
3211.40 *5*	3$^+$	104[‡] fs *+22−18*	I	Jπ: M1+E2 γ′s to 2$^+$ and 4$^+$.
3232.56 *7*	(3)[@]	236[‡] fs *+10−62*	I	
3241 *12*	4$^+$		J Q	Jπ: L=4 in (t,p).
3255.63 *7*		0.4[‡] ps *+9−2*	I	
3284.97 *9*	2$^+$	0.13[‡] ps *+4−3*	F IJ Q	Jπ: L=2 in (t,p).
3300.38 *7*	1$^+$	8.3[‡] fs *14*	I S	Jπ: M1 γ to 0$^+$ g.s.
3327.87 *7*	(1)	49[‡] fs *+12−10*	I	Jπ: assigned 1 in (n,n′γ), γ′s to 2$^+$ and 0$^+$.
3335.30 *6*	(4$^+$)	0.13[‡] ps *+4−3*	F IJ Q	Jπ: L=4 in (t,p).
3351.67 *6*	2$^+$	36[‡] fs *+10−8*	I	Jπ: E2 γ to 0$^+$ g.s.
3364.0 *3*	[@]	120[‡] fs *+5−3*	I	
3369.98 *10*	(8)$^+$		E R	Jπ: E2 cascade in (α,2nγ).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{96}Mo Levels (continued)

E(level)#	J^{π}	$T_{1/2}$	XREF	Comments
3373.89 *6*	2^+	23‡ fs *3*	I Q	J^{π}: M1+E2 γ's to 2^+, L=2 in (t,p).
3416.82 *6*	4^+	>0.61‡ ps	F I	J^{π}: γ's to 2^+ and 6^+.
3418 *12*	5^-		Q	J^{π}: L=5 in (t,p).
3420 *80*	2^+		L	J^{π}: L=2 in (α,α').
3421.24 *7*	(1)	52‡ fs *+9−8*	I	J^{π}: assigned 1 in (n,n'γ), γ's to 2^+ and 0^+.
3424.90 *8*	1^+	8.3‡ fs *+28−21*	I S	J^{π}: M1 γ to 0^+ g.s.
3433.60 *10*	$(4)^+$	97‡ fs *+21−17*	I P	J^{π}: E2 γ to 2^+.
3441.92 *9*	4^+		F IJ Q	J^{π}: L=4 in (t,p), (p,p').
3444.8? *5*			E	
3464.65 *7*	(3)	44‡ fs *+7−6*	I	J^{π}: assigned3 in (n,n'γ), γ's to 2^+ and 4^+.
3472.20 *10*	2^+	66‡ fs *+19−14*	IJ Q	J^{π}: L=2 in (t,p).
3472.65? *14*	$(7)^+$		E R	J^{π}: E2 γ to $(4,5)^+$, M1 γ to 6^+.
3530.99 *8*	1,2,3@	43‡ fs *6*	I	
3540.88 *7*	(3)@	83‡ fs *+22−17*	I	
3551.4 *3*	3		F J	J^{π}: L=3 in (p,p'), but (M1+E2) γ to 4^+.
3556 *10*	5^-		Q	J^{π}: L=5 in (t,p).
3573.28 *7*	(1)	87‡ fs *+24−18*	I	J^{π}: assigned 1 in (n,n'γ), γ's to 2^+ and 0^+.
3597 *5*	2^+		J Q	J^{π}: L=2 in (p,p').
3599.57 *9*	1^-	10.4‡ fs *21*	I S	J^{π}: E1 γ to 0^+ g.s.
3610.48 *7*	2,3@	104‡ fs *+21−17*	I	
3623.19 *10*	(3^+)@	>0.236‡ ps	I	
3646 *10*			Q	E(level): complex state.
3668.82 *8*	3^+	44‡ fs *+9−8*	I	J^{π}: M1+E2 γ to 2^+, 4^+.
3683 *12*			Q	E(level): complex state.
3690 *80*	(2^+)		L	J^{π}: L=(2) in (α,α').
3694 *5*	5^-		J	J^{π}: L=5 in (p,p').
3709 *12*	2^+		Q	J^{π}: L=2 in (t,p).
3736 *5*	4^+		J Q	J^{π}: L=4 in (t,p).
3786.93 *13*	$(10)^+$		E R	J^{π}: stretched E2 cascade to 8^+.
3800 *5*			J	
3847 *12*			Q	
3866 *5*			J Q	J^{π}: L=(5) in (t,p), L=(4) in (p,p').
3895.4 *10*	1^-		S	J^{π}: E1 γ to 0^+ g.s.
3915.69 *12*	$(9)^+$		E R	J^{π}: E2 γ to $(7)^+$, M1 γ to $(8)^+$.
3965 *5*	(4^+)		J Q	J^{π}: L=(4) in (p,p').
4038 *5*	(3^-)		J	J^{π}: L=(3) in (p,p').
4098 *5*	4^+		J Q	J^{π}: L=4 in (t,p).
4215 *5*			J Q	J^{π}: L=4 in (t,p), L=(3) in (p,p').
4245.11 *16*	10^+		R	J^{π}: E2 γ to 8^+.
4280 *5*			J	
4469 *5*			J Q	
4532.84 *24*	$(11)^+$		E R	J^{π}: M1+E2 γ to $(10)^+$.
4583.55 *15*	$(12)^+$		E R	J^{π}: E2 γ to $(10)^+$.
4603 *5*			J Q	
4714 *12*	1^-		Q	J^{π}: L=1 in (t,p).
4795.12 *14*	$(11)^+$		E R	J^{π}: M1 γ to 10^+, E2 γ to $(9)^+$.
5132.20 *18*	$(12)^+$		R	J^{π}: E2 γ to 10^+,
5640.64 *21*	$(13)^+$		R	J^{π}: M1+E2 γ to $(12)^+$.
5654.61 *16*	$(13)^+$		R	J^{π}: E2 γ to $(11)^+$.
5811.43 *22*	$(14)^+$		R	J^{π}: M1 γ to $(13)^+$, E2 γ to $(12)^+$.
6300 *50*	0^+		D	J^{π}: L=0 in (^{3}He,n).
6414.52 *19*	$(15)^+$		R	J^{π}: E2 γ to $(13)^+$.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{96}Mo Levels (continued)

E(level)[#]	J^π	XREF	Comments
6709.8 *4*	$(15)^+$	R	J^π: M1+E2 γ to $(14)^+$.
7505.5 *6*	$(17)^+$	R	J^π: E2 γ to $(15)^+$.
7554.1 *4*		R	
8424.0 *7*	$(19)^+$	R	J^π: E2 γ to $(17)^+$.
9466.9 *9*	(20^+)	R	J^π: (M1) γ to $(19)^+$.
9882.4 *13*		R	

† Band(A): g.s. sequence.

‡ From DSAM in (n,n′γ).

\# From least-squares fit to Eγ when available.

@ From (n,n′γ), tentative assignments based on γ′s to levels of known J^π, σ(E).

Adopted Levels, Gammas (continued)

$\gamma(^{96}Mo)$

E_i(level)	J^π_i	E_γ[b]	I_γ[b]	E_f	J^π_f	Mult.	δ[d]	α	Comments
778.237	2^+	778.223 *14*	100	0.0	0^+	E2[†]		0.001410 *20*	α(K)=0.001238 *18*; α(L)=0.0001426 *20*; α(M)=2.55×10^{-5} *4* α(O)=2.11×10^{-7} *3*; α(N+..)=4.07×10^{-6} *6* B(E2)(W.u.)=20.7 *4* E_γ: weighted average of 778.224 *15* (^{96}Nb β^- decay), 778.22 *4* (^{96}Tc ε decay (4.28 d)), 778.3 *2* (^{94}Zr(α,2nγ)), 778.26 *10* (^{95}Mo(n,γ) E=thermal), 778.28 *10* (^{96}Mo(n,n′γ)), 778.1 *1* (^{82}Se(^{18}O,4nγ)).
1148.13	0^+	369.80 *11*	100	778.237	2^+	E2[†]		0.01210	α(K)=0.01052 *15*; α(L)=0.001310 *19*; α(M)=0.000234 *4*; α(N)=3.50×10^{-5} *5* α(O)=1.737×10^{-6} *25*; α(N+..)=3.67×10^{-5} *6* B(E2)(W.u.)=51 *7* E_γ: weighted average of 369.67 *12* (^{95}Mo(n,γ) E=th) and 369.89 *10* (^{96}Mo(n,n′γ)).
1497.787	2^+	719.560 *16*	100.0 *5*	778.237	2^+	M1+E2[‡]	+0.44 *+3−4*	0.001672 *24*	α(K)=0.001471 *21*; α(L)=0.0001661 *24*; α(M)=2.97×10^{-5} *5* α(O)=2.56×10^{-7} *4*; α(N+..)=4.77×10^{-6} *7* B(E2)(W.u.)=16.4 *24*; B(M1)(W.u.)=0.045 *5* E_γ: weighted average of 719.562 *17* (^{96}Nb β^- decay), 719.5 *2* (^{96}Tc ε decay (4.28 d)), 719.55 *5* (^{96}Tc ε decay (51.5 min)), 719.9 *5* (^{94}Zr(α,2nγ)), 719.53 *11* (^{95}Mo(n,γ) E=thermal), 719.55 *10* (^{96}Mo(n,n′γ)), 719.4 *4* (^{82}Se(^{18}O,4nγ)). I_γ: weighted average of 100.0 *13* (^{96}Nb β^- decay), 100.0 *6* (^{96}Mo(n,n′γ)). δ: from ^{95}Mo(n,γ) E=thermal.
		1497.801 *14*	42.3 *16*	0.0	0^+	E2[†]		0.000409 *6*	α(K)=0.000288 *4*; α(L)=3.20×10^{-5} *5*; α(M)=5.71×10^{-6} *8*; α(N)=8.70×10^{-7} *13* α(O)=4.95×10^{-8} *7*; α(N+..)=8.34×10^{-5} *12* B(E2)(W.u.)=1.10 *11* E_γ: weighted average of 1497.807 *15* (^{96}Nb β^- decay), 1497.72 *10* (^{96}Tc ε decay (4.28 d)), 1497.65 *9* (^{96}Tc ε decay (51.5 min)), 1497.84 *11* (^{95}Mo(n,γ) E=thermal), 1497.76 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 47.9 *10* (^{96}Nb β^- decay), 47 *4* (^{96}Tc ε decay (4.28 d)), 40.5 *19* (^{96}Tc ε decay (51.5 min)), 42.2 *22* (^{95}Mo(n,γ) E=thermal), 40.4 *6* (^{96}Mo(n,n′γ)).
1625.905	2^+	128.0 *4*	1.4 *8*	1497.787	2^+				E_γ: observed only in ^{96}Nb β^- decay.

$^{96}_{42}Mo_{54}$-5

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J^{π}_i	E_γ[b]	I_γ[b]	E_f	J^{π}_f	Mult.	δ[d]	α	Comments
1625.905	2^+	847.689 *19*	100.0 *2*	778.237	2^+	M1+E2[†]	−1.05 +*9*−*10*	0.001146 *16*	α(K)=0.001008 *15*; α(L)=0.0001142 *16*; α(M)=2.04×10^{-5} *3* α(O)=1.742×10^{-7} *25*; α(N+..)=3.27×10^{-6} *5* B(E2)(W.u.)<28; B(M1)(W.u.)<0.019 E_γ: weighted average of 847.69 *2* (^{96}Nb β^- decay), 847.7 *1* (^{96}Tc ε decay (4.28 d)), 847.6 *3* (^{96}Tc ε decay (51.5 min)), 847.67 *11* (^{95}Mo(n,γ) E=thermal), 849.7 *1* (^{82}Se(^{18}O,4nγ)). δ: from ^{95}Mo(n,γ) E=thermal.
		1625.86 *4*	9.4 *6*	0.0	0^+	E2[†]		0.000412 *6*	α(K)=0.000245 *4*; α(L)=2.72×10^{-5} *4*; α(M)=4.85×10^{-6} *7*; α(N)=7.39×10^{-7} *11* α(O)=4.22×10^{-8} *6*; α(N+..)=0.0001349 *19* B(E2)(W.u.)<0.18 E_γ: weighted average of 1625.90 *5* (^{96}Nb β^- decay), 1625.7 *1* (^{96}Tc ε decay (4.28 d)), 1625.8 *4* (^{96}Tc ε decay (51.5 min)), 1625.7 *3* (^{95}Mo(n,γ) E=thermal), 1625.88 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 13.6 *8* (^{96}Nb β^- decay), 10.6 *11* (^{96}Tc ε decay (51.5 min)), 9.2 *5* (^{95}Mo(n,γ) E=thermal), 9.05 *22* (^{96}Mo(n,n′γ)).
1628.188	4^+	849.922 *12*	100	778.237	2^+	E2[†]		0.001134 *16*	α(K)=0.000996 *14*; α(L)=0.0001141 *16*; α(M)=2.04×10^{-5} *3* α(O)=1.704×10^{-7} *24*; α(N+..)=3.26×10^{-6} *5* B(E2)(W.u.)=41 *7* E_γ: weighted average of 849.929 *13* (^{96}Nb β^- decay), 849.86 *4* (^{96}Tc ε decay (4.28 d)), 849.85 *10* (^{96}Tc ε decay (51.5 min)), 849.8 *2* (^{94}Zr(α,2nγ)), 849.95 *11* (^{95}Mo(n,γ) E=thermal), 849.97 *10* (^{96}Mo(n,n′γ)).
1869.576	4^+	241.377 *15*	8.4 *5*	1628.188	4^+	M1+E2[†]	+0.024 *5*	0.0235	α(K)=0.0206 *3*; α(L)=0.00239 *4*; α(M)=0.000427 *6*; α(N)=6.50×10^{-5} *9*; α(O)=3.64×10^{-6} *6* α(N+..)=0.00012 *5* B(E2)(W.u.)=0.18 +*9*−*11*; B(M1)(W.u.)=0.018 +*5*−*8* E_γ: weighted average of 241.377 *15* (^{96}Nb β^- decay), 241.6 *2* (^{96}Tc ε decay (4.28 d)), 241.4 *2* (^{96}Tc ε decay (51.5 min)), 241.6 *5* (^{94}Zr(α,2nγ)), 241.2 *2* (^{95}Mo(n,γ) E=thermal), 241.36 *10* (^{96}Mo(n,n′γ)), 242.0 *1* (^{82}Se(^{18}O,4nγ)). I_γ: weighted average of 7.2 *8* (^{96}Nb β^- decay), 12.6 *19* (^{96}Tc ε decay (51.5 min)), 8.5 *22* (^{94}Zr(α,2nγ)), 8.8 *5*

$^{96}_{42}Mo_{54}$-6

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J^{π}_i	E_{γ}[b]	I_{γ}[b]	E_f	J^{π}_f	Mult.	δ[d]	α	Comments
									(^{95}Mo(n,γ) E=thermal), 8.23 *22* (^{96}Mo(n,n′γ)), 17.5 *16* (^{82}Se(^{18}O,4nγ)).
1869.576	4⁺	371.807 *21*	5.3 *5*	1497.787	2⁺	E2[‡]		0.01189	α(K)=0.01034 *15*; α(L)=0.001286 *18*; α(M)=0.000230 *4*; α(N)=3.44×10^{-5} *5* α(O)=1.708×10^{-6} *24*; α(N+..)=3.61×10^{-5} *5* B(E2)(W.u.)=22 *+6−10* E_{γ}: weighted average of 371.807 *15* (^{96}Nb β^- decay), 371.8 *2* (^{96}Tc ε decay (4.28 d)), 371.5 *2* (^{96}Tc ε decay (51.5 min)), 371.63 *13* (^{95}Mo(n,γ) E=thermal), 372.0 *1* (^{82}Se(^{18}O,4nγ)). I_{γ}: weighted average of 5.41 *18* (^{96}Nb β^- decay), 6.4 *18* (^{96}Tc ε decay (4.28 d)), 4.4 *9* (^{96}Tc ε decay (51.5 min)), 4.8 *3* (^{95}Mo(n,γ) E=thermal), 25 *3* (^{82}Se(^{18}O,4nγ)).
		1091.344 *11*	100.00 *22*	778.237	2⁺	E2(+M3)[†]	−0.05 *5*	0.000641 *21*	α(K)=0.000564 *18*; α(L)=6.37×10^{-5} *22*; α(M)=1.14×10^{-5} *4*; α(N)=1.73×10^{-6} *6* α(O)=9.59×10^{-8} *14*; α(N+..)=1.80×10^{-6} *3* B(E2)(W.u.)=1.9 *+5−9*; B(M3)(W.u.)=3.E+4 *+6−3* E_{γ}: weighted average of 1091.349 *12* (^{96}Nb β^- decay), 1091.30 *4* (^{96}Tc ε decay (4.28 d)), 1091.30 *8* (^{96}Tc ε decay (51.5 min)), 1091.2 *5* (^{94}Zr(α,2nγ)), 1091.30 *11* (^{95}Mo(n,γ) E=thermal), 1091.38 *10* (^{96}Mo(n,n′γ)), 1091.4 *6* (^{82}Se(^{18}O,4nγ)). I_{γ}: weighted average of 100 *3* (^{96}Nb β^- decay), 100 *7* (^{96}Tc ε decay (4.28 d)), 100 *8* (^{96}Tc ε decay (51.5 min)), 100 *10* (^{94}Zr(α,2nγ)), 100 *6* (^{95}Mo(n,γ) E=thermal), 100.00 *22* (^{96}Mo(n,n′γ)), 100 *10* (^{82}Se(^{18}O,4nγ)). δ: from ^{96}Tc ε decay (4.28 d).
1978.450	3⁺	108.94 *11*	0.22 *7*	1869.576	4⁺				E_{γ}: weighted average of 108.95 *11* (^{96}Nb β^- decay), 108.8 *5* (^{82}Se(^{18}O,4nγ)). I_{γ}: from ^{96}Nb β^- decay.
		350.06 *3*	8.2 *23*	1628.188	4⁺	M1+E2[†]		0.012 *3*	α(K)=0.0103 *23*; α(L)=0.0012 *4*; α(M)=0.00022 *6*; α(N)=3.4×10^{-5} *9*; α(O)=1.7×10^{-6} *4* α(N+..)=3.5×10^{-5} *9* E_{γ}: weighted average of 350.053 *19* (^{96}Nb β^- decay), 350.1 *5* (^{96}Tc ε decay (4.28 d)), 350.32 *15* (^{96}Tc ε decay (51.5 min)), 349.7 *2* (^{95}Mo(n,γ) E=thermal), 350.05 *10* (^{96}Mo(n,n′γ)), 350.6 *2* (^{82}Se(^{18}O,4nγ)). I_{γ}: weighted average of 5.3 *4* (^{96}Nb β^- decay), 5.3 *3* (^{96}Tc ε

From ENSDF

$^{96}_{42}Mo_{54}$-7

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[b]	I_γ[b]	E_f	J^π_f	Mult.	δ[d]	α	Comments
									decay (51.5 min)), 5.2 *6* (^{95}Mo(n,γ) E=thermal), 13.6 *3* (^{96}Mo(n,n′γ)).
1978.450	3^+	352.56 *3*	4.74 *22*	1625.905	2^+	M1+E2[†]		0.012 *3*	α(K)=0.0101 *22*; α(L)=0.0012 *4*; α(M)=0.00022 *6*; α(N)=3.3×10^{-5} *9*; α(O)=1.7×10^{-6} *4* α(N+..)=3.5×10^{-5} *9* E_γ: weighted average of 352.56 *3* (^{96}Nb β^- decay), 352.5 *3* (^{96}Tc ε decay (4.28 d)), 352.50 *15* (^{96}Tc ε decay (51.5 min)), 352.3 *2* (^{95}Mo(n,γ) E=thermal), 352.61 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 4.15 *19* (^{96}Nb β^- decay), 5.2 *3* (^{96}Tc ε decay (51.5 min)), 5.5 *6* (^{95}Mo(n,γ) E=thermal), 4.97 *16* (^{96}Mo(n,n′γ)).
		480.696 *24*	30.2 *18*	1497.787	2^+	M1+E2[†]	+0.12 *4*	0.00426 *6*	α(K)=0.00374 *6*; α(L)=0.000425 *7*; α(M)=7.60×10^{-5} *11*; α(N)=1.157×10^{-5} *17*; α(O)=6.57×10^{-7} *10* α(N+..)=1.223×10^{-5} *18* B(E2)(W.u.)<1.8; B(M1)(W.u.)<0.018 E_γ: weighted average of 480.705 *17* (^{96}Nb β^- decay), 481.0 *5* (^{96}Tc ε decay (4.28 d)), 480.70 *5* (^{96}Tc ε decay (51.5 min)), 480.5 *2* (^{95}Mo(n,γ) E=thermal), 480.42 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 29.23 *24* (^{96}Nb β^- decay), 22 *8* (^{96}Tc ε decay (4.28 d)), 28.9 *14* (^{96}Tc ε decay (51.5 min)), 25 *4* (^{95}Mo(n,γ) E=thermal), 42.1 *8* (^{96}Mo(n,n′γ)).
		1200.227 *13*	100.0 *4*	778.237	2^+	M1+E2[†]	+0.89 *10*	0.000539 *8*	α(K)=0.000469 *7*; α(L)=5.23×10^{-5} *8*; α(M)=9.33×10^{-6} *14*; α(N)=1.422×10^{-6} *21* α(O)=8.11×10^{-8} *12*; α(N+..)=8.37×10^{-6} *15* B(E2)(W.u.)<1.3; B(M1)(W.u.)<0.0024 E_γ: weighted average of 1200.231 *13* (^{96}Nb β^- decay), 1200.17 *8* (^{96}Tc ε decay (4.28 d)), 1200.15 *8* (^{96}Tc ε decay (51.5 min)), 1200.1 *5* (^{94}Zr(α,2nγ)), 1200.1 *4* (^{95}Mo(n,γ) E=thermal), 1200.20 *10* (^{96}Mo(n,n′γ)), 1200.1 *3* (^{82}Se(^{18}O,4nγ)). I_γ: weighted average of 100.0 *5* (^{96}Nb β^- decay), 100 *8* (^{96}Tc ε decay (4.28 d)), 100 *5* (^{96}Tc ε decay (51.5 min)), 100 *9* (^{95}Mo(n,γ) E=thermal), 100.0 *10* (^{96}Mo(n,n′γ)).
2095.77	2^+	947.8 *3*	3.2 *7*	1148.13	0^+				E_γ,I_γ: from ^{95}Mo(n,γ), E=th.
		1317.43 *8*	100.0 *1*	778.237	2^+	M1+E2[†]	−0.09 *2*	0.000473 *7*	α(K)=0.000395 *6*; α(L)=4.38×10^{-5} *7*; α(M)=7.82×10^{-6} *11*; α(N)=1.193×10^{-6} *17*

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J^π_i	E_γ [b]	I_γ [b]	E_f	J^π_f	Mult.	α	Comments
								α(O)=6.88×10^{-8} *10*; α(N+..)=2.60×10^{-5} *4* B(E2)(W.u.)=0.43 *20*; B(M1)(W.u.)=0.094 *11* E_γ: weighted average of 1317.4 *4* (^{96}Tc ε decay (51.5 min)), 1317.33 *12* (^{95}Mo(n,γ) E=thermal), 1317.50 *10* (^{96}Mo(n,n′γ)). I_γ: from ^{96}Mo(n,n′γ).
2095.77	2^+	2095.59[e] *10*	1.52 *10*	0.0	0^+	E2[†]	0.000525 *8*	α(K)=0.0001524 *22*; α(L)=1.680×10^{-5} *24*; α(M)=2.99×10^{-6} *5* α(O)=2.62×10^{-8} *4*; α(N+..)=0.000353 *5* B(E2)(W.u.)=0.080 *11* E_γ,I_γ: from ^{96}Mo(n,n′γ).
2219.425	4^+	241.2 *2*	71 *4*	1978.450	3^+			E_γ,I_γ: from ^{95}Mo(n,γ), E=th.
		350.05 *3*	64 *10*	1869.576	4^+	(M1,E2)[‡]	0.012 *3*	α(K)=0.0103 *23*; α(L)=0.0013 *4*; α(M)=0.00022 *6*; α(N)=3.4×10^{-5} *9*; α(O)=1.7×10^{-6} *4* α(N+..)=3.5×10^{-5} *9* E_γ: weighted average of 350.053 *19* (^{96}Nb β^- decay), 349.9 *2* (^{96}Tc ε decay (4.28 d)), 349.7 *2* (^{95}Mo(n,γ) E=thermal). I_γ: weighted average of 47 *9* (^{96}Nb β^- decay), 58 *17* (^{96}Tc ε decay (4.28 d)), 78 *8* (^{95}Mo(n,γ) E=thermal).
		591.23 *5*	97 *5*	1628.188	4^+	(M1,E2)[‡]	0.00277 *17*	α(K)=0.00243 *14*; α(L)=0.000280 *22*; α(M)=5.0×10^{-5} *4*; α(N)=7.6×10^{-6} *6*; α(O)=4.18×10^{-7} *17* α(N+..)=8.0×10^{-6} *6* E_γ: weighted average of 591.24 *5* (^{96}Nb β^- decay), 591.3 *6* (^{96}Tc ε decay (4.28 d)), 591.19 *13* (^{95}Mo(n,γ) E=thermal). I_γ: weighted average of 92 *8* (^{96}Nb β^- decay), 90 *50* (^{96}Tc ε decay (4.28 d)), 100 *6* (^{95}Mo(n,γ) E=thermal).
		593.23 *11*	41 *8*	1625.905	2^+			E_γ: weighted average of 593.25 *14* (^{96}Nb β^- decay), 593.2 *2* (^{95}Mo(n,γ) E=thermal). I_γ: weighted average of 30 *8* (^{96}Nb β^- decay), 47 *6* (^{95}Mo(n,γ) E=thermal).
		721.632 *18*	100.0 *9*	1497.787	2^+	E2[†]	0.001710 *24*	α(K)=0.001500 *21*; α(L)=0.0001739 *25*; α(M)=3.11×10^{-5} *5* α(O)=2.56×10^{-7} *4*; α(N+..)=4.95×10^{-6} *7* B(E2)(W.u.)<72 E_γ: weighted average of 721.629 *19* (^{96}Nb β^- decay), 721.5 *3* (^{96}Tc ε decay (4.28 d)), 721.57 *15* (^{95}Mo(n,γ) E=thermal), 721.77 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 100 *6* (^{96}Nb β^- decay), 100 *40* (^{96}Tc ε decay (4.28 d)), 99 *10* (^{95}Mo(n,γ) E=thermal), 100.0 *9* (^{96}Mo(n,n′γ)).
		1441.123 *23*	32 *4*	778.237	2^+	E2[†]	0.000416 *6*	α(K)=0.000311 *5*; α(L)=3.47×10^{-5} *5*; α(M)=6.18×10^{-6} *9*;

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[b]	I_γ[b]	E_f	J^π_f	Mult.	δ[d]	α	Comments
									$\alpha(N)=9.41\times10^{-7}$ *14* $\alpha(O)=5.35\times10^{-8}$ *8*; $\alpha(N+..)=6.41\times10^{-5}$ *9* B(E2)(W.u.)<0.72 E_γ: weighted average of 1441.129 *24* (^{96}Nb β^- decay), 1441.14 *10* (^{96}Tc ε decay (4.28 d)), 1440.9 *2* (^{95}Mo(n,γ) E=thermal), 1441.05 *10* (^{96}Mo(n,n$'\gamma$)). I_γ: weighted average of 43.4 *19* (^{96}Nb β^- decay), 45 *5* (^{96}Tc ε decay (4.28 d)), 55 *6* (^{95}Mo(n,γ) E=thermal), 28.0 *9* (^{96}Mo(n,n$'\gamma$)).
2234.63	3^-	365.04 *11*	9.3 *4*	1869.576	4^+	E1[†]		0.00326 *5*	$\alpha(K)=0.00287$ *4*; $\alpha(L)=0.000323$ *5*; $\alpha(M)=5.75\times10^{-5}$ *8*; $\alpha(N)=8.71\times10^{-6}$ *13*; $\alpha(O)=4.80\times10^{-7}$ *7* $\alpha(N+..)=9.19\times10^{-6}$ *13* B(E1)(W.u.)<0.0010 E_γ: weighted average of 364.90 *13* (^{95}Mo(n,γ) E=thermal), 365.13 *10* (^{96}Mo(n,n$'\gamma$)). I_γ: weighted average of 9.4 *8* (^{95}Mo(n,γ) E=thermal), 9.3 *4* (^{96}Mo(n,n$'\gamma$)).
		608.69 *7*	100.0 *13*	1625.905	2^+	E1[†]		0.000934 *13*	$\alpha(K)=0.000824$ *12*; $\alpha(L)=9.18\times10^{-5}$ *13*; $\alpha(M)=1.634\times10^{-5}$ *23* $\alpha(O)=1.395\times10^{-7}$ *20*; $\alpha(N+..)=2.62\times10^{-6}$ *4* B(E1)(W.u.)<0.0024 E_γ: weighted average of 608.67 *11* (^{95}Mo(n,γ) E=thermal), 608.70 *10* (^{96}Mo(n,n$'\gamma$)). I_γ: weighted average of 100 *6* (^{95}Mo(n,γ) E=thermal), 100.0 *13* (^{96}Mo(n,n$'\gamma$)).
		736.88 *7*	97.0 *13*	1497.787	2^+	E1[†]		0.000614 *9*	$\alpha(K)=0.000541$ *8*; $\alpha(L)=6.01\times10^{-5}$ *9*; $\alpha(M)=1.070\times10^{-5}$ *15*; $\alpha(O)=9.19\times10^{-8}$ *13* $\alpha(N+..)=1.719\times10^{-6}$ *24* B(E1)(W.u.)<0.0013 E_γ: weighted average of 736.86 *11* (^{95}Mo(n,γ) E=thermal), 736.89 *10* (^{96}Mo(n,n$'\gamma$)). I_γ: weighted average of 97 *6* (^{95}Mo(n,γ) E=thermal), 97.0 *13* (^{96}Mo(n,n$'\gamma$)).
		1456.25 *9*	9.72 *22*	778.237	2^+	E1[†]		0.000376 *6*	$\alpha(K)=0.0001490$ *21*; $\alpha(L)=1.633\times10^{-5}$ *23*; $\alpha(M)=2.91\times10^{-6}$ *4* $\alpha(O)=2.54\times10^{-8}$ *4*; $\alpha(N+..)=0.000208$ *3* B(E1)(W.u.)$<1.7\times10^{-5}$ E_γ: weighted average of 1456.2 *3* (^{95}Mo(n,γ) E=thermal), 1456.26 *10* (^{96}Mo(n,n$'\gamma$)). I_γ: weighted average of 9 *3* (^{95}Mo(n,γ) E=thermal), 9.72 *22* (^{96}Mo(n,n$'\gamma$)).
2398.9		1620.6	100	778.237	2^+				

$^{96}_{42}Mo_{54}$-10

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J_i^π	E_γ [b]	I_γ [b]	E_f	J_f^π	Mult.	δ [d]	α	Comments
2426.14	2^+	447.62 *10*	4.71 *19*	1978.450	3^+	M1+E2[†]	−2.6 *+8−16*	0.00642 *20*	α(K)=0.00560 *17*; α(L)=0.000676 *24*; α(M)=0.000121 *5*; α(N)=1.82×10^{-5} *6*; α(O)=9.41×10^{-7} *24* α(N+..)=1.91×10^{-5} *7* B(E2)(W.u.)=1.4×10^{2} *+3−4*; B(M1)(W.u.)=0.0042 *24* E_γ,I_γ: observed only in (n,n′γ).
		800.27 *8*	67.1 *15*	1625.905	2^+	M1+E2[†]	−0.18 *17*	0.001309 *19*	α(K)=0.001153 *17*; α(L)=0.0001293 *19*; α(M)=2.31×10^{-5} *4* α(O)=2.01×10^{-7} *3*; α(N+..)=3.72×10^{-6} *6* B(E2)(W.u.)=4 *+8−4*; B(M1)(W.u.)=0.078 *+14−18* E_γ: weighted average of 800.36 *13* (^{95}Mo(n,γ) E=thermal), 800.22 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 59 *5* (^{95}Mo(n,γ) E=thermal), 67.4 *9* (^{96}Mo(n,n′γ)).
		928.25 *10*	7.35 *19*	1497.787	2^+	M1+E2[†]	+3.9 *+18−10*	0.000920 *13*	α(K)=0.000809 *12*; α(L)=9.20×10^{-5} *13*; α(M)=1.641×10^{-5} *23* α(O)=1.387×10^{-7} *20*; α(N+..)=2.63×10^{-6} *4* B(E2)(W.u.)=6.1 *+11−14*; B(M1)(W.u.)=0.0003 *+3−3* E_γ: weighted average of 928.4 *5* (^{95}Mo(n,γ) E=thermal), 928.24 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 11 *5* (^{95}Mo(n,γ) E=thermal), 7.34 *19* (^{96}Mo(n,n′γ)).
		1647.80 *9*	100.0 *9*	778.237	2^+	M1+E2[†]	+1.2 *3*	0.000412 *6*	α(K)=0.000244 *4*; α(L)=2.70×10^{-5} *5*; α(M)=4.82×10^{-6} *8*; α(N)=7.34×10^{-7} *12* α(O)=4.21×10^{-8} *7*; α(N+..)=0.000136 *4* B(E2)(W.u.)=2.9 *+8−9*; B(M1)(W.u.)=0.0056 *+19−21* E_γ: weighted average of 1647.6 *3* (^{95}Mo(n,γ) E=thermal), 1647.82 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 100 *9* (^{95}Mo(n,γ) E=thermal), 100.0 *9* (^{96}Mo(n,n′γ)).
		2426.28 *10*	9.0 *4*	0.0	0^+	E2[†]		0.000645 *9*	α(K)=0.0001175 *17*; α(L)=1.290×10^{-5} *18*; α(M)=2.30×10^{-6} *4* α(O)=2.02×10^{-8} *3*; α(N+..)=0.000513 *8* B(E2)(W.u.)=0.065 *+11−14* E_γ,I_γ: observed only in (n,n′γ).
2438.477	5^+	219.080 *18*	5.14 *11*	2219.425	4^+	M1+E2[‡]	−0.44 *4*	0.0369 *12*	α(K)=0.0322 *10*; α(L)=0.00395 *15*; α(M)=0.00071 *3*; α(N)=0.000106 *4*; α(O)=5.50×10^{-6} *15* α(N+..)=0.00016 *8* B(E2)(W.u.)<1.7×10^{3}; B(M1)(W.u.)<0.39 E_γ: weighted average of 219.081 *18* (^{96}Nb β^- decay), 219.4

$^{96}_{42}Mo_{54}$-11

Adopted Levels, Gammas (continued)

γ(^{96}Mo) (continued)

E_i(level)	J^π_i	E_γ[b]	I_γ[b]	E_f	J^π_f	Mult.	δ[d]	α	Comments
									4 (^{96}Tc ε decay (4.28 d)), 218.98 *13* (^{95}Mo(n,γ) E=thermal). I_γ: weighted average of 5.12 *8* (^{96}Nb β^- decay), 4.3 *11* (^{96}Tc ε decay (4.28 d)), 20 *13* (^{96}Tc ε decay (51.5 min)), 6.6 *7* (^{95}Mo(n,γ) E=thermal). δ: from ^{96}Nb β^- decay.
2438.477	5$^+$	460.03 *13*	46.1 *4*	1978.450	3$^+$	E2[†]		0.00609 *9*	α(K)=0.00532 *8*; α(L)=0.000643 *9*; α(M)=0.0001151 *17*; α(N)=1.727×10^{-5} *25* α(O)=8.90×10^{-7} *13*; α(N+..)=1.82×10^{-5} *3* B(E2)(W.u.)<2.0×10^3 E_γ: weighted average of 460.040 *12* (^{96}Nb β^- decay), 460.04 *7* (^{96}Tc ε decay (4.28 d)), 460.0 *3* (^{96}Tc ε decay (51.5 min)), 460.5 *5* (^{94}Zr(α,2nγ)), 459.88 *12* (^{95}Mo(n,γ) E=thermal), 459.98 *10* (^{96}Mo(n,n′γ)), 459.5 *1* (^{82}Se(^{18}O,4nγ)). I_γ: weighted average of 45.9 *3* (^{96}Nb β^- decay), 47 *4* (^{96}Tc ε decay (4.28 d)), 100 *30* (^{96}Tc ε decay (51.5 min)), 55 *13* (^{94}Zr(α,2nγ)), 49 *3* (^{95}Mo(n,γ) E=thermal), 49.0 *14* (^{96}Mo(n,n′γ)).
		568.869 *12*	100.0 *5*	1869.576	4$^+$	M1+E2[†]	−0.24 *3*	0.00287 *4*	α(K)=0.00253 *4*; α(L)=0.000286 *4*; α(M)=5.12×10^{-5} *8*; α(N)=7.79×10^{-6} *11*; α(O)=4.42×10^{-7} *7* α(N+..)=8.23×10^{-6} *12* B(E2)(W.u.)<1.0×10^2; B(M1)(W.u.)<0.48 E_γ: weighted average of 568.871 *12* (^{96}Nb β^- decay), 568.88 *7* (^{96}Tc ε decay (4.28 d)), 568.8 *2* (^{96}Tc ε decay (51.5 min)), 569.1 *5* (^{94}Zr(α,2nγ)), 568.80 *12* (^{95}Mo(n,γ) E=thermal), 568.79 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 100.0 *5* (^{96}Nb β^- decay), 100 *7* (^{96}Tc ε decay (4.28 d)), 90 *30* (^{96}Tc ε decay (51.5 min)), 100 *25* (^{94}Zr(α,2nγ)), 100 *7* (^{95}Mo(n,γ) E=thermal), 100.0 *16* (^{96}Mo(n,n′γ)).
		810.336 *24*	19.3 *5*	1628.188	4$^+$	M1+E2[†]		0.001274 *18*	α(K)=0.001120 *16*; α(L)=0.0001271 *24*; α(M)=2.27×10^{-5} *5* α(O)=1.94×10^{-7} *4*; α(N+..)=3.64×10^{-6} *6* E_γ: weighted average of 810.330 *15* (^{96}Nb β^- decay), 810.3 *4* (^{96}Tc ε decay (51.5 min)), 810.8 *2* (^{95}Mo(n,γ) E=thermal), 810.49 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 19.13 *17* (^{96}Nb β^- decay), 70 *30* (^{96}Tc ε decay (51.5 min)), 30 *7* (^{95}Mo(n,γ) E=thermal), 23.4 *10* (^{96}Mo(n,n′γ)).

$^{96}_{42}$Mo$_{54}$-12

Adopted Levels, Gammas (continued)

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[b]	I_γ[b]	E_f	J^π_f	Mult.	δ[d]	α	Comments
2440.76	6^+	812.56 3	100	1628.188	4^+	E2+M3[†]	−0.036 8	0.001274 19	α(K)=0.001119 16; α(L)=0.0001286 19; α(M)=2.30×10^{-5} 4 α(O)=1.91×10^{-7} 3; α(N+..)=3.64×10^{-6} 6 B(E2)(W.u.)<2.9×10^{2} E_γ: weighted average of 812.581 15 (^{96}Nb β^- decay), 812.54 4 (^{96}Tc ε decay (4.28 d)), 812.6 2 (^{94}Zr(α,2nγ)), 812.48 13 (^{95}Mo(n,γ) E=thermal), 812.19 10 (^{96}Mo(n,n′γ)), 812.4 1 (^{82}Se(^{18}O,4nγ)). δ: from ^{96}Tc ε decay (4.28 d).
2481.06	$(4)^+$	611.4 2	25 3	1869.576	4^+				E_γ,I_γ: observed only in ^{95}Mo(n,γ), E=th.
		852.91 8	100 8	1628.188	4^+	M1+E2[†]	−0.20 7	0.001136 16	α(K)=0.001001 14; α(L)=0.0001120 16; α(M)=2.00×10^{-5} 3 α(O)=1.745×10^{-7} 25; α(N+..)=3.22×10^{-6} 5 B(E2)(W.u.)<1.8; B(M1)(W.u.)<0.020 E_γ: weighted average of 853.0 10 (^{96}Tc ε decay (51.5 min)), 853.03 15 (^{95}Mo(n,γ) E=thermal), 852.86 10 (^{96}Mo(n,n′γ)). I_γ: weighted average of 100 40 (^{96}Tc ε decay (51.5 min)), 100 8 (^{95}Mo(n,γ) E=thermal), 100.0 8 (^{96}Mo(n,n′γ)).
		983.1 2	14 3	1497.787	2^+				E_γ,I_γ: observed only in ^{95}Mo(n,γ), E=th.
		1702.78 9	33.9 19	778.237	2^+	E2[†]		0.000422 6	α(K)=0.000224 4; α(L)=2.49×10^{-5} 4; α(M)=4.43×10^{-6} 7; α(N)=6.75×10^{-7} 10 α(O)=3.86×10^{-8} 6; α(N+..)=0.0001681 24 B(E2)(W.u.)<0.29 E_γ: weighted average of 1702.5 5 (^{96}Tc ε decay (51.5 min)), 1702.8 3 (^{95}Mo(n,γ) E=thermal), 1702.79 10 (^{96}Mo(n,n′γ)). I_γ: weighted average of 40 8 (^{96}Tc ε decay (51.5 min)), 47 4 (^{95}Mo(n,γ) E=thermal), 33.3 8 (^{96}Mo(n,n′γ)).
2501.58	(1)	875.61 10	17.2 5	1625.905	2^+				E_γ,I_γ: observed only in ^{96}Mo(n,n′γ).
		1003.69 10	35.3 7	1497.787	2^+				E_γ: weighted average of 1003.6 7 (^{95}Mo(n,γ) E=thermal), 1003.69 10 (^{96}Mo(n,n′γ)). I_γ: from ^{96}Mo(n,n′γ). Other: 29 18 (^{95}Mo(n,γ) E=thermal).
		1353.30 13	100.0 12	1148.13	0^+				E_γ: weighted average of 1352.9 3 (^{95}Mo(n,γ) E=thermal), 1353.35 10 (^{96}Mo(n,n′γ)). I_γ: from ^{96}Mo(n,n′γ). Other: 100 30 (^{95}Mo(n,γ) E=thermal).
		1723.29 10	66.7 9	778.237	2^+				E_γ,I_γ: observed only in ^{96}Mo(n,n′γ).
		2501.84 10	13.3 5	0.0	0^+				E_γ,I_γ: observed only in ^{96}Mo(n,n′γ).
2540.46	(3^+)	914.53 9	11.4 5	1625.905	2^+				E_γ: weighted average of 914.6 3 (^{95}Mo(n,γ) E=thermal), 914.52 10 (^{96}Mo(n,n′γ)). I_γ: weighted average of 20 5 (^{95}Mo(n,γ) E=thermal), 11.4 3 (^{96}Mo(n,n′γ)).

$^{96}_{42}Mo_{54}$-13

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[b]	I_γ[b]	E_f	J^π_f	Mult.	δ[d]	α	Comments
2540.46	(3^+)	1042.62 *9*	28.1 *15*	1497.787	2^+				E_γ: weighted average of 1042.7 *2* ($^{95}Mo(n,\gamma)$ E=thermal), 1042.60 *10* ($^{96}Mo(n,n'\gamma)$). I_γ: weighted average of 41 *5* ($^{95}Mo(n,\gamma)$ E=thermal), 27.9 *6* ($^{96}Mo(n,n'\gamma)$).
		1762.06 *9*	100.0 *7*	778.237	2^+				E_γ: weighted average of 1761.8 *3* ($^{95}Mo(n,\gamma)$ E=thermal), 1762.09 *10* ($^{96}Mo(n,n'\gamma)$). from $^{96}Mo(n,n'\gamma)$. Other: 100 *14* ($^{95}Mo(n,\gamma)$ E=thermal).
2594.39	3^+	374.9[e] *2*	6.3 *7*	2219.425	4^+				E_γ,I_γ: observed only in ε Decay.
		615.73 *18*	100.0 *19*	1978.450	3^+	M1+E2[†]		0.00249 *13*	α(K)=0.00219 *11*; α(L)=0.000252 *18*; α(M)=4.5×10^{-5} *3*; α(N)=6.8×10^{-6} *5*; α(O)=3.77×10^{-7} *13* α(N+..)=7.2×10^{-6} *5* E_γ: weighted average of 615.90 *7* (^{96}Tc ε decay (51.5 min)), 615.8 *2* ($^{95}Mo(n,\gamma)$ E=thermal), 615.35 *10* ($^{96}Mo(n,n'\gamma)$). I_γ: from $^{96}Mo(n,n'\gamma)$. Other: 83 *6* (^{96}Tc ε decay (51.5 min)), 25 *3* ($^{95}Mo(n,\gamma)$ E=thermal).
		966.31 *8*	62.3 *19*	1628.188	4^+	M1+E2[†]	−0.9 *3*	0.000852 *13*	α(K)=0.000750 *12*; α(L)=8.43×10^{-5} *13*; α(M)=1.505×10^{-5} *22* α(O)=1.298×10^{-7} *23*; α(N+..)=2.42×10^{-6} *4* B(E2)(W.u.)=2.7 *+17−27*; B(M1)(W.u.)=0.0032 *+19−32* E_γ: weighted average of 966.4 *2* (^{96}Tc ε decay (51.5 min)), 966.3 *2* ($^{95}Mo(n,\gamma)$ E=thermal), 966.29 *10* ($^{96}Mo(n,n'\gamma)$). I_γ: from $^{96}Mo(n,n'\gamma)$. Other: 56 *4* (^{96}Tc ε decay (51.5 min)), 29 *5* ($^{95}Mo(n,\gamma)$ E=thermal).
		968.42 *11*	98.7 *19*	1625.905	2^+	M1+E2[†]	−0.86 *23*	0.000848 *13*	α(K)=0.000747 *12*; α(L)=8.40×10^{-5} *12*; α(M)=1.498×10^{-5} *22* α(O)=1.294×10^{-7} *21*; α(N+..)=2.41×10^{-6} *4* B(E2)(W.u.)=4.1 *+24−41*; B(M1)(W.u.)=0.005 *+3−5* E_γ: weighted average of 968.5 *2* (^{96}Tc ε decay (51.5 min)), 968.21 *12* ($^{95}Mo(n,\gamma)$ E=thermal), 968.54 *10* ($^{96}Mo(n,n'\gamma)$). I_γ: from $^{96}Mo(n,n'\gamma)$. Other: 100 *7* (^{96}Tc ε decay (51.5 min)), 100 *5* ($^{95}Mo(n,\gamma)$.
		1096.58 *8*		1497.787	2^+				E_γ: weighted average of 1096.58 *8* (^{96}Tc ε decay (51.5 min)), 1096.7 *5* ($^{95}Mo(n,\gamma)$ E=thermal). I_γ: Not given in (n,n′γ), Other: 89 *6* (^{96}Tc ε decay (51.5 min)), 25 *10* ($^{95}Mo(n,\gamma)$ E=thermal).
		1816.08 *14*	58.5 *10*	778.237	2^+	M1+E2[†]	+1.9 *3*	0.000440 *7*	α(K)=0.000200 *3*; α(L)=2.22×10^{-5} *4*; α(M)=3.95×10^{-6} *6*; α(N)=6.02×10^{-7} *9* α(O)=3.46×10^{-8} *5*; α(N+..)=0.000213 *4* B(E2)(W.u.)=0.19 *+10−19*; B(M1)(W.u.)=0.00018 *+10−18*

$^{96}_{42}Mo_{54}$-14

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[b]	I_γ[b]	E_f	J^π_f	Mult.	δ[d]	α	Comments
									E_γ: weighted average of 1815.6 *5* (^{96}Tc ε decay (51.5 min)), 1815.4 *4* (^{95}Mo(n,γ) E=thermal), 1816.14 *10* (^{96}Mo(n,n′γ)). I_γ: from ^{96}Mo(n,n′γ). Other: 49 *4* (^{96}Tc ε decay (51.5 min)), 19 *5* (^{95}Mo(n,γ) E=thermal).
2611.51		983.32 *10*	1.0×10^{2} *4*	1628.188	4^+				E_γ: from ^{96}Mo(n,n′γ). I_γ: from ^{96}Tc ε Decay (51.5 min).
		985.7	$9.\times10^{1}$ *4*	1625.905	2^+				E_γ,I_γ: from ^{96}Tc ε Decay (51.5 min), not observed in (n,n′γ).
2622.51	$(0)^+$	1844.25 *10*	100	778.237	2^+	E2[†]		0.000450 *7*	α(K)=0.000193 *3*; α(L)=2.13×10^{-5} *3*; α(M)=3.80×10^{-6} *6*; α(N)=5.79×10^{-7} *9* α(O)=3.32×10^{-8} *5*; α(N+..)=0.000232 *4* B(E2)(W.u.)=1.7 *+6−17*
2625.19	4^+	405.9 *3*	16 *5*	2219.425	4^+	M1+E2[†]		0.0077 *13*	α(K)=0.0067 *12*; α(L)=0.00080 *17*; α(M)=0.00014 *3*; α(N)=2.2×10^{-5} *5*; α(O)=1.14×10^{-6} *16* α(N+..)=2.3×10^{-5} *5* E_γ: weighted average of 405.1 *3* (^{95}Mo(n,γ) E=thermal), 405.95 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 6.1 *15* (^{95}Mo(n,γ) E=thermal), 19.0 *8* (^{96}Mo(n,n′γ)).
		1846.90 *15*	100.0 *8*	778.237	2^+	E2[†]		0.000451 *7*	α(K)=0.000192 *3*; α(L)=2.13×10^{-5} *3*; α(M)=3.79×10^{-6} *6*; α(N)=5.78×10^{-7} *8* α(O)=3.31×10^{-8} *5*; α(N+..)=0.000233 *4* B(E2)(W.u.)=1.7 *+7−17* E_γ: weighted average of 1846.2 *8* (^{96}Tc ε decay (51.5 min)), 1846.3 *3* (^{95}Mo(n,γ) E=thermal), 1846.98 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 100 *12* (^{95}Mo(n,γ) E=thermal), 100.0 *8* (^{96}Mo(n,n′γ)).
2700.21	2^+	159.63 *14*	6.9 *7*	2540.46	(3^+)				E_γ,I_γ: observed only in ^{95}Mo(n,γ) E=thermal.
		1074.1 *3*	22 *7*	1625.905	2^+	M1+E2[†]		0.000673 *19*	α(K)=0.000593 *17*; α(L)=6.65×10^{-5} *15*; α(M)=1.19×10^{-5} *3*; α(N)=1.81×10^{-6} *5* α(O)=1.03×10^{-7} *4*; α(N+..)=1.91×10^{-6} *5* E_γ,I_γ: from ^{95}Mo(n,γ) E=thermal.
		1202.36 *13*	100.0 *15*	1497.787	2^+	M1+E2[†]	−0.11 *5*	0.000549 *8*	α(K)=0.000478 *7*; α(L)=5.31×10^{-5} *8*; α(M)=9.47×10^{-6} *14*; α(N)=1.445×10^{-6} *21* α(O)=8.32×10^{-8} *12*; α(N+..)=7.96×10^{-6} *12* B(E2)(W.u.)=0.4 *4*; B(M1)(W.u.)=0.050 *7*

γ(^{96}Mo) (continued)

E_i(level)	J_i^π	E_γ[b]	I_γ[b]	E_f	J_f^π	Mult.	δ[d]	α	Comments
									E_γ: weighted average of 1202.1 *2* (^{95}Mo(n,γ) E=thermal), 1202.43 *10* (^{96}Mo(n,n$'\gamma$)). I_γ: weighted average of 100 *11* (^{95}Mo(n,γ) E=thermal), 100.0 *15* (^{96}Mo(n,n$'\gamma$)).
2700.21	2^+	1921.78[c] *10*	80.6[c] *13*	778.237	2^+	M1+E2[†]		0.000460 *13*	α(K)=0.000182 *5*; α(L)=2.01×10^{-5} *5*; α(M)=3.58×10^{-6} *9*; α(N)=5.47×10^{-7} *14* α(O)=3.15×10^{-8} *9*; α(N+..)=0.000254 *16*
		2700.88[c] *16*	32.3[c] *17*	0.0	0^+	E2[†]		0.000751 *11*	α(K)=9.76×10^{-5} *14*; α(L)=1.070×10^{-5} *15*; α(M)=1.91×10^{-6} *3*; α(N)=2.91×10^{-7} *4* α(O)=1.678×10^{-8} *24*; α(N+..)=0.000641 *9* B(E2)(W.u.)=0.20 *3*
2712.68		271.9 *1*	100	2440.76	6^+				
2734.57	$(4,5)^+$	293.9 *4*	1.6 *5*	2440.76	6^+				E_γ,I_γ: from ^{95}Mo(n,γ), E=th.
		864.93 *9*	55.6 *18*	1869.576	4^+				E_γ: weighted average of 864.82 *12* (^{95}Mo(n,γ) E=thermal), 865.00 *10* (^{96}Mo(n,n$'\gamma$)). I_γ: weighted average of 54 *3* (^{95}Mo(n,γ) E=thermal), 56.5 *22* (^{96}Mo(n,n$'\gamma$)).
		1106.44 *8*	100 *2*	1628.188	4^+				E_γ: weighted average of 1105.8 *5* (^{94}Zr(α,2nγ)), 1106.44 *13* (^{95}Mo(n,γ) E=thermal), 1106.47 *10* (^{96}Mo(n,n$'\gamma$)), 1106.2 *5* (^{82}Se(^{18}O,4nγ)). I_γ: weighted average of 100 *5* (^{95}Mo(n,γ) E=thermal), 100.0 *22* (^{96}Mo(n,n$'\gamma$)).
		1109.1[e] *5*	13 *5*	1625.905	2^+				E_γ: Only observed in ^{95}Mo(n,γ) thermal. If this gamma exists, J would be equal to 4.
2735.91	3^+	1107.5 *3*		1628.188	4^+				E_γ: from ^{96}Tc ε decay (51.5 min), not observed in (n,n$'\gamma$).
		1109.8 *3*		1625.905	2^+				E_γ: from ^{96}Tc ε decay (51.5 min), not observed in (n,n$'\gamma$).
		1238.10 *15*	56.7 *9*	1497.787	2^+	M1+E2[†]	−0.34 *4*	0.000519 *8*	α(K)=0.000447 *7*; α(L)=4.97×10^{-5} *7*; α(M)=8.86×10^{-6} *13*; α(N)=1.353×10^{-6} *19* α(O)=7.78×10^{-8} *11*; α(N+..)=1.276×10^{-5} *19* B(E2)(W.u.)=2.3 *6*; B(M1)(W.u.)=0.031 *5* E_γ: weighted average of 1237.8 *2* (^{96}Tc ε decay (51.5 min)), 1238.17 *10* (^{96}Mo(n,n$'\gamma$)). I_γ: from ^{96}Mo(n,n$'\gamma$). Other: 100 *10* (^{96}Tc ε decay (51.5 min)).
		1957.75 *13*	100.0 *9*	778.237	2^+	M1+E2[†]	+0.02 *4*	0.000458 *7*	α(K)=0.000179 *3*; α(L)=1.98×10^{-5} *3*; α(M)=3.52×10^{-6} *5*; α(N)=5.38×10^{-7} *8* α(O)=3.11×10^{-8} *5*; α(N+..)=0.000255 *4* B(E2)(W.u.)=0.002 *+7−2*; B(M1)(W.u.)=0.0155 *+22−23*

$^{96}_{42}$Mo$_{54}$-16

γ(^{96}Mo) (continued)

E_i(level)	J^{π}_i	E_{γ}[b]	I_{γ}[b]	E_f	J^{π}_f	Mult.	δ[d]	α	Comments
									E_{γ}: weighted average of 1957.1 *5* (^{96}Tc ε decay (51.5 min)), 1957.78 *10* (^{96}Mo(n,n′γ)). I_{γ}: from ^{96}Mo(n,n′γ). Other: 74 *6* (^{96}Tc ε decay (51.5 min)).
2748.65	(0^+)	1250.78[e] *10*	32.5 *9*	1497.787	2^+				
		1970.47 *10*	100.0 *9*	778.237	2^+				
2755.08	6^+	314.29 *4*	16.5 *14*	2440.76	6^+	M1+E2[#]	−0.11 *1*	0.01210	α(K)=0.01063 *15*; α(L)=0.001224 *18*; α(M)=0.000219 *3*; α(N)=3.33×10^{-5} *5*; α(O)=1.87×10^{-6} *3* α(N+..)=3.68×10^{-5} *9* B(E2)(W.u.)<65; B(M1)(W.u.)<0.46 E_{γ}: weighted average of 314.34 *7* (^{96}Nb β^- decay), 314.27 *5* (^{96}Tc ε decay (4.28 d)), 314.3 *2* (^{82}Se(^{18}O,4nγ)). I_{γ}: weighted average of 18 *3* (^{96}Nb β^- decay), 16.1 *16* (^{96}Tc ε decay (4.28 d)). δ: from ^{96}Tc ε decay (4.28 d).
		316.43 *7*	10.7 *23*	2438.477	5^+	M1+E2[#]	−0.060 *5*	0.01183	α(K)=0.01039 *15*; α(L)=0.001194 *17*; α(M)=0.000213 *3*; α(N)=3.25×10^{-5} *5*; α(O)=1.83×10^{-6} *3* α(N+..)=3.44×10^{-5} *6* B(E2)(W.u.)<12; B(M1)(W.u.)<0.29 E_{γ}: weighted average of 316.27 *9* (^{96}Nb β^- decay), 316.50 *6* (^{96}Tc ε decay (4.28 d)), 316.4 *2* (^{82}Se(^{18}O,4nγ)). I_{γ}: weighted average of 14.3 *20* (^{96}Nb β^- decay), 9.2 *13* (^{96}Tc ε decay (4.28 d)). δ: from ^{96}Tc ε decay (4.28 d).
		535.78 *8*	2.7 *3*	2219.425	4^+	E2+M3[#]	−0.10 *3*	0.00412 *18*	α(K)=0.00360 *16*; α(L)=0.000432 *21*; α(M)=7.7×10^{-5} *4*; α(N)=1.16×10^{-5} *6*; α(O)=6.1×10^{-7} *3* α(N+..)=1.22×10^{-5} *6* B(E2)(W.u.)<52; B(M3)(W.u.)<2.0×10^{7} E_{γ},I_{γ},δ: observed only in ^{96}Tc ε Decay (4.28 d).
		885.4 *2*	0.7 *3*	1869.576	4^+	E2+M3	−0.10 *3*	0.00107 *4*	α(K)=0.00094 *3*; α(L)=0.000108 *4*; α(M)=1.93×10^{-5} *7*; α(N)=2.93×10^{-6} *11*; α(O)=1.62×10^{-7} *6* α(N+..)=3.09×10^{-6} *11* B(E2)(W.u.)<1.1; B(M3)(W.u.)<1.5×10^{5} E_{γ},I_{γ},δ: observed only in ^{96}Tc ε Decay (4.28 d).
		1126.94 *4*	100 *4*	1628.188	4^+	E2+M3[†]	−0.037 *5*	0.000596 *9*	α(K)=0.000523 *8*; α(L)=5.90×10^{-5} *9*; α(M)=1.052×10^{-5} *15*; α(O)=8.99×10^{-8} *13* α(N+..)=3.09×10^{-6} *5* B(E2)(W.u.)<47 E_{γ}: weighted average of 1126.965 *21* (^{96}Nb β^- decay), 1126.85

$^{96}_{42}Mo_{54}$-17

Adopted Levels, Gammas (continued)

$\gamma(^{96}$Mo) (continued)

E_i(level)	J^{π}_i	E_{γ}[b]	I_{γ}[b]	E_f	J^{π}_f	Mult.	δ[d]	α	Comments
									6 (^{96}Tc ε decay (4.28 d)), 1125.6 *5* (^{94}Zr(α,2nγ)), 1126.3 *2* (^{95}Mo(n,γ) E=thermal), 1126.91 *10* (^{96}Mo(n,n′γ)), 1126.8 *6* (^{82}Se(^{18}O,4nγ)). I_{γ}: weighted average of 100 *5* (^{96}Nb β^- decay), 100 *8* (^{96}Tc ε decay (4.28 d)), 100 *16* (^{82}Se(^{18}O,4nγ)).
2787.12	2^+	192.7 *2*	3.8 *9*	2594.39	3^+				E_{γ}: observed only in (n,γ), E=th.
		1161.29[c] *10*	5.1[c] *5*	1625.905	2^+	M1+E2[†]	−0.4 *+3−6*	0.000582 *14*	α(K)=0.000511 *13*; α(L)=5.69×10^{-5} *12*; α(M)=1.014×10^{-5} *21* α(O)=8.88×10^{-8} *25*; α(N+..)=4.49×10^{-6} *25* B(E2)(W.u.)=0.4 *+6−4*; B(M1)(W.u.)=0.0035 *+11−13*
		1289.32[c] *10*	8.9[c] *5*	1497.787	2^+	M1+E2[†]	+1.1 *10*	0.000477 *14*	α(K)=0.000401 *14*; α(L)=4.47×10^{-5} *13*; α(M)=7.97×10^{-6} *24*; α(O)=6.9×10^{-8} *3* α(N+..)=2.31×10^{-5} *24* B(E2)(W.u.)=1.7 *15*; B(M1)(W.u.)=0.0023 *+24−23*
		2008.79 *9*	100.0 *7*	778.237	2^+	M1+E2[†]		0.000484 *15*	α(K)=0.000168 *4*; α(L)=1.85×10^{-5} *5*; α(M)=3.29×10^{-6} *8*; α(N)=5.03×10^{-7} *12* α(O)=2.90×10^{-8} *8*; α(N+..)=0.000295 *17* E_{γ}: weighted average of 2008.5 *3* (^{95}Mo(n,γ) E=thermal), 2008 *3* (^{95}Mo(n,γ) E=2 keV), 2008.82 *10* (^{96}Mo(n,n′γ)). I_{γ}: weighted average of 100 *15* (^{95}Mo(n,γ) E=thermal), 100.0 *7* (^{96}Mo(n,n′γ)).
2790.21	(2,4)	555.48 *9*	11.8 *14*	2234.63	3^-				E_{γ}: weighted average of 555.5 *2* (^{95}Mo(n,γ) E=thermal), 555.48 *10* (^{96}Mo(n,n′γ)). I_{γ}: weighted average of 18 *4* (^{95}Mo(n,γ) E=thermal), 11.5 *9* (^{96}Mo(n,n′γ)).
		1164.50 *14*	60 *3*	1625.905	2^+				E_{γ}: weighted average of 1164.50 *14* (^{95}Mo(n,γ) E=thermal), 1164.4 *3* (^{96}Mo(n,n′γ)). I_{γ}: weighted average of 84 *9* (^{95}Mo(n,γ) E=thermal), 59.7 *12* (^{96}Mo(n,n′γ)).
		1292.99		1497.787	2^+				E_{γ}: observed only in (n,n′γ), contaminated line.
		2011.96 *9*	100.0 *14*	778.237	2^+				E_{γ}: weighted average of 2011.8 *3* (^{95}Mo(n,γ) E=thermal), 2011.98 *10* (^{96}Mo(n,n′γ)). I_{γ}: weighted average of 100 *14* (^{95}Mo(n,γ) E=thermal), 100.0 *14* (^{96}Mo(n,n′γ)).
2794.50	1^+	1296.63[c] *10*	27.7[c] *16*	1497.787	2^+	M1+E2[†]		0.000474 *13*	α(K)=0.000397 *13*; α(L)=4.43×10^{-5} *13*; α(M)=7.89×10^{-6} *22*; α(O)=6.9×10^{-8} *3* α(N+..)=2.44×10^{-5} *24*
		2016.54[c] *10*	16.4[c] *10*	778.237	2^+	M1+E2[†]		0.000486 *15*	α(K)=0.000167 *4*; α(L)=1.83×10^{-5} *4*; α(M)=3.27×10^{-6} *8*;

$^{96}_{42}$Mo$_{54}$-18

γ(^{96}Mo) (continued)

E_i(level)	J^π_i	E_γ[b]	I_γ[b]	E_f	J^π_f	Mult.	δ[d]	α	Comments
									α(N)=4.99×10^{-7} *12*; α(O)=2.87×10^{-8} *8*; α(N+..)=0.000298 *17*
2794.50	1$^+$	2794.24[c] *10*	100.0[c] *23*	0.0	0$^+$	M1[†]		0.000745 *11*	α(K)=9.26×10^{-5} *13*; α(L)=1.014×10^{-5} *15*; α(M)=1.81×10^{-6} *3*; α(N)=2.76×10^{-7} *4*; α(O)=1.599×10^{-8} *23*; α(N+..)=0.000641 *9*; B(M1)(W.u.)=0.0226 *23*
2806.25	(1)	1180.42 *10*	11.2 *4*	1625.905	2$^+$				
		1308.39 *10*	18.9 *7*	1497.787	2$^+$				
		1658.10 *10*	100.0 *8*	1148.13	0$^+$				
2818.49	4$^+$	1190.29 *8*	100 *7*	1628.188	4$^+$	M1+E2[†]	−0.14 *6*	0.000559 *8*	α(K)=0.000488 *7*; α(L)=5.42×10^{-5} *8*; α(M)=9.67×10^{-6} *14*; α(N)=1.476×10^{-6} *21*; α(O)=8.49×10^{-8} *12*; α(N+..)=6.72×10^{-6} *10*; B(E2)(W.u.)=2.6 *+23−24*; B(M1)(W.u.)=0.19 *+5−6*; E_γ: weighted average of 1190.23 *14* (^{95}Mo(n,γ) E=thermal), 1190.32 *10* (^{96}Mo(n,n′γ)).
		1320.9 *5*	12 *7*	1497.787	2$^+$				E_γ,I_γ: from ^{95}Mo(n,γ), E=th., not observed in (n,n′γ).
2875.48	7$^+$,6$^+$	120.3	5.4 *12*	2755.08	6$^+$	(M1)[#]		0.1505	α(K)=0.1317 *19*; α(L)=0.01557 *22*; α(M)=0.00279 *4*; α(N)=0.000423 *6*; α(O)=2.34×10^{-5} *4*; α(N+..)=0.000447 *7*; E_γ: weighted average of 120.3 *4* (^{96}Nb β^- decay), 120.3 *5* (^{96}Tc ε decay (4.28 d)). I_γ: weighted average of 6 *3* (^{96}Nb β^- decay), 5.3 *13* (^{96}Tc ε decay (4.28 d)).
		434.72 *3*	100 *5*	2440.76	6$^+$	M1+E2[#]	+0.31 *4*	0.00556 *9*	α(K)=0.00489 *8*; α(L)=0.000560 *10*; α(M)=0.0001002 *17*; α(N)=1.522×10^{-5} *25*; α(O)=8.54×10^{-7} *13*; α(N+..)=1.61×10^{-5} *3*; I_γ: weighted average of 100 *8* (^{96}Nb β^- decay), 100 *7* (^{96}Tc ε decay (4.28 d)). δ: from ^{96}Tc ε decay (4.28 d).
2975.28	5$^+$	434.6[e] *2*	24 *3*	2540.46	(3$^+$)				E_γ,I_γ: observed only in ^{95}Mo(n,γ) thermal.
		740.61[e] *9*	85 *15*	2234.63	3$^-$				E_γ: weighted average of 740.7 *2* (^{95}Mo(n,γ) E=thermal), 740.59 *10* (^{96}Mo(n,n′γ)). I_γ: from ^{95}Mo(n,γ) thermal.
		755.6 *2*	94 *6*	2219.425	4$^+$				E_γ,I_γ: observed only in ^{95}Mo(n,γ) thermal.
		997.3 *2*	85 *9*	1978.450	3$^+$				E_γ,I_γ: observed only in ^{95}Mo(n,γ) thermal.
		1347.15 *14*	100 *15*	1628.188	4$^+$				E_γ: weighted average of 1346.9 *3* (^{96}Nb β^- decay), 1346.8 *2* (^{95}Mo(n,γ) E=thermal), 1347.26 *10* (^{96}Mo(n,n′γ)). I_γ: from ^{95}Mo(n,γ) thermal.

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J_i^π	E_γ[b]	I_γ[b]	E_f	J_f^π	Mult.	δ[d]	α	Comments
2978.37	8^+	223.2 *1*	<7.5	2755.08	6^+				E_γ: observed only in $^{82}Se(^{18}O,4n\gamma)$.
		537.72 *24*	100	2440.76	6^+	E2[@]		0.00383 *6*	$\alpha(K)=0.00335$ *5*; $\alpha(L)=0.000399$ *6*; $\alpha(M)=7.13\times10^{-5}$ *10*; $\alpha(N)=1.073\times10^{-5}$ *15*; $\alpha(O)=5.65\times10^{-7}$ *8* $\alpha(N+..)=1.130\times10^{-5}$ *16* E_γ: weighted average of 538.2 *2* ($^{94}Zr(\alpha,2n\gamma)$), 537.6 *1* ($^{82}Se(^{18}O,4n\gamma)$).
2986.80	2^+	891.12 *19*	57.8 *22*	2095.77	2^+	M1+E2[†]	−0.26 *11*	0.001031 *15*	$\alpha(K)=0.000908$ *13*; $\alpha(L)=0.0001016$ *15*; $\alpha(M)=1.81\times10^{-5}$ *3* $\alpha(O)=1.582\times10^{-7}$ *23*; $\alpha(N+..)=2.92\times10^{-6}$ *4* B(E2)(W.u.)=4 *4*; B(M1)(W.u.)=0.052 *+8−9* E_γ: weighted average of 891.5 *2* ($^{95}Mo(n,\gamma)$ E=thermal), 891.03 *10* ($^{96}Mo(n,n'\gamma)$). I_γ: from $(n,n'\gamma)$, other: 56 *13* ($^{95}Mo(n,\gamma)$ E=thermal).
		1008.30 *10*	31.4 *16*	1978.450	3^+	M1+E2[†]		0.000773 *19*	$\alpha(K)=0.000681$ *17*; $\alpha(L)=7.65\times10^{-5}$ *15*; $\alpha(M)=1.37\times10^{-5}$ *3*; $\alpha(N)=2.08\times10^{-6}$ *5* $\alpha(O)=1.18\times10^{-7}$ *4*; $\alpha(N+..)=2.20\times10^{-6}$ *5* E_γ,I_γ: observed only in $(n,n'\gamma)$.
		1360.88 *12*	100.0 *25*	1625.905	2^+	M1+E2[†]		0.000445 *11*	$\alpha(K)=0.000360$ *12*; $\alpha(L)=4.00\times10^{-5}$ *12*; $\alpha(M)=7.13\times10^{-6}$ *21* $\alpha(O)=6.22\times10^{-8}$ *23*; $\alpha(N+..)=3.8\times10^{-5}$ *4* E_γ: weighted average of 1360.4 *4* ($^{95}Mo(n,\gamma)$ E=thermal), 1360.91 *10* ($^{96}Mo(n,n'\gamma)$). I_γ: from $(n,n'\gamma)$, other: 80 *30* ($^{95}Mo(n,\gamma)$ E=thermal).
		2208.55 *10*	83.2 *25*	778.237	2^+	M1+E2[†]		0.000548 *18*	$\alpha(K)=0.000141$ *3*; $\alpha(L)=1.55\times10^{-5}$ *3*; $\alpha(M)=2.76\times10^{-6}$ *6*; $\alpha(N)=4.21\times10^{-7}$ *9* $\alpha(O)=2.43\times10^{-8}$ *6*; $\alpha(N+..)=0.000389$ *19* E_γ: weighted average of 2208.6 *7* ($^{95}Mo(n,\gamma)$ E=thermal), 2208.55 *10* ($^{96}Mo(n,n'\gamma)$). I_γ: from $(n,n'\gamma)$, other: 100 *60* ($^{95}Mo(n,\gamma)$ E=thermal).
		2986.76 *10*	38 *5*	0.0	0^+	E2[†]		0.000861 *12*	$\alpha(K)=8.24\times10^{-5}$ *12*; $\alpha(L)=9.01\times10^{-6}$ *13*; $\alpha(M)=1.605\times10^{-6}$ *23* $\alpha(O)=1.416\times10^{-8}$ *20*; $\alpha(N+..)=0.000768$ *11* B(E2)(W.u.)=0.107 *21* E_γ,I_γ: observed only in $(n,n'\gamma)$.
3006.45	0^+	1508.65 *10*	100	1497.787	2^+	E2[†]		0.000409 *6*	$\alpha(K)=0.000284$ *4*; $\alpha(L)=3.16\times10^{-5}$ *5*; $\alpha(M)=5.63\times10^{-6}$ *8*; $\alpha(N)=8.58\times10^{-7}$ *12* $\alpha(O)=4.88\times10^{-8}$ *7*; $\alpha(N+..)=8.74\times10^{-5}$ *13* B(E2)(W.u.)=31 *+6−31*
3024.58	2^+	1045.88 *16*	38.6 *16*	1978.450	3^+	M1+E2[†]		0.000713 *19*	$\alpha(K)=0.000628$ *17*; $\alpha(L)=7.05\times10^{-5}$ *15*; $\alpha(M)=1.26\times10^{-5}$ *3*;

$^{96}_{42}Mo_{54}$-20

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J_i^π	E_γ[b]	I_γ[b]	E_f	J_f^π	Mult.	δ[d]	α	Comments
									α(N)=1.91×10^{-6} *5* α(O)=1.09×10^{-7} *4*; α(N+..)=2.02×10^{-6} *5* I_γ: from (n,n′γ), other: 37 *7* (^{95}Mo(n,γ) E=thermal). E_γ: weighted average of 1046.2 *2* (^{95}Mo(n,γ) E=thermal), 1045.80 *10* (^{96}Mo(n,n′γ)).
3024.58	2$^+$	1155.59 *10*	20.8 *7*	1869.576	4$^+$	E2[†]		0.000563 *8*	α(K)=0.000493 *7*; α(L)=5.55×10^{-5} *8*; α(M)=9.89×10^{-6} *14*; α(N)=1.504×10^{-6} *21* α(O)=8.47×10^{-8} *12*; α(N+..)=4.63×10^{-6} *7* B(E2)(W.u.)=11.3 *+17−19* I_γ: from (n,n′γ), other: 44 *12* (^{95}Mo(n,γ) E=thermal). E_γ: weighted average of 1155.4 *2* (^{95}Mo(n,γ) E=thermal), 1155.64 *10* (^{96}Mo(n,n′γ)).
		1396.27 *9*	100.0 *19*	1628.188	4$^+$	E2[†]		0.000426 *6*	α(K)=0.000332 *5*; α(L)=3.70×10^{-5} *6*; α(M)=6.60×10^{-6} *10*; α(N)=1.004×10^{-6} *14* α(O)=5.70×10^{-8} *8*; α(N+..)=5.09×10^{-5} *8* B(E2)(W.u.)=21 *+3−4* I_γ: from (n,n′γ), other: 100 *12* (^{95}Mo(n,γ) E=thermal). E_γ: weighted average of 1396.3 *2* (^{95}Mo(n,γ) E=thermal), 1396.26 *10* (^{96}Mo(n,n′γ)).
		1398.36 *9*	74.1 *16*	1625.905	2$^+$	M1+E2[†]	−0.48 *10*	0.000436 *7*	α(K)=0.000346 *5*; α(L)=3.84×10^{-5} *6*; α(M)=6.85×10^{-6} *10*; α(N)=1.045×10^{-6} *15* α(O)=6.01×10^{-8} *9*; α(N+..)=4.46×10^{-5} *9* B(E2)(W.u.)=2.9 *11*; B(M1)(W.u.)=0.025 *5* I_γ: from (n,n′γ), other: 77 *12* (^{95}Mo(n,γ) E=thermal). E_γ: weighted average of 1398.4 *3* (^{95}Mo(n,γ) E=thermal), 1398.36 *10* (^{96}Mo(n,n′γ)).
3053.23	(4$^+$)	298.7 *3*	5.7 *14*	2755.08	6$^+$				E_γ,I_γ: observed only in ^{95}Mo(n,γ) E=thermal.
		626.8 *3*	17 *6*	2426.14	2$^+$				E_γ,I_γ: observed only in ^{95}Mo(n,γ) E=thermal.
		1425.01 *9*	100 *14*	1628.188	4$^+$				E_γ: weighted average of 1425.1 *2* (^{95}Mo(n,γ) E=thermal), 1424.99 *10* (^{96}Mo(n,n′γ)). I_γ: from ^{95}Mo(n,γ) E=thermal.
3087.66	3$^+$	992.15 *11*	47 *6*	2095.77	2$^+$	M1+E2[†]	+0.11 *10*	0.000816 *12*	α(K)=0.000719 *11*; α(L)=8.02×10^{-5} *12*; α(M)=1.431×10^{-5} *20* α(O)=1.254×10^{-7} *18*; α(N+..)=2.31×10^{-6} *4* B(E2)(W.u.)=0.1 *+3−10*; B(M1)(W.u.)=0.012 *+6−12* E_γ: weighted average of 991.7 *4* (^{95}Mo(n,γ) E=thermal), 992.18 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 24 *8* (^{95}Mo(n,γ) E=thermal), 48.4 *23* (^{96}Mo(n,n′γ)).
		1109.1 *5*	32 *14*	1978.450	3$^+$				E_γ,I_γ: observed only in ^{95}Mo(n,γ) E=thermal.

$^{96}_{42}Mo_{54}$-21

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[b]	I_γ[b]	E_f	J^π_f	Mult.	δ[d]	α	Comments
3087.66	3^+	1459.35 *10*	100.0 *23*	1628.188	4^+	M1+E2[†]		0.000417 *8*	α(K)=0.000312 *10*; α(L)=3.46×10^{-5} *10*; α(M)=6.18×10^{-6} *18*; α(N)=9.4×10^{-7} *3* α(O)=5.40×10^{-8} *20*; α(N+..)=6.4×10^{-5} *6* E_γ: weighted average of 1459.0 *5* (^{95}Mo(n,γ) E=thermal), 1459.36 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 100 *30* (^{95}Mo(n,γ) E=thermal), 100.0 *23* (^{96}Mo(n,n′γ)).
		1461.63 *10*	82.4 *23*	1625.905	2^+	M1+E2[†]	−2.9 *7*	0.000414 *6*	α(K)=0.000304 *5*; α(L)=3.39×10^{-5} *5*; α(M)=6.04×10^{-6} *9*; α(N)=9.19×10^{-7} *14* α(O)=5.24×10^{-8} *8*; α(N+..)=6.96×10^{-5} *13* B(E2)(W.u.)=2.8 *+12−3*; B(M1)(W.u.)=0.0007 *+5−7* E_γ: weighted average of 1461.1 *8* (^{95}Mo(n,γ) E=thermal), 1461.64 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 60 *30* (^{95}Mo(n,γ) E=thermal), 82.5 *23* (^{96}Mo(n,n′γ)).
3089.62	2,3	1591.89 *10*	100.0 *16*	1497.787	2^+				
		2311.29 *10*	49.9 *16*	778.237	2^+				
3134.29		593.2 *2*	100 *14*	2540.46	(3^+)				E_γ,I_γ: observed only in ^{95}Mo(n,γ) E=thermal.
		914.6 *3*	30 *8*	2219.425	4^+				E_γ,I_γ: observed only in ^{95}Mo(n,γ) E=thermal.
		1508.58 *23*	81 *14*	1625.905	2^+	M1+E2[†]	+2.6 *6*	0.000409 *6*	α(K)=0.000286 *5*; α(L)=3.18×10^{-5} *5*; α(M)=5.67×10^{-6} *9*; α(N)=8.63×10^{-7} *13* α(O)=4.93×10^{-8} *8*; α(N+..)=8.57×10^{-5} *16* B(E2)(W.u.)=8.8 *25*; B(M1)(W.u.)=0.0030 *15* E_γ: weighted average of 1507.9 *3* (^{95}Mo(n,γ) E=thermal), 1508.65 *10* (^{96}Mo(n,n′γ)). I_γ: from ^{95}Mo(n,γ) E=thermal.
		3134.50 *10*	≈81	0.0	0^+	E2[†]		0.000917 *13*	α(K)=7.60×10^{-5} *11*; α(L)=8.31×10^{-6} *12*; α(M)=1.480×10^{-6} *21* α(O)=1.307×10^{-8} *19*; α(N+..)=0.000831 *12* E_γ: observed only in (n,n′γ). I_γ: from Iγ(3134γ)=Iγ(1508γ) in ^{96}Mo(n,n′γ).
3154.15	1	2375.88 *11*	100	778.237	2^+				
3178.69	3^-	944.10 *10*	20.6 *9*	2234.63	3^-	M1+E2[†]	−0.31 *12*	0.000907 *13*	α(K)=0.000799 *12*; α(L)=8.93×10^{-5} *13*; α(M)=1.594×10^{-5} *23* α(O)=1.392×10^{-7} *20*; α(N+..)=2.57×10^{-6} *4* B(E2)(W.u.)=2.4 *18*; B(M1)(W.u.)=0.022 *+4−5* E_γ,I_γ: observed only in (n,n′γ).
		1082.81 *10*	8.2 *8*	2095.77	2^+	E1[†]		0.000285 *4*	α(K)=0.000252 *4*; α(L)=2.77×10^{-5} *4*; α(M)=4.93×10^{-6} *7*; α(N)=7.52×10^{-7} *11* α(O)=4.29×10^{-8} *6*; α(N+..)=7.95×10^{-7} *12*

$^{96}_{42}Mo_{54}$-22

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[b]	I_γ[b]	E_f	J^π_f	Mult.	δ[d]	α	Comments
									B(E1)(W.u.)=9.5×10^{-5} *+17−19* E_γ,I_γ: observed only in (n,n′γ).
3178.69	3^-	1680.87 *10*	25.3 *9*	1497.787	2^+	E1[†]		0.000516 *8*	α(K)=0.0001177 *17*; α(L)=1.288×10^{-5} *18*; α(M)=2.29×10^{-6} *4* α(O)=2.01×10^{-8} *3*; α(N+..)=0.000383 *6* B(E1)(W.u.)=7.9×10^{-5} *+12−14* E_γ,I_γ: observed only in (n,n′γ).
		2400.55 *13*	100.0 *15*	778.237	2^+	E1[†]		0.000962 *14*	α(K)=6.83×10^{-5} *10*; α(L)=7.44×10^{-6} *11*; α(M)=1.323×10^{-6} *19* α(O)=1.165×10^{-8} *17*; α(N+..)=0.000885 *13* B(E1)(W.u.)=0.000107 *+16−19* I_γ: from (n,n′γ). E_γ: weighted average of 2401.9 *10* (^{95}Mo(n,γ) E=thermal), 2400.54 *10* (^{96}Mo(n,n′γ)).
3186.81	4^+	705.7 *2*	100 *11*	2481.06	$(4)^+$				
		746.8 *9*	$7.\times10^1$ *6*	2440.76	6^+				
3202.85		468.3 *3*	12 *5*	2734.57	$(4,5)^+$				
		968.21 *12*	100 *5*	2234.63	3^-				
3211.40	3^+	1232.94 *10*	100 *4*	1978.450	3^+	M1+E2[†]		0.000512 *15*	α(K)=0.000441 *14*; α(L)=4.93×10^{-5} *14*; α(M)=8.78×10^{-6} *24*; α(O)=7.6×10^{-8} *3* α(N+..)=1.30×10^{-5} *13*
		1341.70 *10*	83 *4*	1869.576	4^+	M1+E2[†]	+1.8 *13*	0.000448 *12*	α(K)=0.000365 *13*; α(L)=4.07×10^{-5} *13*; α(M)=7.25×10^{-6} *23*; α(O)=6.3×10^{-8} *3* α(N+..)=3.5×10^{-5} *4* B(E2)(W.u.)=10 *4*; B(M1)(W.u.)=0.005 *+6−5*
		1713.58 *10*	86 *3*	1497.787	2^+	M1+E2[†]	−5.2 *+13−27*	0.000423 *6*	α(K)=0.000222 *4*; α(L)=2.46×10^{-5} *4*; α(M)=4.38×10^{-6} *7*; α(N)=6.68×10^{-7} *10* α(O)=3.82×10^{-8} *6*; α(N+..)=0.0001721 *25* B(E2)(W.u.)=3.7 *+7−8*; B(M1)(W.u.)=0.00041 *+21−22*
		2433.27 *10*	49 *3*	778.237	2^+	M1+E2[†]		0.000629 *21*	α(K)=0.0001180 *20*; α(L)=1.295×10^{-5} *22*; α(M)=2.31×10^{-6} *4* α(O)=2.03×10^{-8} *4*; α(N+..)=0.000496 *22*
3232.56	(3)	1606.80 *10*	100.0 *21*	1625.905	2^+				
		2454.13 *10*	63.4 *21*	778.237	2^+				
3255.63		1629.66 *10*	100 *4*	1625.905	2^+				
		2477.40 *10*	77 *4*	778.237	2^+				
3284.97	2^+	1049.6 *5*	19 *10*	2234.63	3^-				E_γ,I_γ: observed only in (n,γ), E=th.
		1657.6 *3*	100 *16*	1628.188	4^+				E_γ,I_γ: observed only in (n,γ), E=th.

From ENSDF

$^{96}_{42}Mo_{54}$-23

γ(^{96}Mo) (continued)

E_i(level)	J_i^π	E_γ[b]	I_γ[b]	E_f	J_f^π	Mult.	δ[d]	α	Comments
3284.97	2^+	2506.64 *10*	90 *16*	778.237	2^+	M1+E2[†]	−1.5 +*6*−*16*	0.000664 *14*	α(K)=0.0001115 *17*; α(L)=1.224×10^{-5} *18*; α(M)=2.18×10^{-6} *4* α(O)=1.92×10^{-8} *3*; α(N+..)=0.000538 *13* B(E2)(W.u.)=0.50 +*20*−*23*; B(M1)(W.u.)=0.0014 +*9*−*10* I_γ: from (n,γ), E=th. E_γ: weighted average of 2507.6 *15* (^{95}Mo(n,γ) E=thermal), 2506.64 *10* (^{96}Mo(n,n′γ)).
3300.38	1^+	1802.81[c] *10*	9.5[c] *16*	1497.787	2^+	M1+E2		0.000433 *10*	α(K)=0.000206 *6*; α(L)=2.27×10^{-5} *6*; α(M)=4.05×10^{-6} *11*; α(N)=6.18×10^{-7} *17* α(O)=3.56×10^{-8} *11*; α(N+..)=0.000200 *14*
		3300.08[c] *10*	100.0[c] *16*	0.0	0^+	M1		0.000935 *13*	α(K)=6.91×10^{-5} *10*; α(L)=7.55×10^{-6} *11*; α(M)=1.345×10^{-6} *19* α(O)=1.191×10^{-8} *17*; α(N+..)=0.000857 *12* B(M1)(W.u.)=0.067 *12*
3327.87	(1)	2549.70 *10*	41 *6*	778.237	2^+				
		3327.71 *10*	100 *6*	0.0	0^+				
3335.30	(4^+)	1706.54 *10*	46.3 *17*	1628.188	4^+				E_γ,I_γ: observed only in ^{96}Mo(n,n′γ).
		1709.72 *10*	97.3 *22*	1625.905	2^+				E_γ: weighted average of 1709.0 *4* (^{95}Mo(n,γ) E=thermal), 1709.72 *10* (^{96}Mo(n,n′γ)). I_γ: from ^{96}Mo(n,n′γ).
		2557.25 *10*	100.0 *24*	778.237	2^+				E_γ,I_γ: observed only in ^{96}Mo(n,n′γ).
3351.67	2^+	1255.75 *10*	98 *5*	2095.77	2^+	M1+E2[†]	−0.10 +*13*−*28*	0.000509 *8*	α(K)=0.000437 *7*; α(L)=4.85×10^{-5} *8*; α(M)=8.64×10^{-6} *13*; α(N)=1.319×10^{-6} *20* α(O)=7.60×10^{-8} *13*; α(N+..)=1.52×10^{-5} *5* B(E2)(W.u.)=0.7 +*18*−*7*; B(M1)(W.u.)=0.11 +*3*−*4*
		1854.35 *10*	100 *5*	1497.787	2^+	M1+E2[†]	−1.5 +*4*−*8*	0.000447 *7*	α(K)=0.000193 *3*; α(L)=2.14×10^{-5} *4*; α(M)=3.81×10^{-6} *6*; α(N)=5.81×10^{-7} *9* α(O)=3.34×10^{-8} *6*; α(N+..)=0.000228 *6* B(E2)(W.u.)=7.0 +*20*−*23*; B(M1)(W.u.)=0.011 *5* E_γ: poor fit. Level-energy difference=1853.87.
		3351.04 *13*	72 *5*	0.0	0^+	E2[†]		0.000997 *14*	α(K)=6.81×10^{-5} *10*; α(L)=7.44×10^{-6} *11*; α(M)=1.325×10^{-6} *19* α(O)=1.171×10^{-8} *17*; α(N+..)=0.000920 *13* B(E2)(W.u.)=0.38 +*9*−*11*
3364.0		2585.7 *3*	100	778.237	2^+				
3369.98	$(8)^+$	391.5 *1*	28.9 *3*	2978.37	8^+	M1+E2[@]	−0.8 +*4*−*3*	0.0082 *8*	α(K)=0.0072 *7*; α(L)=0.00085 *10*; α(M)=0.000152 *18*; α(N)=2.3×10^{-5} *3*; α(O)=1.22×10^{-6} *10* α(N+..)=2.4×10^{-5} *3* E_γ,I_γ,δ: observed only in ^{82}Se(^{18}O,4nγ).

$^{96}_{42}Mo_{54}$-24

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[b]	I_γ[b]	E_f	J^π_f	Mult.	δ[d]	α	Comments
3369.98	(8)$^+$	929.32 *18*	100.0 *3*	2440.76	6$^+$	E2[@]		0.000916 *13*	α(K)=0.000805 *12*; α(L)=9.17×10^{-5} *13*; α(M)=1.636×10^{-5} *23* α(O)=1.379×10^{-7} *20*; α(N+..)=2.62×10^{-6} *4* E_γ: weighted average of 929.3 *2* (^{94}Zr(α,2nγ)), 929.4 *4* (^{82}Se(^{18}O,4nγ)). I_γ: from ^{82}Se(^{18}O,4nγ).
3373.89	2$^+$	1748.26 *10*	39.3 *15*	1625.905	2$^+$	M1+E2[†]		0.000423 *9*	α(K)=0.000218 *6*; α(L)=2.41×10^{-5} *7*; α(M)=4.30×10^{-6} *12*; α(N)=6.57×10^{-7} *18* α(O)=3.77×10^{-8} *12*; α(N+..)=0.000176 *13* δ: +3.4 *+29−12* or −0.12 *+14−38*.
		2595.47 *7*	100.0 *15*	778.237	2$^+$	M1+E2[†]	−0.51 *8*	0.000679 *10*	α(K)=0.0001055 *15*; α(L)=1.157×10^{-5} *17*; α(M)=2.06×10^{-6} *3* α(O)=1.82×10^{-8} *3*; α(N+..)=0.000559 *9* B(E2)(W.u.)=1.2 *4*; B(M1)(W.u.)=0.031 *5*
3416.82	4$^+$	229.9 *6*	10 *5*	3186.81	4$^+$				E_γ,I_γ: observed only in ^{95}Mo(n,γ) E=thermal.
		283.0 *2*	12.5 *25*	3134.29					E_γ,I_γ: observed only in ^{95}Mo(n,γ) E=thermal.
		976.2 *6*	25 *15*	2440.76	6$^+$				E_γ,I_γ: observed only in ^{95}Mo(n,γ) E=thermal.
		1320.78 *10*	78 *4*	2095.77	2$^+$	E2[†]		0.000453 *7*	α(K)=0.000372 *6*; α(L)=4.15×10^{-5} *6*; α(M)=7.41×10^{-6} *11*; α(N)=1.128×10^{-6} *16* α(O)=6.39×10^{-8} *9*; α(N+..)=3.20×10^{-5} *5* B(E2)(W.u.)<2.3 E_γ: weighted average of 1320.9 *5* (^{95}Mo(n,γ) E=thermal), 1320.77 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 45 *25* (^{95}Mo(n,γ) E=thermal), 78 *3* (^{96}Mo(n,n′γ)).
		1919.33 *15*	100 *3*	1497.787	2$^+$	E2[†]		0.000470 *7*	α(K)=0.000179 *3*; α(L)=1.98×10^{-5} *3*; α(M)=3.52×10^{-6} *5*; α(N)=5.37×10^{-7} *8* α(O)=3.08×10^{-8} *5*; α(N+..)=0.000268 *4* B(E2)(W.u.)<0.45 E_γ: weighted average of 1918.6 *5* (^{95}Mo(n,γ) E=thermal), 1919.36 *10* (^{96}Mo(n,n′γ)). I_γ: weighted average of 100 *40* (^{95}Mo(n,γ) E=thermal), 100 *3* (^{96}Mo(n,n′γ)).
		2638.55 *10*	81 *3*	778.237	2$^+$	E2[†]		0.000727 *11*	α(K)=0.0001016 *15*; α(L)=1.114×10^{-5} *16*; α(M)=1.98×10^{-6} *3* α(O)=1.746×10^{-8} *25*; α(N+..)=0.000612 *9* B(E2)(W.u.)<0.073 E_γ,I_γ: observed only in (n,n′γ).
3421.24	(1)	1795.49 *10*	49 *6*	1625.905	2$^+$				
		3421.00 *10*	100 *6*	0.0	0$^+$				

$^{96}_{42}Mo_{54}$-25

$\gamma(^{96}$Mo) (continued)

E_i(level)	J^π_i	E_γ[b]	I_γ[b]	E_f	J^π_f	Mult.	δ[d]	α	Comments
3424.90	1^+	2646.87[c] *15*	7.6[c] *17*	778.237	2^+	M1+E2[†]		0.000710 *23*	α(K)=0.0001016 *16*; α(L)=1.113×10^{-5} *17*; α(M)=1.98×10^{-6} *3* α(O)=1.75×10^{-8} *3*; α(N+..)=0.000595 *23*
		3424.73 *10*	100.0 *17*	0.0	0^+	M1[†]		0.000980 *14*	α(K)=6.48×10^{-5} *9*; α(L)=7.08×10^{-6} *10*; α(M)=1.261×10^{-6} *18*; α(N)=1.93×10^{-7} *3* α(O)=1.117×10^{-8} *16*; α(N+..)=0.000907 *13* B(M1)(W.u.)=0.061 *+16−21*
3433.60	$(4)^+$	2655.32 *10*	100	778.237	2^+	E2		0.000733 *11*	α(K)=0.0001005 *14*; α(L)=1.102×10^{-5} *16*; α(M)=1.96×10^{-6} *3* α(O)=1.727×10^{-8} *25*; α(N+..)=0.000620 *9* B(E2)(W.u.)=1.7 *+3−4*
3441.92	4^+	960.7 *3*	9.7 *24*	2481.06	$(4)^+$				E_γ,I_γ: observed only in ^{95}Mo(n,γ) E=thermal.
		1463.3 *4*	19 *8*	1978.450	3^+				E_γ,I_γ: observed only in ^{95}Mo(n,γ) E=thermal.
		1815.4 *4*	15 *4*	1625.905	2^+				E_γ,I_γ: observed only in ^{95}Mo(n,γ) E=thermal.
		2663.71 *10*	100 *16*	778.237	2^+	E2[†]		0.000736 *11*	α(K)=0.0001000 *14*; α(L)=1.096×10^{-5} *16*; α(M)=1.95×10^{-6} *3* α(O)=1.718×10^{-8} *24*; α(N+..)=0.000623 *9* E_γ: weighted average of 2663.8 *15* (^{95}Mo(n,γ) E=thermal), 2663.71 *10* (^{96}Mo(n,n′γ)). I_γ: from ^{95}Mo(n,γ) E=thermal.
3444.8?		1006.3[e] *5*	100	2438.477	5^+				
3464.65	(3)	1595.09 *10*	100.0 *22*	1869.576	4^+				
		1966.82 *10*	83.2 *22*	1497.787	2^+				
3472.20	2^+	2693.92[c] *10*	100[c]	778.237	2^+	M1+E2[†]		0.000728 *23*	α(K)=9.85×10^{-5} *15*; α(L)=1.079×10^{-5} *16*; α(M)=1.92×10^{-6} *3*; α(N)=2.94×10^{-7} *5* α(O)=1.70×10^{-8} *3*; α(N+..)=0.000617 *23*
3472.65?	$(7)^+$	738.5[e] *3*	100 *3*	2734.57	$(4,5)^+$	E2[@]		0.001611 *23*	α(K)=0.001414 *20*; α(L)=0.0001635 *23*; α(M)=2.92×10^{-5} *5* α(O)=2.41×10^{-7} *4*; α(N+..)=4.66×10^{-6} *7* E_γ: weighted average of 738.7 *5* (^{94}Zr(α,2nγ)), 738.3 *4* (^{82}Se(^{18}O,4nγ)). I_γ: from ^{82}Se(^{18}O,4nγ), other: 80 *30* ^{94}Zr(α,2nγ).
		1032.2[e] *5*	44 *5*	2440.76	6^+	M1[@]		0.000750 *11*	α(K)=0.000661 *10*; α(L)=7.36×10^{-5} *11*; α(M)=1.314×10^{-5} *19* α(O)=1.152×10^{-7} *17*; α(N+..)=2.12×10^{-6} *3* I_γ: from ^{82}Se(^{18}O,4nγ), other: 100 *30* ^{94}Zr(α,2nγ).
3530.99	1,2,3	1904.72 *10*	100.0 *21*	1625.905	2^+				
		2033.67 *12*	91.2 *21*	1497.787	2^+				
3540.88	(3)	1671.48 *10*	58 *3*	1869.576	4^+				
		2762.40 *10*	100 *3*	778.237	2^+				

$^{96}_{42}$Mo$_{54}$-26

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[b]	I_γ[b]	E_f	J^π_f	Mult.	δ[d]	α	Comments
3551.4	3	1923.2 *3*	100	1628.188	4^+	(M1+E2)[&]	0.22 *18*	0.000450 *7*	α(K)=0.000185 *3*; α(L)=2.04×10^{-5} *3*; α(M)=3.64×10^{-6} *6*; α(N)=5.56×10^{-7} *8* α(O)=3.21×10^{-8} *5*; α(N+..)=0.000241 *5*
3573.28	(1)	1947.69 *10*	89 *11*	1625.905	2^+				
		3572.88 *10*	100 *11*	0.0	0^+				
3599.57	1^-	2821.30[c] *10*	28[c] *8*	778.237	2^+	E1[†]		0.001190 *17*	α(K)=5.43×10^{-5} *8*; α(L)=5.90×10^{-6} *9*; α(M)=1.049×10^{-6} *15*; α(O)=9.25×10^{-9} *13* α(N+..)=0.001129 *16* B(E1)(W.u.)=0.00030 *11*
		3599.45[c] *24*	100[c] *5*	0.0	0^+	E1[†]		0.001551 *22*	α(K)=3.89×10^{-5} *6*; α(L)=4.22×10^{-6} *6*; α(M)=7.51×10^{-7} *11*; α(N)=1.147×10^{-7} *16* α(O)=6.64×10^{-9} *10*; α(N+..)=0.001507 *21* B(E1)(W.u.)=0.00052 *12*
3610.48	2,3	2112.94 *10*	100.0 *21*	1497.787	2^+				
		2831.93 *10*	31.4 *21*	778.237	2^+				
3623.19	(3^+)	2844.91 *10*	100	778.237	2^+				
3668.82	3^+	2041.36 *14*	92 *6*	1628.188	4^+	M1+E2[†]	−3.8 *+15−52*	0.000505 *8*	α(K)=0.0001602 *23*; α(L)=1.77×10^{-5} *3*; α(M)=3.15×10^{-6} *5*; α(N)=4.80×10^{-7} *7* α(O)=2.76×10^{-8} *4*; α(N+..)=0.000324 *6* B(E2)(W.u.)=6.2 *+12−14*; B(M1)(W.u.)=0.0018 *14*
		2890.16 *10*	100 *4*	778.237	2^+	M1+E2[†]		0.000803 *25*	α(K)=8.71×10^{-5} *13*; α(L)=9.54×10^{-6} *14*; α(M)=1.698×10^{-6} *24* α(O)=1.500×10^{-8} *22*; α(N+..)=0.000704 *24* δ: −0.45 *+11−16* or −1.2 *+9−4*.
3786.93	$(10)^+$	808.6 *1*	100	2978.37	8^+	E2[@]		0.001281 *18*	α(K)=0.001125 *16*; α(L)=0.0001293 *19*; α(M)=2.31×10^{-5} *4* α(O)=1.92×10^{-7} *3*; α(N+..)=3.69×10^{-6} *6* E_γ: from ^{82}Se(^{18}O,4nγ).
3895.4	1^-	3895.3	100	0.0	0^+	E1[a]		0.001667 *24*	α(K)=3.51×10^{-5} *5*; α(L)=3.81×10^{-6} *6*; α(M)=6.77×10^{-7} *10*; α(N)=1.034×10^{-7} *15* α(O)=5.98×10^{-9} *9*; α(N+..)=0.001627 *23*
3915.69	$(9)^+$	443.1 *1*	28.6 *4*	3472.65?	$(7)^+$	E2[@]		0.00684 *10*	α(K)=0.00596 *9*; α(L)=0.000725 *11*; α(M)=0.0001296 *19*; α(N)=1.94×10^{-5} *3* α(O)=9.95×10^{-7} *14*; α(N+..)=2.04×10^{-5} *3* E_γ,I_γ: from ^{82}Se(^{18}O,4nγ).
		545.62 *12*	100.0 *4*	3369.98	$(8)^+$	M1[@]		0.00314 *5*	α(K)=0.00277 *4*; α(L)=0.000313 *5*; α(M)=5.59×10^{-5} *8*; α(N)=8.51×10^{-6} *12*; α(O)=4.85×10^{-7} *7* α(N+..)=9.00×10^{-6} *13*

$^{96}_{42}Mo_{54}$-27

Adopted Levels, Gammas (continued)

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[b]	I_γ[b]	E_f	J^π_f	Mult.	δ[d]	α	Comments
									E_γ: weighted average of 546.2 5 ($^{94}Zr(\alpha,2n\gamma)$), 545.6 1 ($^{82}Se(^{18}O,4n\gamma)$). E_γ,I_γ: from $^{82}Se(^{18}O,4n\gamma)$.
3915.69	$(9)^+$	1202.8 3	<1.49	2712.68					E_γ,I_γ: from $^{82}Se(^{18}O,4n\gamma)$.
4245.11	10^+	875.0 3	100.0 20	3369.98	$(8)^+$				
		1266.6 6	39 6	2978.37	8^+	E2[@]		0.000479 7	$\alpha(K)=0.000405$ 6; $\alpha(L)=4.54\times10^{-5}$ 7; $\alpha(M)=8.10\times10^{-6}$ 12; $\alpha(N)=1.232\times10^{-6}$ 18 $\alpha(O)=6.97\times10^{-8}$ 10; $\alpha(N+..)=2.05\times10^{-5}$ 4
4532.84	$(11)^+$	745.9 2	100	3786.93	$(10)^+$	M1+E2[@]	+0.18 +5−4	0.001534 22	$\alpha(K)=0.001350$ 19; $\alpha(L)=0.0001517$ 22; $\alpha(M)=2.71\times10^{-5}$ 4 $\alpha(O)=2.36\times10^{-7}$ 4; $\alpha(N+..)=4.36\times10^{-6}$ 7 E_γ: from $^{82}Se(^{18}O,4n\gamma)$, other: 796.8 5 ($^{94}Zr(\alpha,2n\gamma)$). δ: from $^{82}Se(^{18}O,4n\gamma)$.
4583.55	$(12)^+$	796.61 10	100	3786.93	$(10)^+$	E2[@]		0.001330 19	$\alpha(K)=0.001168$ 17; $\alpha(L)=0.0001343$ 19; $\alpha(M)=2.40\times10^{-5}$ 4 $\alpha(O)=2.00\times10^{-7}$ 3; $\alpha(N+..)=3.83\times10^{-6}$ 6 E_γ: weighted average of 796.8 5 ($^{94}Zr(\alpha,2n\gamma)$), 796.6 1 ($^{82}Se(^{18}O,4n\gamma)$).
4795.12	$(11)^+$	550.0 1	6.9 4	4245.11	10^+	M1[@]		0.00309 5	$\alpha(K)=0.00272$ 4; $\alpha(L)=0.000307$ 5; $\alpha(M)=5.48\times10^{-5}$ 8; $\alpha(N)=8.36\times10^{-6}$ 12; $\alpha(O)=4.76\times10^{-7}$ 7 $\alpha(N+..)=8.83\times10^{-6}$ 13 E_γ,I_γ: observed only in $^{82}Se(^{18}O,4n\gamma)$.
		879.4 1	100.0 11	3915.69	$(9)^+$	E2[@]		0.001044 15	$\alpha(K)=0.000917$ 13; $\alpha(L)=0.0001048$ 15; $\alpha(M)=1.87\times10^{-5}$ 3 $\alpha(O)=1.571\times10^{-7}$ 22; $\alpha(N+..)=2.99\times10^{-6}$ 5 I_γ: observed only in $^{82}Se(^{18}O,4n\gamma)$. E_γ: from $^{82}Se(^{18}O,4n\gamma)$, otherL 879.3 5 ($^{94}Zr(\alpha,2n\gamma)$).
		1009.0 5	6.5 11	3786.93	$(10)^+$				E_γ,I_γ: observed only in $^{82}Se(^{18}O,4n\gamma)$.
5132.20	$(12)^+$	886.8 4	51 8	4245.11	10^+	E2		0.001023 15	$\alpha(K)=0.000899$ 13; $\alpha(L)=0.0001027$ 15; $\alpha(M)=1.83\times10^{-5}$ 3 $\alpha(O)=1.540\times10^{-7}$ 22; $\alpha(N+..)=2.93\times10^{-6}$ 5
		1345.6 7	100 5	3786.93	$(10)^+$				
5640.64	$(13)^+$	508.5 3	19.4 15	5132.20	$(12)^+$				
		1057.1 3	100 6	4583.55	$(12)^+$	M1+E2[@]	+0.12 +8−6	0.000712 10	$\alpha(K)=0.000628$ 9; $\alpha(L)=6.99\times10^{-5}$ 10; $\alpha(M)=1.247\times10^{-5}$ 18 $\alpha(O)=1.093\times10^{-7}$ 16; $\alpha(N+..)=2.01\times10^{-6}$ 3
5654.61	$(13)^+$	522.4 1	7.8 11	5132.20	$(12)^+$				
		859.5 1	100.0 7	4795.12	$(11)^+$	E2[@]		0.001103 16	$\alpha(K)=0.000969$ 14; $\alpha(L)=0.0001109$ 16; $\alpha(M)=1.98\times10^{-5}$ 3 $\alpha(O)=1.659\times10^{-7}$ 24; $\alpha(N+..)=3.17\times10^{-6}$ 5
5811.43	$(14)^+$	170.8 1	100 4	5640.64	$(13)^+$	M1[@]		0.0582	$\alpha(K)=0.0510$ 8; $\alpha(L)=0.00597$ 9; $\alpha(M)=0.001069$ 15; $\alpha(N)=0.0001624$ 23; $\alpha(O)=9.05\times10^{-6}$ 13 $\alpha(N+..)=0.0001714$ 25

$^{96}_{42}Mo_{54}$-28

$\gamma(^{96}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[b]	I_γ[b]	E_f	J^π_f	Mult.	δ[d]	α	Comments
5811.43	$(14)^+$	679.2 *2*	37.3 *15*	5132.20	$(12)^+$	E2[@]		0.00201 *3*	α(K)=0.001758 *25*; α(L)=0.000205 *3*; α(M)=3.66×10^{-5} *6*; α(N)=5.53×10^{-6} *8*; α(O)=2.99×10^{-7} *5* α(N+..)=5.83×10^{-6} *9*
6414.52	$(15)^+$	759.9 *1*	100	5654.61	$(13)^+$	E2[@]		0.001498 *21*	α(K)=0.001315 *19*; α(L)=0.0001517 *22*; α(M)=2.71×10^{-5} *4* α(O)=2.24×10^{-7} *4*; α(N+..)=4.33×10^{-6} *6*
6709.8	$(15)^+$	898.4 *3*	100	5811.43	$(14)^+$	M1+E2[@]	−0.18 *7*	0.001013 *15*	α(K)=0.000892 *13*; α(L)=9.98×10^{-5} *14*; α(M)=1.780×10^{-5} *25* α(O)=1.556×10^{-7} *22*; α(N+..)=2.87×10^{-6} *4*
7505.5	$(17)^+$	1091.0 *6*	100	6414.52	$(15)^+$	E2[@]		0.000635 *9*	α(K)=0.000559 *8*; α(L)=6.31×10^{-5} *9*; α(M)=1.125×10^{-5} *16*; α(O)=9.59×10^{-8} *14* α(N+..)=1.81×10^{-6} *3*
7554.1		844.3 *2*	100	6709.8	$(15)^+$				
8424.0	$(19)^+$	918.5 *2*	100	7505.5	$(17)^+$	E2[@]		0.000941 *14*	α(K)=0.000827 *12*; α(L)=9.43×10^{-5} *14*; α(M)=1.683×10^{-5} *24* α(O)=1.417×10^{-7} *20*; α(N+..)=2.69×10^{-6} *4*
9466.9	(20^+)	1042.9 *6*	100	8424.0	$(19)^+$	(M1)[@]		0.000734 *11*	α(K)=0.000647 *9*; α(L)=7.20×10^{-5} *11*; α(M)=1.285×10^{-5} *18* α(O)=1.127×10^{-7} *16*; α(N+..)=2.07×10^{-6} *3*
9882.4		1458.4 *11*	100	8424.0	$(19)^+$				

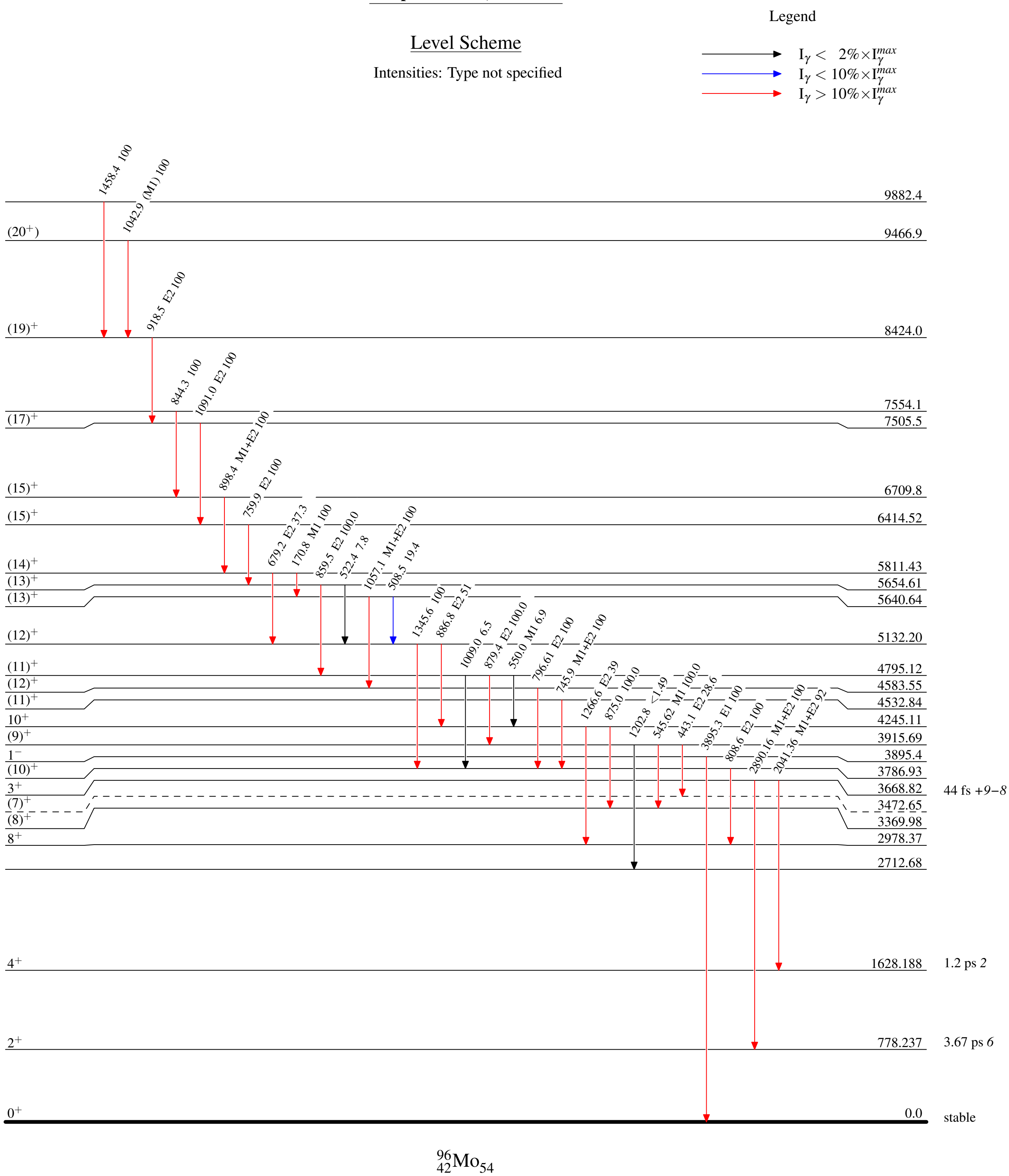
† From (n,n′γ).
‡ From ^{96}Nb β^- decay.
\# From ^{96}Tc ε decay (4.28 d).
@ From ^{82}Se(^{18}O,4nγ).
& From ^{95}Mo(n,γ) E=thermal.
a From ^{96}Mo(pol γ,γ').
b Weighted average of available data. The resulting data are mostly based on the ^{96}Nb β^- decay and ^{96}Mo(n,n′γ) datasets.
c From ^{96}Mo(n,n′γ).
d From ^{96}Mo(n,n′γ), unless otherwise indicated in a comment or by the xref.
e Placement of transition in the level scheme is uncertain.

$^{96}_{42}Mo_{54}$-29

Adopted Levels, Gammas

Level Scheme

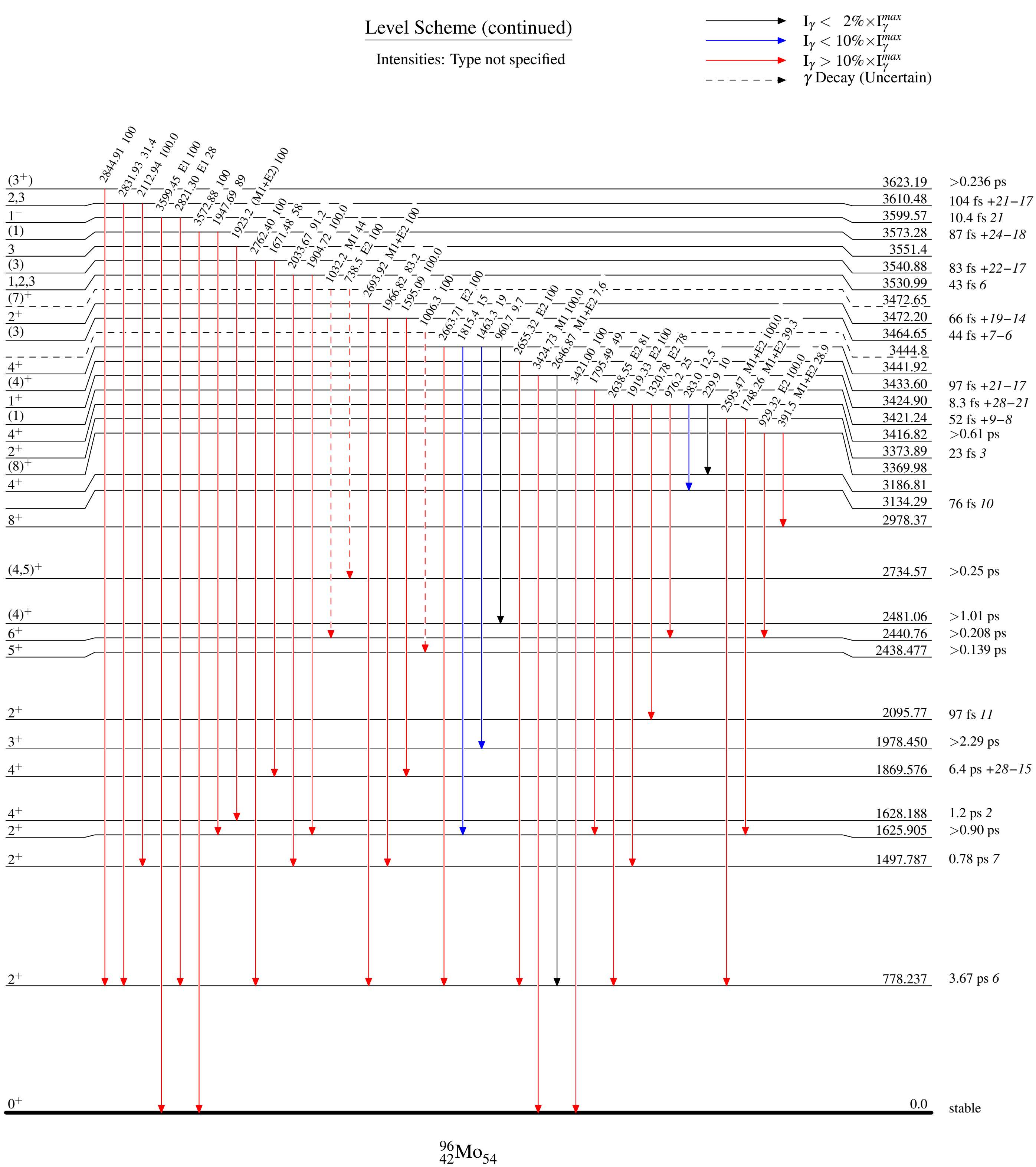
Intensities: Type not specified



Adopted Levels, Gammas

Level Scheme (continued)

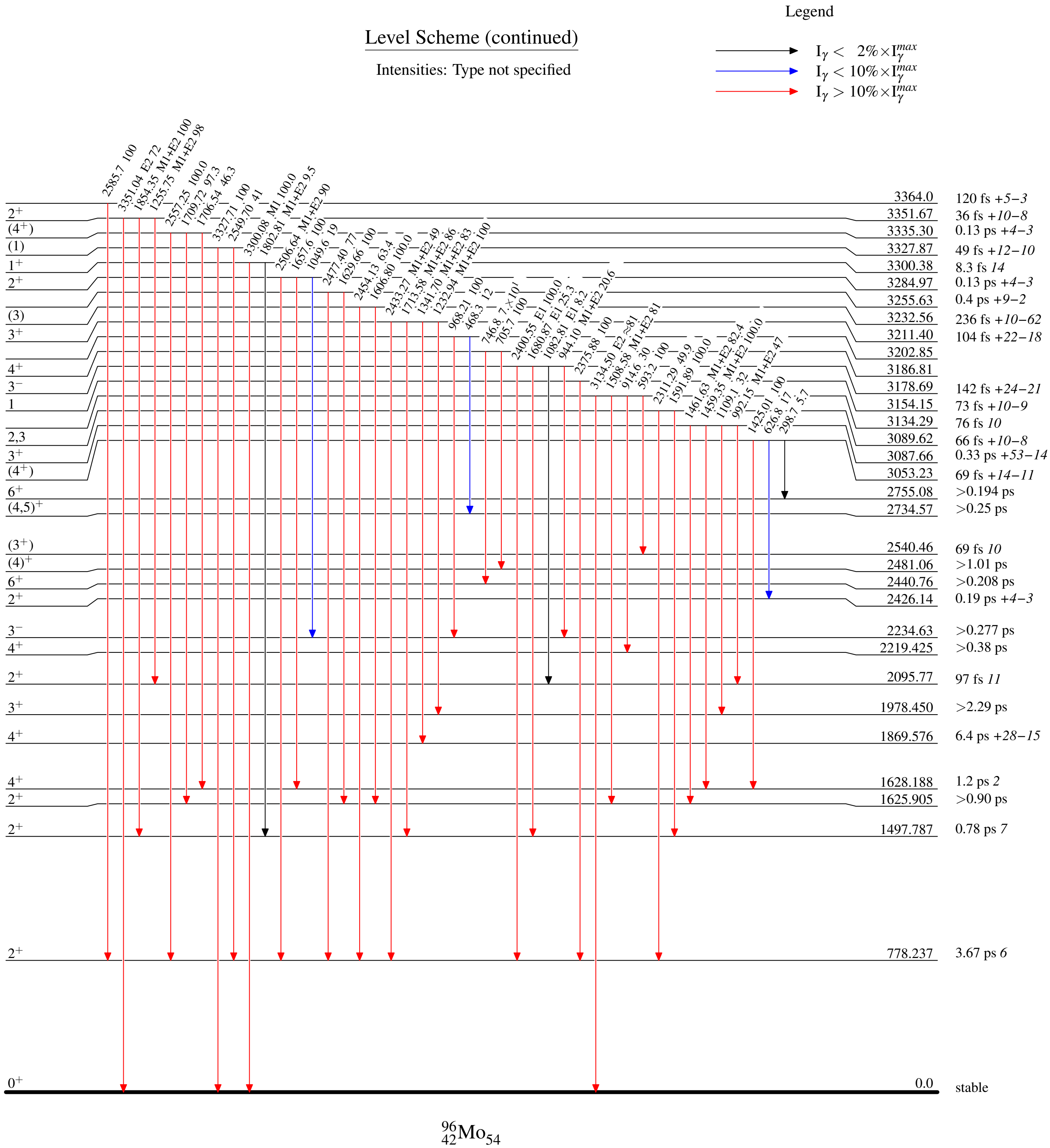
Intensities: Type not specified



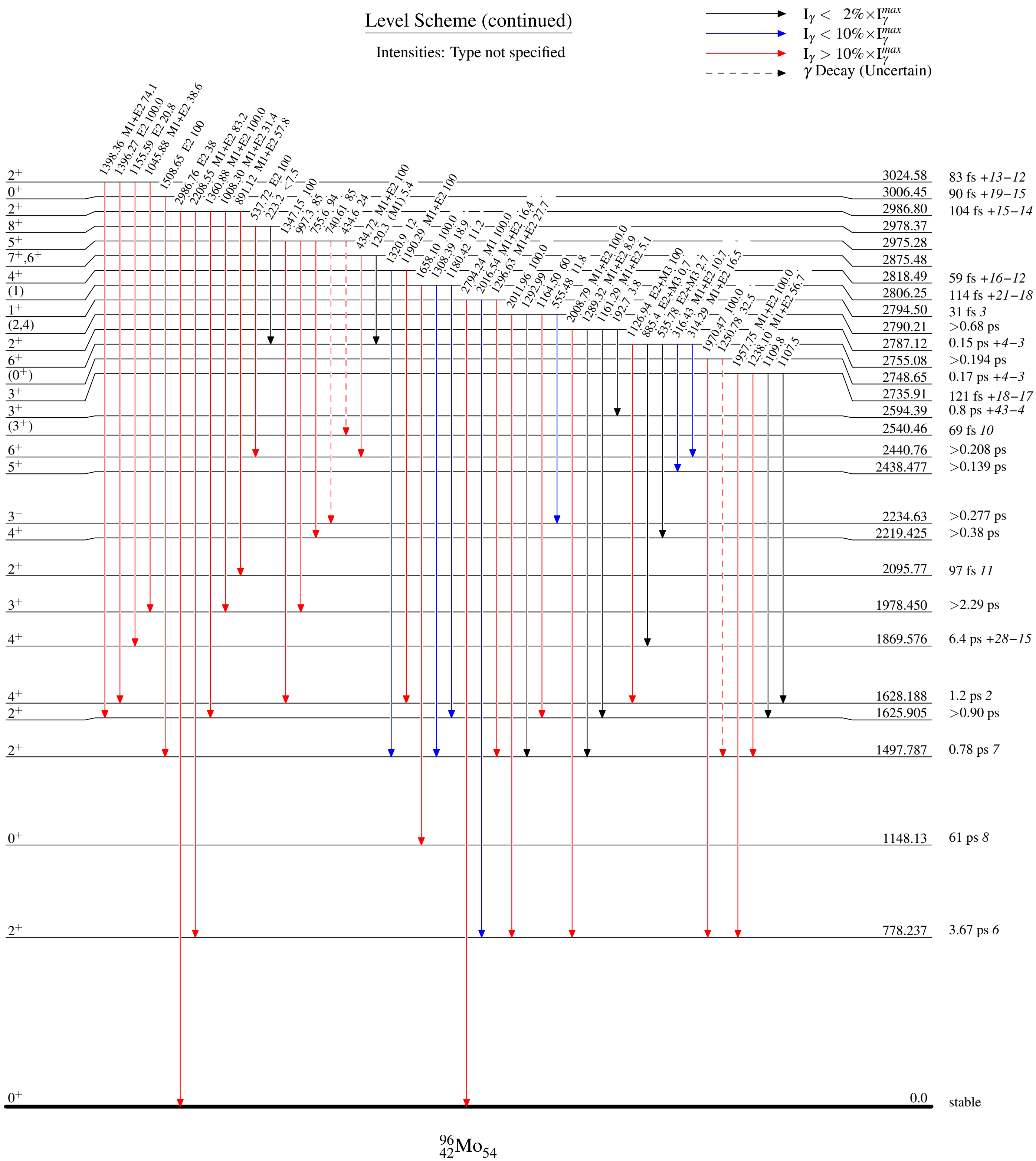
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



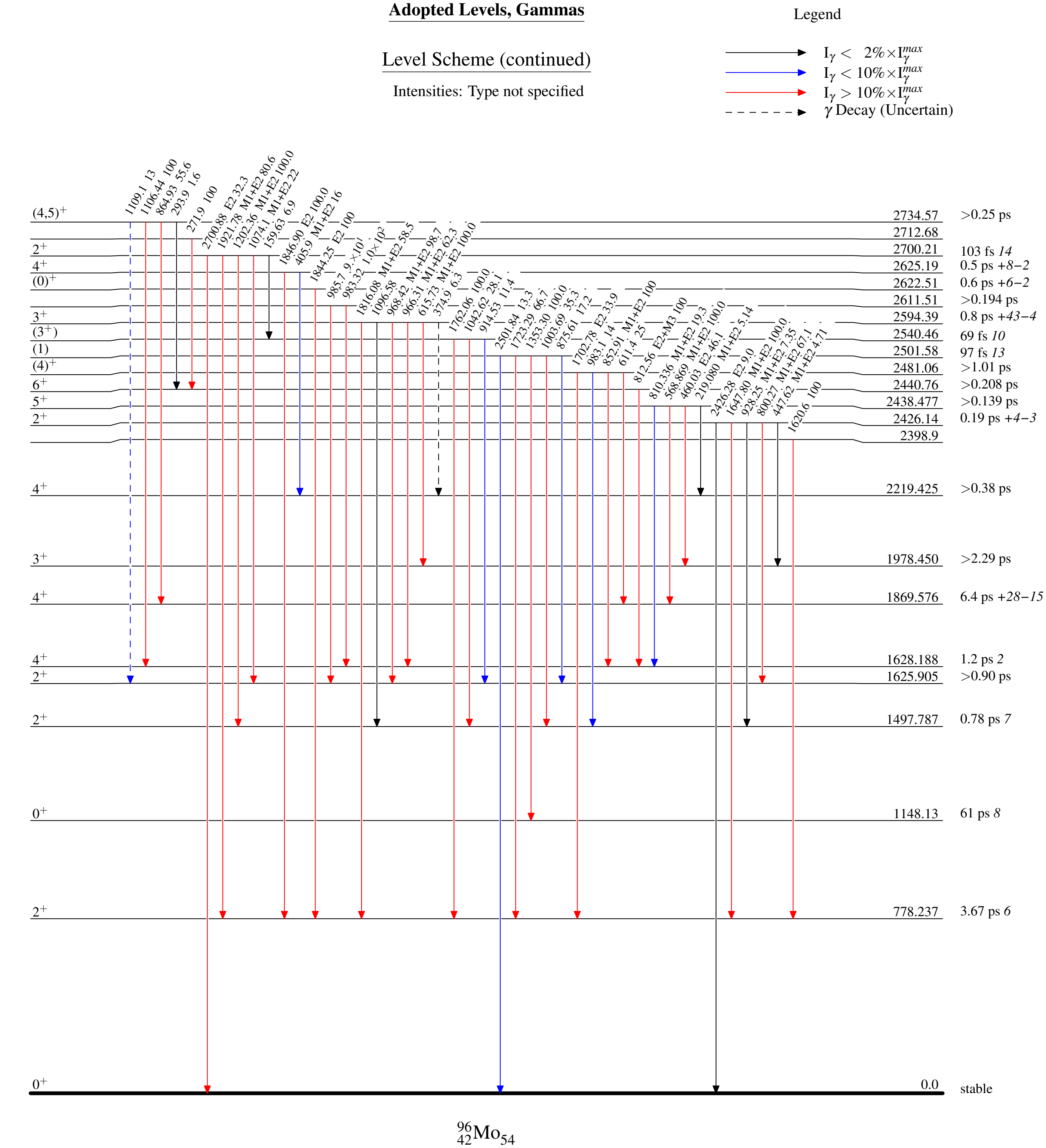
Adopted Levels, Gammas



Adopted Levels, Gammas

Level Scheme (continued)

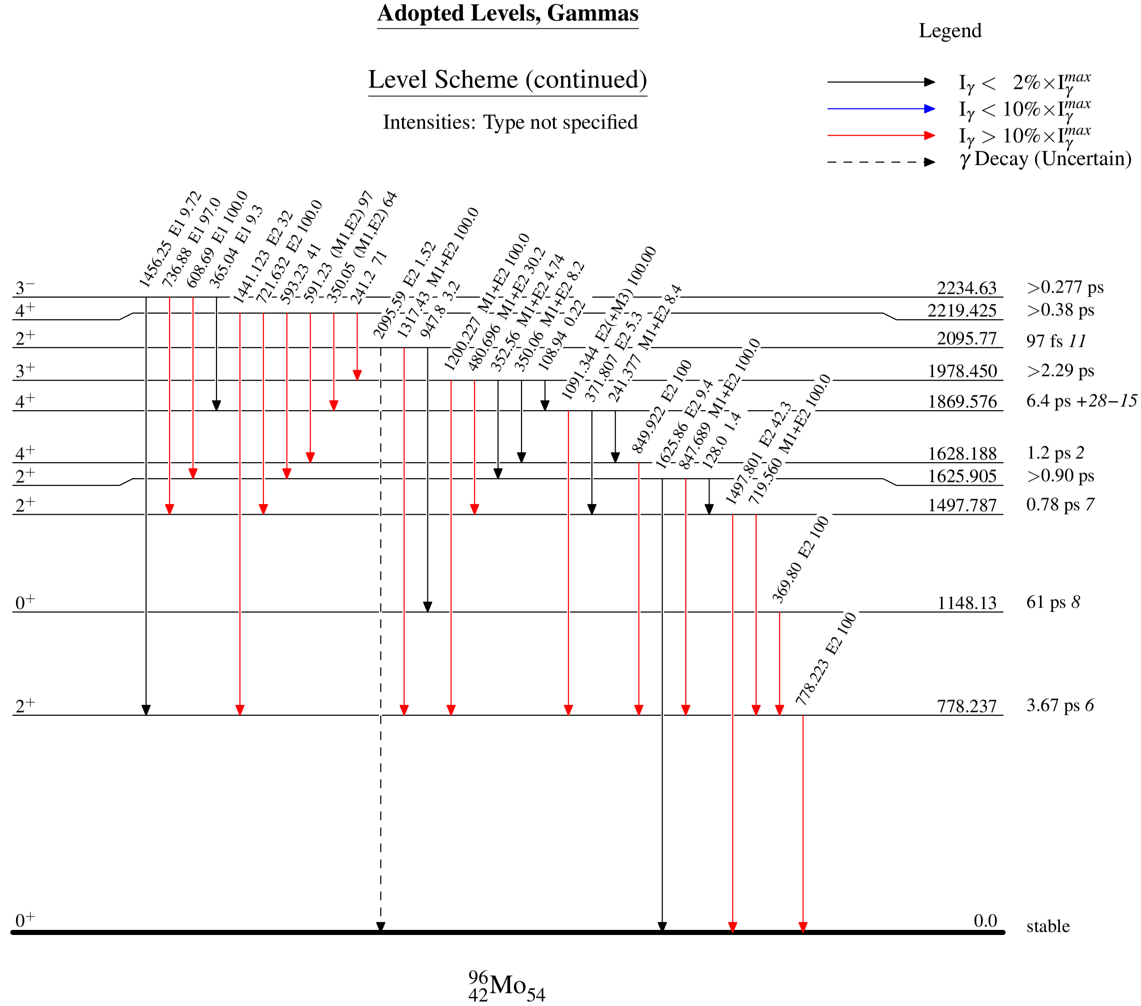
Intensities: Type not specified



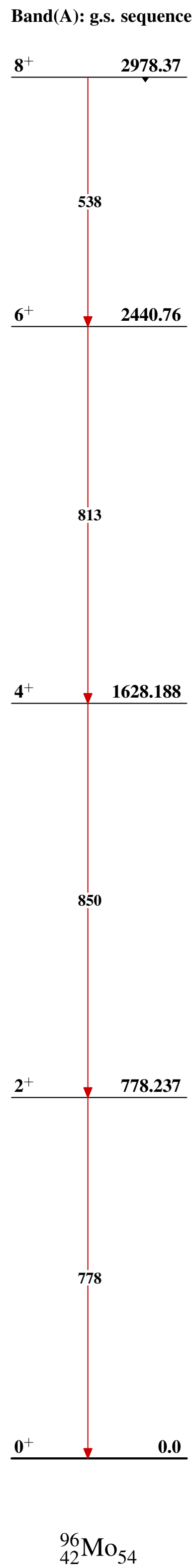
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



Adopted Levels, Gammas



Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen, Balraj Singh	NDS 164, 1 (2020)	15-Feb-2020

Q(β^-)=−1684 *3*; S(n)=8642.60 *6*; S(p)=9799 *4*; Q(α)=−3271.57 *24* 2017Wa10
S(2n)=15463.73 *17*, S(2p)=17255.07 *18* (2017Wa10).
Corresponding values in 2021Wa16 are the same, except for slightly higher S(p)=9802 *4*.
Acknowledgement for modifications made May 06, 2021: evaluators are grateful to Professor H.T. Fortune (University of Pennsylvania) for pointing out mistake in B(E2)(W.u.) value of 52.6-keV transition from 787.4, 2^+ to 734.8, 0^+ level; and to Dr. Adam Hayes (NNDC, BNL) for discussion and advice about analysis of Coulomb excitation data in 2002Zi06 article.
No new experimental structure references as of May 5, 2021 for ^{98}Mo since the update in February, 2020.
Mass measurements: 2015Gu09, 2012Ka13, 2008De16.
In ^{97}Mo(n,γ):resonances dataset, a total of 116 resonances are listed with resonance parameters in the energy range E(n)=16 eV to 4 keV, taking most data from 2018MuZY evaluation. 2015Wa18 measured resonance data for 65 neutron resonances from 0.0162 to 1.7 keV. Except for nine resonances in this work, all the others are listed by 2018MuZY.
Other reactions:
^{50}Ti(^{48}Ca,X): 2001Le37, measured Eγ vs. Spin for compound nucleus.
^{94}Zr(^{16}O,^{12}C) E=60 MeV: 1973Ch10.
Neutrino capture by ^{98}Mo: 1995Er08 and 1995Er05 (theory).
^{98}Mo(e,e′): 1975Dr06; E=120, 200, 274 MeV. $\sigma(\theta)$ data, nuclear radii deduced.
^{98}Mo(antiproton,x): 1994Ha51, 1993Wy03, 1986Ka08. 1986Ka08: E=200, 300 MeV/c. X rays reported at energy (relative intensity): 76.0 (100), 102.8 (133), 144 (129), 210 (122) and 324 (15). E2 nuclear resonance effects are observed.
^{98}Mo(γ,xn) GDR: 1974Ca05, 1974Be33. GDR at 15.52 MeV with σ=6.0 MeV. 1974Be33 deduced β_2(787, 2^+)=0.168. Theory: 1977Be11.
^{12}C(^{78}Kr,X),(^{82}Kr,X),(^{86}Kr,X) E=6-13 MeV/nucleon: 1999Ji01: Measured fragment σ, deduced asymmetric fission barrier of ^{98}Mo compound nucleus.
^{100}Mo(^{10}B,^{12}B) E=67 MeV: 1984As02, measured polarization of ^{12}B by $\beta(\theta)$.
^{100}Mo(^{32}S,^{34}S) E=180 MeV: 1995He17, measured $\sigma(\theta)$.
^{101}Ru(n,α) E<2 keV: 1978An01, measured α widths; E=thermal: 2009WaZW, measured Eγ, Iγ, σ for g.s. and 787 level.
Hyperfine measurements for g.s.: 2009Ch09, 1986Ol03, 1985Go10, 1984Br09, 1978Au05, 1972Pe02; deduced Isotope shifts and rms charge radius.
Additional information 1.
Theory references: consult the NSR database (www.nndc.bnl.gov/nsr/) for 114 primary references, 101 dealing with nuclear structure calculations and 13 with decay modes and half-lives.

^{98}Mo Levels

Cross Reference (XREF) Flags

A	^{98}Nb β^- decay (2.86 s)	I	^{97}Mo(n,γ) E=res	Q	^{98}Mo(^{3}He,^{3}He′)
B	^{98}Nb β^- decay (51.1 min)	J	^{97}Mo(n,γ):resonances	R	^{98}Mo(α,α′)
C	Muonic atom	K	^{97}Mo(d,p)	S	Coulomb excitation
D	^{96}Zr(α,2nγ)	L	^{98}Mo(γ,γ′)	T	^{100}Mo(p,t)
E	^{96}Zr(^{16}O,^{14}C)	M	^{98}Mo(n,n′),(n,n)	U	^{100}Ru(^{14}C,^{16}O)
F	^{96}Mo(pol t,p),(t,p)	N	^{98}Mo(n,n′γ)	V	^{102}Ru(d,^{6}Li)
G	^{96}Mo(^{18}O,^{16}O)	O	^{98}Mo(p,p′),(p,p)	W	^{168}Er(^{30}Si,Xγ)
H	^{97}Mo(n,γ) E=th	P	^{98}Mo(d,d′)		

E(level)[†]	J$^\pi$[@]	$T_{1/2}$[&]	XREF	Comments
0.0[a]	0^+	stable	AB DEFGHI KLMNOPQRSTUVW	Evaluated rms charge radius=4.3847 fm *15* (2013An02). Evaluated δ<r^2>(^{92}Mo,^{98}Mo)=+0.834 fm^2 *1* (2013An02). J$^\pi$: no hyperfine structure observed in optical spectroscopy (quoted by

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{98}Mo Levels (continued)

E(level)[†]	J^{π}[@]	$T_{1/2}$[&]	XREF	Comments
				1969Fu11 as priv comm from Arroe (1951)). $T_{1/2}$: $>1.0\times10^{14}$ y (1952Fr23) from neutrino-less $\beta\beta$ decay. Additional information 2. $\Delta<r^2>(^{98}Mo,^{92}Mo)$=+0.811 fm^2 *20* (2009Ch09), laser spectroscopic technique at ISOLDE-CERN facility. Isotope shift(^{98}Mo,^{92}Mo)=−1842 MHz *20* (2009Ch09). $\Delta<r^2>(^{96}Mo,^{98}Mo)$=−0.210 fm^2 *5* (1985Go10); 0.150 fm^2 *12* (1978Au05); $\Delta<r^2>(^{98}Mo,^{100}Mo)$=0.227 fm^2 *19* (1978Au05). Others: 1980Sc01, 1965Ch05 (muonic data); 1975Dr06 ((e,e′) data). Neutron occupancies deduced from neutron-removal reactions ^{98}Mo(d,p),(p,d),(^{3}He,α) (2017Fr08): 0.17 *1* for $\nu2s_{1/2}$ orbital, 3.34 *17* for ν1d orbital, 1.13 *6* for $\nu0g_{7/2}$ orbital, and 1.25 *9* for $\nu0h_{11/2}$ orbital, to add to a total of 5.88 *20*, compared to expected value of 6. Proton vacancies from proton-removal reaction ^{98}Mo(^{3}He,d) (2017Fr08): 0.91 *5* for π1p orbital, 6.78 *34* for $\nu0g_{9/2}$ orbital, to add to a total of 7.69 *34*, compared to expected value of 8.
734.75 *4*	0^+	21.8 ns *9*	AB D F HI KLMNOP STUV	J^{π}: L(pol t,p)=L(p,t)=0. Also E0 to 0^+ seen in (t,p ce). $T_{1/2}$: from ce(t) in (p,p′γ) (1972Bu18). Others: 22 ns *2* (1971AnZV), 1970Co01.
787.384[a] *17*	2^+	3.47 ps *7*	AB DEFGHI K MNOPQRST VW	μ=+0.97 *6* (2011Ch23,2014StZZ) Q=−0.26 *9* (1979Pa11,2016St14) J^{π}: E2 787.4γ to 0^+. μ: from Coulomb excitation. Others: +0.97 *7* (2001Ma17), +0.7 *4* (1969He11). Q: from Coul. ex., value applies to constructive interference of the higher excited 2^+ states as for other nuclides in this mass region. Q=+0.09 *9* for destructive interference. β_2(p,p′)=0.180 *14* (1992Ke07). Others: 1990Pi14, 1975Bu04, 1972Aw03, 1971Lu07. β_2(d,d′)=0.167 *4* (2001Uk01), 0.153 (1978Wa11), 0.155 (1977Pe18). β_2(α,α′)=0.142 or 0.150 (1990Bu25). Others: 1975Bu04, 1972Ma56. β_2(Coul. ex.)=0.174 *5* (1972Ba90). $T_{1/2}$: from B(E2)(from g.s.)=0.2692 *54*, weighted average of 0.277 *8* (2002Zi06); 0.267 *4* (1979Pa11, 0.266 *5* in 1976Pa13); 0.286 *14* (1972Ba90); 0.275 *15* (1971WaZP); 0.270 *32* (1962Ga13); 0.26 *4* (1962Er05); 0.270 *32* (1958St32); 0.27 *4* (1956Te26); and B(E2)↑=0.260 *10* deduced from $T_{1/2}$=3.60 ps *14* (Doppler broadening,1972SiZP). Final uncertainty was adjusted to 2%. Value of B(E2) is 0.2695 *57* in 2016Pr01 evaluation, without the inclusion of 2002Zi06 value.
1432.210 *19*	2^+	1.53 ps *16*	AB DeF HI K MNOP RST V	XREF: T(1435.9)V(1460). J^{π}: E2 1432.2γ to 0^+. $T_{1/2}$: from B(E2) in Coul. ex. β_2=0.052 (1975Bu04,(p,p′)); 0.046 (1977Pe18,(d,d′)); 0.033 (1975Bu04,(α,α′)); 0.037 *2* (1972Ba90,Coul. ex.).
1510.047[a] *21*	4^+	2.53 ps *5*	B DeF HI K MNOP RST vW	XREF: K(?)v(1460). E(level): possibly a doublet at 1460 in (d,^{6}Li). J^{π}: stretched E2 722.6γ to 2^+; L(p,p′)=L(d,d′)=4 from 0^+. β_4=0.023 (1992Pi08,(p,p′)); 0.021 (1992Pi08,(d,d′)); 0.034 (1975Bu04,(α,α′)).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{98}Mo Levels (continued)

E(level)[†]	J^{π}[@]	$T_{1/2}$[&]	XREF	Comments
1758.49 *3*	2^+	1.42 ps *6*	AB D F HI K MNOP ST V	J^{π}: E2 1023.7γ to 0^+; L(pol t,p)=L(p,t)=2. β_2=0.03 (1972Aw03,(p,p′)); 0.029 (1977Pe18,(d,d′)); 0.11 *5* (1972Ba90,Coul. ex.).
1871[‡] *2*	2^+		OP	J^{π}: L(p,p′)=L(d,d′)=2.
1880.86 *17*	≤4		H	J^{π}: 449.1γ and 1093.2γ to 2^+.
1963.05 *8*	0^+		D F mN P T	XREF: m(1960)P(1930). J^{π}: L(pol t,p)=L(p,t)=0.
2017.53[b] *3*	3^-	65 ps *7*	B D F HI K mNOP RST VW	XREF: m(1960)T(2013.0). J^{π}: L(pol t,p)=L(p,t)=3. β_3(p,p′)=0.210 *16* (1992Ke07). Others: 1990Pi14, 1975Bu04, 1972Aw03, 1971Lu07. β_3(d,d′)=0.191 *4* (2001Uk01), 0.180 (1990Pi14). Others: 1978Wa11, 1977Pe18, 1966Ki04. β_3(α,α′)=0.155 (1975Bu04), 0.160 *12* (1972Ma56). β_3(Coul. ex.)=0.220 *11* (1972Ba90).
2037.52 *7*	0^+		A D N T	XREF: T(2034.7). J^{π}: from $\sigma(6°)/\sigma(15°)$ in (p,t).
2104.72 *4*	3^+		B D HI K MN	XREF: K(2110?)M(2070). J^{π}: spin=3 from $\gamma(\theta)$ in (n,n′γ) and $\gamma\gamma(\theta)$ in (α,2nγ); 672.5γ and 1317.4γ M1+E2 to 2^+. log *ft*=9.0 from $(5)^+$ is in conflict with this assignment, but Iβ to this level may be overestimated (see ^{98}Nb β^- decay).
2206.61 *6*	2^+	<0.257 ps	AB D F H k mN T V	XREF: k(2216)m(2200)T(2199.9)V(2210). J^{π}: L(pol t,p)=L(p,t)=2. $T_{1/2}$: upper limit from effective half-life=0.208 ps *49* from DSAM in (α,2nγ) (2016Th01).
2209[‡] *2*	0^+		OP	J^{π}: L(p,p′) or L(d,d′)=0.
2223.862 *22*	4^+		B D F HI k mNOP R T	XREF: I(2226)k(2216)m(2200)T(2216.1). J^{π}: L(pol t,p)=L(p,p′)=L(α,α′)=4.
2240 *2*	4^+		M O	XREF: M(2250?). J^{π}: L(p,p′)=4.
2333.18 *12*	2^+	<0.47 ps	D f H k mNOP T	XREF: f(2336)k(2340)m(2380)T(2328.2). E(level): This level is defined separately from the 2333.4 level based on $\gamma\gamma$-coin evidence in (α,2nγ) for the 900.85-keV transition, and Doppler shift shown by this γ ray, and not by the other γ rays from 2333.4,4^+ level. Another evidence is provided by β^- (51.1 min), where 900.97γ in 1984Me04 is very weak as compared to the 1546γ, and there it is placed from a 3737 level. A 900.9γ in (n,γ) E=th and a 900.96γ in (n,n′γ), where this γ is placed from the 2333.4, 4^+ level, is now placed here from the 2333.2, 2^+ level by evaluators. J^{π}: L(pol t,p)=L(p,t)=L(p,p′)=2. $T_{1/2}$: upper limit from effective half-life=0.35 ps *12* from DSAM in (α,2nγ) (2016Th01).
2333.46 *3*	4^+		B D HI k mNOP R	XREF: k(2340)m(2380)R(2360). E(level): see comment for 2333.1 level. J^{π}: L(p,p′)=L(α,α′)=4; spin=4 is also from $\gamma(\theta)$ in (n,n′γ).
2343.62[a] *3*	6^+	5.2 ps *2*	B D f H k mN S VW	XREF: f(2336)k(2340)m(2380)V(2330). J^{π}: $\gamma(\theta)$ in (α,2nγ) suggested stretched Q (E2) to 4^+, also L(d,^{6}Li)=6; L(pol t,p)=2(+6). $T_{1/2}$: from B(E2) in Coul. ex.
2350[‡] *2*	(2^+)		k m OP	XREF: k(2340)m(2380). J^{π}: L(p,p′) or L(d,d′)=2 but L(p,p′)=6 is also given by 1971Lu07 for a 2343 group.
2369[‡] *2*	2^+		m OP	XREF: m(2380).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{98}Mo Levels (continued)

E(level)[†]	J^{π}[@]	$T_{1/2}$[&]	XREF	Comments
				J^{π}: L(p,p′) or L(d,d′)=2.
2418.46[‡] *11*	2^+		D F H k mNOP	XREF: H(?)k(2430)m(2380). J^{π}: L(p,p′) or L(d,d′)=2.
2419.63 *4*	4^+		B D H k mN T	XREF: k(2430)m(2380)T(2417). J^{π}: L(α,α')=4; spin=4 from $\gamma\gamma(\theta)$ in (α,2nγ). $J^{\pi}=3^-$ from L(p,t) are in disagreement.
2485.15[‡] *7*	3^+		B D H K mNOP T	XREF: K(2500)m(2500)T(2489). J^{π}: 1697.6γ M1+E2 to 2^+ and 975.0γ M1+E2 to 2^+; but L(p,p′) or L(d,d′)=3 suggest 3^-.
2506.38 *4*	5^+		B D H k mN T	XREF: k(2530)m(2500)T(2502.1). J^{π}: spin=5 from $\gamma\gamma(\theta)$ in (α,2nγ), 996.3γ M1+E2 to 4^+. L(p,t)=(3) is in disagreement.
2509 *2*	1^-		k m OP	XREF: k(2530)m(2500). J^{π}: L(p,p′)=1.
2525.8[#] *3*	2^+	<0.367 ps	D F k mNOP T	XREF: F(2530)k(2530)m(2500)N(?)T(2520.4). J^{π}: L(pol t,p)=2. L(p,p′)=(1) is in disagreement. $T_{1/2}$: upper limit from effective half-life=0.326 ps *41* from DSAM in (α,2nγ) (2016Th01).
2537[‡] *5*	(1^-)		OP	J^{π}: L(p,p′) or L(d,d′)=(1).
2562.23[#] *16*	(2^-)		D H NOP	J^{π}: 2^- suggested from cross section data in (p,p′), described as a 2-step process. In (n,γ) E=thermal, J=1 is suggested from $\gamma\gamma(\theta)$ data.
2570.9? *5*	(6,7,8)		D	J^{π}: 227.3γ to (6^+).
2572.84 *10*	3		B D H k N	XREF: k(2585). J^{π}: from $\gamma\gamma(\theta)$ in (α,2nγ).
2574.86 *7*	4^+		B D F k OP R T	XREF: k(2585)T(2568.7). J^{π}: L(pol t,p)=L(p,t)=L(p,p′)=L(d,d′)=4 for a 2574 group; $\gamma\gamma(\theta)$ in (α,2nγ).
2612.4 *5*	0^+		A D F T V	XREF: F(2617)T(2611.3)V(2620). J^{π}: L(pol t,p)=L(p,t)=0.
2620.01 *17*	3^+		B D HI k N	XREF: I(2627)k(2630). J^{π}: spin=3 from $\gamma\gamma(\theta)$ in (α,2nγ); 1187.5γ and 1832.7γ M1+E2 to 2^+.
2620.78[b] *5*	5^-		B D H k NOP W	XREF: k(2630). J^{π}: L(p,p′)=L(d,d′)=5; $\gamma\gamma(\theta)$ in (α,2nγ).
2644.7? *4*	$(1,2^+)$		N T	XREF: T(2646). J^{π}: possible 1909.6γ to 0^+.
2678.88[#] *3*	6^+		B D mNOP R T W	XREF: m(2700)N(?)R(2690)T(2678). J^{π}: L(α,α')=6 for 2690; $\gamma\gamma(\theta)$ in (α,2nγ). L(p,p′)=(4,5) disagrees.
2700.68[‡] *16*	2^+	<0.208 ps	B D F H mNOP T	XREF: F(2695)m(2700)T(2699.6). J^{π}: L(t,p)=L(p,t)=2; $\gamma\gamma(\theta)$ in (α,2nγ). L(p,p′)=(4) is in disagreement. $T_{1/2}$: upper limit from effective half-life=0.173 ps *35* from DSAM in (α,2nγ) (2016Th01).
2733.4[‡] *3*	2^+		D F m OP T V	XREF: m(2700)T(2731.6)V(2740). J^{π}: L(p,p′) or L(d,d′)=L(t,p)=L(p,t)=2. L(d,^{6}Li)=(2+0) indicates a doublet. $\gamma\gamma(\theta)$ in (α,2nγ) gives J=2,3.
2738.2[d] *5*	(6,7)		D W	J^{π}: 394.3γ to (6^+).
2767.68 *4*	4^+		B D F H N	XREF: F(2791)N(?). J^{π}: spin=4 from $\gamma\gamma(\theta)$ in (α,2nγ); 1980.4γ (E2) to 2^+ (M2 is unlikely).
2795.61 *11*	4^-		D H NO	J^{π}: spin=4 from $\gamma\gamma(\theta)$ in (α,2nγ); 778.0γ M1+E2 to 3^-. L(p,p′)=5 suggests 5^-.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{98}Mo Levels (continued)

E(level)[†]	J^{π}[@]	$T_{1/2}$[&]	XREF	Comments
2799.6 *5*	0^+		T	J^{π}: L(p,t)=0.
2813.3[‡] *3*	2^+		B D OP T	XREF: T(2811.1). J^{π}: L(p,p) or L(d,d′)=2; $\gamma\gamma(\theta)$ in (α,2nγ).
2836.83[‡] *6*	6^+		B D F K NOP T	XREF: F(2826)K(2829)N(?)T(2835.3). J^{π}: $\gamma\gamma(\theta)$ in (α,2nγ); L(t,p)=6 for a 2826 *10* group and L(p,p′) or L(d,d′)=6. L(p,t)=L(α,α')=4 is in disagreement.
2851 *10*	0^+		F	J^{π}: L(t,p)=0.
2854.15 *15*	(8^+)		D W	J^{π}: proposed in (^{30}Si,xγ) based on 510.5γ to 6^+.
2856.2 *2*	4^+		B m OP R	XREF: B(?)m(2900)R(2870). J^{π}: L(p,p′)=L(d,d′)=L(α,α')=4.
2871.1 *4*	2,3	<0.35 ps	D K m T	XREF: K(2880)m(2900)T(2868). J^{π}: from $\gamma\gamma(\theta)$ in (α,2nγ). $T_{1/2}$: from DSAM in (α,2nγ) (2016Th01).
2896.79 *17*	5^+		D	J^{π}: spin=5 from $\gamma\gamma(\theta)$ in (α,2nγ); 1386.8γ M1+E2 to 4^+.
2905.2 *7*	4^+	<0.166 ps	D m OP T	XREF: m(2900)T(2902.2). J^{π}: L(p,p′)=L(d,d′)=4. $T_{1/2}$: upper limit from effective half-life=0.152 ps *14* from DSAM in (α,2nγ) (2016Th01).
2915.8[‡] *4*	2^+	<0.138 ps	D F K mNOP T	XREF: F(2898)m(2900)T(2914.4). J^{π}: L(t,p)=2, L(p,p′) or L(d,d′)=2. $T_{1/2}$: upper limit from effective half-life=0.076 ps *+62−42* from DSAM in (α,2nγ) (2016Th01). E(level): doublet in (t,p).
2962.45 *16*	3^-		D HI k OP T	XREF: k(2980)T(2963). J^{π}: L(p,p′)=L(d,d′)=3.
2976.89 *10*	4^+	<0.67 ps	B D F H k OP T	XREF: F(2969)k(2980)T(2977.4). J^{π}: L(t,p)=L(p,t)=4; $\gamma\gamma(\theta)$ in (α,2nγ). $T_{1/2}$: upper limit from effective half-life=0.44 ps *23* from DSAM in (α,2nγ) (2016Th01).
3010.91? *20*			B	XREF: B(?).
3020.42 *8*	5^-		B D OP	J^{π}: L(p,p′)=L(d,d′)=5.
3021.75 *3*	4^+		B D F H R T	XREF: F(3013)H(?)R(3020)T(3021). J^{π}: L(t,p)=L(p,t)=4.
3026.2 *3*	5^+		D	J^{π}: spin=5 from $\gamma\gamma(\theta)$ in (α,2nγ); 1516.2γ M1+E2 to 4^+.
3045.89 *23*	4^+		f H op	XREF: f(3044)o(3049)p(3049). J^{π}: L(t,p)=4 for 3044 group; L(p,p′)=L(d,d′)=4 for 3049 group.
3050.92 *6*	4^+	<0.146 ps	B D f H k op T	XREF: f(3044)H(?)k(3066)o(3049)p(3049)T(3050). J^{π}: L(t,p)=4 for 3044 group ; 1618.8γ to 2^+ and 544.5γ to 5^+. $T_{1/2}$: upper limit from effective half-life=0.125 ps *21* from DSAM in (α,2nγ) (2016Th01).
3067.70 *8*	(3^-)		B D H k NOP T	XREF: H(?)k(3066)T(3067.8). J^{π}: L(p,t)=3; log *ft*=8.8 from $(5)^+$. L(p,p′)=5 for a 3060 level (1972Aw03) and J=2 for a 3067 level (1990Pi14) are in conflict.
3095.80 *17*	2^+		B F	XREF: B(?)F(3093). J^{π}: L(t,p)=2.
3096.26[‡b] *16*	(7^-)		B D OP W	J^{π}: from $\gamma(\theta)$ in (α,2nγ), γ to (5^-) consistent with stretched E2, but L(p,p′) or L(d,d′)=(6) suggests 6^+.
3103.13[‡] *20*	$(2^+,3,4)$		H k op t	XREF: k(3124). J^{π}: primary γ from $(2^+,3^+)$ and γ to (4^+). L(p,p′) or L(d,d′)=2 for a 3106 group suggests 2^+ for 3103 and/or 3109. L(p,t)=2 for 3105.3.
3108.80[‡] *17*	$(2^+,3,4)$		D H k op t	XREF: k(3124).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{98}Mo Levels (continued)

E(level)[†]	J^π[@]	$T_{1/2}$[&]	XREF	Comments
				J^π: primary γ from $(2^+,3^+)$ and γ to 4^+; L(p,t)=2 for 3105.3. See also comment for 3103 level.
3125[‡] *5*	(3^-)		OP	J^π: L(p,p′) or L(d,d′)=(3).
3152[‡] *5*	2^+		OP T	XREF: T(3150). J^π: L(p,p′) or L(d,d′)=2.
3155.56 *22*	(4^+)		H k	XREF: k(3168). J^π: 811.5γ to 6^+, 455.1γ to 2^+.
3165.89 *5*	4^+		B k OP T	XREF: k(3168)T(3167). J^π: L(p,p′)=L(d,d′)=4; log *ft*=7.7 from $(5)^+$.
3195.56 *17*	$(2^-,3,4)$		H T	XREF: T(3197). J^π: 1193.1γ to 3^- and 399.88γ to 4^-; primary γ from $2^+,3^+$.
3208.99 *12*	$(4^+,5^-)$		B	J^π: 530.4γ to 6^+, 1190.8γ to 3^-.
3210.80 *25*	(4^+)		D H N t	XREF: t(3211.6). J^π: 1193.2γ to 3^- and possible 866.6γ to 6^+. Primary γ from $2^+,3^+$. L(p,t)=4 for 3211.6 group.
3211.57 *3*	(4^+)		B H N t	XREF: t(3211.6). J^π: 590.9γ to 5^-, 705.5γ to 5^+, possible 2424.1γ to 2^+; log *ft*=6.4 from $(5)^+$; L(p,t)=4 for 3211.6 group.
3214 *5*	3^-		F OP R	XREF: F(3200)R(3220). J^π: L(t,p)=L(p,p′)=L(d,d′)=L(α,α′)=3.
3229.17 *10*	(4^+)	<0.173 ps	B D	J^π: 415.5γ to 2^+, 885.6γ to 6^+, 1718.8γ to 4^+. $T_{1/2}$: upper limit from effective half-life=0.152 ps *21* from DSAM in (α,2nγ) (2016Th01).
3241.2 *10*	$(4^+$ to 7)		B k T	XREF: k(3270)T(3239.1). J^π: 562.3γ to 6^+; log *ft*=8.4 from $(5)^+$.
3257.86 *10*	1	0.0041 eV *3*	L	B(E1)(↑)=0.34×10^{-5} *3*, B(M1)(↑)=0.031 *3* (2006Ru06).
3263 *5*	1^-		k OP	XREF: k(3270). J^π: L(p,p′)=L(d,d′)=1.
3264.9 *5*	0^+		F k T	XREF: F(3259)k(3270). E(level): from (p,t). J^π: L(t,p)=L(p,t)=0.
3271.49[a] *16*	(8^+)		D W	J^π: $\gamma(\theta)$ from (α,2nγ) consistent with stretched E2 to (6^+).
3276 *5*	$(3^-,4^+)$		O	J^π: L(p,p′)=(3,4).
3302.9 *6*	2^+		F k T	XREF: F(3294)k(3270). E(level): from (p,t). J^π: L(t,p)=2.
3305 *5*	5^-		OP	J^π: L(p,p′)=L(d,d′)=5.
3323.58 *18*	(7^-)		D	J^π: $\gamma\gamma(\theta)$ in (α,2nγ); (M1(+E2)) 227.4γ to (7^-).
3326.41 *4*	4^+		B k NOP T	XREF: k(3340)N(?)T(3326). J^π: L(p,p′)=L(d,d′)=4; log *ft*=6.8 from $(5)^+$.
3343[‡] *2*	2^+		k OP T	XREF: k(3340). E(level): from (p,t). Other: 3344 *5* from (p,p′) and (d,d′). J^π: L(p,p′) or L(d,d′)=2.
3366.1? *3*			B	
3386.2[‡] *10*	2^+		OP T	E(level): from (p,t). Other: 3389 *5* from (p,p′) and (d,d′). J^π: L(p,p′) or L(d,d′)=2.
3394.50 *5*	(4^+)		B N	XREF: N(?). J^π: γ to 2^+; log *ft*=6.6 from $(5)^+$.
3400.92 *14*	4^+		B O	J^π: L(p,p′)=4.
3403.95 *14*	$(5^-,6^+)$		B	J^π: 192.4γ to (4^+), possible 306.9γ to (7^-);

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{98}Mo Levels (continued)

E(level)[†]	J^{π}[@]	$T_{1/2}$[&]	XREF	Comments
				log *ft*=7.7 from $(5)^{+}$.
3405.06 *10*	1	0.044 eV *3*	L	B(E1)(↑)=3.2×10^{-5} *2*, B(M1)(↑)=0.289 *19* (2006Ru06).
3418.74 *22*	4^{+}		B k NOP T	XREF: k(3430)N(?)T(3421). J^{π}: L(p,p′)=L(d,d′)=4; log *ft*=8.3 from $(5)^{+}$.
3455.17 *6*	(4^{+})		B H k N T	XREF: H(?)k(3430)N(?)T(3457). J^{π}: γ to 2^{+}; log *ft*=6.9 from $(5)^{+}$.
3457.07 *10*	1	0.035 eV *2*	L	B(E1)(↑)=2.45×10^{-5} *16*, B(M1)(↑)=0.222 *15* (2006Ru06).
3465.95 *11*	(4^{+})		B O	J^{π}: L(p,p′)=(4).
3474 *2*			T	
3489[‡] *1*	2^{+}		OP T	E(level): from (p,t). Other: 3485 *5* from (p,p′) and (d,d′). J^{π}: L(p,p′) or L(d,d′)=2.
3501.7 *3*	(4^{+})		B k O	XREF: k(3512). J^{π}: L(p,p′)=(4); 2714.3γ to 2^{+}; log *ft*=8.9 from $(5)^{+}$;
3516.75 *7*	(4^{+})		B k T	XREF: k(3512)T(3515.7). J^{π}: 1758.7γ to 2^{+}, 679.7γ to 6^{+}.
3524[‡] *5*	(6^{+})		OP	J^{π}: L(p,p′)=L(d,d′)=(6).
3527.4[d] *5*	$(8,9^{-})$		W	J^{π}: proposed in (^{30}Si,Xγ); 431.5γ to (7^{-}).
3541.28? *15*			B	
3547.51 *6*	(4^{+})		B H	XREF: H(?). J^{π}: 2760.0γ to 2^{+}, 1204.2γ to 6^{+}; log *ft*=7.2 from $(5)^{+}$.
3551.35 *9*	1	0.035 eV *3*	L	E(level): this state decays to g.s. and the first excited 0^{+} state, indicative of two coexisting configurations are mixed in the 0^{+} states (2006Ru06). B(M1)(2817γ, to excited 0^{+})/B(M1)(3551γ, to g.s.)=0.28 *5* (2006Ru06), if $J^{\pi}=1^{+}$.
3554.87? *11*			B k	XREF: k(3570).
3557.0 *4*	(4^{+})	<0.215 ps	D k op	XREF: k(3570). J^{π}: L(p,p′)=L(d,d′)=4 for a 3560 *5* group. $T_{1/2}$: effective half-life=0.166 ps *49* from DSAM in (α,2nγ) (2016Th01).
3565.65 *8*	(4^{+})		B k op	XREF: k(3570). J^{π}: L(p,p′)=L(d,d′)=4 for a 3560 *5* group.
3598.29 *16*	(4^{+})		B H O	XREF: H(?). J^{π}: L(p,p′)=4 for a 3598 *5* group.
3601.1 *4*	$(4^{+},5,6)$		B	J^{π}: 922.3γ and 1257.2γ to 6^{+}; log *ft*=7.8 from $(5)^{+}$.
3617.12? *21*			B k	XREF: k(3636).
3620.10 *19*	$(3^{-},4)$		B k	XREF: k(3636). J^{π}: 1515.5γ to 3^{+} and 1602.0γ to 3^{-}; log *ft*=7.9 from $(5)^{+}$.
3623.57 *6*	4^{+}		B k OP	XREF: k(3636). J^{π}: L(p,p′)=L(d,d′)=4 from 0^{+}.
3639 *5*	4^{+}		k O T	XREF: k(3636)T(3634). J^{π}: L(p,p′)=4.
3656.7[c] *3*	(9^{-})		D W	J^{π}: proposed in (^{30}Si,Xγ); 560.5γ to (7^{-}), 385.1γ to (8^{+}).
3664 *5*	4^{+}		OP	J^{π}: L(p,p′)=L(d,d′)=4.
3682 *5*	4^{+}		k O T	XREF: k(3695)T(3685). J^{π}: L(p,p′)=4.
3703.98 *20*	1	0.0042 eV *6*	L	B(E1)(↑)=0.23×10^{-3} *16*, B(M1)(↑)=0.021 *3* in (γ,γ') (2006Ru06).
3711.9 *7*	5^{-}		B k OP	XREF: k(3695). J^{π}: L(p,p′)=L(d,d′)=5.
3723.7 *3*	4^{+}		B k O	XREF: k(3740). J^{π}: L(p,p′)=4 from 0^{+}.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{98}Mo Levels (continued)

E(level)[†]	J^π[@]	XREF	Comments
3737.79 *9*	4^+	B H k NOP	XREF: H(?)k(3740)N(?). J^π: L(p,p′)=L(d,d′)=4.
3757 *5*	5^-	O	J^π: L(p,p′)=5.
3768.7[b] *6*	(9^-)	D W	J^π: proposed in (^{30}Si,Xγ); 672.4γ to (7^-).
3777.88 *11*	4^+	B k OP	XREF: k(3790). J^π: L(p,p′)=L(d,d′)=4.
3793 *5*	5^-	k O T	XREF: k(3790)T(3796). J^π: L(p,p′)=5.
3806.08 *20*	1	L	
3809.20 *10*	$(4,5,6^+)$	B k	XREF: k(3790). J^π: log *ft*=7.5 from $(5)^+$; 2299.1γ to 4^+.
3809.59 *10*	$(4,5^-)$	B k	XREF: k(3790). J^π: 1792.1γ to 3^-; log *ft*=7.0 from $(5)^+$.
3824[‡] *5*		OP	
3836.98 *10*	1	L	
3842.77[‡] *20*	$(4,5,6^+)$	B OP T	XREF: B(?)T(3851). J^π: log *ft*=7.8 from $(5)^+$; possible 2332.7γ to 4^+.
3857.68 *10*	1	L	
3898 *5*	(4^+)	P	J^π: L(d,d′)=(4).
3937.08 *10*	1	L	
3944.09 *10*	(1)	L	
3947.5 *3*	(4^+)	B P T	XREF: P(3939)T(3951). J^π: L(d,d′)=(4); log *ft*=7.4 from $(5)^+$.
3964.33 *11*	$(4^+,5,6)$	B	J^π: log *ft*=6.9 from $(5)^+$; 1285.4γ and 1620.7γ to 6^+.
3981.81 *10*	3^-	B P	J^π: L(d,d′)=3.
3998.62[‡] *10*	5^-	B OP	XREF: O(3993)P(3993). J^π: L(p,p′) or L(d,d′)=5.
4020.6 *5*	(2)	L	
4041.6 *9*	(1)	L	
4044 *5*	4^+	P	J^π: L(d,d′)=4.
4060.62? *13*	$(4,5,6^+)$	B	J^π: log *ft*=7.5 from $(5)^+$; possible 2550.5γ to 4^+.
4076.43 *11*	$(4,5,6^+)$	B	J^π: log *ft*=7.3 from $(5)^+$; 2566.4γ to 4^+.
4079.8 *4*	1	L	
4102.3 *5*	(2)	L	
4103.35? *20*	(4^+)	B	J^π: possible 2671.1γ to 2^+; log *ft*=7.4 from $(5)^+$.
4117[‡] *5*	$(4^+,5^-)$	OP	J^π: L(p,p′) or L(d,d′)=(4,5).
4143 *5*	4^+	P	J^π: L(d,d′)=4.
4149.2[a] *4*	(10^+)	D W	J^π: proposed in (^{30}Si,Xγ); 877.9γ and 1294.9γ to (8^+).
4170.8 *8*	1	L	
4177 *5*	3^-	P T	XREF: T(4169). J^π: L(d,d′)=3.
4179.90 *20*	(1)	L	
4190.2[d] *7*	(10,11)	W	J^π: proposed in (^{30}Si,Xγ); 662.7γ to (8,9).
4231.1 *4*	1	L	
4247 *5*	4^+	P T	XREF: T(4253). J^π: L(d,d′)=4.
4252.6 *12*	(1)	L	
4258.8 *5*	1	L	
4267.90 *20*	1	L	
4295.40 *10*	(1)	L	
4356 *10*		T	
4361.80 *10*	(1)	L	
4391.21 *10*	(1)	L	
4410.21 *10*	1	L	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{98}Mo Levels (continued)

E(level)[†]	J^{π}[@]	XREF	Comments
4423.9[c] *6*	(11^-)	D W	J^{π}: proposed in (^{30}Si,Xγ); member of negative-parity sequence; 767.2γ to (9^-).
4440.1? *7*		D	
4537.7[b] *8*	(11^-)	D W	J^{π}: proposed in (^{30}Si,Xγ); 769.0γ to (9^-).
4543.31 *20*	1	L	
4581.6 *7*	(1)	L	
4590.62 *10*	1	L	
4599.3 *5*	1	L	
4609.5? *8*		D	
4616.2 *5*	1	L	
4654.3 *4*	(1)	L	
4812.73 *20*	1	L	
4837.53 *10*	1	L	
4902.83 *10*	1	L	
4993.6[d] *9*	(12,13)	W	J^{π}: proposed in (^{30}Si,Xγ); 803.4γ to (10,11); member of a sequence.
5008.6 *3*	1	L	
5028.64 *20*	1	L	
5047.0[a] *7*	(12^+)	W	J^{π}: proposed in (^{30}Si,Xγ); 897.8γ to (10^+); member of a sequence.
5050.34 *10*	1	L	
5081.74 *20*	1	L	
5121.4 *3*	1	L	
5134.1 *11*	(1)	L	
5147.6 *3*	1	L	
5165.15 *20*	1	L	
5174.6 *12*	(2)	L	
5195.5 *4*	1	L	
5215.0 *5*	(2)	L	
5225.5 *7*	(1)	L	
5236.1 *9*	1	L	
5244.55 *20*	(1)	L	
5267.7 *6*	(2)	L	
5312.6 *3*	1	L	
5314.4[b] *9*	(13^-)	W	J^{π}: proposed in (^{30}Si,Xγ); 776.7γ to (11^-); member of a negative-parity sequence.
5315.3[c] *8*	(13^-)	W	J^{π}: proposed in (^{30}Si,Xγ); 891.4γ to (11^-); member of a negative-parity sequence.
5324.0 *5*	(1)	L	
5346.66 *20*	1	L	
5354.66 *20*	1	L	
5362.7 *8*	(1)	L	
5386.26 *20*	1	L	
5397.46 *10*	1	L	
5412.6 *4*	1	L	
5432.9 *6*	1	L	
5442.2 *6*	1	L	
5450.5 *4*	1	L	
5458.2 *5*	1	L	
5482.36 *10*	1	L	
5492.4 *3*	(1)	L	
5508.9 *3*	1	L	
5519.1 *7*	1	L	
5528.2 *4*	1	L	
5544.1 *18*	(1)	L	
5552.7 *8*	(1)	L	
5563.27 *20*	1	L	
5579.2 *4*	1	L	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{98}Mo Levels (continued)

E(level)[†]	J$^{\pi}$[@]	XREF	Comments
5588.4 *15*	(1)	L	
5595.6 *10*	1	L	
5615.3 *12*	1	L	
5626.1 *4*	1	L	
5638.07 *10*	1	L	
5654.38 *20*	1	L	
5664.6 *3*	1	L	
5678.8 *14*	(2)	L	
5686.88 *20*	1	L	
5708.2 *6*	1	L	
5716.1 *4*	1	L	
5725.6 *5*	1	L	
5732.9 *6*	1	L	
5741.48 *10*	1	L	
5754.1 *9*	1	L	
5764.7 *3*	1	L	
5775.98 *20*	1	L	
5791.8 *5*	1	L	
5801.4 *3*	1	L	
5811.38 *20*	1	L	
5828.59 *20*	1	L	
5856.9 *3*	1	L	
5889.4 *6*	1	L	
5906.6 *7*	1	L	
5916.99 *20*	1	L	
5925.0[a] *8*	(14^{+})	W	J$^{\pi}$: proposed in (^{30}Si,Xγ); 878.0γ to (12^{+}); member of a yrast sequence.
5959.79 *20*	1	L	
5972.80 *20*	1	L	
5984.10 *20*	1	L	
5993.0 *8*	(1)	L	
5999.7 *8*	(1)	L	
6022.10 *20*	1	L	
6031.90 *10*	1	L	
6046.3 *4*	1	L	
6065.70 *10*	1	L	
6076.7 *7*	(1)	L	
6101.6 *4*	1	L	
6110.20 *10*	(1)	L	
6120.51 *20*	(1)	L	
6133.0[c] *10*	(15^{-})	W	J$^{\pi}$: proposed in (^{30}Si,Xγ); 817.7γ to (13^{-}); member of a negative-parity sequence.
6145.1 *18*	1	L	
6172 *3*	1	L	
6183.2 *8*	(1)	L	
6220.1 *11*	(1)	L	
6234.5 *10*	(1)	L	
6247.1 *3*	(1)	L	
6266.0 *7*	(1)	L	
6315.9 *3*	1	L	
6330.32 *20*	1	L	
6367.4 *4*	1	L	
6379.2 *8*	1	L	
6388.3 *7*	1	L	
6397.9 *5*	1	L	
6419.9 *11*	1	L	
6438.7 *10*	1	L	
6451.23 *20*	(1)	L	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{98}Mo Levels (continued)

E(level)†	Jπ@	XREF
6465.8 *6*	1	L
6473.4 *3*	1	L
6491.8 *6*	1	L
6511.6 *11*	(1)	L
6522.3 *10*	(1)	L
6530.6 *6*	1	L
6543.43 *20*	1	L
6566.7 *10*	(1)	L
6577.3 *10*	1	L
6586.2 *3*	1	L
6596.4 *3*	1	L
6614.9 *8*	1	L
6631.3 *12*	(1)	L
6636.7 *18*	(1)	L
6648.1 *8*	(1)	L
6680.2 *20*	(1)	L
6698.7 *7*	1	L
6756.35 *20*	1	L
6765.7 *7*	1	L
6815.9 *13*	(1)	L
6824.2 *6*	1	L
6836.6 *6*	(1)	L
6847.4 *6*	1	L
6853.7 *4*	2	L
6866.0 *4*	(2)	L
6888.6 *5*	1	L
6900.3 *3*	(1)	L
6950.8 *8*	1	L
6959.3 *6*	(2)	L
6972.0 *8*	(1)	L
6979.6 *8*	1	L
6995.1 *5*	1	L
7008.77 *20*	1	L
7035.4 *3*	1	L
7050.8 *6*	1	L
7061.8 *4*	1	L
7073.5 *6*	1	L
7087.3 *11*	1	L
7105.1 *13*	(1)	L
7117.2 *4*	1	L
7128.0 *7*	1	L
7142.38 *20*	1	L
7156.8 *3*	1	L
7169.6 *5*	1	L
7182.1 *3*	1	L
7192.3 *8*	1	L
7204.6 *5*	1	L
7258.4 *7*	1	L
7274.4 *4*	1	L
7295.7 *7*	1	L
7309.0 *9*	(1)	L
7327.3 *5*	1	L
7336.49 *20*	1	L
7353.0 *8*	(1)	L
7376.2 *11*	(1)	L
7387.4 *8*	1	L
7396.1 *3*	1	L
7428.3 *4*	1	L
7434 *15*		K
7447.0 *9*	1	L
7461.3 *7*	1	L
7473.7 *3*	1	L
7498.0 *13*	(2)	L
7513.2 *5*	(2)	L
7543.3 *20*	(1)	L
7551.7 *17*	(2)	L
7562.3 *7*	1	L
7583.1 *4*	1	L
7609.1 *6*	1	L
7692.0 *6*	1	L
7711.3 *6*	1	L
7737.3 *20*	(1)	L
7752.5 *8*	1	L
7764.5 *4*	1	L
7781.1 *4*	1	L
7803.4 *5*	1	L
7820.5 *9*	1	L
7834.9 *13*	(1)	L
7847.1 *6*	1	L
7877.3 *6*	1	L
7889.9 *7*	1	L
7900.8 *15*	(2)	L
7927.3 *20*	1	L
7943.6 *8*	1	L
7965.3 *20*	(1)	L
7986.3 *20*	(2)	L
7996.1 *7*	1	L
8011.6 *7*	1	L
8023.6 *5*	1	L
8033.8 *9*	1	L
8045.2 *18*	(1)	L
8054.6 *8*	1	L
8068.0 *11*	(1)	L
8073 *4*	(2)	L
8081.1 *6*	(1)	L
8096.26 *20*	(1)	L
8112.8 *8*	1	L
8124.5 *6*	1	L
8137.5 *10*	1	L
8158.4 *6*	1	L
8168.8 *4*	1	L
8182.8 *4*	1	L
8213.3 *10*	(2)	L
8244.6 *10*	1	L
8255.5 *11*	(1)	L
8266.2 *19*	(1)	L
8277.0 *4*	1	L
8289.5 *21*	1	L
8298.4 *13*	(1)	L
8310.1 *9*	1	L
8331.2 *9*	(1)	L
8357.5 *11*	(2)	L
8370.5 *5*	1	L
8393.4 *20*	1	L

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{98}Mo Levels (continued)

E(level)†	J^{π}@	$T_{1/2}$&	XREF	Comments
8429.5 *9*	(2)		L	
8444.4 *7*	1		L	
8459.6 *7*	1		L	
8472.1 *4*	1		L	
8491.7 *9*	1		L	
8503.9 *5*	1		L	
8513.1 *11*	1		L	
8527.3 *10*	1		L	
8537.5 *7*	1		L	
8562.8 *9*	1		L	
8580.2 *15*	(2)		L	
8590.1 *9*	1		L	
8602.3 *6*	1		L	
8613.1 *5*	1		L	
8620.2 *7*	1		L	
8627.8 *7*	1		L	
8636.5 *5*	1		L	
(8642.58 *4*)	$2^+,3^+$		HI	J^{π}: s-wave neutron capture on $5/2^+$.
8650.3 *6*	1		L	
8662.7 *5*	1		L	
8674.3 *10*	1		L	
≈8800			T	E(level): wide bump attributed to two-hole states.
13.85×10^3 *24*	2^+	4.68 MeV *34*	R	%E2 EWSR=85 *14* for ISGQR (2015Yo04).
14.2×10^3 *4*			Q	FWHM of the GQR=4.7 MeV *4* (1979Mo12). dσ/dΩ(at 6°)=22 mb/sr *6*, %EWSR=87 (1979Mo12).
15.7×10^3	0^+	6.5 MeV	R	%E0 EWSR=83 for ISGMR (2015Yo04).
16.0×10^3 *3*	1^-	10.9 MeV *11*	R	%E1 EWSR=26 *3* for ISGDR (2015Yo04).
21.5×10^3 *4*	3^-	4.2 MeV *3*	R	%E3 EWSR=61 *8* for ISGOR (2015Yo04).
24.2×10^3	0^+	5.6 MeV	R	%E0 EWSR=14 for ISGMR (2015Yo04).
27.4×10^3 *7*	1^-	10.8 MeV *30*	R	%E1 EWSR=49 *8* for ISGDR (2015Yo04).

† From least squares fit to Eγ data. For levels populated in (γ,γ′) only, energies are from Eγ values for transitions to the g.s.
‡ In the XREF column this level is shown to be populated in both (p,p′) and (d,d′), but from the data given by 1992Pi08 (see table 1 in 1992Pi08) it is not clear whether the level is populated in both the reactions or only one of these.
# In the XREF column this level is shown to be populated in both (p,p′) and (d,d′). While population in (p,p′) is certain, it is not clear (from table 1 in 1992Pi08) whether or not the level is populated in (d,d′).
@ For levels populated in (γ,γ′) only, spin assignments are from γ(θ) of ground transitions (L=1 or 2), mostly consistent with spin=1.
& Deduced from measured B(E2) or B(E3) in Coulomb excitation up to 2344 level and from DSAM in (α,2nγ) above that up to 3557, unless otherwise noted. Values of widths are from (γ,γ′) or (α,α′) where available.
a Seq.(A): Yrast structure.
b Seq.(B): γ cascade based on 3^-. Possible octupole structure.
c Seq.(C): γ cascade based on (9^-).
d Seq.(D): γ cascade based on (6,7).

Adopted Levels, Gammas (continued)

$\gamma(^{98}Mo)$

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.‡	δ‡	α@	Comments
734.75	0^+	734.75		0.0	0^+	E0			E_γ: deduced from level difference. ce line observed in (p,p′γ) and (t,pγ) studies. Mult.: from observation in ce data only. Branching ratio for two photon emission: $\Gamma_{\gamma\gamma}/\Gamma<0.0001$ at 95% confidence level (2014He12). Two methods were used, one based on direct population of 735, 0^+ state, and the second based on population of 735, 0^+ level through 1024γ from 1758,2^+ level. Strength parameter ρ^2(E0)=0.0273 *25* (1971AnZV,(p,p′γ)). 2005Ki02 evaluation gives ρ^2(E0)=0.0273 *11*.
787.384	2^+	(52.63 *5*)	6.5×10^{-5} *12*	734.75	0^+	[E2]		12.06 *18*	B(E2)(W.u.)=9.7 *+10−25* α(K)=8.32 *12*; α(L)=3.09 *5*; α(M)=0.568 *8* α(N)=0.0770 *11*; α(O)=0.001080 *16* E_γ: from level-energy difference. I_γ: from B(E2)(735,0^+ to 787,2^+) in Coul. ex. B(E2)(W.u.) from B(E2)↑=0.130 *+14−34* (2002Zi06). Other B(E2)(W.u.)=21.8 11 from B(E2)↑=0.293 *14* (1978La17).
		787.372 *20*	100	0.0	0^+	E2			B(E2)(W.u.)=20.1 *4* E_γ: weighted average of 787.363 *20* from ^{98}Nb β^- decay (51.1 min) and 787.38 *2* from (n,n′γ). Others: 787.4 *3* from ^{98}Nb β^- decay (2.86 s), 787.26 *15* from (α,2nγ), 787.42 *10* from (n,γ) E=th, 787.4 *5* from (^{30}Si,Xγ), and 787.5 *3* from Coulomb excitation. Mult.: Q from γγ(θ) in (α,2nγ) and γ(θ) in (n,n′γ); M2 ruled out by RUL.
1432.210	2^+	644.828 *20*	100 *3*	787.384	2^+	E2+M1	+1.69 *16*		B(M1)(W.u.)=0.0073 *+23−17*; B(E2)(W.u.)=48 *+9−8* E_γ: weighted average of 644.847 *20* from ^{98}Nb β^- decay (51.1 min) and 644.81 *2* from (n,n′γ). Others: 645.1 *3* from ^{98}Nb β^- decay (2.86 s), 644.70 *15* from (α,2nγ), 644.89 *11* from (n,γ) E=th, and 644.9 *3* from Coulomb excitation. δ: weighted average of +1.67 *25* from γγ(θ) in (α,2nγ) and +1.70 *16* from γ(θ) in (n,n′γ). Others: +0.58 *5* from γγ(θ) in (n,γ) E=thermal; +0.27 *2* from matrix elements in Coul. ex.
		697.42 *10*	5.2 *3*	734.75	0^+	(E2)			B(E2)(W.u.)=2.3 *+5−4* E_γ: weighted average of 697.38 *10* from ^{98}Nb β^- decay (51.1 min), 697.10 *46* from (α,2nγ), 697.6 *2* from (n,γ) E=th, and 697.6 *5* from Coulomb excitation. I_γ: weighted average of 5.0 *3* from ^{98}Nb β^- decay (51.1 min), 5.8 *7* from (α,2nγ), 5.9 *17* from (n,γ) E=th, and 5.8 *16* from Coulomb excitation.
		1432.22 *3*	84.2 *13*	0.0	0^+	E2			B(E2)(W.u.)=1.02 *+15−12* E_γ: weighted average of 1432.4 *3* from ^{98}Nb β^- decay (2.86 s), 1432.175 *20* from ^{98}Nb β^- decay (51.1 min), 1432.29 *20* from (α,2nγ), 1432.31 *11* from (n,γ) E=th, 1432.30 *3* from (n,n′γ), and

From ENSDF

$^{98}_{42}Mo_{56}$-13

$\gamma(^{98}Mo)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	δ‡	α@	Comments
									1432.2 *3* from Coulomb excitation. I_γ: unweighted average of 88.7 *8* from ^{98}Nb β^- decay (51.1 min), 81.5 *16* from (α,2nγ), 84 *7* from (n,γ) E=th, 84.9 *10* from (n,n′γ), and 82 *7* from Coulomb excitation. Mult.: Q from $\gamma(\theta)$ in (n,n′γ); M2 ruled out by RUL.
1510.047	4^+	77.83	0.00052 *8*	1432.210	2^+	[E2]		2.98	B(E2)(W.u.)=15.2 *+33−30* α(K)=2.31 *4*; α(L)=0.550 *8*; α(M)=0.1002 *14* α(N)=0.01390 *20*; α(O)=0.000318 *5* E_γ: from level-energy difference. I_γ: from Coul. ex.
		722.643 *20*	100	787.384	2^+	E2			B(E2)(W.u.)=42.3 *+9−8* E_γ: weighted average of 722.626 *20* from ^{98}Nb β^- decay (51.1 min) and 722.66 *2* from (n,n′γ). Others: 722.48 *15* from (α,2nγ), 722.70 *10* from (n,γ) E=th, 722.4 *5* from (^{30}Si,Xγ), and 722.8 *3* from Coulomb excitation. Mult.: also supported by $\gamma\gamma(\theta)$ in (n,γ) E=thermal and $\gamma(\theta)$ in (n,n′γ). Deduced δ(O/Q)=−0.05 *11* (n,n′γ); −0.04 *3* (n,γ).
1758.49	2^+	248.45	0.16 *3*	1510.047	4^+	[E2]		0.0462	B(E2)(W.u.)=14 *4* α(K)=0.0398 *6*; α(L)=0.00532 *8*; α(M)=0.000954 *14* α(N)=0.0001406 *20*; α(O)=6.35×10^{-6} *9* E_γ: from level-energy difference. I_γ: from Coul. ex.
		326.29 *12*	6.4 *4*	1432.210	2^+	(M1(+E2))	−0.17 *22*	0.0111 *8*	B(M1)(W.u.)=0.0157 *+27−34*; B(E2)(W.u.)<22 α(K)=0.0098 *7*; α(L)=0.00113 *10*; α(M)=0.000201 *18* α(N)=3.06×10^{-5} *25*; α(O)=1.72×10^{-6} *10* E_γ: weighted average of 326.7 *6* from ^{98}Nb β^- decay (2.86 s), 326.43 *13* from ^{98}Nb β^- decay (51.1 min), 326.05 *25* from (α,2nγ), and 326.21 *12* from (n,γ) E=th. I_γ: weighted average of 5.1 *9* from ^{98}Nb β^- decay (2.86 s), 4.6 *9* from ^{98}Nb β^- decay (51.1 min), 7.0 *3* from (α,2nγ), 6.3 *6* from (n,γ) E=th, and 5.7 *5* from Coulomb excitation.
		971.11 *4*	64 *3*	787.384	2^+	M1+E2	−0.97 *14*		B(M1)(W.u.)=0.0032 *+8−7*; B(E2)(W.u.)=3.0 *7* E_γ: weighted average of 971.7 *3* from ^{98}Nb β^- decay (2.86 s), 970.86 *10* from ^{98}Nb β^- decay (51.1 min), 971.03 *16* from (α,2nγ), 971.01 *11* from (n,γ) E=th, 971.14 *3* from (n,n′γ), and 971.3 *5* from Coulomb excitation. I_γ: unweighted average of 53 *6* from ^{98}Nb β^- decay (2.86 s), 61 *3* from ^{98}Nb β^- decay (51.1 min), 65.9 *10* from (α,2nγ), 60 *6* from (n,γ) E=th, 72.9 *10* from (n,n′γ), and 70 *15* from Coulomb excitation. δ: others: −1.6 *+7−15* from $\gamma(\theta)$ in (n,n′γ), −2.15 *15* from $\gamma\gamma(\theta)$ in (n,γ) E=thermal; +0.42 *7* from matrix elements in Coul. ex.

$^{98}_{42}Mo_{56}$-14

$\gamma(^{98}\text{Mo})$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	Comments
1758.49	2^+	1023.73 *3*	100.0 *13*	734.75	0^+	E2	B(E2)(W.u.)=7.5 *+6−5* E_γ: weighted average of 1024.3 *3* from ^{98}Nb β^- decay (2.86 s), 1023.7 *1* from ^{98}Nb β^- decay (51.1 min), 1023.61 *16* from (α,2nγ), 1023.60 *11* from (n,γ) E=th, 1023.74 *3* from (n,n′γ), and 1023.7 *5* from Coulomb excitation. I_γ: from (n,n′γ). Mult.: also supported by $\gamma(\theta)$ in (n,n′γ).
		1758.64 *12*	6.4 *8*	0.0	0^+	[E2]	B(E2)(W.u.)=0.032 *+7−6* E_γ: weighted average of 1758.4 *6* from ^{98}Nb β^- decay (2.86 s), 1758.46 *12* from ^{98}Nb β^- decay (51.1 min), 1758.64 *14* from (α,2nγ), 1758.9 *5* from (n,γ) E=th, 1759.1 *2* from (n,n′γ), and 1758.8 *5* from Coulomb excitation. I_γ: weighted average of 10.6 *21* from ^{98}Nb β^- decay (2.86 s), 5.5 *9* from ^{98}Nb β^- decay (51.1 min), 5.4 *21* from (n,γ) E=th, and 6.7 *8* from (n,n′γ).
1880.86	≤4	449.1 *3*	9 *4*	1432.210	2^+		E_γ,I_γ: from (n,γ) E=thermal only.
		1093.2 *2*	100 *12*	787.384	2^+		E_γ,I_γ: from (n,γ) E=thermal only.
1963.05	0^+	531.0 *4*	39 *3*	1432.210	2^+		E_γ: weighted average of 530.61 *30* from (α,2nγ) and 531.3 *3* from (n,n′γ). I_γ: weighted average of 39 *3* from (α,2nγ) and 42 *6* from (n,n′γ).
		1175.65 *8*	100 *5*	787.384	2^+	E2	E_γ: weighted average of 1175.57 *20* from (α,2nγ) and 1175.66 *8* from (n,n′γ). I_γ: from (n,n′γ).
2017.53	3^-	258.99 *4*	25.8 *7*	1758.49	2^+	(E1)	B(E1)(W.u.)=4.9×10^{-5} *+9−7* E_γ: weighted average of 259.00 *10* from ^{98}Nb β^- decay (51.1 min), 258.96 *26* from (α,2nγ), 259.01 *10* from (n,γ) E=th, 258.98 *4* from (n,n′γ), and 258.9 *5* from Coulomb excitation. I_γ: weighted average of 26.3 *7* from ^{98}Nb β^- decay (51.1 min), 22.0 *19* from (α,2nγ), 28 *3* from (n,γ) E=th, 25.5 *8* from (n,n′γ), and 27.0 *20* from Coulomb excitation. Mult.: δ(Q/D)=+0.01 *6* from (α,2nγ).
		507.8 *2*	4.1 *5*	1510.047	4^+	[E1]	B(E1)(W.u.)=1.02×10^{-6} *+31−24* E_γ: from (α,2nγ) and (n,γ) E=thermal. Other: 507.8 *3* from ^{98}Nb β^- decay (51.1 min). I_γ: from (n,γ) E=thermal. Other: 3.9 *20* from ^{98}Nb β^- decay (51.1 min).
		585.40[b]	<0.3	1432.210	2^+	[E1]	B(E1)(W.u.)<5.7×10^{-8} E_γ,I_γ: from ^{98}Nb β^- decay (51.1 min) only.
		1230.16 *4*	100 *3*	787.384	2^+	(E1)	B(E1)(W.u.)=1.76×10^{-6} *+28−22* E_γ: weighted average of 1230.15 *5* from ^{98}Nb β^- decay (51.1 min), 1230.04 *15* from (α,2nγ), 1230.23 *12* from (n,γ) E=th, 1230.17 *4* from (n,n′γ), 1230.3 *5* from (^{30}Si,Xγ), and 1230.1 *3* from Coulomb excitation. Mult.: δ(Q/D)=−0.04 *7* ($\gamma\gamma(\theta)$ in (α,2nγ); 0.00 *2* ($\gamma\gamma(\theta)$ in (n,γ)); −0.04 *1* ($\gamma(\theta)$ in (n,n′γ)).
		1282.78[b]	<1.3	734.75	0^+	[E3]	B(E3)(W.u.)<58 E_γ,I_γ: from ^{98}Nb β^- decay (51.1 min) only.
		2017.46 *10*	18.7 *12*	0.0	0^+	[E3]	B(E3)(W.u.)=30 *+7−5* E_γ: weighted average of 2017.48 *10* from ^{98}Nb β^- decay (51.1 min), 2018.01 *53* from (α,2nγ), 2017.4 *2* from (n,γ) E=th, 2017.3 *3* from (n,n′γ), 2017.3 *5* from (^{30}Si,Xγ), and 2017.4 *5* from Coulomb excitation.

$^{98}_{42}\text{Mo}_{56}$-15

γ(^{98}Mo) (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	δ‡	Comments
								I_γ: weighted average of 21.1 *13* from ^{98}Nb β^- decay (51.1 min), 16.2 *17* from (α,2nγ), 19.2 *21* from (n,γ) E=th, 17.0 *10* from (n,n′γ), and 23.0 *20* from Coulomb excitation. Other: 58 *14* from (^{30}Si,Xγ).
2037.52	0^+	1250.13 *6*	100	787.384	2^+	(E2)		E_γ: weighted average of 1250.00 *19* from (α,2nγ) and 1250.14 *6* from (n,n′γ). Other: 1250.2 *6* from ^{98}Nb β^- decay (2.86 s).
2104.72	3^+	594.65 *12*	9 *4*	1510.047	4^+			E_γ: weighted average of 594.66 *13* from ^{98}Nb β^- decay (51.1 min), 594.65 *12* from (α,2nγ), and 594.6 *3* from (n,γ) E=th. I_γ: weighted average of 8.2 *24* from ^{98}Nb β^- decay (51.1 min) and 21 *8* from (n,γ) E=th.
		672.52 *4*	82 *3*	1432.210	2^+	M1+E2	+5.8# *9*	E_γ: weighted average of 672.59 *10* from ^{98}Nb β^- decay (51.1 min), 672.50 *17* from (α,2nγ), 672.63 *11* from (n,γ) E=th, and 672.50 *4* from (n,n′γ). I_γ: weighted average of 78 *6* from ^{98}Nb β^- decay (51.1 min), 79 *3* from (α,2nγ), 83 *8* from (n,γ) E=th, and 89 *4* from (n,n′γ). Mult.,δ: from $\gamma(\theta)$ in (n,n′γ); E1+M2 ruled out by RUL due to large quadrupole mixing. Other: δ=+6.7 *+34−17* from $\gamma\gamma(\theta)$ (α,2nγ) agrees well.
		1317.38 *10*	100 *4*	787.384	2^+	M1+E2	+3.1# *6*	E_γ: weighted average of 1317.33 *10* from ^{98}Nb β^- decay (51.1 min), 1317.37 *17* from (α,2nγ), 1317.40 *12* from (n,γ) E=th, and 1317.43 *11* from (n,n′γ). Mult.,δ: from $\gamma(\theta)$ in (n,n′γ); E1+M2 ruled out by RUL due to large quadrupole mixing. Other: δ=+2.9 *+6−5* from $\gamma\gamma(\theta)$ in (α,2nγ) agrees well.
2206.61	2^+	448.2 *2*	14 *6*	1758.49	2^+			
		696.5[b]	<1.4	1510.047	4^+			
		774.3[b]	<6	1432.210	2^+			
		1419.36 *7*	100 *14*	787.384	2^+	M1+E2	−0.33 *11*	B(M1)(W.u.)>0.019; B(E2)(W.u.)>0.49 E_γ: weighted average of 1419.7 *3* from ^{98}Nb β^- decay (2.86 s), 1419.07 *10* from ^{98}Nb β^- decay (51.1 min), 1419.48 *22* from (α,2nγ), 1419.39 *13* from (n,γ) E=th, and 1419.41 *5* from (n,n′γ).
		2206.5[b]	<3	0.0	0^+			
2223.862	4^+	206.3 *5*	0.6 *4*	2017.53	3^-			
		465.5 *2*	0.6 *2*	1758.49	2^+			
		713.824 *20*	100.0 *21*	1510.047	4^+	M1+E2	+1.13 *17*	E_γ: weighted average of 713.817 *20* from ^{98}Nb β^- decay (51.1 min) and 713.87 *5* from (n,n′γ). Others: 713.80 *16* from (α,2nγ) and 713.88 *15* from (n,γ) E=th. E_γ: other: 100 *5* from (n,n′γ).
		791.646 *20*	85.4 *5*	1432.210	2^+	(E2)		E_γ: others: 791.58 *17* from (α,2nγ), 791.5 *2* from (n,γ) E=th, and 792.0 *2* from (n,n′γ). I_γ: weighted average of 85.5 *5* from ^{98}Nb β^- decay (51.1 min), 83 *4* from (α,2nγ), 78 *9* from (n,γ) E=th. Other: 150 *20* from (n,n′γ). Mult.: δ(M3/E2)=+0.07 *8* from (α,2nγ).
		1436.45 *6*	27.4 *6*	787.384	2^+	(E2)		E_γ: weighted average of 1436.42 *5* from ^{98}Nb β^- decay (51.1 min), 1436.68 *25* from (α,2nγ), 1436.6 *3* from (n,γ) E=th, and 1437.0 *3* from (n,n′γ). I_γ: weighted average of 27.6 *4* from ^{98}Nb β^- decay (51.1 min), 23.4 *19* from (α,2nγ), 29 *6* from (n,γ) E=th, and 23 *4* from (n,n′γ). Mult.: δ(M3/E2)=−0.03 *7* from (α,2nγ).

$\gamma(^{98}Mo)$ (continued)

E_i(level)	J^{π}_i	E_{γ}†	I_{γ}†	E_f	J^{π}_f	Mult.‡	δ‡	Comments
2333.18	2^+	900.92 *15*	100	1432.210	2^+	(M1(+E2))	−0.15 +*19*−*29*	B(M1)(W.u.)>0.054 E_{γ}: weighted average of 900.85 *21* from (α,2nγ), 900.9 *2* from (n,γ) E=th and 900.96 *15* from (n,n′γ). Placement from (α,2nγ); it is placed from the 2333.4, 4^+ level in (n,γ) E=th and (n,n′γ) and replaced from the 2333.2, 2^+ level by evaluators.. Mult.,δ: $\gamma\gamma(\theta)$ in (α,2nγ).
2333.46	4^+	109.53 *10*	0.95 *24*	2223.862	4^+			I_{γ}: from β^- (51.1 min). Other: 11 *4* in (α,2nγ) is too large by a factor of almost 10.
		575.02 *10*	6.3 *7*	1758.49	2^+			E_{γ}: weighted average of 575.06 *10* from ^{98}Nb β^- decay (51.1 min), 575.06 *10* from (α,2nγ), 575.0 *2* from (n,γ) E=th, and 574.4 *3* from (n,n′γ). I_{γ}: weighted average of 6.2 *7* from ^{98}Nb β^- decay (51.1 min) and 7.1 *21* from (n,γ) E=th. Value of 26 *5* in (n,n′γ) is discrepant, not used in averaging.
		823.38 *5*	57 *8*	1510.047	4^+	M1+E2	−0.388 *7*	E_{γ}: weighted average of 823.39 *5* from ^{98}Nb β^- decay (51.1 min), 823.33 *16* from (α,2nγ), 823.44 *12* from (n,γ) E=th, and 823.35 *7* from (n,n′γ). I_{γ}: unweighted average of 64.1 *14* from ^{98}Nb β^- decay (51.1 min), 77 *5* from (α,2nγ), 45 *4* from (n,γ) E=th, and 43.1 *23* from (n,n′γ). δ: others: δ(Q/D)=−2.7 +*11*−*21* or −0.24 *20* from $\gamma(\theta)$ in (n,n′γ).
		1546.04 *5*	100.0 *19*	787.384	2^+	(E2)		E_{γ}: weighted average of 1546.03 *5* from ^{98}Nb β^- decay (51.1 min), 1546.30 *22* from (α,2nγ), 1545.95 *12* from (n,γ) E=th, and 1546.06 *8* from (n,n′γ). δ(M3/E2)=−0.04 *4* from (α,2nγ).
2343.62	6^+	833.562 *20*	100	1510.047	4^+	E2		B(E2)(W.u.)=10.1 *4* E_{γ}: weighted average of 833.556 *20* from ^{98}Nb β^- decay (51.1 min), 833.61 *13* from (n,γ) E=th, and 833.70 *11* from (n,n′γ). Others: 833.52 *15* from (α,2nγ) and 833.6 *5* from (^{30}Si,Xγ). Mult.: δ(M3/E2)=−0.01 *7* from (α,2nγ).
2418.46	2^+	985.9 *3*	100	1432.210	2^+	((M1+E2))	+0.01 *7*	E_{γ}: weighted average of 986.34 *27* from (α,2nγ), 985.5 *4* from (n,γ) E=th, and 985.8 *2* from (n,n′γ).
		1631.11 *11*	97 *6*	787.384	2^+			E_{γ}: weighted average of 1631.26 *50* from (α,2nγ), 1631.4 *2* from (n,γ) E=th, and 1631.03 *10* from (n,n′γ). I_{γ}: from (α,2nγ).
2419.63	4^+	195.66 *10*	5.1 *7*	2223.862	4^+			
		314.9 *2*	2.9 *7*	2104.72	3^+			E_{γ}: weighted average of 315.0 *2* from ^{98}Nb β^- decay (51.1 min), 314.9 *2* from (α,2nγ), and 314.6 *3* from (n,γ) E=th. I_{γ}: weighted average of 2.9 *7* from ^{98}Nb β^- decay (51.1 min) and 2.8 *19* from (n,γ) E=th.
		402.05 *10*	11.1 *14*	2017.53	3^-			E_{γ}: weighted average of 401.99 *10* from ^{98}Nb β^- decay (51.1 min), 402.33 *39* from (α,2nγ), and 402.2 *2* from (n,γ) E=th. I_{γ}: weighted average of 13.1 *15* from ^{98}Nb β^- decay (51.1 min), 10.0 *14* from (α,2nγ), and 8 *3* from (n,γ) E=th.

$^{98}_{42}Mo_{56}$-17

$\gamma(^{98}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α[@]	Comments
2419.63	4^+	661.12 *19*	19.2 *21*	1758.49	2^+	(E2)			E_γ: weighted average of 661.15 *19* from ^{98}Nb β^- decay (51.1 min), 661.16 *40* from (α,2nγ), 661.5 *5* from (n,γ) E=th, and 660.7 *4* from (n,n′γ). I_γ: weighted average of 28 *4* from ^{98}Nb β^- decay (51.1 min), 17.8 *13* from (α,2nγ), 19 *9* from (n,γ) E=th, and 32 *7* from (n,n′γ). δ(M3/E2)=+0.09 *10* from (α,2nγ).
		909.62 *5*	100.0 *22*	1510.047	4^+	M1+E2	−0.64 *10*		E_γ: weighted average of 909.67 *5* from ^{98}Nb β^- decay (51.1 min), 909.52 *17* from (α,2nγ), 909.59 *13* from (n,γ) E=th, and 909.54 *8* from (n,n′γ).
		987.48 *10*	32 *3*	1432.210	2^+				E_γ: weighted average of 987.47 *10* from ^{98}Nb β^- decay (51.1 min), 987.48 *10* from (α,2nγ), 987.6 *5* from (n,γ) E=th, and 987.6 *8* from (n,n′γ). I_γ: weighted average of 32.8 *22* from ^{98}Nb β^- decay (51.1 min), 20 *9* from (n,γ) E=th, and 16 *13* from (n,n′γ).
		1631.8 *3*	54 *5*	787.384	2^+				E_γ: unweighted average of 1632.17 *10* from ^{98}Nb β^- decay (51.1 min), 1632.46 *33* from (α,2nγ), 1631.4 *2* from (n,γ) E=th, and 1631.03 *10* from (n,n′γ). I_γ: unweighted average of 59.9 *22* from ^{98}Nb β^- decay (51.1 min), 40.5 *16* from (α,2nγ), 57 *9* from (n,γ) E=th, and 60 *8* from (n,n′γ).
2485.15	3^+	151.9 *2*	8 *4*	2333.46	4^+				E_γ: weighted average of 151.8 *2* from ^{98}Nb β^- decay (51.1 min) and 151.9 *2* from (α,2nγ).
		380.3 *2*	20.8 *25*	2104.72	3^+				E_γ: weighted average of 380.4 *2* from ^{98}Nb β^- decay (51.1 min) and 380.05 *43* from (α,2nγ). I_γ: weighted average of 15 *4* from ^{98}Nb β^- decay (51.1 min) and 21.8 *17* from (α,2nγ).
		467.0 *9*	3 *3*	2017.53	3^-				
		726.83[b] *10*	<4.6	1758.49	2^+				I_γ: 38 *12* from ^{98}Nb β^- decay (51.1 min) but this γ is not confirmed in (α,2nγ), only an upper limit is given.
		975.08 *14*	36.0 *17*	1510.047	4^+	M1+E2	−0.9 *+6−16*		E_γ: weighted average of 975.02 *14* from ^{98}Nb β^- decay (51.1 min), 975.25 *32* from (α,2nγ), and 975.2 *3* from (n,n′γ). I_γ: weighted average of 38 *4* from ^{98}Nb β^- decay (51.1 min), 35.9 *17* from (α,2nγ), and 30 *8* from (n,n′γ).
		1052.96 *10*	54 *3*	1432.210	2^+	M1+E2	−0.97 *+27−36*		E_γ: weighted average of 1052.95 *10* from ^{98}Nb β^- decay (51.1 min), 1053.04 *26* from (α,2nγ), and 1052.96 *13* from (n,n′γ). I_γ: weighted average of 46 *8* from ^{98}Nb β^- decay (51.1 min), 55 *3* from (α,2nγ). Other: 104 *7* from (n,n′γ) is discrepant.
		1697.6 *2*	100	787.384	2^+	M1+E2	−0.52 *13*		I_γ: from (n,n′γ).
2506.38	5^+	86.64 *10*	19 *1*	2419.63	4^+				E_γ: weighted average of 86.65 *10* from ^{98}Nb β^- decay (51.1 min) and 86.51 *32* from (α,2nγ). I_γ: other: 8 *5* from (α,2nγ).
		162.53 *15*	0.9 *5*	2343.62	6^+				

$^{98}_{42}Mo_{56}$-18

$\gamma(^{98}Mo)$ (continued)

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.‡	δ‡	α@	Comments
2506.38	5^+	172.95 *5*	71 *4*	2333.46	4^+	(M1(+E2))	+0.05 *11*	0.057 *3*	α(K)=0.0495 *22*; α(L)=0.0058 *4*; α(M)=0.00104 *7* α(N)=0.000158 *9*; α(O)=8.8×10^{-6} *4* E_γ: others: 172.89 *16* from (α,2nγ), 171.9 *7* from (n,n′γ). I_γ: weighted average of 65 *4* from ^{98}Nb β^- decay (51.1 min), 74 *3* from (α,2nγ). Other: 25 *14* from (n,n′γ) is discrepant.
		282.52 *10*	1.9 *3*	2223.862	4^+				
		299.6[b] *2*	1.4 *5*	2206.61	2^+	[M3]		0.244	α(K)=0.207 *3*; α(L)=0.0309 *5*; α(M)=0.00566 *8* α(N)=0.000847 *12*; α(O)=4.20×10^{-5} *6* Implied mult=M3 makes this low-energy transition questionable.
		401.61[b]		2104.72	3^+				
		996.32 *5*	100.0 *18*	1510.047	4^+	M1+E2	−0.96 *10*		E_γ: weighted average of 996.30 *5* from ^{98}Nb β^- decay (51.1 min), 996.33 *16* from (α,2nγ), and 996.44 *13* from (n,n′γ).
2525.8	2^+	1093.6 *3*	100	1432.210	2^+	(M1(+E2))	+0.01 *17*		B(M1)(W.u.)>0.044 E_γ: weighted average of 1093.32 *26* from (α,2nγ) and 1093.9 *3* from (n,n′γ).
2562.23	(2^-)	544.8 *2*	7.8 *12*	2017.53	3^-				E_γ: weighted average of 544.52 *39* from (α,2nγ), 545.0 *2* from (n,γ) E=th, and 544.2 *4* from (n,n′γ). I_γ: weighted average of 7.4 *9* from (α,2nγ), 13 *4* from (n,γ) E=th, and 17 *7* from (n,n′γ).
		803.6 *5*	8 *7*	1758.49	2^+				E_γ,I_γ: from (n,γ) E=th.
		1774.8 *3*	100 *5*	787.384	2^+	D(+Q)	+0.05 *7*		E_γ: unweighted average of 1775.37 *23* from (α,2nγ), 1774.7 *2* from (n,γ) E=th, and 1774.31 *11* from (n,n′γ). I_γ: from (n,n′γ).
2570.9?	(6,7,8)	227.3[b] *5*	100	2343.62	6^+				E_γ: from (α,2nγ) only.
2572.84	3	239.2 *2*	16 *4*	2333.46	4^+				E_γ,I_γ: from (n,γ) E=th.
		555.3 *2*	52 *7*	2017.53	3^-				E_γ: weighted average of 555.3 *2* from ^{98}Nb β^- decay (51.1 min), 555.07 *35* from (α,2nγ), 555.4 *2* from (n,γ) E=th, and 555.4 *3* from (n,n′γ). I_γ: weighted average of 38 *25* from ^{98}Nb β^- decay (51.1 min), 47 *7* from (α,2nγ), 59 *7* from (n,γ) E=th. Other: 161 *30* from (n,n′γ) is discrepant.
		814.3 *2*	50 *3*	1758.49	2^+	D(+Q)	+0.10 *10*		E_γ: weighted average of 814.8 *3* from ^{98}Nb β^- decay (51.1 min), 814.46 *26* from (α,2nγ), 814.2 *2* from (n,γ) E=th, and 814.1 *2* from (n,n′γ). I_γ: weighted average of 50 *25* from ^{98}Nb β^- decay (51.1 min), 50 *3* from (α,2nγ), 62 *15* from (n,γ) E=th. Other: 94 *8* from (n,n′γ) is discrepant.
		1140.8 *4*	29 *4*	1432.210	2^+				E_γ: weighted average of 1140.83 *47* from (α,2nγ) and 1140.8 *4* from (n,γ) E=th. I_γ: weighted average of 29 *4* from (α,2nγ) and 32 *15* from (n,γ) E=th.
		1785.54 *16*	100 *13*	787.384	2^+	D(+Q)	+0.01 *6*		E_γ: weighted average of 1785.66 *14* from ^{98}Nb β^- decay (51.1

$^{98}_{42}Mo_{56}$-19

γ(^{98}Mo) (continued)

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.‡	δ‡	Comments
								min), 1785.90 *24* from (α,2nγ), 1785.4 *3* from (n,γ) E=th, and 1785.1 *2* from (n,n′γ).
2574.86	4$^+$	350.79 *12*	100	2223.862	4$^+$	(M1(+E2))	−0.13 *24*	E_γ: weighted average of 350.78 *12* from ^{98}Nb β^- decay (51.1 min) and 350.81 *18* from (α,2nγ). I_γ: from (α,2nγ). Other: I(350.8γ)/I(1063.7γ)=15 *6*/100 *6* from ^{98}Nb β^- decay (51.1 min), is discrepant.
		557.5 *1*	20 *6*	2017.53	3$^-$			E_γ: weighted average of 557.5 *1* from ^{98}Nb β^- decay (51.1 min) and 557.08 *39* from (α,2nγ). I_γ: from (α,2nγ). Other: I(557.5γ)/I(1063.7γ)=39 *6*/100 *6* from ^{98}Nb β^- decay (51.1 min).
		1063.6 *6*	91 *4*	1510.047	4$^+$	M1+E2	−2.7 *+8−15*	E_γ: unweighted average of 1063.0 *2* from ^{98}Nb β^- decay (51.1 min) and 1064.27 *18* from (α,2nγ). I_γ: from (α,2nγ).
2612.4	0$^+$	1825.0 *5*	100	787.384	2$^+$	(E2)		E_γ: from (α,2nγ). Other: 1821.0 *6* in β^- (2.86 s).
2620.01	3$^+$	1187.5 *3*	50 *9*	1432.210	2$^+$	M1+E2	−1.0 *+10−5*	E_γ: weighted average of 1187.1 *5* from ^{98}Nb β^- decay (51.1 min), 1187.50 *43* from (α,2nγ), 1187.6 *3* from (n,γ) E=th, and 1187.6 *3* from (n,n′γ). I_γ: weighted average of 80 *50* from ^{98}Nb β^- decay (51.1 min), 49 *18* from (n,γ) E=th, and 49 *9* from (n,n′γ). Others: 9.7 *7* from (α,2nγ) is discrepant.
		1832.7 *2*	100 *8*	787.384	2$^+$	M1+E2	−0.54 *13*	E_γ: weighted average of 1833.0 *3* from ^{98}Nb β^- decay (51.1 min), 1832.93 *33* from (α,2nγ), 1833.0 *3* from (n,γ) E=th, and 1832.4 *2* from (n,n′γ).
		1886.3[b] *7*	40 *18*	734.75	0$^+$	[M3]		E_γ,I_γ: from (n,γ) E=th. Implied M3 for this transition makes it questionable.
2620.78	5$^-$	603.28 *12*	63.3 *12*	2017.53	3$^-$	(E2)		E_γ: weighted average of 603.28 *10* from ^{98}Nb β^- decay (51.1 min), 603.25 *17* from (α,2nγ), 603.33 *12* from (n,γ) E=th, 603.1 *4* from (n,n′γ), and 603.1 *5* from (^{30}Si,Xγ). I_γ: weighted average of 66 *4* from ^{98}Nb β^- decay (51.1 min), 63.3 *12* from (α,2nγ), 63 *5* from (n,γ) E=th, 49 *10* from (n,n′γ), and 55 *11* from (^{30}Si,Xγ). Mult.: δ(M3/E2)=−0.08 *11* from (α,2nγ).
		1110.77 *7*	100.0 *23*	1510.047	4$^+$	(E1)		E_γ: weighted average of 1110.76 *10* from ^{98}Nb β^- decay (51.1 min), 1110.75 *16* from (α,2nγ), 1110.81 *14* from (n,γ) E=th, 1110.78 *7* from (n,n′γ), and 1110.3 *5* from (^{30}Si,Xγ). Mult.: δ(M2/E1)=−0.05 *10* from (α,2nγ); D also from $\gamma(\theta)$ in (n,n′γ).
2644.7?	(1,2$^+$)	1212.7[b] *5*	100 *36*	1432.210	2$^+$			E_γ,I_γ: from (n,n′γ) only.
		1909.6[b] *6*	<54	734.75	0$^+$			E_γ,I_γ: from (n,n′γ) only.
2678.88	6$^+$	172.44 *10*	4.1 *5*	2506.38	5$^+$			E_γ: weighted average of 172.44 *10* from ^{98}Nb β^- decay (51.1 min) and 172.47 *26* from (α,2nγ). I_γ: weighted average of 4.6 *5* from ^{98}Nb β^- decay (51.1 min) and 3.6 *5* from (α,2nγ).
		335.255 *23*	53.0 *8*	2343.62	6$^+$	(M1(+E2))	−0.01 *1*	α(K)=0.00897 *13*; α(L)=0.001029 *15*; α(M)=0.000184 *3* α(N)=2.80×10^{-5} *4*; α(O)=1.580×10^{-6} *23*

$^{98}_{42}$Mo$_{56}$-20

Adopted Levels, Gammas (continued)

$\gamma(^{98}Mo)$ (continued)

E_i(level)	J^π_i	E_γ †	I_γ †	E_f	J^π_f	Mult. ‡	δ ‡	Comments
								E_γ: weighted average of 335.258 *20* from ^{98}Nb β^- decay (51.1 min), 335.15 *16* from (α,2nγ), and 334.5 *5* from (^{30}Si,Xγ). I_γ: weighted average of 53.4 *11* from ^{98}Nb β^- decay (51.1 min) and 52.8 *8* from (α,2nγ). Other: 180 *70* from (^{30}Si,Xγ).
		345.53 *10*	0.5 *1*	2333.46	4^+			

$^{98}_{42}Mo_{56}$-21

Adopted Levels, Gammas (continued)

$\gamma(^{98}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α[@]	Comments
2678.88	6^+	455.04 *10*	4.6 *2*	2223.862	4^+				
		1168.826 *20*	100.0 *21*	1510.047	4^+	(E2)			E_γ: weighted average of 1168.827 *20* from ^{98}Nb β^- decay (51.1 min), 1168.81 *16* from (α,2nγ), and 1168.5 *5* from (^{30}Si,Xγ). δ(M3/E2)=+0.01 *4* from (α,2nγ). I_γ: other: 100 *21* from (^{30}Si,Xγ).
2700.68	2^+	493.4 *6*	8 *6*	2206.61	2^+				E_γ,I_γ: from (n,γ) E=th.
		1190.8[&b] *2*	<467[&]	1510.047	4^+				E_γ,I_γ: from ^{98}Nb β^- decay (51.1 min) only.
		1913.5 *2*	100 *20*	787.384	2^+	(M1(+E2))	−0.14 *14*		B(M1)(W.u.)>0.002 E_γ: weighted average of 1913.4 *4* from ^{98}Nb β^- decay (51.1 min), 1913.60 *33* from (α,2nγ), 1913.1 *3* from (n,γ) E=th, and 1913.6 *2* from (n,n′γ). I_γ: from (n,n′γ) E=th.
2733.4	2^+	1946.0 *3*	100	787.384	2^+	(M1(+E2))	−0.09 *15*		E_γ: from (α,2nγ) only.
2738.2	(6,7)	394.3 *5*	100	2343.62	6^+				E_γ: weighted average of 394.4 *5* from (α,2nγ) and 394.2 *5* from (^{30}Si,Xγ).
2767.68	4^+	146.6[b] *3*	4.0 *15*	2620.78	5^-				
		347.94 *10*	6.9 *6*	2419.63	4^+				
		434.27 *6*	35 *2*	2333.46	4^+				I_γ: weighted average of 34.9 *9* from ^{98}Nb β^- decay (51.1 min) and 25 *5* from (n,γ) E=th.
		543.83 *10*	17 *1*	2223.862	4^+				
		561.21	≈2	2206.61	2^+				
		662.89 *15*	5.2 *15*	2104.72	3^+				
		750.1 *2*	0.9 *3*	2017.53	3^-				
		1009.3 *1*	1.4 *12*	1758.49	2^+				
		1257.59 *5*	29 *1*	1510.047	4^+				
		1335.45 *5*	38.3 *6*	1432.210	2^+				
		1980.4 *3*	100 *1*	787.384	2^+	(E2)			E_γ: unweighted average of 1980.17 *5* from ^{98}Nb β^- decay (51.1 min), 1981.20 *32* from (α,2nγ), 1979.9 *3* from (n,γ) E=th, and 1980.3 *3* from (n,n′γ). Only the 1980γ reported in (α,2nγ), δ(M3/E2)=+0.01 *11*.
2795.61	4^-	778.01 *20*	38 *3*	2017.53	3^-	M1+E2	−0.37 *15*		E_γ,I_γ: from (α,2nγ).
		1285.53 *14*	100	1510.047	4^+	(E1)			E_γ: weighted average of 1285.63 *16* from (α,2nγ), 1285.42 *14* from (n,γ) E=th, and 1285.6 *2* from (n,n′γ). Mult.: δ(M2/E1)=−0.02 *3* from (α,2nγ).
2813.3	2^+	192.36[ab] *14*	[a]	2620.01	3^+				
		306.89[ab] *10*	[a]	2506.38	5^+	[M3]		0.222	α(K)=0.188 *3*; α(L)=0.0280 *4*; α(M)=0.00512 *8* α(N)=0.000767 *11*; α(O)=3.82×10^{-5} *6* Implied mult=M3 makes this transition questionable or very weak.
		469.90[b] *14*		2343.62	6^+	[E4]			This γ, seen in β^- decay (51.1 min), is questionable in view of unlikely mult=E4 involved.
		2025.5 *4*		787.384	2^+	M1+E2	−4 +2−57		E_γ: γ from (α,2nγ) only.

From ENSDF

Adopted Levels, Gammas (continued)

$\gamma(^{98}Mo)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	δ‡	α@	Comments
2836.83	6^+	157.87 10	100.0 25	2678.88	6^+				E_γ: weighted average of 157.88 10 from ^{98}Nb β^- decay (51.1 min), 157.87 16 from (α,2nγ), and 157.6 4 from (n,n′γ).
		330.34 10	28 3	2506.38	5^+	M1+E2	−0.24 6	0.01097 25	α(K)=0.00963 22; α(L)=0.00111 3; α(M)=0.000199 6 α(N)=3.03×10^{-5} 8; α(O)=1.69×10^{-6} 4 E_γ: weighted average of 330.37 10 from ^{98}Nb β^- decay (51.1 min) and 330.18 23 from (α,2nγ). I_γ: weighted average of 29.3 25 from ^{98}Nb β^- decay (51.1 min) and 23 6 from (α,2nγ).
		493.16 10	26 6	2343.62	6^+	M1+E2	−0.29 15		E_γ: weighted average of 493.18 10 from ^{98}Nb β^- decay (51.1 min) and 493.09 20 from (α,2nγ). I_γ: weighted average of 29 7 from ^{98}Nb β^- decay (51.1 min) and 23 6 from (α,2nγ).
		1326.7	7 5	1510.047	4^+				
2854.15	(8^+)	282.2[b] 5	4 2	2570.9?	(6,7,8)				E_γ,I_γ: from (α,2nγ) only.
		510.47 16	100 14	2343.62	6^+				E_γ: weighted average of 510.45 16 from (α,2nγ) and 510.7 5 from (^{30}Si,Xγ).
2856.2	4^+	177.4[b] 2	100	2678.88	6^+				
2871.1	2,3	2083.7 4	100	787.384	2^+	D+Q			δ(Q/D)=+0.06 10 for J=3, −3.7 +15−58 for J=2 from $\gamma\gamma(\theta)$ in (α,2nγ).
2896.79	5^+	791.8 3	100	2104.72	3^+				
		1386.84 19	96 4	1510.047	4^+	M1+E2	+3.2 +8−5		
2905.2	4^+	2117.8 7	100	787.384	2^+	[E2]			B(E2)(W.u.)>3.0 E_γ: from (α,2nγ).
2915.8	2^+	2128.4 4	100	787.384	2^+	M1+E2	−0.71 +37−57		B(M1)(W.u.)>0.0063; B(E2)(W.u.)>0.36 E_γ: weighted average of 2129.03 45 from (α,2nγ) and 2128.1 3 from (n,n′γ).
2962.45	3^-	944.7 2	19 5	2017.53	3^-				E_γ: weighted average of 944.39 44 from (α,2nγ) and 944.7 2 from (n,γ) E=th. I_γ: from (α,2nγ). Other: 118 30 from (n,γ) E=th.
		1452.4 3	100	1510.047	4^+				E_γ: weighted average of 1452.69 42 from (α,2nγ) and 1452.3 3 from (n,γ) E=th. I_γ: from (α,2nγ). Other: 100 30 from (n,γ) E=th.
		2176.4 5	83 14	787.384	2^+				E_γ,I_γ: from (α,2nγ) only.
2976.89	4^+	557.1 4	44 28	2419.63	4^+				E_γ,I_γ: from (n,γ) E=th. γ also from (α,2nγ).
		753.0	1.1 6	2223.862	4^+				
		1466.84 10	100 3	1510.047	4^+	(M1(+E2))	+0.05 17		B(M1)(W.u.)>0.0056 E_γ: weighted average of 1466.79 10 from ^{98}Nb β^- decay (51.1 min), 1466.96 24 from (α,2nγ), and 1467.1 3 from (n,γ) E=th.
		2189.4 5	1.1 6	787.384	2^+	[E2]			B(E2)(W.u.)>0.0018
3010.91?		2223.5[b] 2	100	787.384	2^+				

$\gamma(^{98}Mo)$ (continued)

E_i(level)	J^π_i	E_γ †	I_γ †	E_f	J^π_f	Mult. ‡	δ ‡	Comments
3020.42	5^-	399.60 *10*	100 *6*	2620.78	5^-	(M1(+E2))	+0.06 *15*	E_γ: weighted average of 399.65 *10* from ^{98}Nb β^- decay (51.1 min) and 399.43 *18* from (α,2nγ).
		676.84 *10*	33.6 *24*	2343.62	6^+	(E1)		E_γ: weighted average of 676.87 *10* from ^{98}Nb β^- decay (51.1 min) and 676.66 *26* from (α,2nγ). I_γ: weighted average of 34 *6* from ^{98}Nb β^- decay (51.1 min) and 33.5 *24* from (α,2nγ). δ(M2/E1)=−0.01 *10* from (α,2nγ).
		1002.9 *2*	24.4 *10*	2017.53	3^-	(E2)		E_γ: weighted average of 1002.9 *2* from ^{98}Nb β^- decay (51.1 min) and 1002.85 *31* from (α,2nγ). I_γ: weighted average of 31 *13* from ^{98}Nb β^- decay (51.1 min) and 24.4 *10* from (α,2nγ). δ(M3/E2)=+0.03 *5*.
		1510.4	<94	1510.047	4^+			
3021.75	4^+	254.05 *14*	0.4 *2*	2767.68	4^+			
		688.23 *10*	6.2 *4*	2333.46	4^+			
		797.88 *10*	12.4 *6*	2223.862	4^+			
		815.5 *3*	0.8 *4*	2206.61	2^+			
		917.05 *13*	1.4 *4*	2104.72	3^+			
		1004.31 *10*	1.9 *8*	2017.53	3^-			
		1263.36 *11*	2.5 *4*	1758.49	2^+			
		1511.68 *2*	100 *1*	1510.047	4^+			E_γ: weighted average of 1511.68 *2* from ^{98}Nb β^- decay (51.1 min), 1511.65 *34* from (α,2nγ), and 1512.0 *3* from (n,γ) E=th.
		1589.62 *10*	2.9 *2*	1432.210	2^+			
		2234.31 *10*	3.7 *2*	787.384	2^+			
3026.2	5^+	1516.19 *25*	100	1510.047	4^+	M1+E2	+0.27 *6*	
3045.89	4^+	1287.2 *3*	100 *30*	1758.49	2^+			E_γ,I_γ: from (n,γ) E=th.
		2258.7 *4*	44 *21*	787.384	2^+			E_γ,I_γ: from (n,γ) E=th.
3050.92	4^+	544.5 *4*	4.8 *14*	2506.38	5^+			
		631.4 *2*	2.4 *10*	2419.63	4^+			
		717.5 *3*	14 *3*	2333.18	2^+	[E2]		B(E2)(W.u.)>61
		1540.93 *8*	100 *2*	1510.047	4^+	(M1(+E2))	−0.20 *27*	B(M1)(W.u.)>0.024 E_γ: weighted average of 1540.92 *5* from ^{98}Nb β^- decay (51.1 min), 1540.47 *52* from (α,2nγ), and 1541.6 *3* from (n,γ) E=th.
		1618.75 *11*	11.4 *14*	1432.210	2^+	[E2]		B(E2)(W.u.)>0.92
		2263.0 *2*	1.9 *3*	787.384	2^+	[E2]		B(E2)(W.u.)>0.027
3067.70	(3^-)	446.93 *10*	100 *7*	2620.78	5^-			E_γ: weighted average of 446.91 *10* from ^{98}Nb β^- decay (51.1 min), 446.78 *17* from (α,2nγ), 446.99 *13* from (n,γ) E=th, and 447.2 *3* from (n,n′γ).
		843.82 *10*	37 *5*	2223.862	4^+			
3095.80	2^+	1585.6[b] *2*	100	1510.047	4^+			
3096.26	(7^-)	241.7[b] *5*	11 *5*	2854.15	(8^+)			E_γ,I_γ: from (α,2nγ) only.
		475.6 *4*	100 *12*	2620.78	5^-	(E2)		E_γ: unweighted average of 476.35 *10* from ^{98}Nb β^- decay (51.1 min), 475.23 *17* from (α,2nγ), and 475.3 *5* from (^{30}Si,Xγ). Mult.: δ(M3/E2)=+0.01 *3* from (α,2nγ).

$^{98}_{42}Mo_{56}$-24

$\gamma(^{98}Mo)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	Comments
3096.26	(7⁻)	752.77 *23*	80.9 *16*	2343.62	6⁺	(E1)	E_γ: unweighted average of 753.19 *14* from ^{98}Nb β^- decay (51.1 min), 752.41 *16* from (α,2nγ), and 752.7 *5* from (^{30}Si,Xγ). I_γ: weighted average of 73 *9* from ^{98}Nb β^- decay (51.1 min), and 81.2 *16* from (α,2nγ). Other: 42 *5* from (^{30}Si,Xγ) is discrepant. Mult.: δ(M2/E1)=−0.01 *4* from (α,2nγ).
3103.13	(2⁺,3,4)	335.4 *2*	100	2767.68	4⁺		E_γ: from (n,γ) E=th only.
3108.80	(2⁺,3,4)	1091.4 *2*	100	2017.53	3⁻		E_γ: weighted average of 1091.52 *20* from (α,2nγ) and 1091.2 *2* from (n,γ) E=th.
		1598.4 *3*	24 *4*	1510.047	4⁺		E_γ: weighted average of 1599.50 *33* from (α,2nγ) and 1598.8 *7* from (n,γ) E=th. I_γ: from (α,2nγ).
3155.56	(4⁺)	455.1 *3*	35 *18*	2700.68	2⁺		E_γ,I_γ: from (n,γ) E=th only.
		811.5 *5*	100 *60*	2343.62	6⁺		E_γ,I_γ: from (n,γ) E=th only.
		1050.8 *4*	70 *60*	2104.72	3⁺		E_γ,I_γ: from (n,γ) E=th only.
3165.89	4⁺	189.0[a] *3*	70[a] *11*	2976.89	4⁺		
		746.28 *12*	22 *6*	2419.63	4⁺		
		1061.25[a] *13*	30[a] *3*	2104.72	3⁺		
		1407.5 *1*	38 *8*	1758.49	2⁺		
		1655.87 *10*	100 *6*	1510.047	4⁺		
		2378.29 *10*	29 *2*	787.384	2⁺		
3195.56	(2⁻,3,4)	399.88 *15*	87 *13*	2795.61	4⁻		E_γ,I_γ: from (n,γ) E=th only.
		1178.1 *5*	100 *40*	2017.53	3⁻		E_γ,I_γ: from (n,γ) E=th only.
3208.99	(4⁺,5⁻)	530.42 *14*	100 *31*	2678.88	6⁺		
		985.2 *4*	62 *15*	2223.862	4⁺		
		1190.8[&] *2*	<108[&]	2017.53	3⁻		E_γ: poor fit, level-energy difference=1191.5.
3210.80	(4⁺)	866.6[b] *5*	31 *30*	2343.62	6⁺		E_γ,I_γ: from (n,γ) E=th only.
		1193.2 *3*	100 *29*	2017.53	3⁻		E_γ: weighted average of 1193.09 *30* from (α,2nγ), 1193.3 *3* from (n,γ) E=th, and 1193.1 *4* from (n,n′γ). I_γ: from (n,γ) E=th.
3211.57	(4⁺)	443.6 *3*	0.5 *2*	2767.68	4⁺		
		590.90 *10*	4.0 *3*	2620.78	5⁻		
		705.5 *2*	0.4 *2*	2506.38	5⁺		
		791.98 *15*	2.7 *5*	2419.63	4⁺		
		878.07 *10*	8.1 *3*	2333.46	4⁺		
		1106.8 *4*	0.4 *2*	2104.72	3⁺		
		1194.02 *10*	5.6 *3*	2017.53	3⁻		
		1701.505 *20*	100 *1*	1510.047	4⁺		E_γ: weighted average of 1701.503 *20* from ^{98}Nb β^- decay (51.1 min), 1701.8 *3* from (n,γ) E=th, and 1701.8 *6* from (n,n′γ).
		2424.1[b] *3*	1.6 *5*	787.384	2⁺		
3229.17	(4⁺)	415.5 *4*	13 *6*	2813.3	2⁺	[E2]	B(E2)(W.u.)>420 B(E2)(W.u.)>RUL=300 for E2 makes this low-energy transition questionable.
		885.58 *10*	100 *13*	2343.62	6⁺	[E2]	B(E2)(W.u.)>130
		1718.8 *6*	38 *6*	1510.047	4⁺		E_γ: from (α,2nγ). I_γ: from ^{98}Nb β^- decay (51.1 min).

$^{98}_{42}Mo_{56}$-25

$\gamma(^{98}Mo)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[@]	Comments
3241.2	(4+ to 7)	562.3	100	2678.88	6+				
3257.86	1	3257.8 *1*	100	0.0	0+	D			E_γ: from (γ,γ').
3271.49	(8+)	416.8 *5*	13.2 *19*	2854.15	(8+)				E_γ,I_γ: from $(^{30}Si,X\gamma)$ only.
		927.94 *17*	100 *7*	2343.62	6+	Q			E_γ: weighted average of 927.95 *17* from $(\alpha,2n\gamma)$ and 927.9 *5* from $(^{30}Si,X\gamma)$.
3323.58	(7−)	227.37 *18*	100	3096.26	(7−)	(M1(+E2))	−0.08 *10*	0.0276 *10*	α(K)=0.0242 *9*; α(L)=0.00282 *13*; α(M)=0.000505 *22* α(N)=7.7×10^{-5} *4*; α(O)=4.28×10^{-6} *13*
		979.87 *23*	100 *7*	2343.62	6+				
3326.41	4+	819.95 *10*	23.7 *17*	2506.38	5+				
		906.86 *10*	50.8 *17*	2419.63	4+				E_γ: other: 906.1 *3* from (n,n′γ).
		992.88 *5*	100 *3*	2333.46	4+				E_γ: other: 903.6 *9* from (n,n′γ).
		1102.66 *10*	43.2 *17*	2223.862	4+				
		1221.75 *10*	21.2 *17*	2104.72	3+				
		1308.9 *2*	6.8 *17*	2017.53	3−				
		1568.17 *15*	8.5 *17*	1758.49	2+				
		1816.37 *10*	39.8 *17*	1510.047	4+				
		2538.91 *10*	5.6 *5*	787.384	2+				
3366.1?		1142.2[b] *3*	100	2223.862	4+				
3394.50	(4+)	715.6 *3*	10 *7*	2678.88	6+				
		773.7 *2*	2.9 *7*	2620.78	5−				
		1061.25[a] *13*	3.6[a] *3*	2333.46	4+				
		1289.98 *15*	3.6 *7*	2104.72	3+				
		1377.6[b] *7*	1.0 *7*	2017.53	3−				
		1636.0 *2*	3.9 *3*	1758.49	2+				
		1884.40 *5*	100 *1*	1510.047	4+				E_γ: other: 1883.7 *4* from (n,n′γ).
		2607.03 *10*	3.6 *2*	787.384	2+				
3400.92	4+	189.0[a] *3*	1.9[a] *15*	3211.57	(4+)				
		1057.62[b] *10*	100 *8*	2343.62	6+				
3403.95	(5−,6+)	192.36[a] *14*	9.1[a] *3*	3211.57	(4+)				
		306.89[ab] *10*	100[a] *6*	3096.26	(7−)				
3405.06	1	3405.0 *1*	100	0.0	0+	D			E_γ: from (γ,γ').
3418.74	4+	1908.7 *3*	100 *33*	1510.047	4+				E_γ: weighted average of 1908.6 *2* from ^{98}Nb β^- decay (51.1 min) and 1909.7 *6* from (n,n′γ).
		2631.3 *3*	20 *7*	787.384	2+				
3455.17	(4+)	1035.5 *3*	2.7 *14*	2419.63	4+				
		1121.6 *3*	7 *3*	2333.46	4+				
		1945.03 *8*	100.0 *14*	1510.047	4+				E_γ: weighted average of 1945.01 *5* from ^{98}Nb β^- decay (51.1 min), 1945.1 *4* from (n,γ) E=th, and 1945.7 *3* from (n,n′γ).
		2023.05 *10*	10.8 *7*	1432.210	2+				E_γ: other: 2024.2 *2* from (n,n′γ). I_γ: other: 67 *9* from (n,n′γ) is discrepant.
		2667.75 *10*	4.7 *4*	787.384	2+				

$^{98}_{42}Mo_{56}$-26

γ(^{98}Mo) (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	Comments
3457.07	1	3457.0 *1*	100	0.0	0^+	D	
3465.95	(4^+)	959.8 *5*	84 *26*	2506.38	5^+		
		1122.32 *10*	100 *26*	2343.62	6^+		
		1955.82[b] *10*	116 *11*	1510.047	4^+		
3501.7	(4^+)	2714.3 *3*	100	787.384	2^+		
3516.75	(4^+)	350.92 *10*	100 *5*	3165.89	4^+		
		679.68 *10*	27 *5*	2836.83	6^+		
		1097.2 *2*	5 *3*	2419.63	4^+		
		1183.6 *2*	7 *3*	2333.18	2^+		
		1310.1 *2*	32 *5*	2206.61	2^+		
		1499.3 *5*	10 *5*	2017.53	3^-		
		1758.7	12 *3*	1758.49	2^+		
		2006.6 *3*	29 *5*	1510.047	4^+		
		2730.9 *3*	10 *3*	787.384	2^+		E_γ: poor fit, level-energy difference=2729.3.
3527.4	(8,9^-)	431.5 *5*	60 *10*	3096.26	(7^-)		E_γ,I_γ: from (^{30}Si,Xγ) only.
		788.9 *5*	100 *4*	2738.2	(6,7)		E_γ,I_γ: from (^{30}Si,Xγ) only.
3541.28?		862.40[b] *14*	100	2678.88	6^+		
3547.51	(4^+)	1204.15 *16*	32 *7*	2343.62	6^+		
		1213.30 *15*	36 *7*	2333.46	4^+		E_γ: poor fit, level-energy difference=1214.04.
		1323.99 *10*	100 *7*	2223.862	4^+		E_γ: poor fit, level-energy difference=1323.64. Other: 1323.9 *4* from (n,γ) E=th.
		1442.6 *3*	21 *7*	2104.72	3^+		
		2037.39 *10*	29 *3*	1510.047	4^+		
		2760.02 *10*	30 *2*	787.384	2^+		
3551.35	1	2816.9 *2*	14.0 *16*	734.75	0^+	D	
		3551.2 *1*	100.0 *16*	0.0	0^+	D	
3554.87?		2767.45[b] *11*	100	787.384	2^+		
3557.0	(4^+)	1213.4 *4*	100	2343.62	6^+		
3565.65	(4^+)	514.78 *13*	48 *14*	3050.92	4^+		
		1341.74 *10*	100 *5*	2223.862	4^+		
		1461.0 *2*	14 *5*	2104.72	3^+		
		2055.5 *4*	19 *5*	1510.047	4^+		
3598.29	(4^+)	194.1 *5*	25 *13*	3403.95	(5^-,6^+)		
		1254.69 *16*	100 *25*	2343.62	6^+		
3601.1	(4^+,5,6)	922.3 *4*	88 *38*	2678.88	6^+		
		1257.2	100 *25*	2343.62	6^+		
3617.12?		1273.5[b] *2*	100	2343.62	6^+		
3620.10	(3^-,4)	1515.5 *2*	100 *25*	2104.72	3^+		
		1602.0 *4*	25 *13*	2017.53	3^-		
3623.57	4^+	572.6 *5*	21 *12*	3050.92	4^+		
		944.6 *5*	15 *6*	2678.88	6^+		
		1048.70 *10*	76 *9*	2574.86	4^+		
		1117.1 *2*	24 *9*	2506.38	5^+		

$^{98}_{42}$Mo$_{56}$-27

$\gamma(^{98}Mo)$ (continued)

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.‡	Comments
3623.57	4^+	1291.4 *4*	24 *12*	2333.46	4^+		E_γ: poor fit, level-energy difference=1290.11.
		1399.83 *17*	24 *3*	2223.862	4^+		
		1417.0 *4*	32 *9*	2206.61	2^+		
		1518.79 *10*	56 *6*	2104.72	3^+		
		2113.41 *10*	100 *12*	1510.047	4^+		
		2191.1 *5*	14 *2*	1432.210	2^+		
		2836.21 *11*	15 *2*	787.384	2^+		
3656.7	(9^-)	385.1 *5*	69 *14*	3271.49	(8^+)		E_γ: from (α,2nγ) and (^{30}Si,Xγ). I_γ: from (^{30}Si,Xγ).
		560.5 *5*	100 *12*	3096.26	(7^-)		E_γ: weighted average of 560.7 *5* from (α,2nγ) and 560.2 *5* from (^{30}Si,Xγ). I_γ: from (^{30}Si,Xγ).
		802.6 *5*	30 *5*	2854.15	(8^+)		E_γ,I_γ: from (^{30}Si,Xγ).
3703.98	1	3703.9 *2*	100	0.0	0^+	D	
3711.9	5^-	2201.8 *7*	100	1510.047	4^+		
3723.7	4^+	512 *1*	100 *33*	3211.57	(4^+)		
		887.0 *5*	5 *3*	2836.83	6^+		
		1389.8 *4*	6.7 *17*	2333.46	4^+		
		2936.8 *5*	1.0 *3*	787.384	2^+		
3737.79	4^+	900.97 *10*	79 *14*	2836.83	6^+		E_γ: other: 900.96 *15* from (n,n′γ). I_γ: other: <327 from (n,n′γ).
		1394.15 *12*	100 *14*	2343.62	6^+		E_γ: weighted average of 1394.07 *10* from ^{98}Nb β^- decay (51.1 min), 1394.2 *2* from (n,γ) E=th, and 1394.7 *3* from (n,n′γ). I_γ: other: 100 *24* from (n,n′γ).
3768.7	(9^-)	672.4 *5*	100	3096.26	(7^-)		
3777.88	4^+	2267.8 *1*	100	1510.047	4^+		
3806.08	1	3806.0 *2*	100	0.0	0^+	D	
3809.20	$(4,5,6^+)$	408.4[a] *2*	<23[a]	3400.92	4^+		I_γ: from relative Iγ of 408.4γ from 3809.6 level and that only a small fraction of the intensity of the 408.4γ doublet may belong here.
		2299.10 *10*	100 *8*	1510.047	4^+		
3809.59	$(4,5^-)$	408.4[a] *2*	11[a] *6*	3400.92	4^+		
		1189.3 *3*	40 *12*	2620.78	5^-		
		1792.05 *10*	100 *8*	2017.53	3^-		
3836.98	1	3836.9 *1*	100	0.0	0^+	D	
3842.77	$(4,5,6^+)$	2332.7[b] *2*	100	1510.047	4^+		
3857.68	1	3857.6 *1*	100	0.0	0^+	D	
3937.08	1	3937.0 *1*	100	0.0	0^+	D	
3944.09	(1)	3944.0 *1*	100	0.0	0^+	(D)	
3947.5	(4^+)	1268.6 *3*	100	2678.88	6^+		
3964.33	$(4^+,5,6)$	1285.4 *3*	25 *10*	2678.88	6^+		
		1620.70 *11*	100 *20*	2343.62	6^+		
3981.81	3^-	1877.3 *4*	30 *20*	2104.72	3^+		
		2471.72 *10*	100 *10*	1510.047	4^+		
3998.62	5^-	1377.5 *5*	30 *20*	2620.78	5^-		

$^{98}_{42}Mo_{56}$-28

$\gamma(^{98}Mo)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	Comments
3998.62	5^-	2488.55 *10*	100 *10*	1510.047	4^+		
4020.6	(2)	4020.5 *5*	100	0.0	0^+	(Q)	
4041.6	(1)	4041.5 *9*	100	0.0	0^+	(D)	
4060.62?	$(4,5,6^+)$	2550.54[b] *12*	100	1510.047	4^+		
4076.43	$(4,5,6^+)$	2566.35 *10*	100	1510.047	4^+		
4079.8	1	4079.7 *4*	100	0.0	0^+	D	
4102.3	(2)	4102.2 *5*	100	0.0	0^+	(Q)	
4103.35?	(4^+)	2671.1[b] *2*	100	1432.210	2^+		
4149.2	(10^+)	877.9 *5*	100 *13*	3271.49	(8^+)		E_γ: weighted average of 878.1 *5* from (α,2nγ) and 877.6 *5* from (^{30}Si,Xγ). I_γ: from (^{30}Si,Xγ).
		1294.9 *5*	23 *3*	2854.15	(8^+)		E_γ,I_γ: from (^{30}Si,Xγ).
4170.8	1	4170.7 *8*	100	0.0	0^+	D	
4179.90	(1)	4179.8 *2*	100	0.0	0^+	(D)	
4190.2	(10,11)	662.7 *5*	100	3527.4	$(8,9^-)$		
4231.1	1	4231.0 *4*	100	0.0	0^+	D	
4252.6	(1)	4252.5 *12*	100	0.0	0^+	(D)	
4258.8	1	4258.7 *5*	100	0.0	0^+	D	
4267.90	1	4267.8 *2*	100	0.0	0^+	D	
4295.40	(1)	4295.3 *1*	100	0.0	0^+	(D)	
4361.80	(1)	4361.7 *1*	100	0.0	0^+	(D)	
4391.21	(1)	4391.1 *1*	100	0.0	0^+	(D)	
4410.21	1	4410.1 *1*	100	0.0	0^+	D	
4423.9	(11^-)	767.2 *5*	100	3656.7	(9^-)		
4440.1?		290.8[b] *5*	100	4149.2	(10^+)		E_γ: from (α,2nγ) only.
4537.7	(11^-)	769.0 *5*	100	3768.7	(9^-)		E_γ: weighted average of 769.1 *5* from (α,2nγ) and 768.9 *5* from (^{30}Si,Xγ).
4543.31	1	4543.2 *2*	100	0.0	0^+	D	
4581.6	(1)	4581.5 *7*	100	0.0	0^+	(D)	
4590.62	1	4590.5 *1*	100	0.0	0^+	D	
4599.3	1	4599.2 *5*	100	0.0	0^+	D	
4609.5?		169.4[b] *5*	100	4440.1?			E_γ: from (α,2nγ) only.
4616.2	1	4616.1 *5*	100	0.0	0^+	D	
4654.3	(1)	4654.2 *4*	100	0.0	0^+	(D)	
4812.73	1	4812.6 *2*	100	0.0	0^+	D	
4837.53	1	4837.4 *1*	100	0.0	0^+	D	
4902.83	1	4902.7 *1*	100	0.0	0^+	D	
4993.6	(12,13)	803.4 *5*	100	4190.2	(10,11)		
5008.6	1	5008.5 *3*	100	0.0	0^+	D	
5028.64	1	5028.5 *2*	100	0.0	0^+	D	
5047.0	(12^+)	897.8 *5*	100	4149.2	(10^+)		
5050.34	1	5050.2 *1*	100	0.0	0^+	D	
5081.74	1	5081.6 *2*	100	0.0	0^+	D	
5121.4	1	5121.3 *3*	100	0.0	0^+		

$^{98}_{42}Mo_{56}$-29

Adopted Levels, Gammas (continued)

$\gamma(^{98}$Mo) (continued)

E$_i$(level)	J$_i^\pi$	E$_\gamma$†	I$_\gamma$†	E$_f$	J$_f^\pi$	Mult.‡
5134.1	(1)	5134.0 *11*	100	0.0	0+	(D)
5147.6	1	5147.5 *3*	100	0.0	0+	D
5165.15	1	5165.0 *2*	100	0.0	0+	D
5174.6	(2)	5174.5 *12*	100	0.0	0+	(Q)
5195.5	1	5195.4 *4*	100	0.0	0+	D
5215.0	(2)	5214.9 *5*	100	0.0	0+	(Q)
5225.5	(1)	5225.4 *7*	100	0.0	0+	(D)
5236.1	1	5235.9 *9*	100	0.0	0+	D
5244.55	(1)	5244.4 *2*	100	0.0	0+	(D)
5267.7	(2)	5267.5 *6*	100	0.0	0+	(Q)
5312.6	1	5312.4 *3*	100	0.0	0+	D
5314.4	(13−)	776.7 *5*	100	4537.7	(11−)	
5315.3	(13−)	891.4 *5*	100	4423.9	(11−)	
5324.0	(1)	5323.8 *5*	100	0.0	0+	(D)
5346.66	1	5346.5 *2*	100	0.0	0+	D
5354.66	1	5354.5 *2*	100	0.0	0+	D
5362.7	(1)	5362.5 *8*	100	0.0	0+	(D)
5386.26	1	5386.1 *2*	100	0.0	0+	D
5397.46	1	5397.3 *1*	100	0.0	0+	D
5412.6	1	5412.4 *4*	100	0.0	0+	D
5432.9	1	5432.7 *6*	100	0.0	0+	D
5442.2	1	5442.0 *6*	100	0.0	0+	D
5450.5	1	5450.3 *4*	100	0.0	0+	D
5458.2	1	5458.0 *5*	100	0.0	0+	D
5482.36	1	5482.2 *1*	100	0.0	0+	D
5492.4	(1)	5492.2 *3*	100	0.0	0+	(D)
5508.9	1	5508.7 *3*	100	0.0	0+	D
5519.1	1	5518.9 *7*	100	0.0	0+	D
5528.2	1	5528.0 *4*	100	0.0	0+	D
5544.1	(1)	5543.9 *18*	100	0.0	0+	(D)
5552.7	(1)	5552.5 *8*	100	0.0	0+	(D)
5563.27	1	5563.1 *2*	100	0.0	0+	D
5579.2	1	5579.0 *4*	100	0.0	0+	D
5588.4	(1)	5588.2 *15*	100	0.0	0+	(D)
5595.6	1	5595.4 *10*	100	0.0	0+	D
5615.3	1	5615.1 *12*	100	0.0	0+	D
5626.1	1	5625.9 *4*	100	0.0	0+	D
5638.07	1	5637.9 *1*	100	0.0	0+	D
5654.38	1	5654.2 *2*	100	0.0	0+	D
5664.6	1	5664.4 *3*	100	0.0	0+	D
5678.8	(2)	5678.6 *14*	100	0.0	0+	(Q)
5686.88	1	5686.7 *2*	100	0.0	0+	D
5708.2	1	5708.0 *6*	100	0.0	0+	D
5716.1	1	5715.9 *4*	100	0.0	0+	D
5725.6	1	5725.4 *5*	100	0.0	0+	D
5732.9	1	5732.7 *6*	100	0.0	0+	D
5741.48	1	5741.3 *1*	100	0.0	0+	D
5754.1	1	5753.9 *9*	100	0.0	0+	D
5764.7	1	5764.5 *3*	100	0.0	0+	D
5775.98	1	5775.8 *2*	100	0.0	0+	D
5791.8	1	5791.6 *5*	100	0.0	0+	D
5801.4	1	5801.2 *3*	100	0.0	0+	D
5811.38	1	5811.2 *2*	100	0.0	0+	D
5828.59	1	5828.4 *2*	100	0.0	0+	D
5856.9	1	5856.7 *3*	100	0.0	0+	D
5889.4	1	5889.2 *6*	100	0.0	0+	D
5906.6	1	5906.4 *7*	100	0.0	0+	D
5916.99	1	5916.8 *2*	100	0.0	0+	D
5925.0	(14+)	878.0 *5*		5047.0	(12+)	
5959.79	1	5959.6 *2*	100	0.0	0+	D
5972.80	1	5972.6 *2*	100	0.0	0+	D
5984.10	1	5983.9 *2*	100	0.0	0+	D
5993.0	(1)	5992.8 *8*	100	0.0	0+	(D)
5999.7	(1)	5999.5 *8*	100	0.0	0+	(D)
6022.10	1	6021.9 *2*	100	0.0	0+	D
6031.90	1	6031.7 *1*	100	0.0	0+	D
6046.3	1	6046.1 *4*	100	0.0	0+	D
6065.70	1	6065.5 *1*	100	0.0	0+	D
6076.7	(1)	6076.5 *7*	100	0.0	0+	(D)
6101.6	1	6101.4 *4*	100	0.0	0+	D
6110.20	(1)	6110.0 *1*	100	0.0	0+	(D)
6120.51	(1)	6120.3 *2*	100	0.0	0+	(D)
6133.0	(15−)	817.7 *5*	100	5315.3	(13−)	
6145.1	1	6144.9 *18*	100	0.0	0+	D
6172	1	6172 *3*	100	0.0	0+	D
6183.2	(1)	6183.0 *8*	100	0.0	0+	(D)
6220.1	(1)	6219.9 *11*	100	0.0	0+	(D)
6234.5	(1)	6234.3 *10*	100	0.0	0+	(D)
6247.1	(1)	6246.9 *3*	100	0.0	0+	(D)
6266.0	(1)	6265.8 *7*	100	0.0	0+	(D)
6315.9	1	6315.7 *3*	100	0.0	0+	D
6330.32	1	6330.1 *2*	100	0.0	0+	D
6367.4	1	6367.2 *4*	100	0.0	0+	D
6379.2	1	6379.0 *8*	100	0.0	0+	D
6388.3	1	6388.1 *7*	100	0.0	0+	D
6397.9	1	6397.7 *5*	100	0.0	0+	D

$^{98}_{42}$Mo$_{56}$-30

Adopted Levels, Gammas (continued)

$\gamma(^{98}Mo)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡
6419.9	1	6419.7 11	100	0.0	0^+	D
6438.7	1	6438.5 10	100	0.0	0^+	D
6451.23	(1)	6451.0 2	100	0.0	0^+	(D)
6465.8	1	6465.6 6	100	0.0	0^+	D
6473.4	1	6473.2 3	100	0.0	0^+	D
6491.8	1	6491.6 6	100	0.0	0^+	D
6511.6	(1)	6511.4 11	100	0.0	0^+	(D)
6522.3	(1)	6522.1 10	100	0.0	0^+	(D)
6530.6	1	6530.4 6	100	0.0	0^+	D
6543.43	1	6543.2 2	100	0.0	0^+	D
6566.7	(1)	6566.5 10	100	0.0	0^+	(D)
6577.3	1	6577.1 10	100	0.0	0^+	D
6586.2	1	6586.0 3	100	0.0	0^+	D
6596.4	1	6596.2 3	100	0.0	0^+	D
6614.9	1	6614.7 8	100	0.0	0^+	D
6631.3	(1)	6631.1 12	100	0.0	0^+	(D)
6636.7	(1)	6636.5 18	100	0.0	0^+	(D)
6648.1	(1)	6647.9 8	100	0.0	0^+	(D)
6680.2	(1)	6680 2	100	0.0	0^+	(D)
6698.7	1	6698.5 7	100	0.0	0^+	D
6756.35	1	6756.1 2	100	0.0	0^+	D
6765.7	1	6765.4 7	100	0.0	0^+	D
6815.9	(1)	6815.6 13	100	0.0	0^+	(D)
6824.2	1	6823.9 6	100	0.0	0^+	D
6836.6	(1)	6836.3 6	100	0.0	0^+	(D)
6847.4	1	6847.1 6	100	0.0	0^+	D
6853.7	2	6853.4 4	100	0.0	0^+	Q
6866.0	(2)	6865.7 4	100	0.0	0^+	(Q)
6888.6	1	6888.3 5	100	0.0	0^+	D
6900.3	(1)	6900.0 3	100	0.0	0^+	(D)
6950.8	1	6950.5 8	100	0.0	0^+	D
6959.3	(2)	6959.0 6	100	0.0	0^+	(Q)
6972.0	(1)	6971.7 8	100	0.0	0^+	(D)
6979.6	1	6979.3 8	100	0.0	0^+	D
6995.1	1	6994.8 5	100	0.0	0^+	D
7008.77	1	7008.5 2	100	0.0	0^+	D
7035.4	1	7035.1 3	100	0.0	0^+	D
7050.8	1	7050.5 6	100	0.0	0^+	D
7061.8	1	7061.5 4	100	0.0	0^+	D
7073.5	1	7073.2 6	100	0.0	0^+	D
7087.3	1	7087.0 11	100	0.0	0^+	D
7105.1	(1)	7104.8 13	100	0.0	0^+	(D)
7117.2	1	7116.9 4	100	0.0	0^+	D
7128.0	1	7127.7 7	100	0.0	0^+	D
7142.38	1	7142.1 2	100	0.0	0^+	D
7156.8	1	7156.5 3	100	0.0	0^+	D
7169.6	1	7169.3 5	100	0.0	0^+	D
7182.1	1	7181.8 3	100	0.0	0^+	D
7192.3	1	7192.0 8	100	0.0	0^+	D
7204.6	1	7204.3 5	100	0.0	0^+	D
7258.4	1	7258.1 7	100	0.0	0^+	D
7274.4	1	7274.1 4	100	0.0	0^+	D
7295.7	1	7295.4 7	100	0.0	0^+	D
7309.0	(1)	7308.7 9	100	0.0	0^+	(D)
7327.3	1	7327.0 5	100	0.0	0^+	D
7336.49	1	7336.2 2	100	0.0	0^+	D
7353.0	(1)	7352.7 8	100	0.0	0^+	(D)
7376.2	(1)	7375.9 11	100	0.0	0^+	(D)
7387.4	1	7387.1 8	100	0.0	0^+	D
7396.1	1	7395.8 3	100	0.0	0^+	D
7428.3	1	7428.0 4	100	0.0	0^+	D
7447.0	1	7446.7 9	100	0.0	0^+	D
7461.3	1	7461.0 7	100	0.0	0^+	D
7473.7	1	7473.4 3	100	0.0	0^+	D
7498.0	(2)	7497.7 13	100	0.0	0^+	(Q)
7513.2	(2)	7512.9 5	100	0.0	0^+	(Q)
7543.3	(1)	7543 2	100	0.0	0^+	(D)
7551.7	(2)	7551.4 17	100	0.0	0^+	(Q)
7562.3	1	7562.0 7	100	0.0	0^+	D
7583.1	1	7582.8 4	100	0.0	0^+	D
7609.1	1	7608.8 6	100	0.0	0^+	D
7692.0	1	7691.7 6	100	0.0	0^+	D
7711.3	1	7711.0 6	100	0.0	0^+	D
7737.3	(1)	7737 2	100	0.0	0^+	(D)
7752.5	1	7752.2 8	100	0.0	0^+	D
7764.5	1	7764.2 4	100	0.0	0^+	D
7781.1	1	7780.8 4	100	0.0	0^+	D
7803.4	1	7803.1 5	100	0.0	0^+	D
7820.5	1	7820.2 9	100	0.0	0^+	D
7834.9	(1)	7834.6 13	100	0.0	0^+	(D)
7847.1	1	7846.8 6	100	0.0	0^+	D
7877.3	1	7877.0 6	100	0.0	0^+	D
7889.9	1	7889.6 7	100	0.0	0^+	D
7900.8	(2)	7900.5 15	100	0.0	0^+	(Q)
7927.3	1	7927 2	100	0.0	0^+	D
7943.6	1	7943.3 8	100	0.0	0^+	D

$^{98}_{42}Mo_{56}$-31

Adopted Levels, Gammas (continued)

$\gamma(^{98}Mo)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡
7965.3	(1)	7965 *2*	100	0.0	0^+	(D)
7986.3	(2)	7986 *2*	100	0.0	0^+	(Q)
7996.1	1	7995.7 *7*	100	0.0	0^+	D
8011.6	1	8011.2 *7*	100	0.0	0^+	D
8023.6	1	8023.2 *5*	100	0.0	0^+	D
8033.8	1	8033.4 *9*	100	0.0	0^+	D
8045.2	(1)	8044.8 *18*	100	0.0	0^+	(D)
8054.6	1	8054.2 *8*	100	0.0	0^+	D
8068.0	(1)	8067.6 *11*	100	0.0	0^+	(D)
8073	(2)	8073 *4*	100	0.0	0^+	(Q)
8081.1	(1)	8080.7 *6*	100	0.0	0^+	(D)
8096.26	(1)	8095.9 *2*	100	0.0	0^+	(D)
8112.8	1	8112.4 *8*	100	0.0	0^+	D
8124.5	1	8124.1 *6*	100	0.0	0^+	D
8137.5	1	8137.1 *10*	100	0.0	0^+	D
8158.4	1	8158.0 *6*	100	0.0	0^+	D
8168.8	1	8168.4 *4*	100	0.0	0^+	D
8182.8	1	8182.4 *4*	100	0.0	0^+	D
8213.3	(2)	8212.9 *10*	100	0.0	0^+	(Q)
8244.6	1	8244.2 *10*	100	0.0	0^+	D
8255.5	(1)	8255.1 *11*	100	0.0	0^+	(D)
8266.2	(1)	8265.8 *19*	100	0.0	0^+	(D)
8277.0	1	8276.6 *4*	100	0.0	0^+	D
8289.5	1	8289.1 *21*	100	0.0	0^+	D
8298.4	(1)	8298.0 *13*	100	0.0	0^+	(D)
8310.1	1	8309.7 *9*	100	0.0	0^+	D
8331.2	(1)	8330.8 *9*	100	0.0	0^+	(D)
8357.5	(2)	8357.1 *11*	100	0.0	0^+	(Q)
8370.5	1	8370.1 *5*	100	0.0	0^+	D
8393.4	1	8393 *2*	100	0.0	0^+	D
8429.5	(2)	8429.1 *9*	100	0.0	0^+	(Q)
8444.4	1	8444.0 *7*	100	0.0	0^+	D
8459.6	1	8459.2 *7*	100	0.0	0^+	D
8472.1	1	8471.7 *4*	100	0.0	0^+	D
8491.7	1	8491.3 *9*	100	0.0	0^+	D
8503.9	1	8503.5 *5*	100	0.0	0^+	D
8513.1	1	8512.7 *11*	100	0.0	0^+	D
8527.3	1	8526.9 *10*	100	0.0	0^+	D
8537.5	1	8537.1 *7*	100	0.0	0^+	D
8562.8	1	8562.4 *9*	100	0.0	0^+	D
8580.2	(2)	8579.8 *15*	100	0.0	0^+	(Q)
8590.1	1	8589.7 *9*	100	0.0	0^+	D
8602.3	1	8601.9 *6*	100	0.0	0^+	D

$^{98}_{42}Mo_{56}$-32

$\gamma(^{98}Mo)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	Comments
8613.1	1	8612.7 *5*	100	0.0	0^+	D	
8620.2	1	8619.8 *7*	100	0.0	0^+	D	
8627.8	1	8627.4 *7*	100	0.0	0^+	D	
8636.5	1	8636.1 *5*	100	0.0	0^+	D	
(8642.58)	$2^+,3^+$	5431.5 *4*	2.4 *2*	3210.80	(4^+)		
		5446.4 *4*	2.3 *2*	3195.56	$(2^-,3,4)$		
		5487.0 *5*	1.0 *2*	3155.56	(4^+)		
		5533.4 *8*	3.1 *5*	3108.80	$(2^+,3,4)$		
		5538.8 *6*	1.9 *2*	3103.13	$(2^+,3,4)$		
		5592.1[b] *7*	0.5 *2*	3050.92	4^+		
		5596.3 *6*	1.4 *2*	3045.89	4^+		
		5665.0 *7*	1.0 *3*	2976.89	4^+		
		5680.0 *6*	9.4 *8*	2962.45	3^-	(E1)	Mult.: from radiation strength in (n,γ) E=th.
		5874.72 *22*	11.9 *13*	2767.68	4^+		
		5941.9 *4*	4.0 *9*	2700.68	2^+		
		6021.9 *7*	0.8 *1*	2620.01	3^+		
		6069.4 *6*	3.7 *3*	2572.84	3		
		6080.6 *5*	1.6 *2*	2562.23	(2^-)		
		6156.7 *7*	0.4 *1*	2485.15	3^+		
		6222.92 *12*	5.5 *7*	2419.63	4^+		
		6308.4 *5*	0.5 *1*	2333.46	4^+		
		6418.5 *7*	0.4 *1*	2223.862	4^+		
		6435.93 *8*	3.4 *3*	2206.61	2^+		
		6537.4 *4*	1.8 *8*	2104.72	3^+		
		6624.80 *2*	100 *6*	2017.53	3^-	(E1)	Mult.: from radiation strength (1971He10) in (n,γ) E=th.
		6760.7 *7*	0.5 *1*	1880.86	≤ 4		
		6883.48 *16*	1.6 *3*	1758.49	2^+		
		7132.2 *4*	1.5 *2*	1510.047	4^+		
		7210.7 *4*	1.0 *1*	1432.210	2^+		
		7853.9 *4*	1.0 *1*	787.384	2^+		
		7907.4 *8*	0.24 *10*	734.75	0^+		
8650.3	1	8649.9 *6*	100	0.0	0^+	D	
8662.7	1	8662.3 *5*	100	0.0	0^+	D	
8674.3	1	8673.9 *10*	100	0.0	0^+	D	

† From ^{98}Nb β^- decay (51.1 min) up to 4103 level and from (γ,γ') above that, unless otherwise noted.

‡ From $\gamma\gamma(\theta)$ in $(\alpha,2n\gamma)$ and RUL up to 3323 level and from $\gamma(\theta)$ in (γ,γ') above that, unless otherwise stated. For large dipole+quadrupole admixtures, mult=M1+E2 is assigned in contrast to E1+M2, assuming that level half-lives are less than few ns if not given.

Large (δ(Q/D)) mixing ratio favors mult=M1+E2 rather than E1+M2, assuming level half-lives are no longer than few ns.

@ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies,

$^{98}_{42}Mo_{56}$-33

Adopted Levels, Gammas (continued)

$\gamma(^{98}Mo)$ (continued)

assigned multipolarities, and mixing ratios, unless otherwise specified.

[&] Multiply placed with undivided intensity.

[a] Multiply placed with intensity suitably divided.

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

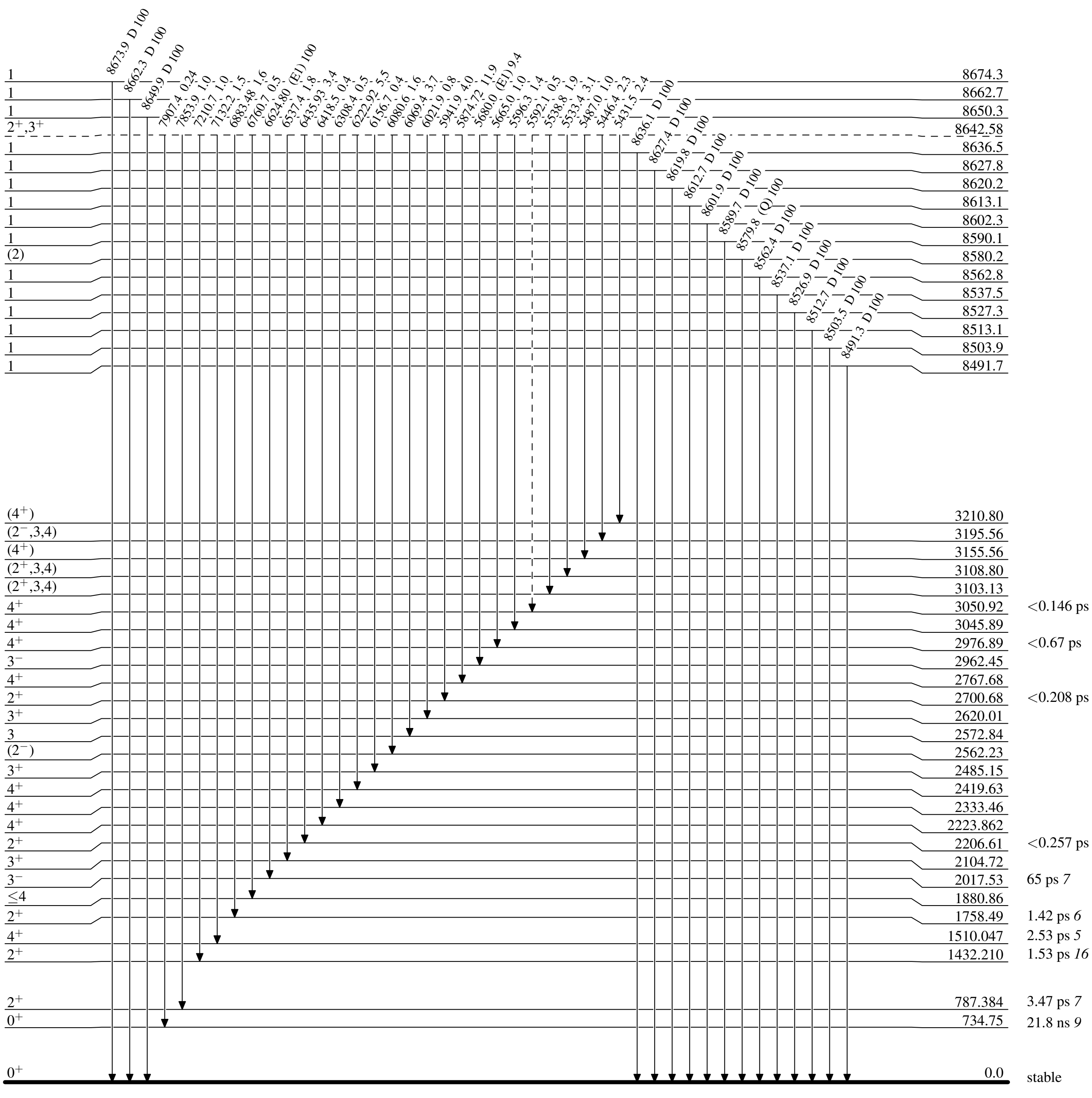
Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

Legend

γ Decay (Uncertain)

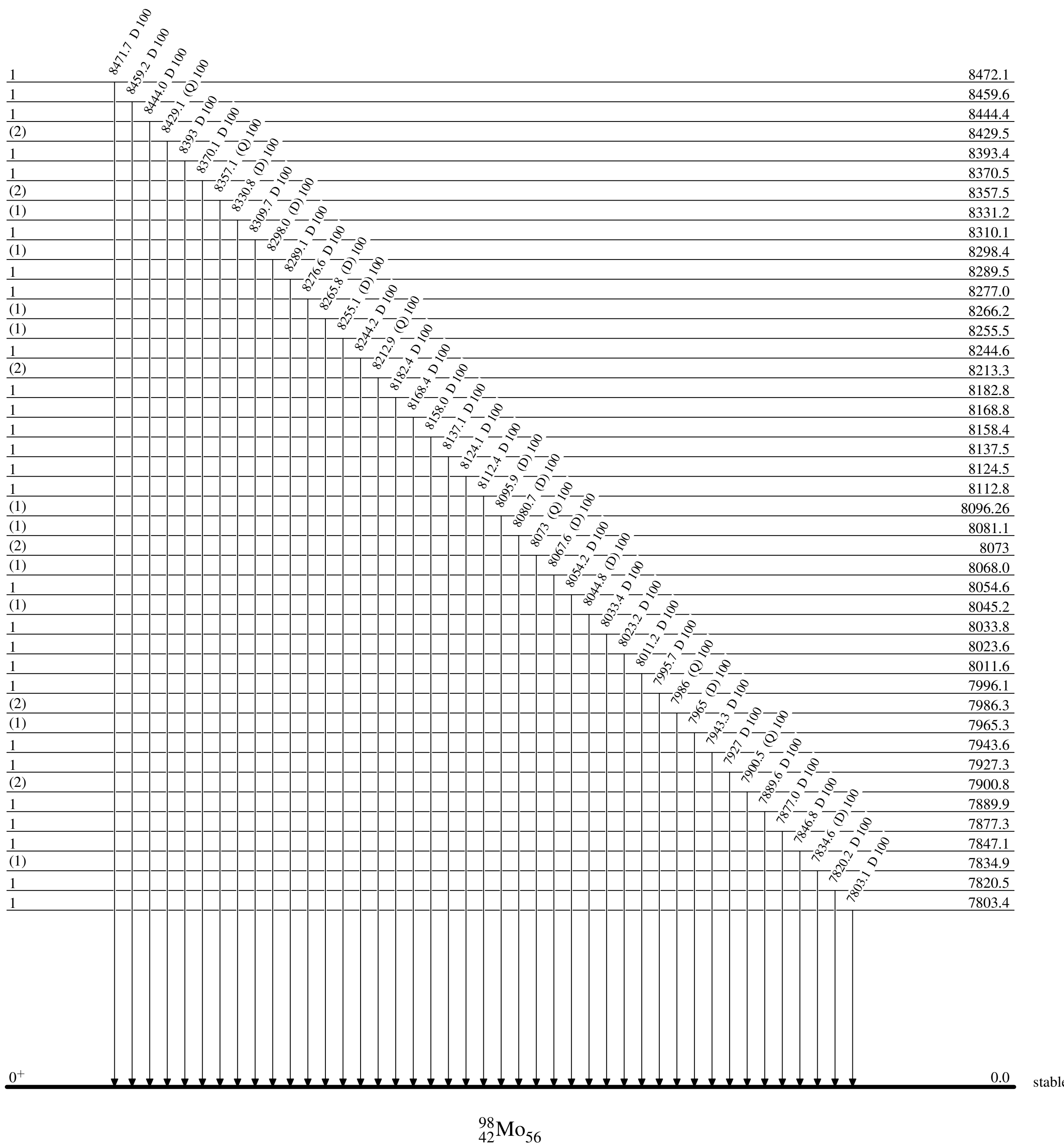


$^{98}_{42}Mo_{56}$

Adopted Levels, Gammas

Level Scheme (continued)

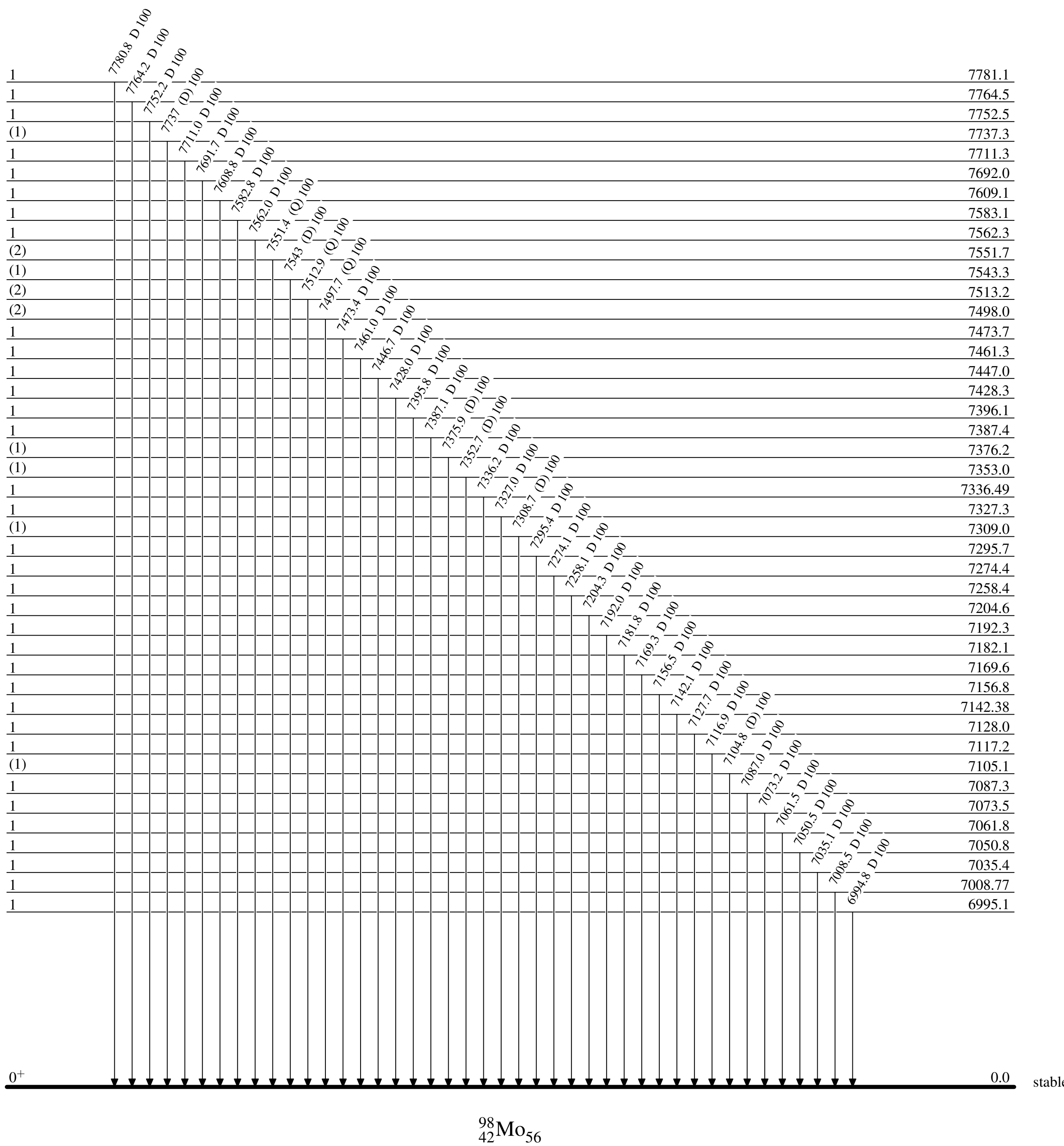
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

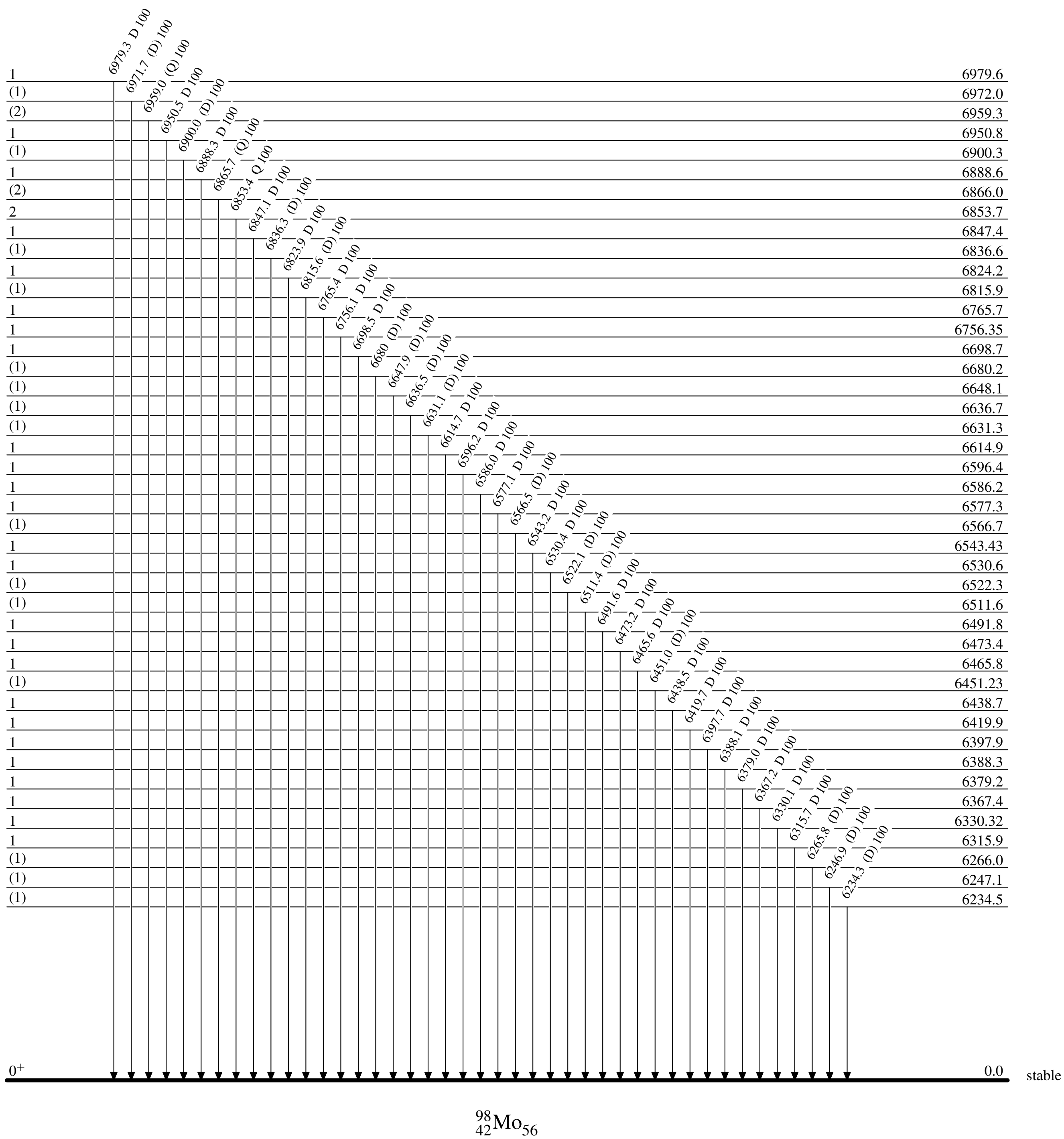
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

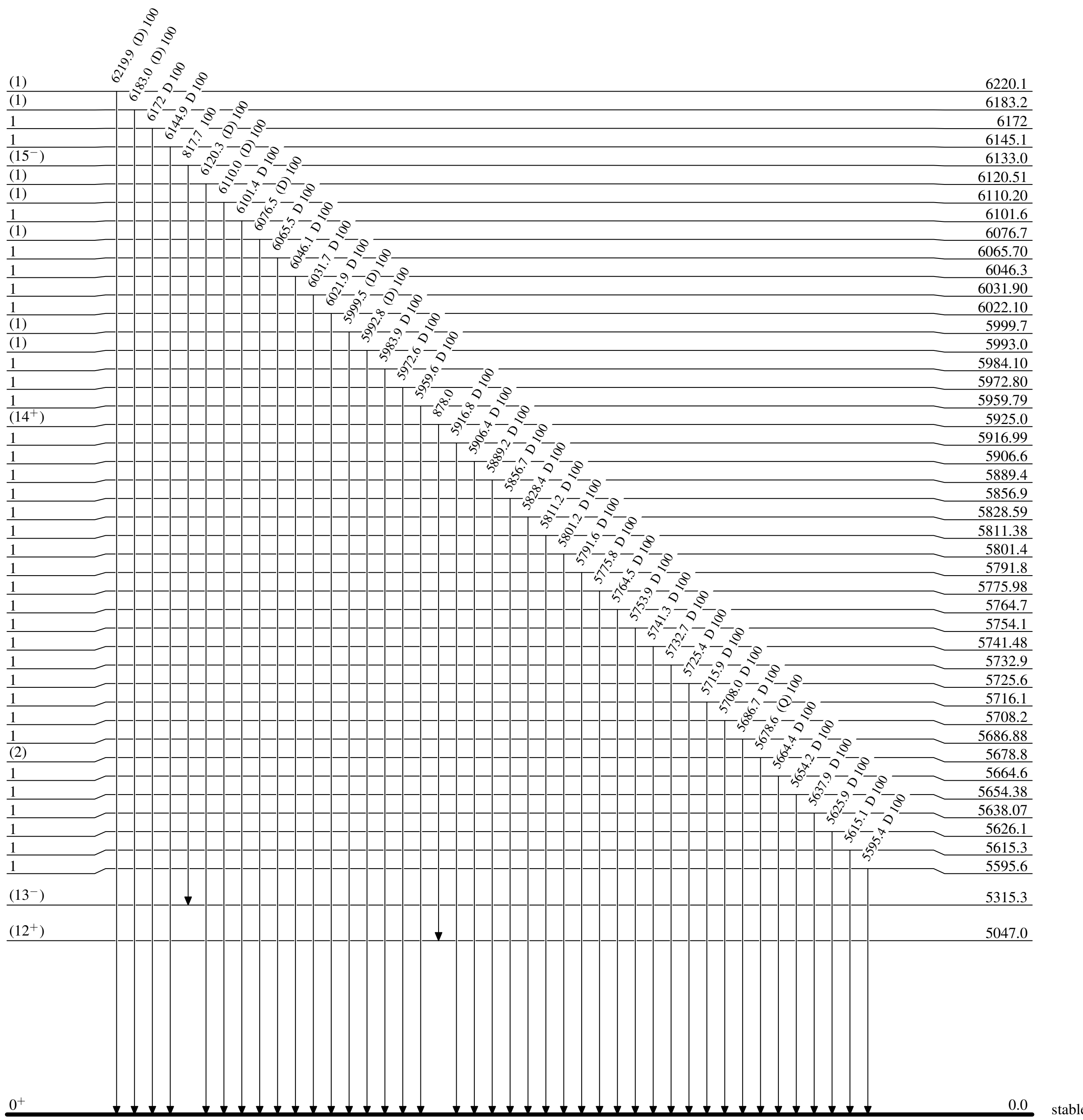
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

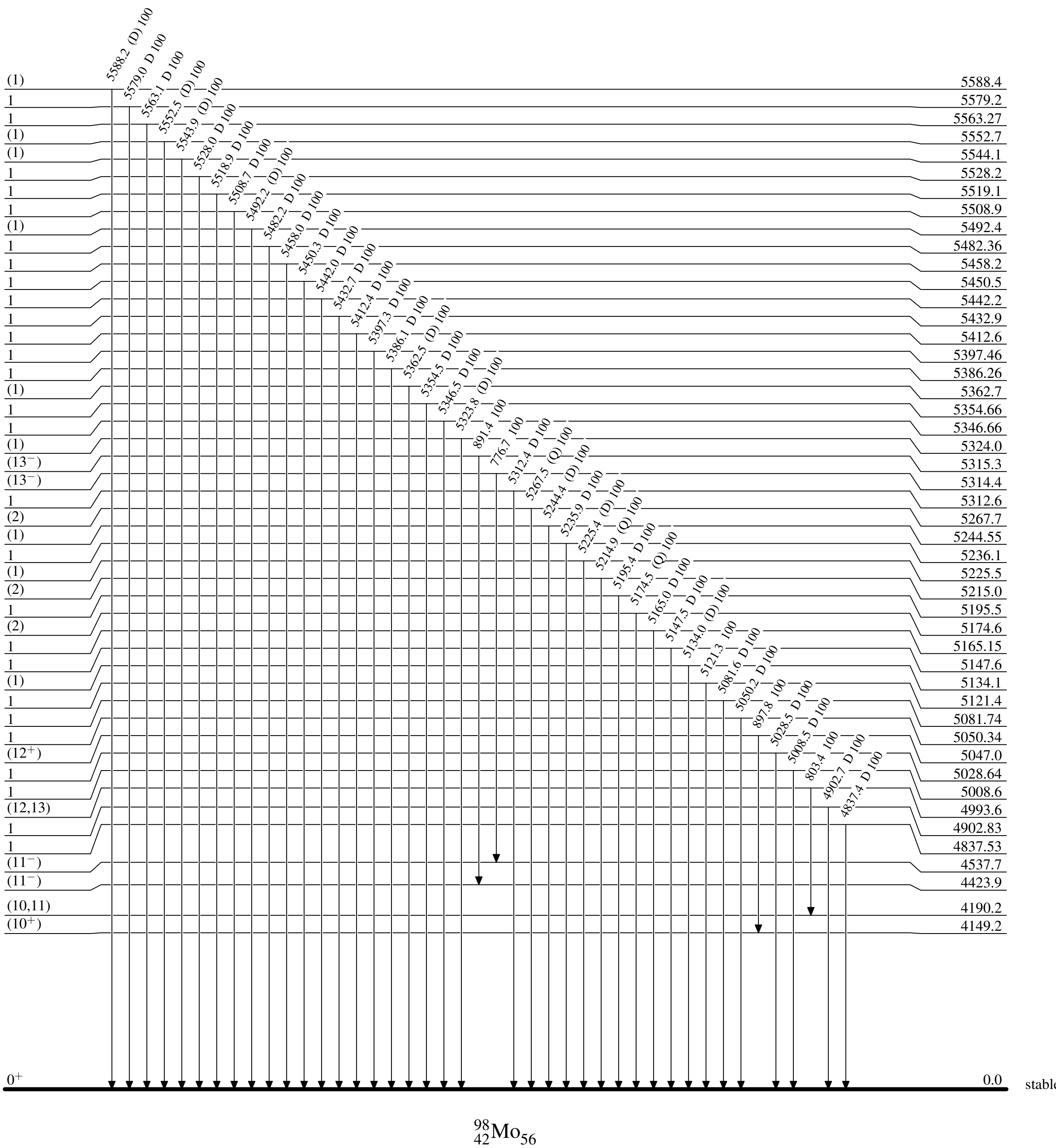


$^{98}_{42}Mo_{56}$

Adopted Levels, Gammas

Level Scheme (continued)

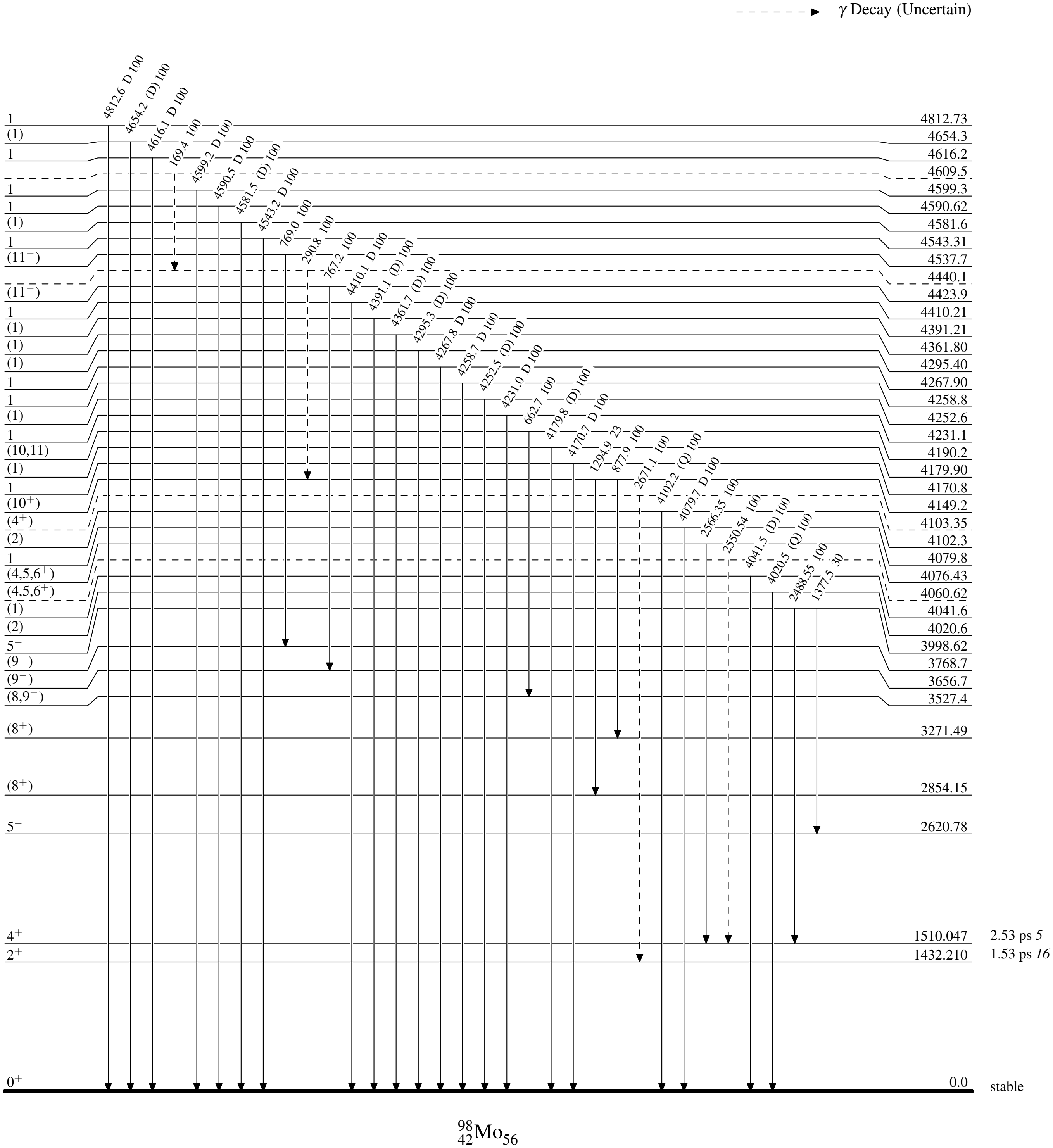
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



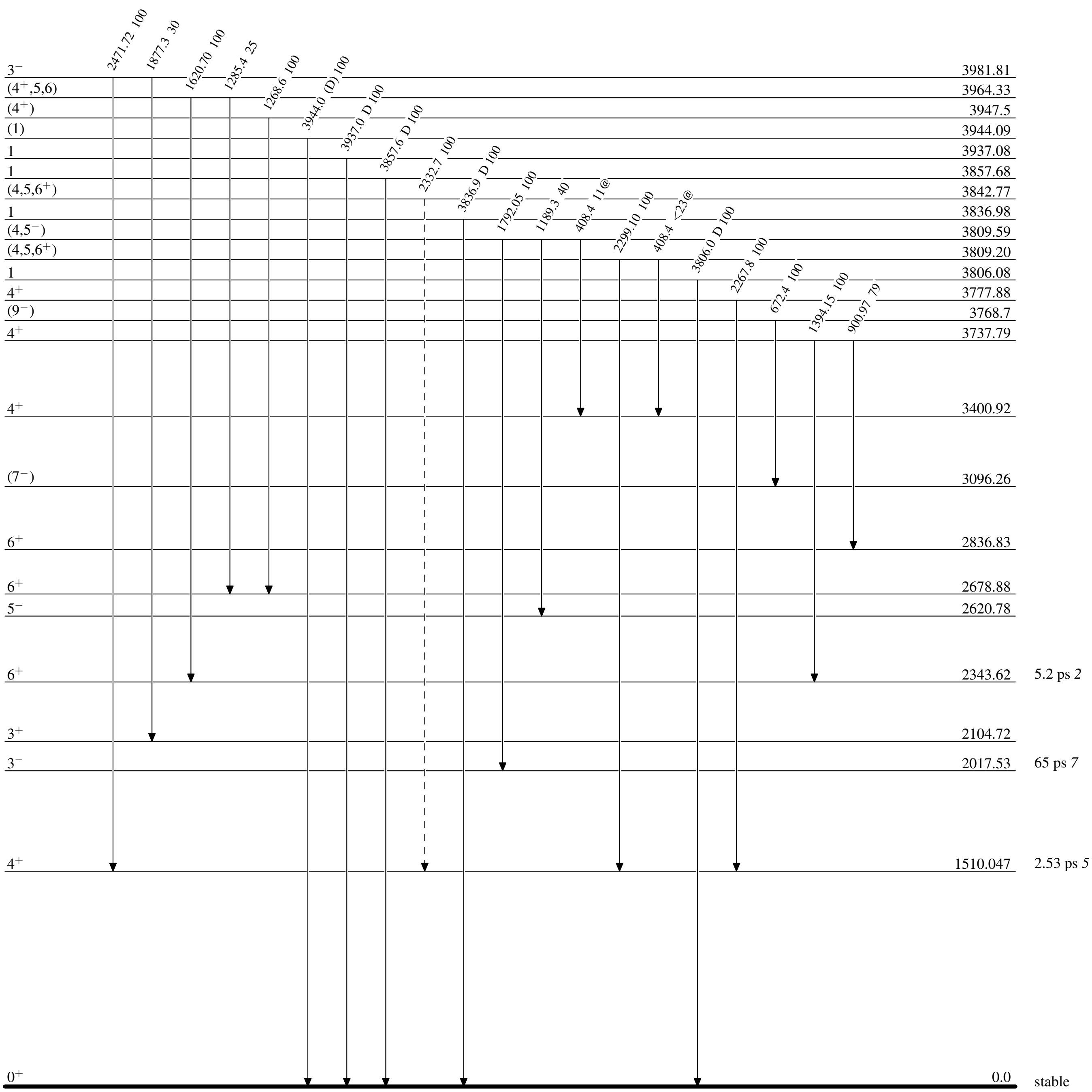
Adopted Levels, Gammas

Level Scheme (continued)

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

Legend

γ Decay (Uncertain)



$^{98}_{42}Mo_{56}$

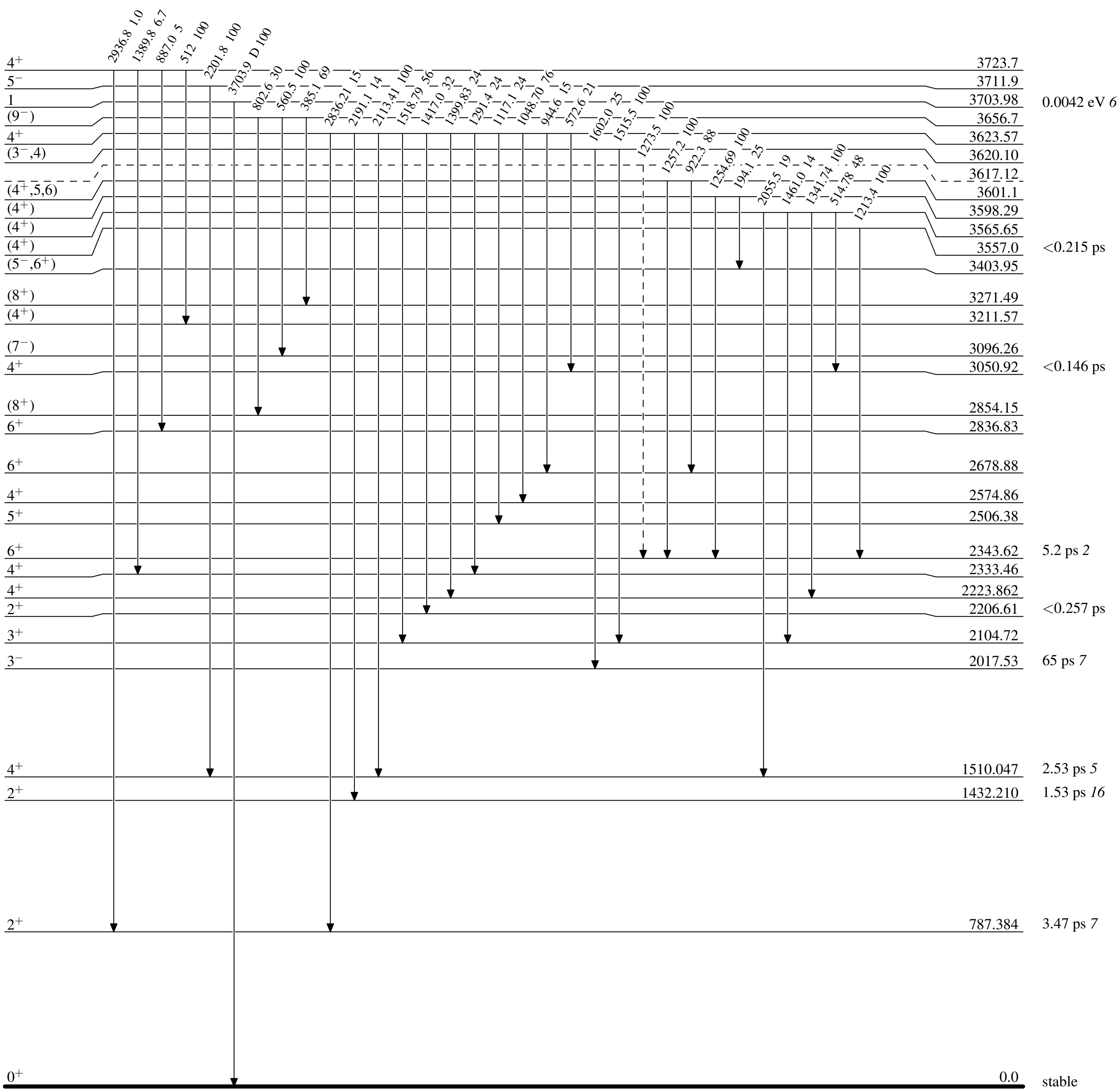
Adopted Levels, Gammas

Level Scheme (continued)

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

Legend

γ Decay (Uncertain)



$^{98}_{42}Mo_{56}$

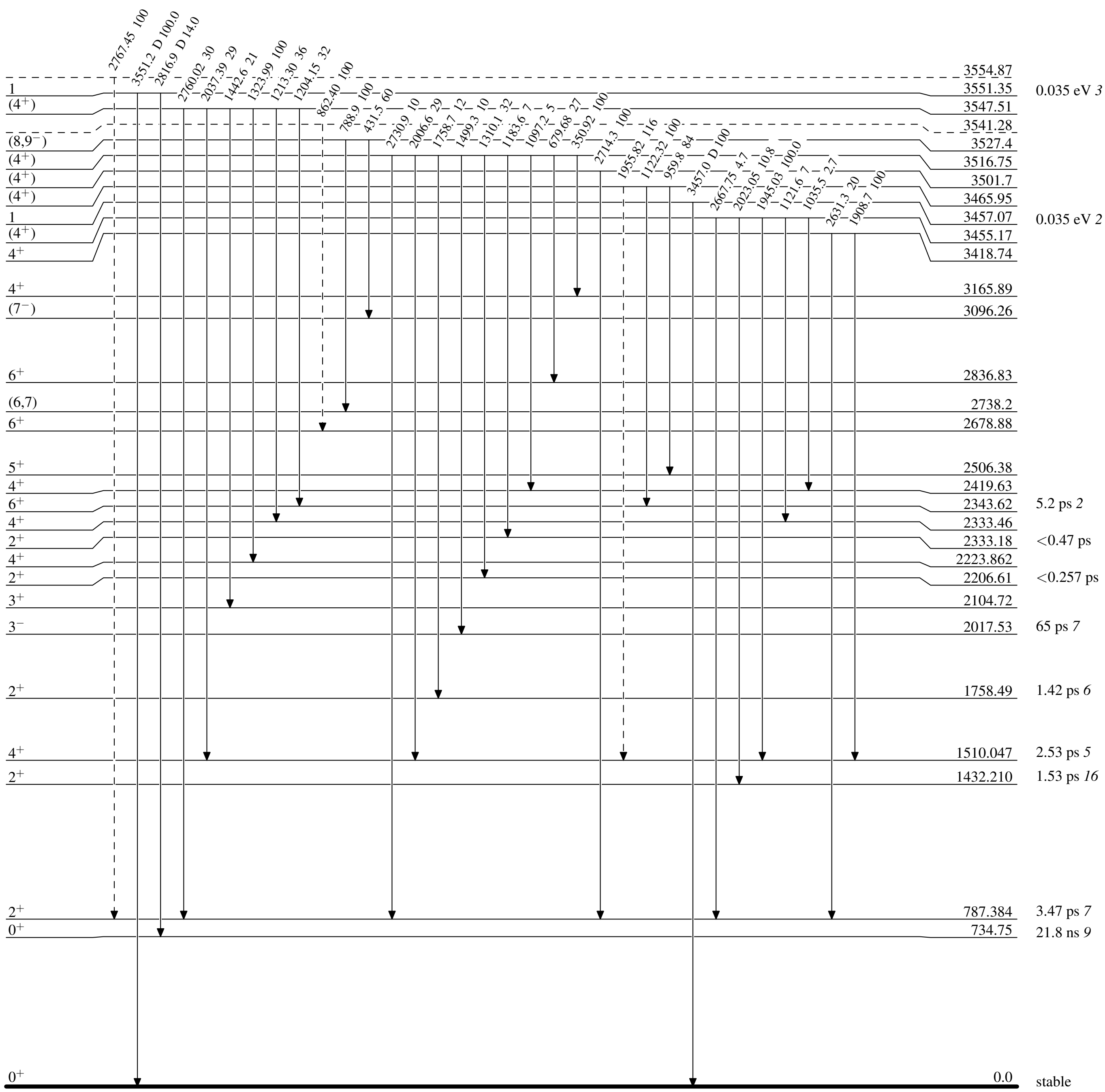
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

γ Decay (Uncertain)



$^{98}_{42}Mo_{56}$

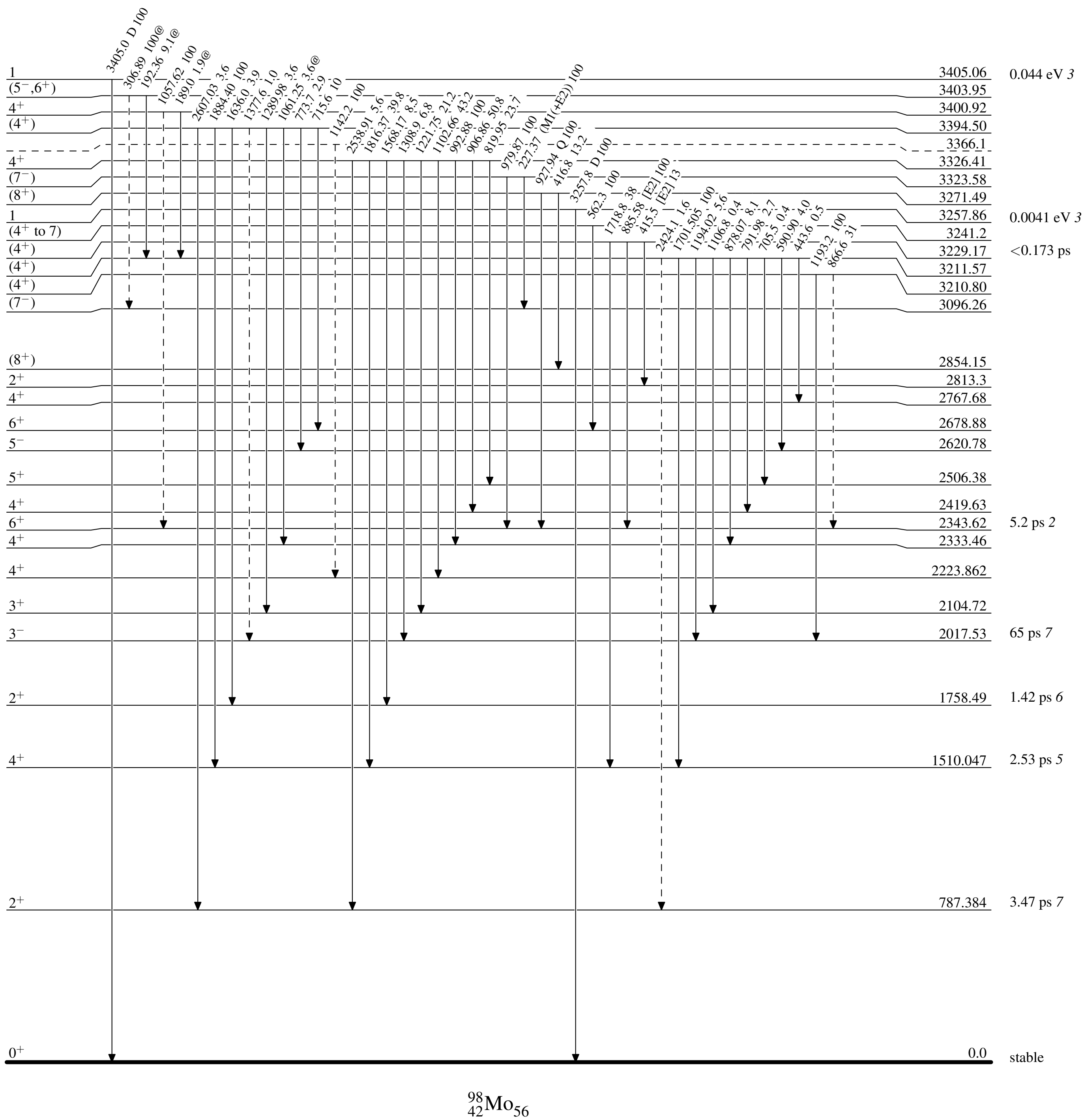
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

- - - - - - ► γ Decay (Uncertain)

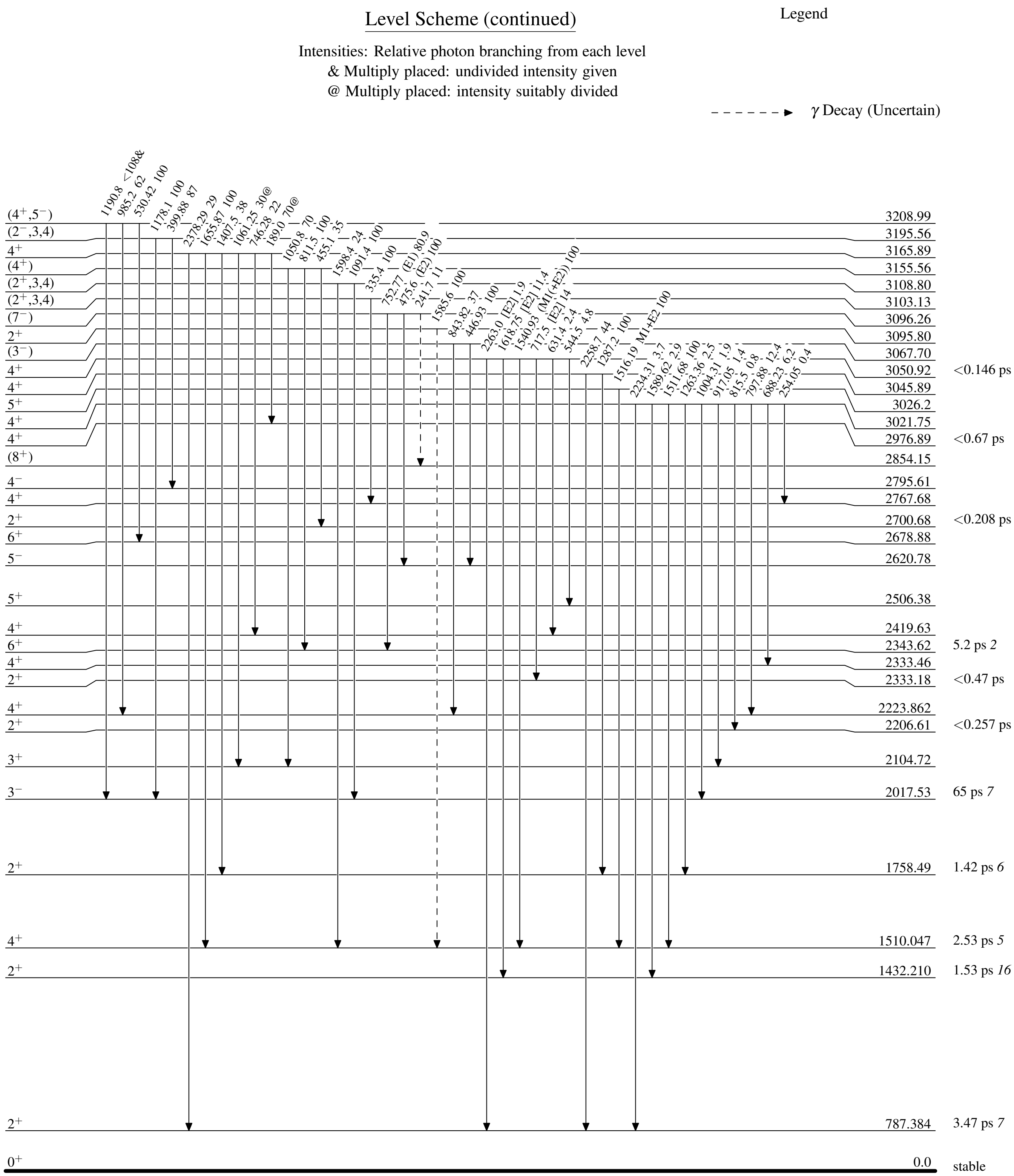


$^{98}_{42}Mo_{56}$

Adopted Levels, Gammas

Level Scheme (continued)

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



$^{98}_{42}Mo_{56}$

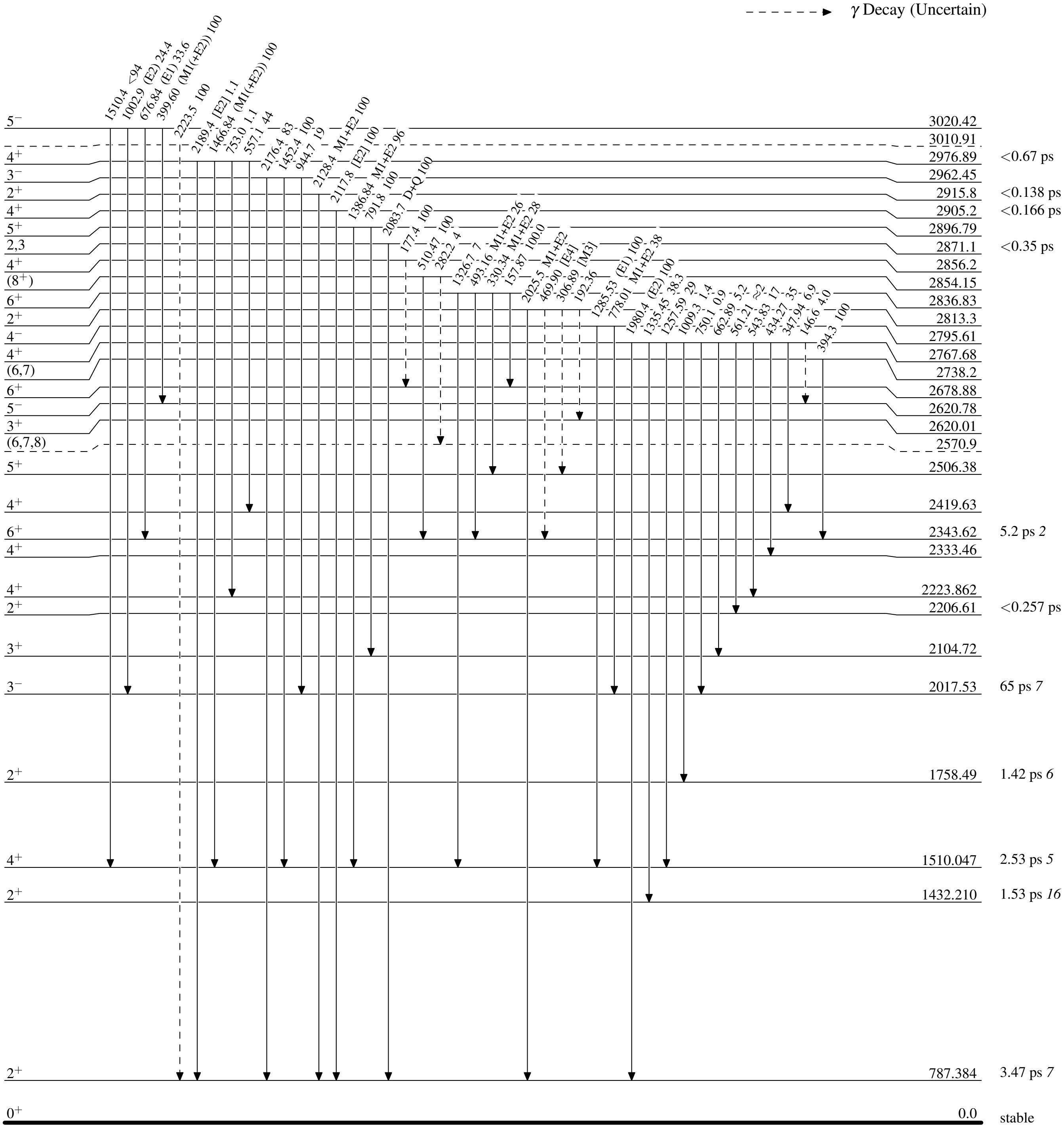
Adopted Levels, Gammas

Level Scheme (continued)

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

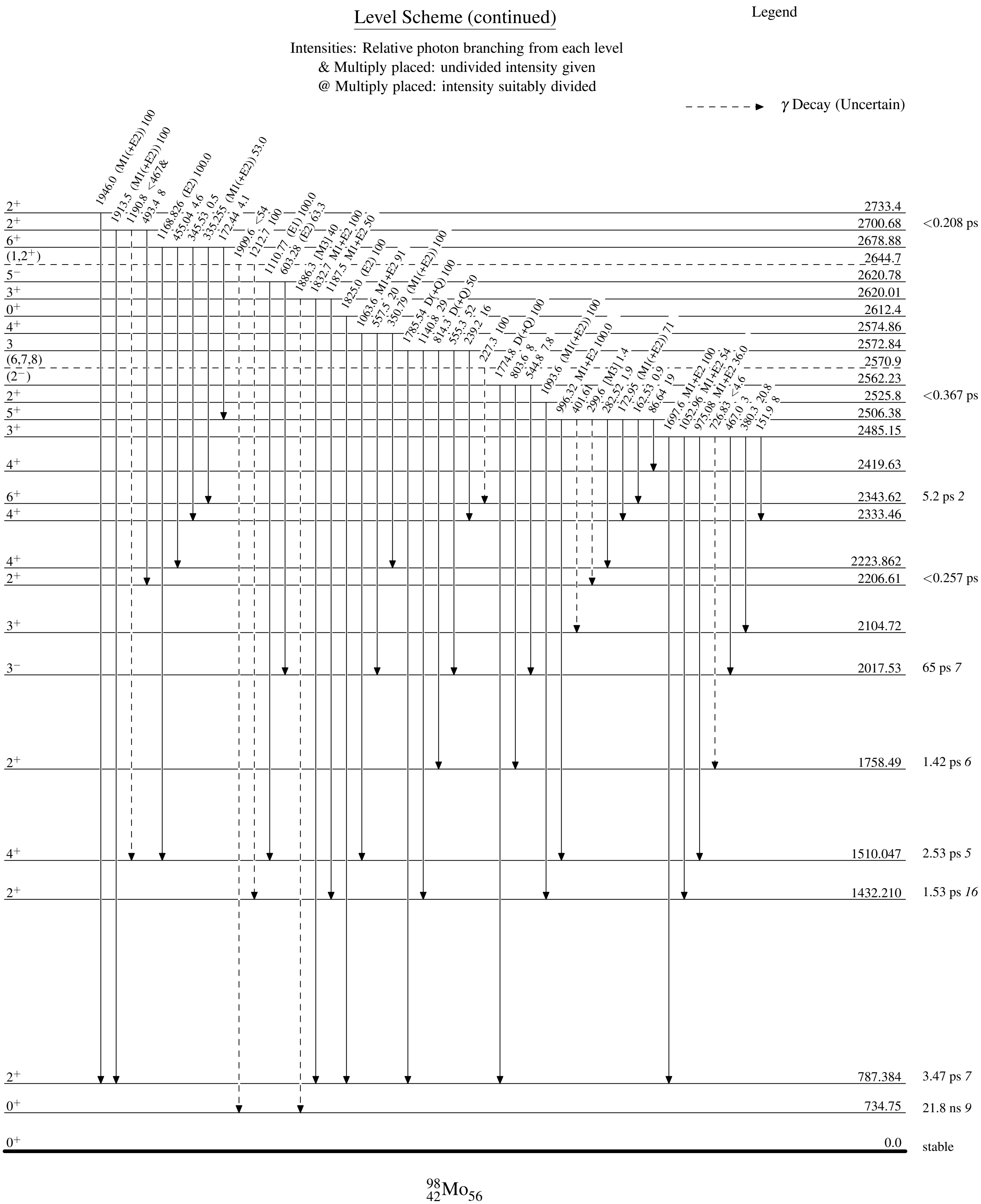
Legend

γ Decay (Uncertain)



$^{98}_{42}Mo_{56}$

Adopted Levels, Gammas



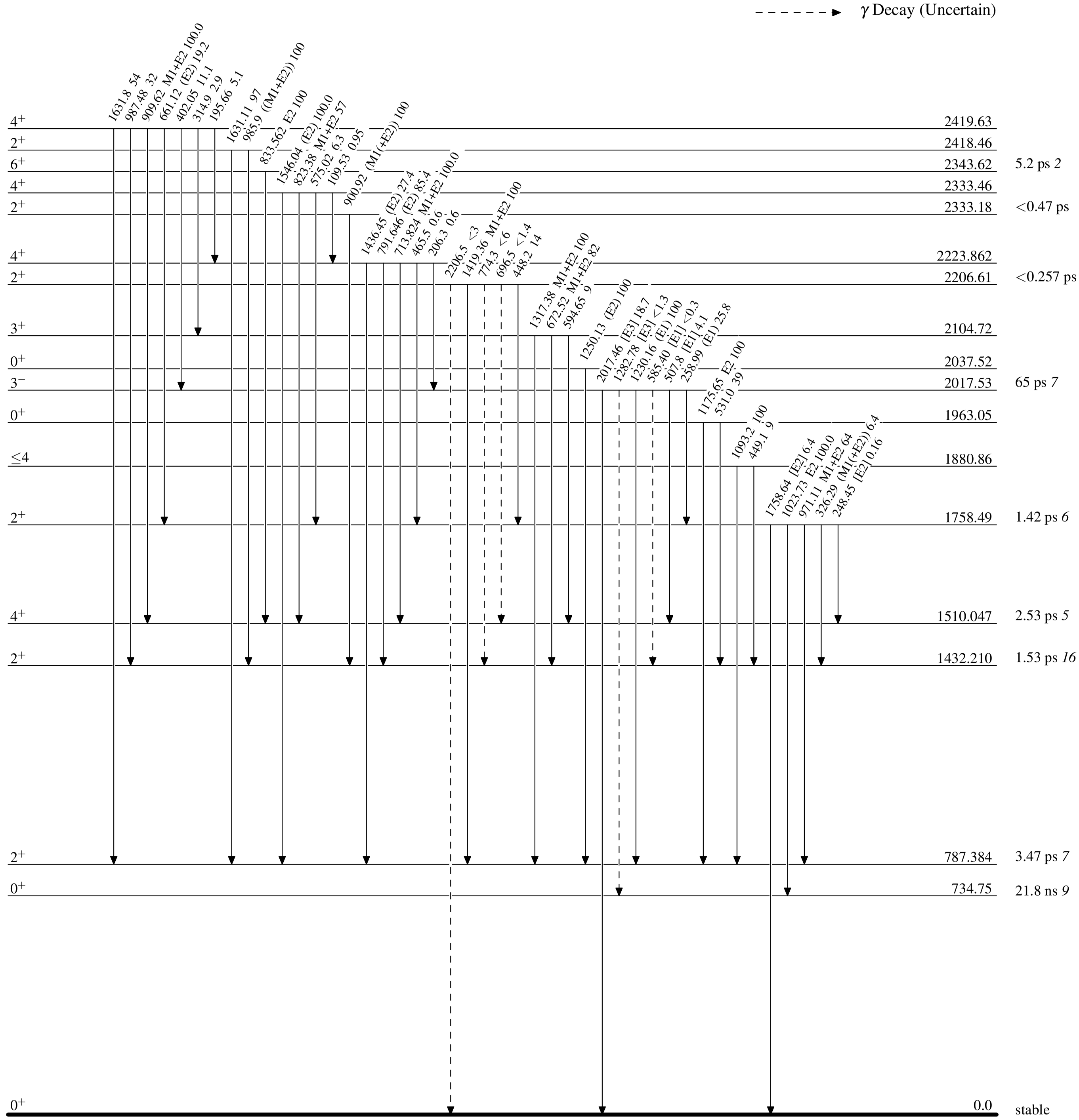
Adopted Levels, Gammas

Level Scheme (continued)

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

Legend

γ Decay (Uncertain)

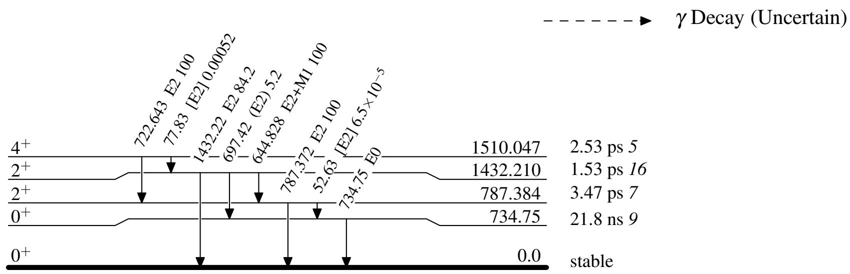


$^{98}_{42}Mo_{56}$

Adopted Levels, Gammas

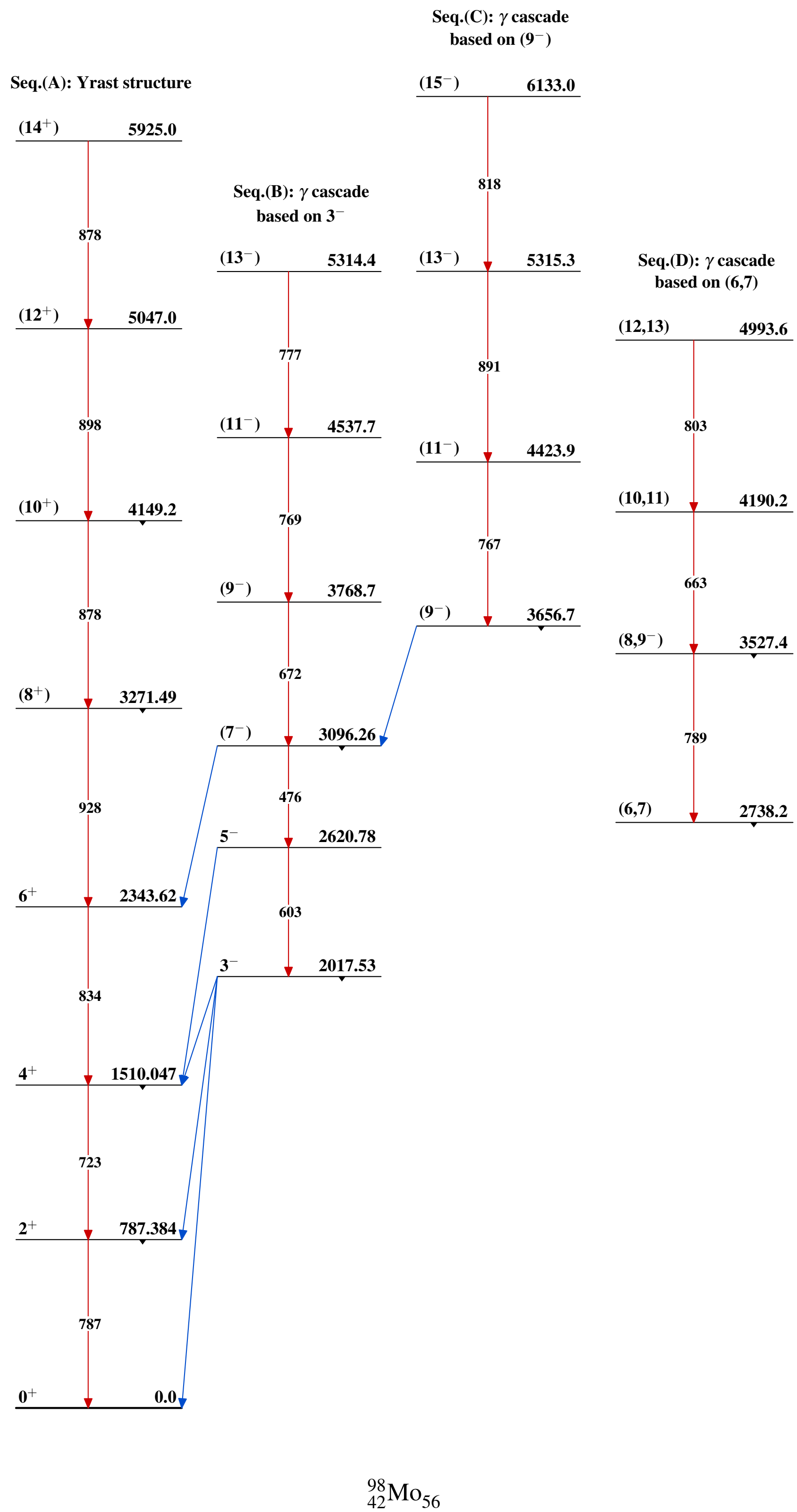
Level Scheme (continued)

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



$^{98}_{42}Mo_{56}$

Adopted Levels, Gammas



Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 172, 1 (2021)	31-Jan-2021

Q(β^-)=−172.1 *14*; S(n)=8294.2 *4*; S(p)=11147 *12*; Q(α)=−3179.1 *3* 2017Wa10
S(2n)=14219.7 *3*, S(2p)=19484 *8*, Q(2β^-)=3034.36 *17* (2017Wa10).
Other reactions:
Giant-dipole resonances, (γ,X) reactions: 1980St26, 1974Be33, 1974Ca05. (p,p′) reaction at E(p)=200 MeV (1982Dj04). Additional information 1.
Giant-quadrupole resonances, ^{100}Mo(α,α'), ^{100}Mo(^{3}He,^{3}He′): 1976Yo02, 1978Mo10, 1979Mo12. Resonance at 13.76 MeV with Γ=5.2 MeV.
Low energy octupole resonances, ^{100}Mo(α,α'): 1978Mo10.
^{100}Mo(^{20}Ne,F) E=146 MeV: 1984Na12.
^{100}Mo(^{58}Ni,^{58}Ni) E=137.5 MeV: 1995Re06, measured $\sigma(\theta)$.
^{100}Mo(^{32}S,^{32}S): 1995He17, measured cross section.
^{100}Mo(^{14}C,^{14}C′) E=71 MeV: 1982Ma30, $\sigma(\theta)$ for g.s. and first 2^+.
^{100}Mo(^{12}C,^{12}C′) E=48 MeV: 1981Vi01, 1980Lo01.
^{100}Mo(e,e′) E=120, 200, 274 MeV: 1975Dr06, charge radii and charge distributions deduced. Other: 1972EhZZ.
^{100}Mo(t,t) E=12 MeV: 2006Ch64, measured $\sigma(\theta)$, deduced optical model parameters.
Mesic atoms, ^{100}Mo(μ^-,X): 1978Du21, 1980Sc01. Theory: 1980Ba56, 1976Le08.
Antiprotonic atoms, ^{100}Mo(antiproton,x): 1999Sc35, 1994Ha51, 1986Ka08, 1985Kl02.
Isotope-shift measurements: 1986Ol03, 1985Go10, 1984Br09, 1978Au05.
Mass measurements: 2015Gu09, 2012Ka13, 2008Ra09, 2006Jo14, 2004Ko42, 1963Bi12, 1963Ri07.

Measurements of half-life of $\beta\beta$ decay of ^{100}Mo:

$T_{1/2}$(2$\nu\beta\beta$)(to ^{100}Ru g.s.): 7.12×10^{18} y *+21−17* (2020Ar09, CUPID-Mo, Modane, earlier value of 6.90×10^{18} y *15*(stat) *37*(syst) in 2017Ar18); 6.81×10^{18} y *1*(stat) *+38−40*(syst) (2019Ar04, earlier value: 7.17×10^{18} y *1*(stat) *54*(syst) in 2011Fl06, NEMO-3, also 2006Ar01,2005Ar27,2005Sa07, 2005Si06, 2004Ar29); 7.15×10^{18} y *37*(stat) *66*(syst) (2014Ca46, NIIC, Russia); 2.1×10^{18} y *3* (2004Hi19, geochemical); 7.6×10^{18} y *+22−14* (1997Al02); 11.5×10^{18} y *+30−20* (1991Ej05,1996Ej04, 1991Ej02); 9.5×10^{18} y *4* (stat) *9* (syst) (1995Da37, NEMO-2); 11.6×10^{18} y *+34−8* (1991El04, also 1987El13); 0.33×10^{19} y *+20−10* (1990Va10). A small contribution of ≈1% to total half-life is made by $T_{1/2}$(2$\nu\beta\beta$)(to 1130,0^+ level in ^{100}Ru)=7.5×10^{20} y *6*(stat) *6*(syst) (2014Ar08); 6.9×10^{20} y *+10−8*(stat) *7*(syst) (2010Be34); 5.7×10^{20} y *+15−12* (2007Ar02); 6.0×10^{20} y *+20−13* (2009Ki04,2006Ho17,2006Ba35); 6.1×10^{20} y *+18−11* (1995Ba29). Decay modes of 2$\nu\beta\beta$ to other excited states in ^{100}Ru, and 0$\nu\beta\beta$ modes make almost no contributions.

$T_{1/2}$(0ν,$\beta\beta$ to g.s.): >2.6×10^{22} y (2017Ar18); >1.1×10^{24} y (2014Ar08,2011Ba55,NEMO-3, 90% CL; also >1.0×10^{24} y in 2012Si23 and 2011Fl06), >4.6×10^{23} y (2005Ar27,NEMO-3); >5.5×10^{22} y (2002Fu05,2001Ej03,ELEGANT-5); >4.9×10^{21} y (2001As06, 2001As05); >2.2×10^{22} y (1997Al02); >5.2×10^{22} y (1996Ej04); >1.2×10^{22} y (1995Da37).
$T_{1/2}$(0ν,$\beta\beta$, Majorana neutrino to g.s.)>5.4×10^{21} y (1996Ej04,1991Ej02), >7.5×10^{20} y (1995Da37).
Planned $T_{1/2}$(0ν,$\beta\beta$) experiment: CROSS collaboration at Canfranc Underground Laboratory described in a review article by 2020Ce04, and by I.C. Bandac et al., Jour. High Energy Physics 1, 18 (2020).
$T_{1/2}$(0ν,$\beta\beta$,Majorana neutrino emission)>2.7×10^{27} y (2006Ar01).

$T_{1/2}$(2ν+0ν,$\beta\beta$ to 539,2^+ level)>25×10^{20} y (2014Ar08).
$T_{1/2}$(2ν,$\beta\beta$ to 539.5,2^+ level)>11×10^{20} y (2007Ar02) (90% confidence limit); >16×10^{20} y (1995Ba29); >5×10^{20} y (1992Bl06).
$T_{1/2}$(0ν,$\beta\beta$ to 539.5,2^+ level)>1.6×10^{23} y (2007Ar02) (90% confidence limit); >1.1×10^{21} y (1995Da37).

$T_{1/2}$(2ν,$\beta\beta$ to 1130,0^+ level)=7.5×10^{20} y *6*(stat) *6*(syst) (2014Ar08).
$T_{1/2}$(2ν+0ν,$\beta\beta$ to 1130,0^+ level)=6.9×10^{20} y *+10−8*(stat) *7*(syst) (2010Be34).
$T_{1/2}$(0ν+2ν)=6.0×10^{20} y *+20−13* (2009Ki04,2006Ho17) for decay to the 1130, 0^+ state. The statistical uncertainty of +1.9-1.1 and systematic uncertainty of 0.6 have been combined in quadrature. Earlier value from the same group=5.9×10^{20} y *+18−13* in 2001De17.
$T_{1/2}$(2ν,$\beta\beta$ to 1130,0^+ level)=5.7×10^{20} y *+15−12* (2007Ar02) (90% confidence limit); 6.1×10^{20} y *+18−11* (1995Ba29);

Adopted Levels, Gammas (continued)

>12×10^{20} y (1992Bl06).
$T_{1/2}$(0ν,ββ to 1130,0$^+$ level)>8.9×10^{22} y (2007Ar02) (90% confidence limit); >1.7×10^{21} y (1995Da37).

$T_{1/2}$(2ν+0ν,ββ to 1362,2$^+$ level)>108×10^{20} y (2014Ar08).
$T_{1/2}$(ββ)>44×10^{20} y at 90% confidence level for decay to 1362.2 keV 2$^+$ level (2009Ki04,2006Ho17).
$T_{1/2}$(2ν,ββ to 1362,2$^+$ level)>13×10^{20} y (1995Ba29); >6×10^{20} y (1992Bl06).

$T_{1/2}$(2ν+0ν,ββ to 1741,0$^+$ level)>40×10^{20} y (2014Ar08).
$T_{1/2}$(ββ)>48×10^{20} y at 90% confidence level for decay to 1741.0 keV 0$^+$ level (2009Ki04,2006Ho17).
$T_{1/2}$(2ν,ββ to 1741,0$^+$ level)>13×10^{20} y (1995Ba29).

$T_{1/2}$(2ν+0ν,ββ to 1865,2$^+$ level)>49×10^{20} y (2014Ar08).

$T_{1/2}$(2ν+0ν,ββ to 2051,0$^+$ level)>43×10^{20} y (2014Ar08).
$T_{1/2}$(ββ)>38×10^{20} y at 90% confidence level for decay to 2051.7 keV 0$^+$ level (2009Ki04,2006Ho17).

$T_{1/2}$(ββ)>40×10^{20} y at 90% confidence level for decay to 2387.2 keV 0$^+$ level (2009Ki04,2006Ho17).

Measurements of ββ decay of ^{100}Mo: 2020Ar09, 2019Ar04, 2017Ar18, 2014Ar05, 2014Ar08, 2014Ca46, 2012Si23, 2011Ba55, 2011Fl06, 2010Be34, 2010Si06, 2009Da25, 2009Ki04, 2009KoZY, 2008KoZV, 2007Ar02, 2006Ho17, 2006Ba35, 2006Ar01 (also 2005Ar27,2005Ba01,2005Ba33,2005Sa07,2005Si06, 2004Ar29,2004Ba27,2004Ba97,2004Ko61,2003Ba22,2003Oh07,2002As05, 2002Ba52,2001As05,2001As06,2001Va34,2000Ar16,1999As01,1999As09, 1999Bb18,1999Bb19,1999Pi08,1999Sa02,1998As04); 2004Hi19 (geochemical method); 2002Fu05 (also 2002Ej05,2001Ej01, 2001Ej03,2000Ej01,2000Ku21,1998Ku09,1997Ej01); 2001Be19 (also 2000Be57); 1997Al02 (also 1993Al11,1989Al20), 1996Ej04 (also 1996Ej06, 1992Ku18,1991Wa31,1991Ej05,1991Ej02,1988Ok01), 1995Ba29 (also 1996Bb02,1990Ba63,1990Ba52), 1995Da37 (also 1994La42,1992Bl06), 1991El04 (also 1987El13), 1990Va10. Others: 1997De40, 1993Ko28, 1984Fi16 (also 1982Be20), 1983Zd01, 1955Wi33, 1954Se93, 1952Fr23.
Theory references: consult the NSR database (www.nndc.bnl.gov/nsr/) for 342 primary references, 136 dealing with nuclear structure calculations and 206 with double-beta decay nuclear matrix elements and half-life for ^{100}Mo 2β decay.

^{100}Mo Levels

Cross Reference (XREF) Flags

A	^{100}Nb β^- decay (1.4 s)	G	^{100}Mo(γ,γ′)	M	Coulomb excitation
B	^{100}Nb β^- decay (2.99 s)	H	^{100}Mo(n,n′)	N	^{100}Mo(^{136}Xe,Xγ)
C	^{100}Tc ε decay (15.65 s)	I	^{100}Mo(n,n′γ)	O	^{102}Ru(^{14}C,^{16}O)
D	^{9}Be(^{109}Tc,Xγ)	J	^{100}Mo(p,p′)	P	^{104}Ru(d,^{6}Li)
E	^{96}Zr(^{7}Li,p2nγ)	K	^{100}Mo(α,α′)	Q	^{110}Pd(^{86}Kr,Xγ)
F	^{98}Mo(t,p),(t,pγ)	L	^{100}Mo(d,d′)	R	^{168}Er(^{30}Si,Xγ)

E(level)[†]	J$^{\pi}$[#]	$T_{1/2}$[‡]	XREF	Comments
0.0[b]	0$^+$	7.01×10^{18} y *+21−17*	ABCDEFGHIJKLMNOPQR	%2β^-=100 J$^{\pi}$: measurement by optical method (1951Ar29). $T_{1/2}$: $T_{1/2}$=7.01×10^{18} y *+21−17* for 2νββ decay to ^{100}Ru g.s. obtained from weighted average of 7.05×10^{18} y *+21−17* (2020Ar09, CUPID-MO, Modane, earlier value of 6.90×10^{18} y *40* in 2017Ar18); 6.81×10^{18} y *1*(stat) *+38−40*(syst) (2019Ar04, earlier value of 7.17×10^{18} y *54* in 2011Fl06, NEMO-3, see also previous papers e.g. 2005Ar27); 7.15×10^{18} y *76* (2014Ca46, NIIC, Russia); 7.2×10^{18} y *20* (2001As06, Gran Sasso, see also 2002As05,2001As05 and

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{100}Mo Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$[‡]	XREF	Comments
				previous papers); 7.6×10^{18} y *26* (1997Al02, Silver mine at Osburn, Idaho); 6.82×10^{18} y *86* (1997De40, Valve house, Hoover Dam, USA; note that value listed in 2015Ba11 evaluation from 1997De40 is for ^{150}Nd 2$\nu\beta\beta$ decay, not for ^{100}Mo). Half-life in 2015Ba11 evaluation is: 7.1×10^{18} y *4*, where some of the original values taken from literature seemed erroneous. About 1% 2$\nu\beta\beta$ decay is found to proceed to the 1130, 0$^+$ level in ^{100}Ru with weighted averaged partial $T_{1/2}$=6.9×10^{20} y *9*, obtained from 7.5×10^{20} y *9* (2014Ar08, NEMO-3); 6.9×10^{20} y *12* (2010Be34, ARMONIA, Gran Sasso); 6.0×10^{20} y *+20−13* (2009Ki04, TUNL, ITEP); 6.1×10^{20} y *+18−11* (1995Ba29, Soudan mine, Minnesota). Value is 6.7×10^{20} y *+5−4* in 2015Ba11 evaluation which included somewhat different set of measurements. Note that in all cases, evaluators combined statistical and systematic uncertainties in quadrature. Decays to other excited states of ^{100}Ru make almost no contribution, as suggested by recent measurements by 2014Ar08 (NEMO-3) and 2009Ki04 (TUNL, ITEP). Additional information 2. Evaluated rms charge radius <r^2>$^{1/2}$=4.4468 fm *25* (2013An02). Evaluated δr^2(^{100}Mo,^{92}Mo)=+1.177 fm^2 *1* (2013An02). Measured δ<r^2>(^{100}Mo,^{92}Mo)=+1.139 fm^2 *39* (2009Ch09); uncertainty is systematic. Laser spectroscopy technique at JYFL. Measured Isotope shift(^{100}Mo,^{92}Mo)=−2645 MHz *33* (2009Ch09); total uncertainty is given; statistical uncertainty is 1. Laser spectroscopy technique at JYFL. δ<r^2>(^{96}Mo−^{100}Mo)=−0.525 fm^2 *6* (1985Go10). From experimental studies of one-neutron removal reactions (d,p), (p,d), (^{3}He,α) and proton removing reaction (^{3}He,d) on ^{100}Mo target, 2017Fr08 deduced following values of neutron and proton vacancies in the g.s. of ^{100}Mo: 0.33 *2* for ν2s$_{1/2}$, 3.40 *7* for ν1d, 2.48 *19* for ν0g$_{7/2}$, 1.89 *13* for ν0h$_{11/2}$, 1.49 *7* for π1p, 0.47 *2* for π0f$_{5/2}$ and 5.94 *30* for π0g$_{9/2}$ orbitals, with a total vacancy of 8.09 *29* for neutrons and 7.89 *31* for protons, compared with expected value of 8 for each.
535.59[b] *4*	2$^+$	12.4 ps *3*	AB DEFGHIJKLMNOPQR	μ=+0.94 *7* (2001Ma17,2014StZZ) Q=−0.25 *7* (2011Wr01,2016St14) J^{π}: L(t,p)=L(p,p′)=L(α,α′)=2 from 0$^+$. $T_{1/2}$: weighted average of 13.6 ps *7* (recoil-distance Doppler-shift method in Coul. ex.,1975Bo39), and half-lives of 12.56 ps *22* (1976Pa13), 12.2 ps *6* (1972Ba90), 10.5 ps *12* (1962Ga13), 10.2 ps *16* (1962Er05), 10.5 ps *11* (1958St32) and 9.7 ps *15* (1956Te26), deduced from respective B(E2)↑ values determined in the measurement of Coulomb excitation yields. Others: 13.9 ps *4*, deduced by evaluators from B(E2) in 2012Wr03, where 13.6 ps *7* (1975Bo39) was used as input data in their GOSIA analysis of Coul. Ex. data; 10.3 ps *+51−35* (DSAM in ^{9}Be(^{109}Tc,Xγ), 2017Ra05); 16 ps *5* (2013RuZX, $\gamma\gamma$(t) fast-timing technique in study of prompt γ rays from neutron-induced fission of actinides). 2016Pr01 evaluation gives $T_{1/2}$=12.1 ps *5*, from the same original data as here but using ≈5% uncertainty in the value given by 1976Pa13. μ: from g-factor=+0.471 *33*, value adopted by 2001Ma17 from weighted average of g=+0.515 *42* (transient-field technique,2001Ma17) and g=+0.404 *52* (original g=+0.43 *6* from 1978HaYJ re-evaluated by 2001Ma17 for consistent field parameters). Other: 0.34 *18* (IMPAC

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{100}Mo Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$[‡]	XREF	Comments
				method, 1969He11, using $T_{1/2}$(536 level)=10.3 ps *10*). Q: reorientation effect in Coul. ex. Other measurements: −0.39 *8* or −0.13 *8* (1977Na06); −0.42 *9* or −0.10 *9* (1976Pa13). β_2=0.20 (from (p,p′) and (α,α')).
695.13[e] *4*	0^+	1.62 ns *4*	AB FGHIJ LM P	J^{π}: L(t,p)=L(p,p′)=L(d,d′)=0 from 0^+; E0 transition to 0^+. $T_{1/2}$: weighted average of 1.58 ns *4* ($\beta\gamma\gamma$(t) in β decay of 1.5-s ^{100}Nb,1990Ma01), 1.65 ns *4* ($\beta\gamma$(t) quoted by 1990Ma01 from a later report of 1989OhZY), 1.7 ns *2* (p ce(t) in (p,p′γ) 1972AnZP), 2.2 ns *3* (B(E2) in Coul. ex.,1972Ba90). Others: 1.52 ns *+5−8*, deduced by evaluators from B(E2) in 2012Wr03, where 1.580 ns *40* (1990Ma01) was used as input data in their GOSIA analysis of Coul. Ex. data; 1.53 ns *30* (2013RuZX, $\gamma\gamma$(t) fast-timing technique in study of prompt γ rays from neutron-induced fission of actinides). Value of 3.0 ns *1* from (proton)(ce)(t) in (p,t) (1987Es01) seems discrepant.
1063.82[d] *4*	2^+	6.6 ps *6*	AB FGHIJKLM R	J^{π}: L(t,p)=L(p,p′)=L(α,α')=2 from 0^+. $T_{1/2}$: others: 5.0 ps *5* from B(E2) value from 1972Ba90 in Coul. ex.; 5.3 ps *+3−4*, deduced by evaluators from B(E2) (from 536,2^+ level) in 2012Wr03, where 6.45 ps *58* (1985Mu09) was used as input data in their GOSIA analysis of Coul. ex. data. β_2=0.037 (from (p,p′) and (α,α')).
1136.02[b] *4*	4^+	3.8 ps *3*	AB DEF HIJKLMN QR	J^{π}: L(t,p)=L(p,p′)=4 from 0^+. $T_{1/2}$: others: 4.9 ps *+19−14* (DSAM in ^{9}Be(^{109}Tc,Xγ), 2017Ra05); 3.67 ps *+12−16*, deduced by evaluators from B(E2) (from 536,2^+ level) in 2012Wr03, where 3.83 ps *34* (1985Mu09) was used as input data in their GOSIA analysis of Coul. ex. data. β_4=−0.027 (from (p,p′)). B(E4)(W.u.)=0.99 *21* (from (p,p′) and (d,d′) 1992Pi08).
1463.93[e] *5*	2^+	2.9 ps *7*	AB FGHIJ LM	J^{π}: L(t,p)=L(p,p′)=2 from 0^+. $T_{1/2}$: other: 2.25 ps *+9−10*, deduced by evaluators from B(E2) (from 695, 0^+ level) in 2012Wr03, where 2.93 ps *68* (1985Mu09) was used as input data in their GOSIA analysis of Coul. ex. data.
1504.66 *6*	0^+		A F IJ L	XREF: J(1510)L(1510). E(level): in (p,p′), it may be a different level. J^{π}: $\gamma\gamma(\theta)$ in ^{100}Nb β^- and L(t,p)=0.
1607.37[d] *5*	(3^+)		AB IJ L R	XREF: J(?). J^{π}: 471.4γ to 4^+, 543.6γ to 2^+, and no γ to 0^+ suggests 3, 4^+. Absence in Coul. ex. and systematics support 3^+.
1766.52 *11*	(2^+)		hIJ l	XREF: h(1770)J(1770)l(1768). J^{π}: L(p,p′)=(2); possible γ to 0^+. In (n,n′γ), 1997Ko62 propose (0^+) based on the comparison of experimental and calculated populations of this state. In that case level in (p,p′) must be different and possible γ to 0^+ will not exist.
1771.44 *5*	(4^+)	2.5 ps *4*	B hI lM	XREF: h(1770)l(1768). J^{π}: γs to 2^+, 4^+ and population in Coul. ex., probably through a two-step process from 2^+ and 4^+ states. $T_{1/2}$: other: 1.78 ps *+17−19*, deduced by evaluators from B(E2) in Coul. Ex.(from 1064,2^+ level) in 2012Wr03, where 2.45 ps *41* (1985Mu09) was used as input data in their GOSIA analysis.
1847.17[b] *8*	6^+[a]	1.20 ps *17*	B E IJ MN QR	XREF: I(?). $T_{1/2}$: other: 1.21 ps *+9−8*, deduced by evaluators from B(E2) (from 1136,4^+ level) in 2012Wr03, where 1.20 ps *17* (1985Mu09) was used as input data in their GOSIA analysis of Coul. ex. data.
1908.19[c] *6*	3^-	14 ps *3*	F HIJKLM P R	J^{π}: L(p,p′)=L(α,α')=3 from 0^+. B(E3)=0.143 *12* (2002Ki06, evaluation). $T_{1/2}$: weighted average of 12 ps *3* (RDDS in Coul. ex.) and 20 ps *5*

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{100}Mo Levels (continued)

E(level)[†]	J^{π}[#]	XREF	Comments
			(B(E3) values in Coul. ex.). 2012Wr03 in Coul. Ex. used 12.0 ps *30* (1985Mu09) in their GOSIA analysis to deduce several matrix elements. β_3=0.17 ((p,p′) and (α,α′)).
1977.34 *7*	(1,2$^+$)	A G I	XREF: G(?). J^{π}: 1281.8γ to 0$^+$; 1$^+$ favored by 1997Ko62 using comparison of experimental and calculated yields in (n,n′γ) reaction.
2037.60 *17*	0$^+$	A FG IJKL	XREF: F(2035)G(2033)I(?)J(2040). J^{π}: γγ(θ) in ^{100}Nb β^- (1.5 s); L(t,p)=0.
2042.78 *7*	(2)$^+$	G IJ	XREF: G(2040)J(2046). J^{π}: L(p,p′)=2 from 0$^+$; 2042.9γ to 0$^+$.
2082 *10*		F H J	XREF: F(2082)H(2100)J(2070?). E(level): This group may correspond to the 2087 level but L(t,p)=(0,1) and L(p,p′)=(3,5) are mutually inconsistent as well as inconsistent with J^{π}(2086)=0$^+$. If L-transfers are correct, there are two levels near 2082 in addition to the 2086 level. L(t,p)=(0) could correspond to 2086, 0$^+$ level. In (n,n′), J^{π}=2$^+$ is deduced.
2086.33 *15*	0$^+$	A I	J^{π}: γγ(θ) in ^{100}Nb β^- (1.5 s). Parity from RUL. See also J^{π} comment for 2082 level.
2103.13 *9*	4$^+$	B F IJKL	XREF: K(2121). J^{π}: L(p,p′)=L(α,α′)=4 from 0$^+$.
2156 *2*	1$^-$	J L	J^{π}: L(p,p′)=L(d,d′)=1 from 0$^+$.
2189.56 *15*	(0$^+$,1,2)	A f IJk	XREF: f(2186)I(?)J(2192?). J^{π}: 1125.8γ and 1653.9γ to 2$^+$; β feeding (log *ft*=5.8) from 1$^+$ parent.
2201.22 *11*	(2$^-$)	f IJkL	XREF: f(2186)J(2200). J^{π}: σ(θ) in (p,p′) and (d,d′), but L(t,p)=2 for a group at 2186.
2286.47 *17*	2$^+$	F IJ L	J^{π}: L(t,p)=L(p,p′)=2 from 0$^+$.
2289.5 *4*	(4,5$^+$)	B R	J^{π}: 682.1γ to (3$^+$); log *ft*=6.3 from (5)$^+$.
2310 *2*	6$^+$	J L	J^{π}: L(p,p′)=L(d,d′)=6 from 0$^+$.
2310.12[d] *20*	(4$^+$)	B	J^{π}: log *ft*=5.9 from (5)$^+$; 1246.4γ to 2$^+$.
2320.3 *3*	(0$^+$,1,2)	A F	XREF: F(2312). J^{π}: 856.3γ and 1257.0γ to 2$^+$; β feeding (log *ft*=5.8) from 1$^+$ parent.
2339.8[c] *4*	(5$^-$)	F H JKL QR	XREF: F(2334)H(2330)K(2330). J^{π}: L(p,p′)=5. But L(p,p′)=2 is also reported. Also L(α,α′)=2. E(level): The partially resolved group in (t,p) at 2334 with L=0 may be a different level.
2369.68 *11*	3$^-$	F IJ L	J^{π}: L(t,p)=L(p,p′)=3.
2397.0 *3*	(1$^-$)	F IJKL	XREF: F(2392)I(?)K(2384). E(level): from particle transfer reactions. J^{π}: from L(p,p′)=(1). However, L(t,p)=2 and L(α,α′)=5 are inconsistent with this assignments. It is possible that there are different levels near this energy.
2416.58 *22*	(4$^+$)	B F IJKL	J^{π}: log *ft*=5.4 from (5)$^+$; γ to 2$^+$. Also L(p,p′)=L(d,d′)=(4). But L(α,α′)=3 and L(p,p′)=3 in one of the studies suggest 3$^-$ also. (1280γ)(600γ)(θ) measurement in ^{100}Nb β^- decay (2.99 s) gives unrealistic δ(M2/E1)<−0.28 for J^{π}(2416)=3$^-$. There may be two closely spaced levels near this energy.
2432 *2*	1$^-$	JK	XREF: K(2444). J^{π}: L(p,p′)=1.
2464 *20*	4$^+$	K	J^{π}: L(α,α′)=4.
2514 *5*	(4$^+$)	f J L	XREF: f(2518). J^{π}: L(p,p′)=4. Other: L(t,p)=2 for a group at 2518 *15*, probably a doublet.
2527 *5*	(2$^+$)	f J L	XREF: f(2518). J^{π}: L(p,p′)=(2). Other: L(t,p)=2 for a group at 2518 *15*, probably a doublet.
2564.20 *14*	(4)$^+$	B F IJKL	J^{π}: log *ft*=5.2 from (5)$^+$; L(p,p′)=4, assuming the levels populated in (p,p′) at 2563 *5* and in β^- decay are the same.
2580.89 *22*	(1,2$^+$)	I	J^{π}: 1886.0γ to 0$^+$.
2607 *5*	(4$^+$,5$^-$)	F JKL P	XREF: F(2602)P(2600).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{100}Mo Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$[‡]	XREF	Comments
				J^{π}: L(α,α')=L(d,^{6}Li)=L(t,p)=4. Although L(t,p)=5,6 also reported (1981Fl06) and L(p,p′)=5.
2627.5[b] *5*	8^{+}[a]	0.58 ps *9*	E MN QR	$T_{1/2}$: from B(E2)↓=0.34 *5* (1985Mu09) in Coul. ex.
2628 *5*	(2^{+})		J L	J^{π}: L(p,p′)=(2).
2632.4 *3*	(1)[&]	0.51 ps *10*	G	
2652.87 *21*	$(4^{+},5^{+})$		B	J^{π}: log *ft*=5.5 from $(5)^{+}$; γs to 4^{+} and (3^{+}).
2659 *5*	(1^{-})		F JKL	XREF: F(2652)K(2656). E(level): unresolved in (t,p). This level may correspond to 2663 from (n,n′γ). J^{π}: in (p,p′), 1987Fr07 assign 4^{-}, treating this as an unnatural parity state. But L(t,p)=2 for a 2652 group is in disagreement. Also, L(α,α')=(4,5). L(p,p′)=1.
2662.6? *3*			I	
2725 *5*			J L	
2738.02 *22*	(2^{+})		F I K P	XREF: K(2707)P(2730). J^{π}: L(t,p)=2; however, L(d,^{6}Li)=(4) is inconsistent.
2747 *5*	4^{+}		J L	J^{π}: L(p,p′)=4.
2791.3 *5*			R	J^{π}: 944.1γ to (6^{+}).
2807 *5*	(4^{+})		F JKL	XREF: F(2803)K(2790). J^{π}: L(t,p)=L(α,α')=(4).
2822.21 *11*	2^{+}		IJ L	XREF: I(?). J^{π}: L(p,p′)=2.
2838 *5*			F JK P	XREF: F(2835)J(?)K(2852)P(2830). J^{π}: L(α,α')=4, L(t,p)=(4) suggest (4^{+}), but L(p,p′)=(5) suggests (5^{-}). Also L(d,^{6}Li)=(6).
2843.2[c] *4*	(7^{-})		QR	J^{π}: γs to (5^{-}) and (6^{+}).
2858 *5*	(3^{-})		F JKL	XREF: F(2873)K(2869). J^{π}: L(p,p′)=3. But L(α,α')=(2) suggests (2^{+}).
2901 *5*	4^{+}		JK	XREF: K(2882). J^{π}: L(α,α')=4.
2901.05 *10*	(1)[&]	0.32 ps *4*	G	
2905.75 *10*	(1)[&]	0.37 ps *4*	G	
2924 *5*	4^{+}		J L	J^{π}: L(p,p′)=4.
2928.7 *5*	(7^{-})		R	J^{π}: γ from (9^{-}) and to (5^{-}).
2934.8 *10*	(4^{+})		A F J	XREF: F(2923). J^{π}: L(t,p)=(4); L(p,p′)=4. But L(p,p′)=(3) is also reported.
2961.2 *3*	2^{+}		IJ L	XREF: I(?). J^{π}: L(p,p′)=2.
2970.1 *4*	4^{+}		A F I K	XREF: I(?)K(2970). J^{π}: L(α,α')=4.
2984 *5*	(6^{+})		J L	J^{π}: L(p,p′)=(6).
2996.31 *21*	$(4^{+},3^{-})$		Ij l	XREF: I(?). J^{π}: L(p,p′)=4 suggests 4^{+} for 2996 or 3004. But L(p,p′)=3 is also reported.
3004.4 *10*	$(4^{+},3^{-})$		A F Ij l	XREF: F(2994)I(?). J^{π}: L(p,p′)=4 suggests 4^{+} for 2996 or 3004. But L(p,p′)=3 is also reported.
3021 *5*	(4^{+})		JK	XREF: K(3029). J^{π}: L(α,α')=(6) suggests (6^{+}) but L(p,p′)=(4).
3039.4 *10*	(4^{+})		A F K	XREF: F(3039)K(3041). J^{π}: L(α,α')=4.
3041 *5*	(5^{-})		J L	J^{π}: L(p,p′)=5.
3042.2? *6*			I	E(level): possible γ to 2^{+} suggests that this level is different from 3041, (5^{-}).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{100}Mo Levels (continued)

E(level)[†]	Jπ[#]	$T_{1/2}$[‡]	XREF	Comments
3053.70 *21*	(≤4)[@]		f I	XREF: I(?).
3062.60 *25*	(0^+,1,2)		A f	Jπ: 2527γ to 2^+; β feeding (log *ft*=5.8) from 1^+ parent.
3066.25 *20*	(1)[&]	0.207 ps *19*	G	
3068 *5*	(5^-)		J L	Jπ: L(p,p′)=5.
3070.2 *4*	(0^+,1,2)		A	Jπ: 2535γ to 2^+; β feeding (log *ft*=5.7) from 1^+ parent.
3085 *5*	(4^+)		F JKL	XREF: F(3106)K(3085). Jπ: L(p,p′)=4 but L(α,α′)=5.
3112 *5*	(3^-)		F JKL	XREF: F(3119)K(3114). Jπ: L(p,p′)=3.
3129.6 *4*	(0^+,1,2)		A	Jπ: 1666γ to 2^+; β feeding (log *ft*=6.1) from 1^+ parent.
3140 *5*	(1^-)		J L	Jπ: L(p,p′)=1.
3143.0 *8*			R	
3154 *5*	(3^-)		F JKL	XREF: F(3148)K(3153). Jπ: L(p,p′)=3. E(level): multiplet in (t,p).
3172 *5*	(3^-)		J L	Jπ: L(p,p′)=3. E(level): multiplet in (t,p).
3190 *5*	(4^+)		JKL	XREF: K(3196). Jπ: L(α,α′)=L(p,p′)=4.
3198.4 *4*	(1)[&]	0.23 ps *4*	G	
3217 *5*	(1^-)		J	Jπ: L(p,p′)=1.
3237 *5*	(3^-)		F JKL	XREF: F(3235)K(3216). Jπ: L(α,α′)=3.
3242.76 *10*	1[&]	0.138 ps *7*	G	
3265 *5*	(3^-)		J L	Jπ: L(p,p′)=3.
3282 *5*	(3^-)		F JKL	XREF: F(3263)K(3276). Jπ: L(p,p′)=3 but L(α,α′)=(5) suggests (5^-).
3290.27 *9*	$1^{(+)}$[&]	43 fs *6*	G	Jπ: parity from Alaga rule (2006Ru06).
3294 *5*	(2^+)		F J L	XREF: F(3282). Jπ: L(p,p′)=2.
3299.2[c] *6*	(9^-)		R	Jπ: γ to (7^-).
3311 *5*			J L	
3324 *5*			F J L	XREF: F(3306).
3342.06 *10*	(1)[&]	0.175 ps *20*	G	
3354 *15*	(2^+)		F	Jπ: L(t,p)=2.
3367.0[b] *8*	(10^+)[a]		E N QR	
3376 *5*	(3^-)		J	Jπ: L(p,p′)=3.
3406 *5*	(4^+)		F JKL	XREF: F(3409)K(3398). Jπ: L(p,p′)=L(α,α′)=4.
3437 *5*	(5^-)		J	Jπ: L(p,p′)=5.
3448 *5*	(0^+)		F J L	XREF: F(3445). Jπ: L(p,p′)=(0).
3468 *5*	(2^+)		J L	Jπ: L(p,p′)=2.
3479 *5*	(2^+)		F J L	XREF: F(3475). Jπ: L(p,p′)=2.
3483.82 *7*	(1^+)[&]	8.3 fs *8*	G	Jπ: parity from Alaga rule (2006Ru06).
3529 *5*	(3^-)		J	Jπ: L(p,p′)=3.
3537 *5*	(2^+)		J L	Jπ: L(p,p′)=2.
3557 *5*	(3^-)		F J L	XREF: F(3535). Jπ: L(p,p′)=3.
3557 *15*	(2^+)		F	E(level),Jπ: partially resolved. L(t,p)=2 for one component.
3570.77 *10*	(1)[&]	18.9 fs *15*	G	
3586 *5*			J L	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{100}Mo Levels (continued)

E(level)[†]	Jπ[#]	$T_{1/2}$[‡]	XREF	Comments
3595 *5*	(3⁻)		J L	Jπ: L(p,p′)=3.
3599.87 *20*	(1)[&]	0.18 ps *3*	G	
3606 *5*	(4⁺)		F JKL	XREF: F(3587)K(3603). Jπ: L(α,α′)=3 and L(t,p)=(3); but L(p,p′)=(4).
3615.57 *20*	1[&]	56 fs *6*	G	
3626.5 *5*	(4⁺,5,6)		B J L	Jπ: 1779γ to 6⁺; β feeding (log *ft*=5.8) from (5)⁺.
3627.3 *3*	(1)[&]	32 fs *3*	G	
3647.3 *6*	(5⁻)		B F J L	XREF: J(3652)L(3652). Jπ: L(p,p′)=5; γ to 6⁺, assuming that the levels in (p,p′) and in β⁻ decay are the same.
3658.96 *22*	1(+)[&]	18 fs *3*	G	Jπ: parity from Alaga rule (2006Ru06).
3682 *5*	(5⁻)		F JKL	XREF: F(3674)K(3701). Jπ: L(α,α′)=5.
3718 *5*	(4⁺)		J	Jπ: L(p,p′)=4.
3726 *5*	(3⁻)		J L	Jπ: L(p,p′)=3.
3743 *5*	(4⁺)		J	Jπ: L(p,p′)=4.
3747 *5*	(5⁻)		J L	Jπ: L(p,p′)=5.
3773 *5*	(3⁻)		F J L	XREF: F(3771). Jπ: L(p,p′)=3, but L(t,p)=5,6.
3783.5 *9*			R	
3797 *5*	(4⁺)		J	Jπ: L(p,p′)=4.
3810 *5*	(4⁺)		J L	Jπ: L(p,p′)=(4).
3823 *5*	(5⁻)		J L	Jπ: L(p,p′)=(5).
3887.98 *10*	1[&]		G	
3894 *5*			J L	
3896.68 *10*	(1)[&]		G	
3915 *5*			J L	
3925 *5*	(2⁺)		J L	Jπ: L(p,p′)=(2).
3925.98 *10*	(1)[&]		G	
3947 *5*			J L	
4026 *5*	(3⁻)		J L	Jπ: L(p,p′)=(3).
4032.7[c] *8*	(11⁻)		R	Jπ: γ to (9⁻).
4043 *5*	(4⁺)		J L	Jπ: L(p,p′)=(4).
4062.6[b] *9*	(12⁺)[a]		E N QR	
4081.59 *10*	1[&]		G	
4156.5 *3*	1[&]		G	
4158 *5*	(3⁻)		L	Jπ: L(d,d′)=3.
4205 *5*	(2⁺)		J L	Jπ: L(p,p′)=(2).
4217.60 *10*	1[&]		G	
4232.10 *20*	(1)[&]		G	
4243 *5*			J L	
4260 *5*	(3⁻)		L	Jπ: L(d,d′)=3.
4329.90 *20*	1[&]		G	
4516.81 *10*	1[&]		G	
4565.51 *10*	1[&]		G	
4583.11 *10*	1[&]		G	
4594.91 *10*	1[&]		G	
4689.02 *10*	1[&]		G	
4730.32 *20*	1[&]		G	
4875.2[b] *10*	(14⁺)[a]		N QR	
4939.8[c] *9*	(13⁻)		R	Jπ: 907.1γ to (11⁻).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{100}Mo Levels (continued)

E(level)[†]	Jπ[#]	XREF
4989.63 *20*	1[&]	G
5007.33 *20*	1[&]	G
5034.54 *20*	1[&]	G
5062.9 *3*	(2)[&]	G
5071.24 *20*	(1)[&]	G
5101.3 *6*	1[&]	G
5109.3 *9*	(1)[&]	G
5136.04 *10*	(1)[&]	G
5158.3 *3*	1[&]	G
5169.6 *3*	1[&]	G
5181.8 *3*	1[&]	G
5186.9 *15*	1	G
5190.4 *5*	1[&]	G
5204.6 *4*	(1)[&]	G
5216.0 *8*	(1)[&]	G
5271.2 *6*	1[&]	G
5277.6 *3*	1[&]	G
5310.5 *4*	1[&]	G
5335.65 *20*	1[&]	G
5347.85 *10*	1[&]	G
5359.8 *3*	1[&]	G
5369.6 *6*	1[&]	G
5382.5 *10*	1[&]	G
5390.3 *6*	1[&]	G
5402.26 *10*	1[&]	G
5412.6 *8*	1[&]	G
5435.5 *6*	1[&]	G
5442.9 *6*	1[&]	G
5449.6 *6*	(1)[&]	G
5502.7 *4*	1[&]	G
5519.4 *4*	1[&]	G
5532.2 *5*	1[&]	G
5547.9 *3*	1[&]	G
5554.4 *11*	1[&]	G
5584.9 *4*	1[&]	G
5596.8 *7*	1[&]	G
5604.7 *12*	1[&]	G
5612.67 *10*	1[&]	G
5618.6 *3*	1[&]	G
5656.5 *5*	(2)[&]	G
5670.67 *10*	1[&]	G
5680.9 *7*	(1)[&]	G
5686.5 *5*	1[&]	G
5715.9 *3*	1[&]	G
5725.3 *3*	1[&]	G

E(level)[†]	Jπ[#]	$T_{1/2}$[‡]	XREF
5732.9 *3*	1[&]		G
5742.6 *7*	1[&]		G
5764.0 *15*	(1)[&]		G
5770.4 *4*	1[&]		G
5798.2 *3*	1[&]		G
5808.98 *10*	1[&]		G
5826.5 *6*	(2)[&]		G
5840.2[b] *15*	(16^+)[a]		N R
5840.7 *6*	1[&]		G
5879.39 *20*	1[&]		G
5901.0 *6*	1[&]		G
5947.79 *20*	1[&]		G
5957.2 *6*	1[&]		G
5964.0 *6*	1[&]		G
5972.99 *20*	1[&]		G
5988.9 *4*	1[&]		G
6009.6 *4*	1[&]		G
6019.5 *11*	(1)[&]		G
6035.5 *8*	1[&]		G
6061.3 *9*	(2)[&]		G
6065.9 *7*	1[&]		G
6082.9 *3*	1[&]		G
6089.3 *4*	1[&]		G
6122.5 *5*	1[&]		G
6133.6 *7*	1[&]		G
6147.1 *9*	1[&]		G
6174.0 *5*	1[&]		G
6194.51 *10*	(1)[&]		G
6249.4 *5*	1[&]		G
6257.61 *20*	1[&]		G
6270.5 *8*	1[&]		G
6278.71 *10*	1[&]		G
6293.1 *4*	1[&]		G
6310.3 *15*	(1)[&]		G
6321.2 *9*	1[&]		G
6327.6 *9*	1[&]		G
6337.5 *4*	1[&]		G
6354.32 *20*	1[&]		G
6365.6 *19*	(1)[&]		G
6375.6 *5*	1[&]		G
6402.0 *8*	1[&]		G
6414.3 *4*	1[&]		G
6419.4 *18*	1^-[&]	9 fs *6*	G
6421.4 *6*	1[&]		G
6426.6 *9*	(1)[&]		G

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{100}Mo Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$[‡]	XREF
6434.1 *5*	1[&]		G
6459.0 *6*	1[&]		G
6473.5 *6*	1[&]		G
6483.2 *20*	(1)[&]		G
6497.6 *6*	1[&]		G
6518.5 *13*	1^-[&]	2.5 fs *14*	G
6519.1 *5*	1[&]		G
6526.6 *3*	1[&]		G
6570.2 *4*	1[&]		G
6597.0 *4*	(2)[&]		G
6622.3 *4*	(1)[&]		G
6628.3 *5*	(2)[&]		G
6641.0 *3*	1[&]		G
6658.2 *4*	1[&]		G
6669.14 *20*	1[&]		G
6685.3 *4*	1[&]		G
6764.1 *8*	1[&]		G
6772.7 *8*	1[&]		G
6790.6 *10*	1[&]		G
6797.5 *9*	(1)[&]		G
6807.9 *10*	(2)[&]		G
6829.5 *3*	(1)[&]		G
6844.6 *11*	(2)[&]		G
6851.3 *15*	1[&]		G
6870.0 *8*	(1)[&]		G
6886.5 *8*	1[&]		G
6893.2 *4*	1[&]		G
6906.1 *6*	1[&]		G
6912.9 *11*	(1)[&]		G
6919.5 *13*	1[&]		G
6924.9 *10*	(1)[&]		G
6934.2 *12*	(1)[&]		G
6949.2[b] *18*	(18^+)[a]		N
6949.9 *11*	1[&]		G
6957.7 *11*	(2)[&]		G
6974.2 *8*	1[&]		G
6981.1 *12*	(2)[&]		G
6994.5 *5*	(2)[&]		G
7001.2 *5*	1[&]		G
7018.3 *6*	1[&]		G
7032.1 *5*	1[&]		G
7037.8 *10*	(1)[&]		G
7060.2 *11*	1[&]		G
7068.1 *3*	1[&]		G
7095.4 *5*	1[&]		G
7103.5 *7*	(1)[&]		G
7115.3 *3*	1[&]		G
7136.6 *5*	1[&]		G
7171.7 *7*	(1)[&]		G
7181.5 *9*	(1)[&]		G
7194.4 *3*	1[&]		G
7204.0 *7*	1[&]		G
7219.4 *9*	(2)[&]		G
7225.4 *13*	(1)[&]		G
7299.6 *5*	1[&]		G
7312.3 *3*	1[&]		G
7330.8 *3*	1[&]		G
7357.7 *6*	1[&]		G
7380.3 *7*	(1)[&]		G
7403.3 *8*	1[&]		G
7450.6 *10*	1[&]		G
7471.0 *4*	1[&]		G
7487.2 *7*	1[&]		G
7494.8 *11*	(1)[&]		G
7503.5 *12*	(2)[&]		G
7526.1 *6*	1[&]		G
7546.3 *20*	1[&]		G
7559.1 *15*	(1)[&]		G
7577.2 *9*	1[&]		G
7606.9 *4*	1[&]		G
7638.6 *10*	1^-[&]	3.3 fs *9*	G
7744.5 *8*	1[&]		G
7758.4 *10*	(1)[&]		G
7771.5 *12*	1[&]		G
7796.9 *14*	1[&]		G
7831.2 *8*	1[&]		G
7863.1 *7*	(1)[&]		G
7875.4 *6*	1[&]		G
7887.2 *10*	1[&]		G
7935.7 *10*	1[&]		G
7955.7 *6*	1[&]		G
7988.0 *7*	1[&]		G
8002.0 *6*	1[&]		G
8033.5 *8*	1[&]		G
8052.2 *6*	1[&]		G
8063.7 *9*	1[&]		G
8083.3 *16*	1[&]		G
8095.9 *11*	1[&]		G
8108.1 *12*	1[&]		G
8114.2[b] *20*	(20^+)[a]		N

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{100}Mo Levels (continued)

E(level)†	Jπ#	$T_{1/2}$‡	XREF	Comments
8127.7 *10*	1&		G	
8194.4 *9*	1&		G	
8208.8 *6*	1&		G	
8218.2 *6*	(1)&		G	
8238.6 *9*	1&		G	
8257.1 *14*	1&		G	
8269.6 *6*	1&		G	
8283.6 *6*	1&		G	
8294.5 *13*	(1)&		G	
13.0×10^3 *3*	1^-	11.6 MeV *12*	K	J^π: isoscalar giant-dipole resonance (ISGDR). %E1 EWSR=18 *3* for ISGDR in (α,α') (2015Yo04).
13.2×10^3 *4*	0^+	2.6 MeV *6*	K	J^π: isoscalar giant-monopole resonance (ISGMR). %E0 EWSR=32 *4* for ISGMR in (α,α') (2020Ho11).
13.60×10^3 *26*	2^+	4.75 MeV *38*	K	J^π: isoscalar giant-quadrupole resonance (ISGQR). %E2 EWSR=79 *14* for ISGQR in (α,α') (2015Yo04).
16.8×10^3 *4*	0^+	2.5 MeV *5*	K	J^π: isoscalar giant-monopole resonance (ISGMR). %E0 EWSR=60 *3* for ISGMR in (α,α') (2020Ho11).
21.5×10^3 *4*	3^-	3.7 MeV *3*	K	J^π: isoscalar giant-octupole resonance (ISGOR). %E3 EWSR=53 *7* for ISGOR in (α,α') (2015Yo04).
30.1×10^3 *7*	1^-	12.5 MeV *38*	K	J^π: isoscalar giant-dipole resonance (ISGDR). %E1 EWSR=47 *10* for ISGDR in (α,α') (2015Yo04).

† From least-squares fit to Eγ data, for levels seen in γ-ray studies. In other cases weighted averages of available values.

‡ For excited states, values are from recoil-distance Doppler-shift (RDDS) method and/or B(E2) values determined from excitation yields in Coulomb excitation unless otherwise stated. For levels populated in (γ,γ'), level half-lives are deduced (by evaluators) from total widths given in different experiments.

Above≈3 MeV excitation, the assignments are generally from L(p,p′), L(d,d′) or $L(\alpha,\alpha')$. These assignments are given in parentheses due to tentative level associations (in different reactions) and some possibility of S=1 transfer in (p,p′) and (d,d′) at higher excitation energies.

@ γ to 2^+.

& Dipole γ to g.s. from $\gamma(\theta)$ measurements in (γ,γ'). Also in (γ,γ') nuclear resonance fluorescence reaction from 0^+ g.s., main population is expected via dipole (E1 or M1) transitions to J=1 states, through scissors mode (for M1) and pygmy dipole resonances (for E1).

a Member of g.s. band from γ cascade in (^{7}Li,p2nγ), ^{100}Mo(^{136}Xe,Xγ), ^{110}Pd(^{86}Kr,Xγ) and ^{168}Er(^{30}Si,Xγ).

b Band(A): $J^\pi=0^+$ band. Backbend at 10^+.

c Band(B): 3^- octupole band.

d Band(C): Possible $K^\pi=2^+$, γ band.

e Band(D): Possible $K^\pi=0^+$ band.

Adopted Levels, Gammas (continued)

$\gamma(^{100}Mo)$

E_i(level)	J^π_i	E_γ †	I_γ †	E_f	J^π_f	Mult.	δ	α ^{b}	$I_{(\gamma+ce)}$	Comments
535.59	2^+	535.61 *6*	100	0.0	0^+	E2		0.004		B(E2)(W.u.)=37.6 *9* E_γ: unweighted average 535.666 *14* from ^{100}Nb β^- decay and 535.547 *13* from (n,n$'\gamma$). Others: 535.3 *5* in (t,pγ), 535.6 *5* in (^{30}Si,Xγ), 536 *1* in (^{136}Xe,Xγ). Mult.: ΔJ=2, Q from $\gamma(\theta)$ in (n,n$'\gamma$); M2 ruled out by RUL.
695.13	0^+	159.547 *13*	100 *1*	535.59	2^+	E2		0.223		B(E2)(W.u.)=89 *3* E_γ: from (n,n$'\gamma$). Others: 159.5 *1* in ^{100}Nb β^- decay, 159.1 *5* in (t,pγ). I_γ: from Coulomb excitation. Mult.: ΔJ^π and $T_{1/2\ 1/2}$(level) are consistent with only E2, not M2.
		695.1		0.0	0^+	E0			15 *2*	E_γ: from level energy difference. Transition observed only in ce data. $I_{(\gamma+ce)}$: deduced from Ice(K)(695γ)/Ice(K)(159γ)=0.63 *8* (unweighted average of 0.62 *5* and 0.76 *5* from (p,p$'\gamma$), and 0.50 *3* from (t,pγ)). q^2_K(E0/E2)=0.61 *10*, X(E0/E2)=0.014 *2*, ρ^2(E0)=0.036 *6* (2005Ki02, evaluation). B(E0)(Wilkinson units)=0.17 *2*.
1063.82	2^+	369.1 *1*	1.76 *20*	695.13	0^+	[E2]		0.0122		B(E2)(W.u.)=5.7 *+14−11* E_γ: weighted average of 368.6 *5* from ^{100}Nb β^- decay (1.5 s) and 369.1 *1* from (n,n$'\gamma$). I_γ: weighted average of 1.4 *3* from ^{100}Nb β^- decay (1.5 s), 2.01 *21* from (n,n$'\gamma$), and 1.70 *20* from Coulomb excitation.
		528.248 *18*	100.0 *16*	535.59	2^+	E2+M1	+4.4 *+15−9*	0.004		B(E2)(W.u.)=52 *7*; B(M1)(W.u.)=0.0008 *+6−4* E_γ: weighted average of 528.263 *18* from ^{100}Nb β^- decay (1.5 s), 528.263 *18* from ^{100}Nb β^- decay (2.99 s), 528.4 *5* from (t,p), 528.21 *2* from (n,n$'\gamma$), and 528.4 *5* from (^{30}Si,Xγ). I_γ: from (n,n$'\gamma$). Others: 100.0 *20* from Coul. ex., 100.0 *22* from ^{100}Nb β^- decay (1.5 s), 100 *13* from ^{100}Nb β^- decay (2.99 s). Mult.: from $\gamma\gamma(\theta)$ in ^{100}Nb β^- decay, $\gamma(\theta)$ in (n,n$'\gamma$); M2 ruled out by RUL. δ: from $\gamma\gamma(\theta)$ in ^{100}Nb β^- decay (1.5 s). Other: +3.4 *4* from $\gamma(\theta)$ in (n,n$'\gamma$).
		1063.78 *5*	38.0 *4*	0.0	0^+	E2				B(E2)(W.u.)=0.62 *6* E_γ: weighted average of 1063.7 *1* from ^{100}Nb β^- decay (1.5 s), 1063.7 *2* from ^{100}Nb β^- decay (2.99 s), 1064.1 *1* from (γ,γ'), 1063.76 *3* from (n,n$'\gamma$), and 1064 *1* from

From ENSDF

$^{100}_{42}Mo_{58}$-12

$\gamma(^{100}Mo)$ (continued)

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.	δ	α[b]	Comments
									(^{30}Si,Xγ). I_γ: weighted average of 36.3 *22* from ^{100}Nb β^- decay (1.5 s), 42 *9* from ^{100}Nb β^- decay (2.99 s), 38.1 *4* from (n,n′γ), 58 *25* from (^{30}Si,Xγ), and 38.0 *10* from Coulomb excitation. Mult.: Q from $\gamma(\theta)$ in (n,n′γ) and $\gamma\gamma(\theta)$ in ^{100}Nb β^- decay (1.5 s); M2 ruled out by RUL.
1136.02	4^+	600.40 *2*	100	535.59	2^+	(E2)		0.003	B(E2)(W.u.)=69 *6* E_γ: weighted average of 600.5 *1* from ^{100}Nb β^- decay (1.5 s), 600.5 *1* from ^{100}Nb β^- decay (2.99 s), and 600.39 *2* from (n,n′γ). Others: 599.8 *5* from (t,p), 601 *1* from (^{136}Xe,Xγ), and 600.3 *5* from (^{30}Si,Xγ). Mult.: from $T_{1/2}$(level), ΔJ^π and RUL.
1463.93	2^+	327 *1*	3.5 *15*	1136.02	4^+	[E2]		0.0181 *4*	B(E2)(W.u.)=36 *+34−20* E_γ: from ^{100}Nb β^- decay (1.5 s). I_γ: from Coulomb excitation.
		400.17 *9*	5.2 *7*	1063.82	2^+				E_γ: from (n,n′γ). Other: 400 *1* from ^{100}Nb β^- decay (1.5 s). I_γ: weighted average of 5 *3* from ^{100}Nb β^- decay (1.5 s), 4.9 *7* from (n,n′γ), and 5.8 *11* from Coulomb excitation.
		768.77 *3*	100.0 *10*	695.13	0^+	E2			B(E2)(W.u.)=15 *+5−3* E_γ: weighted average of 768.7 *1* from ^{100}Nb β^- decay (1.5 s), 768.8 *2* from ^{100}Nb β^- decay (2.99 s), and 768.77 *3* from (n,n′γ). I_γ: from Coulomb excitation. Other: 100.0 *13* from (n,n′γ), 100 *9* from ^{100}Nb β^- decay (1.5 s). Mult.: Q from $\gamma(\theta)$ in (n,n′γ) and $\gamma\gamma(\theta)$ in ^{100}Nb β^- decay (1.5 s); M2 ruled out by RUL.
		928.34 *3*	72.9 *9*	535.59	2^+	M1+E2	−0.27 *2*		B(M1)(W.u.)=0.0036 *+13−8*; B(E2)(W.u.)=0.28 *+15−9* E_γ: weighted average of 928.3 *1* from ^{100}Nb β^- decay (1.5 s), 928.4 *2* from ^{100}Nb β^- decay (2.99 s), and 928.34 *3* from (n,n′γ). I_γ: weighted average of 74 *3* from ^{100}Nb β^- decay (1.5 s), 71 *8* from ^{100}Nb β^- decay (2.99 s), 72.8 *9* from (n,n′γ), and 73.0 *10* from Coulomb excitation. Mult.,δ: from $\gamma\gamma(\theta)$ ^{100}Nb β^- decay (1.5 s) and RUL. Other: −0.36 *7* from $\gamma(\theta)$ in (n,n′γ).
1504.66	0^+	440.84 *5*	37 *4*	1063.82	2^+				E_γ: weighted average of 440.9 *1* from ^{100}Nb β^- decay (1.5 s) and 440.83 *5* from (n,n′γ). I_γ: unweighted average of 41.2 *19* from ^{100}Nb β^- decay (1.5 s) and 33.6 *21* from (n,n′γ).
		969.07 *7*	100 *8*	535.59	2^+	(E2)			E_γ: weighted average of 969.1 *1* from ^{100}Nb β^- decay (1.5 s) and 969.06 *7* from (n,n′γ). Mult.: $\gamma\gamma(\theta)$ in ^{100}Nb β^- decay (1.5 s), ΔJ^π and RUL ($\beta\gamma$ coin in ^{100}Nb β^- decay (1.5 s) suggests 1504.6 level has $T_{1/2}$<50 ns).
1607.37	(3^+)	471.37 *9*	17 *2*	1136.02	4^+				E_γ: weighted average of 471 *1* from ^{100}Nb β^- decay (1.5 s), 471.2 *3*

$^{100}_{42}Mo_{58}$-13

$\gamma(^{100}Mo)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	Comments
							from ^{100}Nb β^- decay (2.99 s), and 471.39 *9* from (n,n′γ). I_γ: weighted average of 23 *14* from ^{100}Nb β^- decay (1.5 s), 18 *7* from ^{100}Nb β^- decay (2.99 s), and 16.8 *20* from (n,n′γ).
1607.37	(3$^+$)	543.58 *8*	100 *7*	1063.82	2$^+$		E_γ: weighted average of 543.4 *2* from ^{100}Nb β^- decay (1.5 s), 543.2 *2* from ^{100}Nb β^- decay (2.99 s), 543.62 *6* from (n,n′γ), and 544.1 *5* from (^{30}Si,Xγ). I_γ: from ^{100}Nb β^- decay (1.5 s). Others: 100 *8* from (n,n′γ), 100 *15* from ^{100}Nb β^- decay (2.99 s).
		1071.77[c] *3*	74 *1*	535.59	2$^+$		E_γ: weighted average of 1071.6 *2* from ^{100}Nb β^- decay (1.5 s) and 1071.77 *3* from (n,n′γ). Others: 1071.6 *3* from ^{100}Nb β^- decay (2.99 s) and 1071.9 *5* from (^{30}Si,Xγ). I_γ: weighted average of 69 *13* from ^{100}Nb β^- decay (2.99 s), 74.0 *12* from (n,n′γ), and 52 *16* from (^{30}Si,Xγ); the transition mainly deexcites the 1607 level. Other: 116 *19* from ^{100}Nb β^- decay (1.5 s) is in disagreement.
1766.52	(2$^+$)	702.7 *1*	100	1063.82	2$^+$		E_γ: from (n,n′γ).
		1071.77[cd] *3*		695.13	0$^+$		E_γ: from (n,n′γ).
1771.44	(4$^+$)	635.31 *4*	55 *3*	1136.02	4$^+$		E_γ: from (n,n′γ). Other: 635.4 *3* from ^{100}Nb β^- decay (2.99 s). I_γ: weighted average of 53 *8* from ^{100}Nb β^- decay (2.99 s), 55 *3* from (n,n′γ), and 55 *3* from Coulomb excitation.
		707.68 *3*	100 *2*	1063.82	2$^+$	(E2)	B(E2)(W.u.)=30 *+7−5* E_γ: weighted average of 707.5 *2* from ^{100}Nb β^- decay (2.99 s) and 707.68 *3* from (n,n′γ). I_γ: from (n,n′γ) and Coulomb excitation. Other: 100 *14* from ^{100}Nb β^- decay (2.99 s). Mult.: from $T_{1/2}$(level), ΔJ^π and RUL.
1847.17	6$^+$	711.15 *6*	100	1136.02	4$^+$	(E2)	B(E2)(W.u.)=94 *+16−12* E_γ: weighted average of 711.0 *2* from ^{100}Nb β^- decay (2.99 s), 711.16 *6* from (n,n′γ), 711 *1* from (^{136}Xe,Xγ), and 711.1 *5* from (^{30}Si,Xγ). Mult.: from $T_{1/2}$, ΔJ^π and RUL.
1908.19	3$^-$	844.37 *4*	100.0 *10*	1063.82	2$^+$	[E1]	B(E1)(W.u.)=2.5×10^{-5} *+8−5* E_γ: from (n,n′γ). Other: 844.5 *5* from (^{30}Si,Xγ). I_γ: from Coulomb excitation. Others: 100 *14* from (^{30}Si,Xγ), ≈100 in (n,n′γ).
		1372.1 *7*	46 *4*	535.59	2$^+$	[E1]	B(E1)(W.u.)=2.7×10^{-6} *+10−6* E_γ: unweighted average of 1372.73 *4* from (n,n′γ) and 1371.4 *5* from (^{30}Si,Xγ). I_γ: from Coulomb excitation. Other: 20 *6* in ^{168}Er(^{30}Si,Xγ), 36.1 *15* from (n,n′γ).
		1908.2 *5*	4.6 *10*	0.0	0$^+$	[E3]	B(E3)(W.u.)=48 *+29−18* E_γ: from (n,n′γ). I_γ: from Coulomb excitation. Other: 3.6 *7* from (n,n′γ).
1977.34	(1,2$^+$)	513.2[‡] *2*	74 *19*	1463.93	2$^+$		
		913.70 *9*	79 *4*	1063.82	2$^+$		E_γ: weighted average of 913.2 *5* from ^{100}Nb β^- decay (1.5 s) and 913.72 *9* from (n,n′γ). I_γ: from (n,n′γ). Other: 70 *30* from ^{100}Nb β^- decay (1.5 s).
		1281.8[‡] *5*	52 *15*	695.13	0$^+$		
		1441.67 *7*	100 *5*	535.59	2$^+$		E_γ: weighted average of 1441.5 *2* from ^{100}Nb β^- decay (1.5 s) and 1441.69 *7* from (n,n′γ). I_γ: from (n,n′γ). Other: 100 *22* from ^{100}Nb β^- decay (1.5 s).
2037.60	0$^+$	573.6[‡] *2*	6.6 *9*	1463.93	2$^+$		

$^{100}_{42}Mo_{58}$-14

Adopted Levels, Gammas (continued)

$\gamma(^{100}Mo)$ (continued)

E_i(level)	J^{π}_i	E_{γ}†	I_{γ}†	E_f	J^{π}_f	Mult.	α^{b}	Comments
2037.60	0^+	1502.2 *3*	100 *7*	535.59	2^+	(E2)		E_{γ}: unweighted average of 1501.9 *1* from ^{100}Nb β^- decay (1.5 s) and 1502.4 *2* from (n,n′γ). Mult.: $\gamma\gamma(\theta)$ in ^{100}Nb β^- decay (1.5 s), ΔJ^{π} and RUL ($\beta\gamma$ coin in ^{100}Nb β^- decay (1.5 s) suggests 1504.6 level has $T_{1/2}$<50 ns).
2042.78	$(2)^+$	435.5$^{@}$ *2*	24$^{@}$ *5*	1607.37	(3^+)			
		578.8$^{@}$ *1*	100$^{@}$ *10*	1463.93	2^+			
		978.95$^{@}$ *9*	71$^{@}$ *5*	1063.82	2^+			
		1507.5$^{@}$ *4*	29$^{@}$ *7*	535.59	2^+			
		2042.9$^{@}$ *2*	68$^{@}$ *10*	0.0	0^+			
2086.33	0^+	622.5‡ *2*	31 *6*	1463.93	2^+	(E2)	0.003	Mult.: see comment for 1022.5γ.
		1022.5 *3*	100 *12*	1063.82	2^+	(E2)		Mult.: $\gamma\gamma(\theta)$ in ^{100}Nb β^- decay (1.5 s), ΔJ^{π} and RUL ($\beta\gamma$ coin in ^{100}Nb β^- decay (1.5 s) suggests 1504.6 level has $T_{1/2}$<50 ns).
		1550.5‡ *3*	14 *2*	535.59	2^+			
2103.13	4^+	495.4$^{\ddagger d}$ *9*	3.5 *23*	1607.37	(3^+)			
		639.1 *2*	25 *3*	1463.93	2^+			E_{γ}: weighted average of 639.0 *3* from ^{100}Nb β^- decay (2.99 s) and 639.2 *2* from (n,n′γ). I_{γ}: weighted average of 22 *3* from ^{100}Nb β^- decay (2.99 s) and 29 *4* from (n,n′γ).
		967.1 *1*	100 *4*	1136.02	4^+			E_{γ}: weighted average of 966.9 *2* from ^{100}Nb β^- decay (2.99 s) and 967.1 *1* from (n,n′γ). I_{γ}: from (n,n′γ). Other: 100 *11* from ^{100}Nb β^- decay (2.99 s).
		1567.7 *2*	53 *18*	535.59	2^+			E_{γ}: weighted average of 1567.4 *3* from ^{100}Nb β^- decay (2.99 s) and 1567.8 *2* from (n,n′γ). I_{γ}: unweighted average of 35 *5* from ^{100}Nb β^- decay (2.99 s) and 70 *4* from (n,n′γ).
2189.56	$(0^+,1,2)$	1125.8‡ *2*	25 *5*	1063.82	2^+			
		1653.9 *2*	100 *8*	535.59	2^+			
2201.22	(2^-)	1137.4 *1*	100 *7*	1063.82	2^+			
		1665.4^{d} *1*	84 *7*	535.59	2^+			Placement uncertain since a transition of similar energy is assigned to the 3129 level in ^{100}Nb β^- decay.
2286.47	2^+	822.7$^{@}$ *3*	32$^{@}$ *4*	1463.93	2^+			
		1750.8$^{@}$ *2*	100$^{@}$ *6*	535.59	2^+			
2289.5	$(4,5^+)$	682.1 *4*	100	1607.37	(3^+)			E_{γ}: weighted average of 681.8 *4* from ^{100}Nb β^- decay (2.99 s) and 682.5 *5* from (^{30}Si,Xγ).
2310.12	(4^+)	538.6‡ *4*	27 *9*	1771.44	(4^+)			
		702.7‡ *3*	100 *14*	1607.37	(3^+)			
		1246.4‡ *3*	48 *7*	1063.82	2^+			
2320.3	$(0^+,1,2)$	856.3‡ *3*	44 *18*	1463.93	2^+			
		1257.0‡ *6*	100 *9*	1063.82	2^+			
2339.8	(5^-)	431.5 *5*	100 *14*	1908.19	3^-			E_{γ},I_{γ}: from (^{30}Si,Xγ) only.

From ENSDF

$\gamma(^{100}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.	δ	Comments
2339.8	(5⁻)	1203.6 *5*	82 *9*	1136.02	4⁺			E_γ,I_γ: from (^{30}Si,Xγ) only.
2369.68	3⁻	1305.9[@] *1*	100[@] *12*	1063.82	2⁺			
		1833.7[@] *3*	56[@] *9*	535.59	2⁺			
2397.0	(1⁻)	1861.4[@d] *3*	100[@]	535.59	2⁺			
2416.58	(4⁺)	952.5[‡] *3*	21 *3*	1463.93	2⁺			
		1280.7 *3*	100 *11*	1136.02	4⁺	(M1+E2)	−0.7 *+10−13*	E_γ: weighted average of 1280.4 *2* from ^{100}Nb β^- decay (2.99 s) and 1280.9 *2* from (n,n′γ). I_γ: from ^{100}Nb β^- decay (2.99 s). Mult.,δ: from $\gamma\gamma(\theta)$ in ^{100}Nb β^- decay (2.99 s).
2564.20	(4)⁺	461.1 *2*	100 *6*	2103.13	4⁺			E_γ: weighted average of 461.2 *2* from ^{100}Nb β^- decay (2.99 s) and 461.0 *2* from (n,n′γ). I_γ: from ^{100}Nb β^- decay (2.99 s). Other: 100 *21* from (n,n′γ).
		792.8[‡] *2*	51 *7*	1771.44	(4⁺)			
		1428.0 *3*	51 *6*	1136.02	4⁺			E_γ: weighted average of 1427.9 *3* from ^{100}Nb β^- decay (2.99 s) and 1428.1 *3* from (n,n′γ). I_γ: from ^{100}Nb β^- decay (2.99 s). Other: 120 *20* in (n,n′γ).
		1500.2[#@d] *3*	50[@] *17*	1063.82	2⁺			
2580.89	(1,2⁺)	1516.8[@] *3*	100[@] *20*	1063.82	2⁺			
		1886.0[@] *3*	80[@] *13*	695.13	0⁺			
2627.5	8⁺	780.3 *5*	100	1847.17	6⁺	(E2)		B(E2)(W.u.)=122 *+23−17* E_γ: weighted average of 781 *1* from (^{136}Xe,Xγ) and 780.1 *5* from (^{30}Si,Xγ). Mult.: from $T_{1/2}$, ΔJ^π and RUL.
2632.4	(1)	2632.4 *3*	100	0.0	0⁺	(D)[a]		
2652.87	(4⁺,5⁺)	549.7[‡] *3*	50 *10*	2103.13	4⁺			
		1045.8[‡] *6*	25 *10*	1607.37	(3⁺)			
		1516.8[‡] *3*	100 *15*	1136.02	4⁺			
2662.6?		1598.8[@d] *3*	100[@]	1063.82	2⁺			E_γ: placement considered uncertain since a transition of similar energy is assigned to the 3062 level in ^{100}Nb β^- decay.
2738.02	(2⁺)	1674.3[@] *3*	53[@] *11*	1063.82	2⁺			
		2202.3[@] *3*	100[@] *11*	535.59	2⁺			
2791.3		944.1 *5*	100	1847.17	6⁺			E_γ: from (^{30}Si,Xγ) only.
2822.21	2⁺	1358.3[@d] *1*	100[@]	1463.93	2⁺			
2843.2	(7⁻)	503.2 *5*	100 *14*	2339.8	(5⁻)			E_γ,I_γ: from (^{30}Si,Xγ).
		996.3 *5*	88 *8*	1847.17	6⁺			E_γ,I_γ: from (^{30}Si,Xγ).
2901.05	(1)	2901.0 *1*	100	0.0	0⁺	(D)[a]		
2905.75	(1)	2905.7 *1*	100	0.0	0⁺	(D)[a]		
2928.7	(7⁻)	588.8 *5*	100	2339.8	(5⁻)			E_γ: from (^{30}Si,Xγ).
2934.8	(4⁺)	1871[‡] *1*	100	1063.82	2⁺			

Adopted Levels, Gammas (continued)

$\gamma(^{100}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.	Comments
2961.2	2^+	1897.4[@d] *3*	100[@]	1063.82	2^+		
2970.1	4^+	1362.5[‡] *10*	7 *5*	1607.37	(3^+)		
		1906.6[‡] *5*	28 *10*	1063.82	2^+		
		2434.1 *5*	100 *8*	535.59	2^+		E_γ: weighted average of 2434.6 *5* from ^{100}Nb β^- decay (1.5 s) and 2434.0 *2* from (n,n′γ).
2996.31	$(4^+,3^-)$	1532.4[@d] *2*	100[@]	1463.93	2^+		
3004.4	$(4^+,3^-)$	1397[‡] *1*	100	1607.37	(3^+)		
3039.4	(4^+)	1432[‡] *1*	100	1607.37	(3^+)		
3042.2?		1978.4[@d] *6*	100[@]	1063.82	2^+		
3053.70	(≤4)	1989.9[@d] *2*	100[@]	1063.82	2^+		
3062.60	$(0^+,1,2)$	1598.7[‡] *3*	62 *15*	1463.93	2^+		
		2526.9[‡] *4*	100 *15*	535.59	2^+		
3066.25	(1)	3066.2 *2*	100	0.0	0^+		E_γ: from (γ,γ′) only.
3070.2	$(0^+,1,2)$	2534.6[‡] *4*	100	535.59	2^+		
3129.6	$(0^+,1,2)$	1665.7[‡] *4*	100	1463.93	2^+		
3143.0		351.7 *5*	100	2791.3			E_γ: from (^{30}Si,Xγ) only.
3198.4	(1)	3198.3 *4*	100	0.0	0^+	(D)[a]	
3242.76	1	3242.7 *1*	100	0.0	0^+	D[a]	
3290.27	$1^{(+)}$	2595.3 *3*	21 *6*	695.13	0^+	(D)[a]	
		2755.4 *3*	21 *4*	535.59	2^+	(D)[a]	
		3290.1 *1*	100 *6*	0.0	0^+	D[a]	
3299.2	(9^-)	370.5 *5*	66 *13*	2928.7	(7^-)		E_γ,I_γ: from (^{30}Si,Xγ) only.
		456.1 *5*	100 *17*	2843.2	(7^-)		E_γ,I_γ: from (^{30}Si,Xγ) only.
3342.06	(1)	3342.0 *1*	100	0.0	0^+	(D)[a]	
3367.0	(10^+)	739.5 *5*	100	2627.5	8^+		E_γ: from (^{30}Si,Xγ).
3483.82	(1^+)	2419.8 *1*	11.1 *12*	1063.82	2^+		E_γ,I_γ: from (γ,γ′) only.
		2948.2 *1*	12.4 *12*	535.59	2^+		E_γ,I_γ: from (γ,γ′) only.
		3483.9 *1*	100.0 *20*	0.0	0^+	(D)[a]	E_γ,I_γ: from (γ,γ′) only.
3570.77	(1)	3570.7 *1*	100	0.0	0^+	(D)[a]	
3599.87	(1)	3599.8 *2*	100	0.0	0^+		E_γ: from (γ,γ′) only.
3615.57	1	3615.5 *2*	100	0.0	0^+	D[a]	
3626.5	$(4^+,5,6)$	1779.3[‡] *5*	100	1847.17	6^+		
3627.3	(1)	3627.2 *3*	100	0.0	0^+	(D)[a]	
3647.3	(5^-)	1800.1[‡] *6*	100	1847.17	6^+		
3658.96	$1^{(+)}$	2595.3 *3*	20 *5*	1063.82	2^+	D[a]	
		3658.7 *3*	100 *5*	0.0	0^+	D[a]	
3783.5		640.5 *5*	100	3143.0			E_γ: from (^{30}Si,Xγ) only.
3887.98	1	3887.9 *1*		0.0	0^+	D[a]	
3896.68	(1)	3896.6 *1*		0.0	0^+	(D)[a]	
3925.98	(1)	3925.9 *1*		0.0	0^+	(D)[a]	

$^{100}_{42}Mo_{58}$-17

$\gamma(^{100}Mo)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.	Comments
4032.7	(11⁻)	733.5 *5*	100	3299.2	(9⁻)		E_γ: from (^{30}Si,Xγ) only.
4062.6	(12⁺)	695.6 *5*	100	3367.0	(10⁺)		E_γ: weighted average of 696 *1* from (^{136}Xe,Xγ) and 695.5 *5* from (^{30}Si,Xγ).
4081.59	1	4081.5 *1*		0.0	0⁺	D[a]	
4156.5	1	4156.4 *3*		0.0	0⁺	D[a]	
4217.60	1	4217.5 *1*		0.0	0⁺	D[a]	
4232.10	(1)	4232.0 *2*		0.0	0⁺	(D)[a]	
4329.90	1	4329.8 *2*		0.0	0⁺	D[a]	
4516.81	1	4516.7 *1*		0.0	0⁺	D[a]	
4565.51	1	4565.4 *1*		0.0	0⁺	D[a]	
4583.11	1	4583.0 *1*		0.0	0⁺	D[a]	
4594.91	1	4594.8 *1*		0.0	0⁺	D[a]	
4689.02	1	4688.9 *1*		0.0	0⁺	D[a]	
4730.32	1	4730.2 *2*		0.0	0⁺	D[a]	
4875.2	(14⁺)	812.6 *5*	100	4062.6	(12⁺)		E_γ: weighted average of 813 *1* from (^{136}Xe,Xγ) and 812.5 *5* from (^{30}Si,Xγ).
4939.8	(13⁻)	907.1 *5*	100	4032.7	(11⁻)		E_γ: from (^{30}Si,Xγ) only.
4989.63	1	4989.5 *2*		0.0	0⁺	D[a]	
5007.33	1	5007.2 *2*		0.0	0⁺	D[a]	
5034.54	1	5034.4 *2*		0.0	0⁺	D[a]	
5062.9	(2)	5062.8 *3*		0.0	0⁺	(Q)[a]	
5071.24	(1)	5071.1 *2*		0.0	0⁺	(D)[a]	
5101.3	1	5101.2 *6*		0.0	0⁺	D[a]	
5109.3	(1)	5109.2 *9*		0.0	0⁺	(D)[a]	
5136.04	(1)	5135.9 *1*		0.0	0⁺	(D)[a]	
5158.3	1	5158.2 *3*		0.0	0⁺	D[a]	
5169.6	1	5169.5 *3*		0.0	0⁺	D[a]	
5181.8	1	5181.7 *3*		0.0	0⁺	D[a]	
5186.9	1	4651 *2*	84 *13*	535.59	2⁺		
		5187 *2*	100 *15*	0.0	0⁺	D[a]	
5190.4	1	5190.3 *5*		0.0	0⁺	D[a]	
5204.6	(1)	5204.5 *4*		0.0	0⁺	(D)[a]	
5216.0	(1)	5215.9 *8*		0.0	0⁺	(D)[a]	
5271.2	1	5271.1 *6*		0.0	0⁺	D[a]	
5277.6	1	5277.5 *3*		0.0	0⁺	D[a]	
5310.5	1	5310.3 *4*		0.0	0⁺	D[a]	
5335.65	1	5335.5 *2*		0.0	0⁺	D[a]	
5347.85	1	5347.7 *1*		0.0	0⁺	D[a]	
5359.8	1	5359.6 *3*		0.0	0⁺	D[a]	
5369.6	1	5369.4 *6*		0.0	0⁺	D[a]	
5382.5	1	5382.3 *10*		0.0	0⁺	D[a]	
5390.3	1	5390.1 *6*		0.0	0⁺	D[a]	
5402.26	1	5402.1 *1*		0.0	0⁺	D[a]	
5412.6	1	5412.4 *8*		0.0	0⁺	D[a]	
5435.5	1	5435.3 *6*		0.0	0⁺	D[a]	

Adopted Levels, Gammas (continued)

$\gamma(^{100}Mo)$ (continued)

E_i(level)	J_i^{π}	E_{γ}[†]	I_{γ}[†]	E_f	J_f^{π}	Mult.	Comments
5442.9	1	5442.7 *6*		0.0	0^+	D[a]	
5449.6	(1)	5449.4 *6*		0.0	0^+	(D)[a]	
5502.7	1	5502.5 *4*		0.0	0^+	D[a]	
5519.4	1	5519.2 *4*		0.0	0^+	D[a]	
5532.2	1	5532.0 *5*		0.0	0^+	D[a]	
5547.9	1	5547.7 *3*		0.0	0^+	D[a]	
5554.4	1	5554.2 *11*		0.0	0^+	D[a]	
5584.9	1	5584.7 *4*		0.0	0^+	D[a]	
5596.8	1	5596.6 *7*		0.0	0^+	D[a]	
5604.7	1	5604.5 *12*		0.0	0^+	D[a]	
5612.67	1	5612.5 *1*		0.0	0^+	D[a]	
5618.6	1	5618.4 *3*		0.0	0^+	D[a]	
5656.5	(2)	5656.3 *5*		0.0	0^+	(Q)[a]	
5670.67	1	5670.5 *1*		0.0	0^+	D[a]	
5680.9	(1)	5680.7 *7*		0.0	0^+	(D)[a]	
5686.5	1	5686.3 *5*		0.0	0^+	D[a]	
5715.9	1	5715.7 *3*		0.0	0^+	D[a]	
5725.3	1	5725.1 *3*		0.0	0^+	D[a]	
5732.9	1	5732.7 *3*		0.0	0^+	D[a]	
5742.6	1	5742.4 *7*		0.0	0^+	D[a]	
5764.0	(1)	5763.8 *15*		0.0	0^+	(D)[a]	
5770.4	1	5770.2 *4*		0.0	0^+	D[a]	
5798.2	1	5798.0 *3*		0.0	0^+	D[a]	
5808.98	1	5808.8 *1*		0.0	0^+	D[a]	
5826.5	(2)	5826.3 *6*		0.0	0^+	(Q)[a]	
5840.2	(16^+)	965 *1*	100	4875.2	(14^+)		E_{γ}: from (^{30}Si,Xγ) and (^{137}Xe,Xγ).
5840.7	1	5840.5 *6*		0.0	0^+	D[a]	
5879.39	1	5879.2 *2*		0.0	0^+	D[a]	
5901.0	1	5900.8 *6*		0.0	0^+	D[a]	
5947.79	1	5947.6 *2*		0.0	0^+	D[a]	
5957.2	1	5957.0 *6*		0.0	0^+	D[a]	
5964.0	1	5963.8 *6*		0.0	0^+	D[a]	
5972.99	1	5972.8 *2*		0.0	0^+	D[a]	
5988.9	1	5988.7 *4*		0.0	0^+	D[a]	
6009.6	1	6009.4 *4*		0.0	0^+	D[a]	
6019.5	(1)	6019.3 *11*		0.0	0^+	(D)[a]	
6035.5	1	6035.3 *8*		0.0	0^+	D[a]	
6061.3	(2)	6061.1 *9*		0.0	0^+	(Q)[a]	
6065.9	1	6065.7 *7*		0.0	0^+	D[a]	
6082.9	1	6082.7 *3*		0.0	0^+	D[a]	
6089.3	1	6089.1 *4*		0.0	0^+	D[a]	
6122.5	1	6122.3 *5*		0.0	0^+	D[a]	
6133.6	1	6133.4 *7*		0.0	0^+	D[a]	

$^{100}_{42}Mo_{58}$-19

$\gamma(^{100}\mathrm{Mo})$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.	δ	Comments
6147.1	1	6146.9 9		0.0	0^+	D[a]		
6174.0	1	6173.8 5		0.0	0^+	D[a]		
6194.51	(1)	6194.3 1		0.0	0^+	(D)[a]		
6249.4	1	6249.2 5		0.0	0^+	D[a]		
6257.61	1	6257.4 2		0.0	0^+	D[a]		
6270.5	1	6270.3 8		0.0	0^+	D[a]		
6278.71	1	6278.5 1		0.0	0^+	D[a]		
6293.1	1	6292.9 4		0.0	0^+	D[a]		
6310.3	(1)	6310.1 15		0.0	0^+	(D)[a]		
6321.2	1	6321.0 9		0.0	0^+	D[a]		
6327.6	1	6327.4 9		0.0	0^+	D[a]		
6337.5	1	6337.3 4		0.0	0^+	D[a]		
6354.32	1	6354.1 2		0.0	0^+	D[a]		
6365.6	(1)	6365.4 19		0.0	0^+	(D)[a]		
6375.6	1	6375.4 5		0.0	0^+	D[a]		
6402.0	1	6401.8 8		0.0	0^+	D[a]		
6414.3	1	6414.1 4		0.0	0^+	D[a]		
6419.4	1^-	3788[d] 4	7 2	2632.4	(1)			
		4385 4	19 4	2037.60	0^+			
		4444[d] 4	6 2	1977.34	$(1,2^+)$			
		5355 4	11 3	1063.82	2^+	(E1+M2)[&]	+0.21[&] 12	B(E1)(W.u.)=1.7×10^{-6} +60−11
		5723 4	0.8 4	695.13	0^+			
		5883 4	1.2 6	535.59	2^+			
		6418 4	100 15	0.0	0^+	E1[&]		B(E1)(W.u.)=9×10^{-5} +22−4
6421.4	1	6421.2 6		0.0	0^+	D[a]		
6426.6	(1)	6426.4 9		0.0	0^+	(D)[a]		
6434.1	1	6433.9 5		0.0	0^+	D[a]		
6459.0	1	6458.8 6		0.0	0^+	D[a]		
6473.5	1	6473.3 6		0.0	0^+	D[a]		
6483.2	(1)	6483 2		0.0	0^+	(D)[a]		
6497.6	1	6497.4 6		0.0	0^+	D[a]		
6518.5	1^-	3445[d] 3	18 3	3066.25	(1)			
		4477 3	23 5	2042.78	$(2)^+$			
		5055 3	28 5	1463.93	2^+			
		5455 3	8 2	1063.82	2^+			
		5823 3	10 2	695.13	0^+			
		5982 3	32 5	535.59	2^+			
		6517 3	100 15	0.0	0^+	E1[&]		B(E1)(W.u.)=21×10^{-5} +35−10
6519.1	1	6518.9 5		0.0	0^+	D[a]		
6526.6	1	6526.4 3		0.0	0^+	D[a]		
6570.2	1	6570.0 4		0.0	0^+	D[a]		
6597.0	(2)	6596.8 4		0.0	0^+	(Q)[a]		

$^{100}_{42}\mathrm{Mo}_{58}$-20

$\gamma(^{100}\mathrm{Mo})$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.
6622.3	(1)	6622.1 *4*		0.0	0^+	(D)[a]
6628.3	(2)	6628.1 *5*		0.0	0^+	(Q)[a]
6641.0	1	6640.8 *3*		0.0	0^+	D[a]
6658.2	1	6658.0 *4*		0.0	0^+	D[a]
6669.14	1	6668.9 *2*		0.0	0^+	D[a]
6685.3	1	6685.1 *4*		0.0	0^+	D[a]
6764.1	1	6763.9 *8*		0.0	0^+	D[a]
6772.7	1	6772.5 *8*		0.0	0^+	D[a]
6790.6	1	6790.4 *10*		0.0	0^+	D[a]
6797.5	(1)	6797.3 *9*		0.0	0^+	(D)[a]
6807.9	(2)	6807.7 *10*		0.0	0^+	(Q)[a]
6829.5	(1)	6829.2 *3*		0.0	0^+	(D)[a]
6844.6	(2)	6844.3 *11*		0.0	0^+	(Q)[a]
6851.3	1	6851.0 *15*		0.0	0^+	D[a]
6870.0	(1)	6869.7 *8*		0.0	0^+	(D)[a]
6886.5	1	6886.2 *8*		0.0	0^+	D[a]
6893.2	1	6892.9 *4*		0.0	0^+	D[a]
6906.1	1	6905.8 *6*		0.0	0^+	D[a]
6912.9	(1)	6912.6 *11*		0.0	0^+	(D)[a]
6919.5	1	6919.2 *13*		0.0	0^+	D[a]
6924.9	(1)	6924.6 *10*		0.0	0^+	(D)[a]
6934.2	(1)	6933.9 *12*		0.0	0^+	(D)[a]
6949.2	(18^+)	1109 *1*	100	5840.2	(16^+)	
6949.9	1	6949.6 *11*		0.0	0^+	D[a]
6957.7	(2)	6957.4 *11*		0.0	0^+	(Q)[a]
6974.2	1	6973.9 *8*		0.0	0^+	D[a]
6981.1	(2)	6980.8 *12*		0.0	0^+	(Q)[a]
6994.5	(2)	6994.2 *5*		0.0	0^+	(Q)[a]
7001.2	1	7000.9 *5*		0.0	0^+	D[a]
7018.3	1	7018.0 *6*		0.0	0^+	D[a]
7032.1	1	7031.8 *5*		0.0	0^+	D[a]
7037.8	(1)	7037.5 *10*		0.0	0^+	(D)[a]
7060.2	1	7059.9 *11*		0.0	0^+	D[a]
7068.1	1	7067.8 *3*		0.0	0^+	D[a]
7095.4	1	7095.1 *5*		0.0	0^+	D[a]
7103.5	(1)	7103.2 *7*		0.0	0^+	(D)[a]
7115.3	1	7115.0 *3*		0.0	0^+	D[a]
7136.6	1	7136.3 *5*		0.0	0^+	D[a]
7171.7	(1)	7171.4 *7*		0.0	0^+	(D)[a]
7181.5	(1)	7181.2 *9*		0.0	0^+	(D)[a]
7194.4	1	7194.1 *3*		0.0	0^+	D[a]
7204.0	1	7203.7 *7*		0.0	0^+	D[a]
7219.4	(2)	7219.1 *9*		0.0	0^+	(Q)[a]

Adopted Levels, Gammas (continued)

γ(^{100}Mo) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.	δ	Comments
7225.4	(1)	7225.1 *13*		0.0	0^+	(D)[a]		
7299.6	1	7299.3 *5*		0.0	0^+	D[a]		
7312.3	1	7312.0 *3*		0.0	0^+	D[a]		
7330.8	1	7330.5 *3*		0.0	0^+	D[a]		
7357.7	1	7357.4 *6*		0.0	0^+	D[a]		
7380.3	(1)	7380.0 *7*		0.0	0^+	(D)[a]		
7403.3	1	7403.0 *8*		0.0	0^+	D[a]		
7450.6	1	7450.3 *10*		0.0	0^+	D[a]		
7471.0	1	7470.7 *4*		0.0	0^+	D[a]		
7487.2	1	7486.9 *7*		0.0	0^+	D[a]		
7494.8	(1)	7494.5 *11*		0.0	0^+	(D)[a]		
7503.5	(2)	7503.2 *12*		0.0	0^+	(Q)[a]		
7526.1	1	7525.8 *6*		0.0	0^+	D[a]		
7546.3	1	7546 *2*		0.0	0^+	D[a]		
7559.1	(1)	7558.8 *15*		0.0	0^+	(D)[a]		
7577.2	1	7576.9 *9*		0.0	0^+	D[a]		
7606.9	1	7606.6 *4*		0.0	0^+	D[a]		
7638.6	1^-	4569[d] *4*	4 *1*	3066.25	(1)			
		5007[d] *2*	6 *2*	2632.4	(1)			
		5597 *4*	5 *1*	2042.78	$(2)^+$			
		5604 *4*	5 *1*	2037.60	0^+			
		6176 *2*	4 *1*	1463.93	2^+			
		6574 *2*	15 *3*	1063.82	2^+			
		7102 *2*	101 *15*	535.59	2^+	(E1+M2)[&]	−0.06[&] *2*	B(E1)(W.u.)=11×10^{-5} *+7−4*; B(M2)(W.u.)=0.04 *+7−3*
		7637 *2*	100 *15*	0.0	0^+	E1[&]		B(E1)(W.u.)=9×10^{-5} *+6−3*
7744.5	1	7744.2 *8*		0.0	0^+	D[a]		
7758.4	(1)	7758.1 *10*		0.0	0^+	(D)[a]		
7771.5	1	7771.2 *12*		0.0	0^+	D[a]		
7796.9	1	7796.6 *14*		0.0	0^+	D[a]		
7831.2	1	7830.9 *8*		0.0	0^+	D[a]		
7863.1	(1)	7862.8 *7*		0.0	0^+	(D)[a]		
7875.4	1	7875.1 *6*		0.0	0^+	D[a]		
7887.2	1	7886.9 *10*		0.0	0^+	D[a]		
7935.7	1	7935.4 *10*		0.0	0^+	D[a]		
7955.7	1	7955.4 *6*		0.0	0^+	D[a]		
7988.0	1	7987.7 *7*		0.0	0^+	D[a]		
8002.0	1	8001.7 *6*		0.0	0^+	D[a]		
8033.5	1	8033.2 *8*		0.0	0^+	D[a]		
8052.2	1	8051.9 *6*		0.0	0^+	D[a]		
8063.7	1	8063.4 *9*		0.0	0^+	D[a]		
8083.3	1	8082.9 *16*		0.0	0^+	D[a]		
8095.9	1	8095.5 *11*		0.0	0^+	D[a]		

$^{100}_{42}$Mo$_{58}$-22

Adopted Levels, Gammas (continued)

$\gamma(^{100}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.
8108.1	1	8107.7 *12*		0.0	0^+	D[a]
8114.2	(20^+)	1165 *1*	100	6949.2	(18^+)	
8127.7	1	8127.3 *10*		0.0	0^+	D[a]
8194.4	1	8194.0 *9*		0.0	0^+	D[a]
8208.8	1	8208.4 *6*		0.0	0^+	D[a]
8218.2	(1)	8217.8 *6*		0.0	0^+	(D)[a]
8238.6	1	8238.2 *9*		0.0	0^+	D[a]
8257.1	1	8256.7 *14*		0.0	0^+	D[a]
8269.6	1	8269.2 *6*		0.0	0^+	D[a]
8283.6	1	8283.2 *6*		0.0	0^+	D[a]
8294.5	(1)	8294.1 *13*		0.0	0^+	(D)[a]

[†] For γ-rays from low-spin (J≤6 or so) up to 3647, values are from weighted averages of Eγ and Iγ branching ratios values available from ^{100}Nb β^- decay (1.5 s), ^{100}Nb β^- decay (2.99 s), and ^{100}Mo(n,n$'\gamma$), when values of comparable precision are available from more than one datasets. For γ rays from high-spin (J>6) levels, values are mainly from ^{168}Er(^{30}Si,Xγ). For levels above 3647, values are from (γ,γ'). Exceptions are noted. Intensities are photon branching ratios.

[‡] γ reported in ^{100}Nb β^- decay, but not in (n,n$'\gamma$).

[#] Placement considered uncertain by evaluators since no such transition is reported in ^{100}Nb β^- decay.

[@] From (n,n$'\gamma$) only.

[&] From $\gamma(\theta$,lin pol) in (γ,γ').

[a] From $\gamma(\theta)$ in (γ,γ').

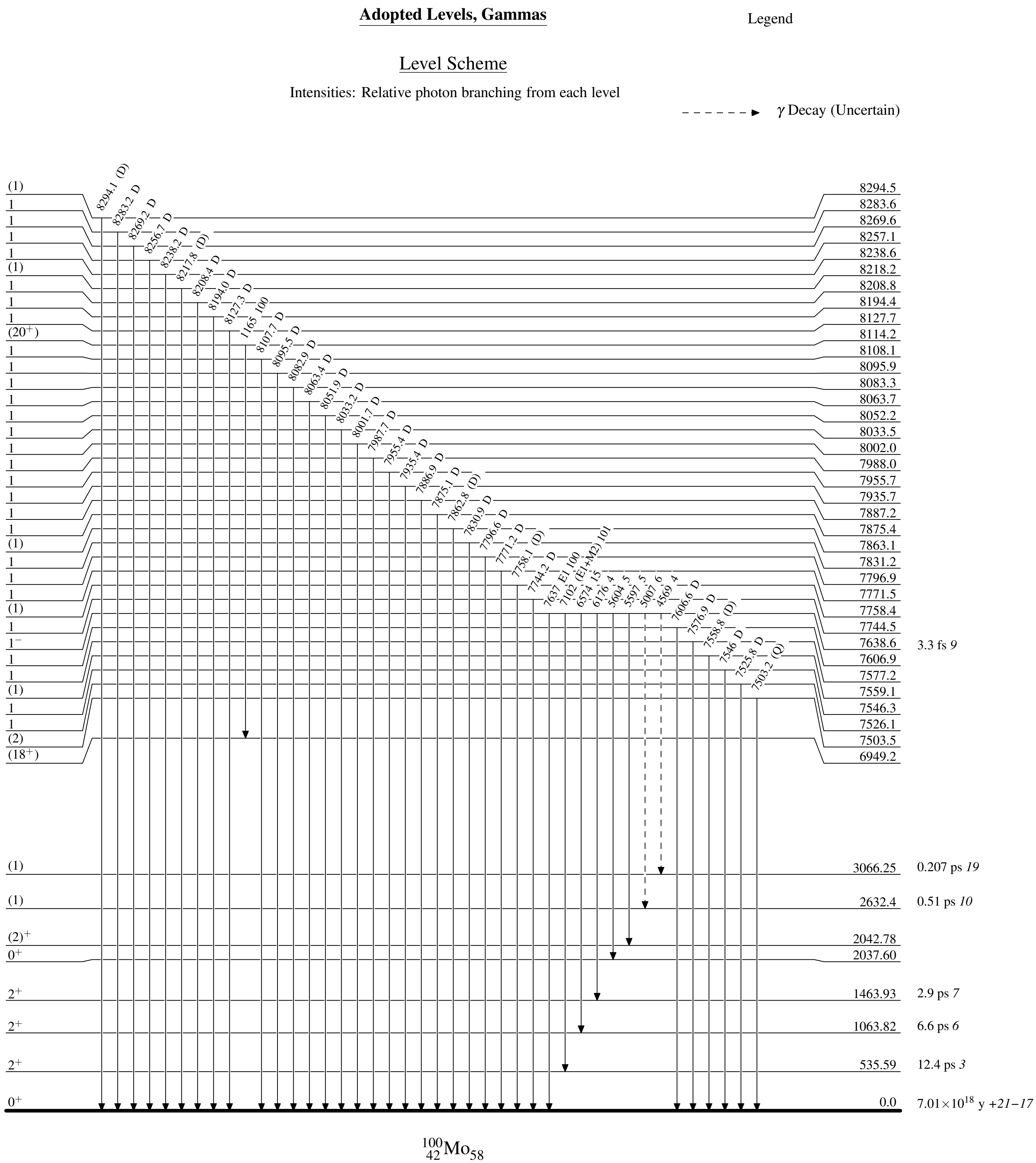
[b] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

[c] Multiply placed.

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

$^{100}_{42}Mo_{58}$-23

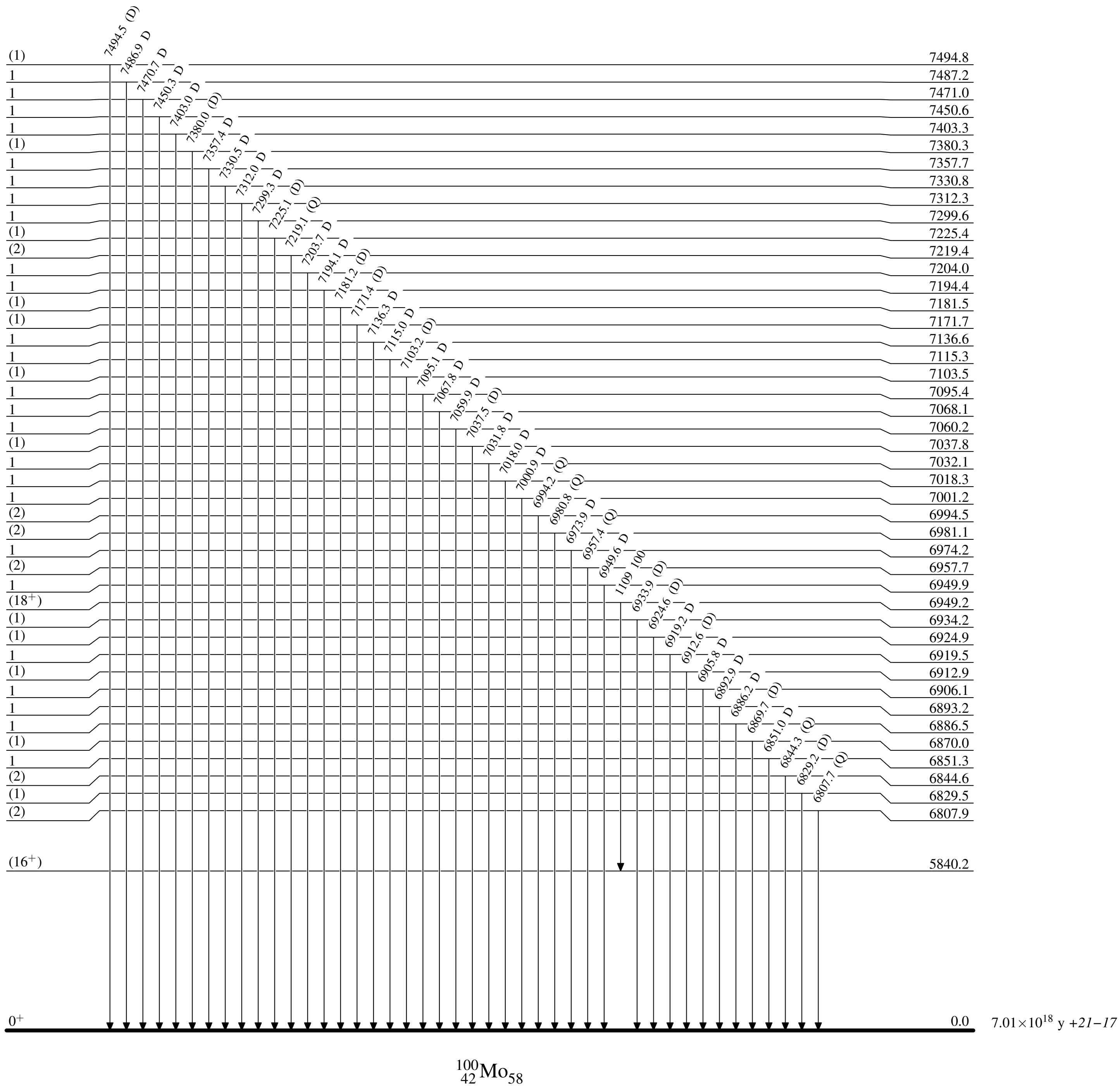
Adopted Levels, Gammas



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



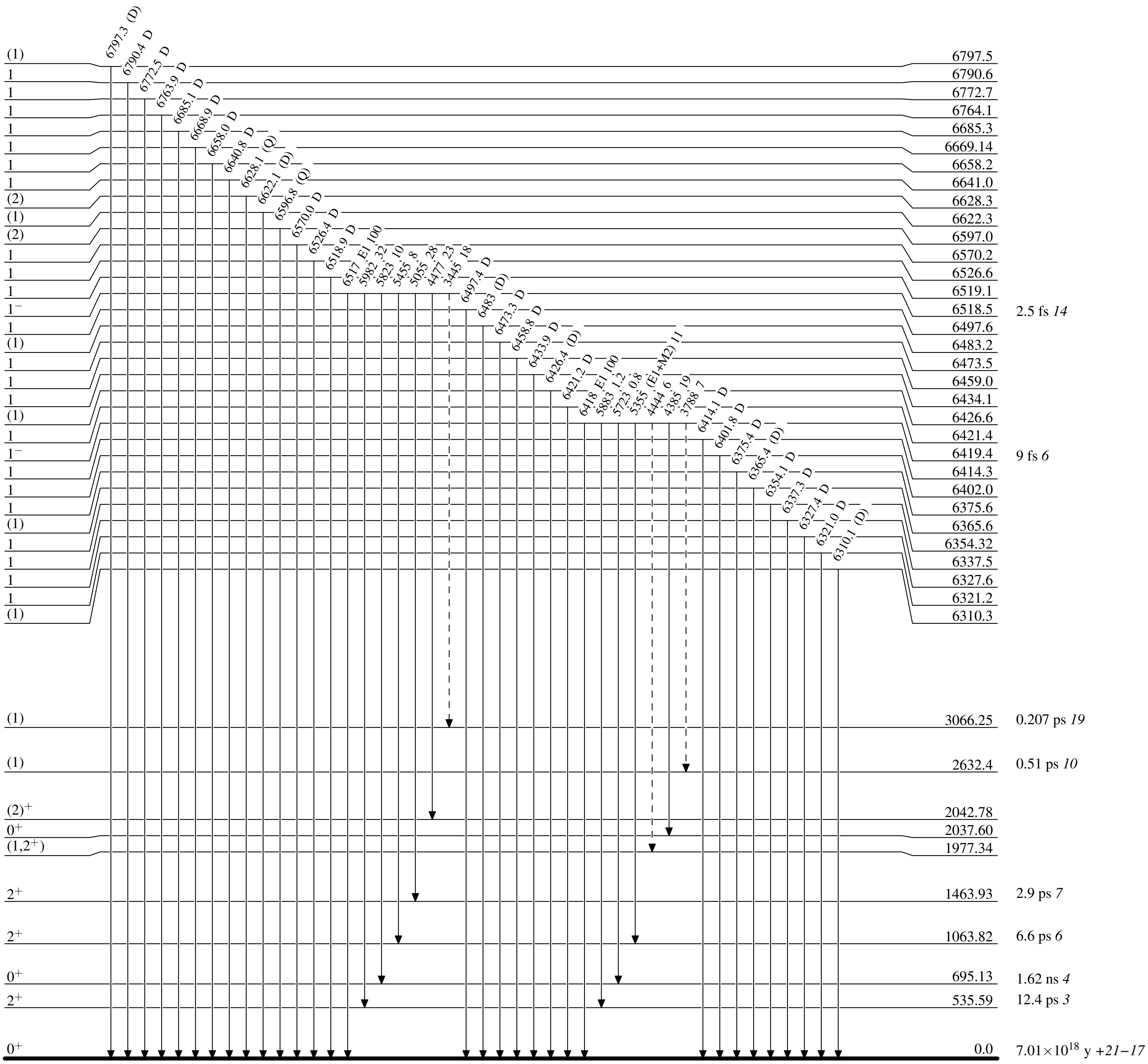
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

Legend

γ Decay (Uncertain)

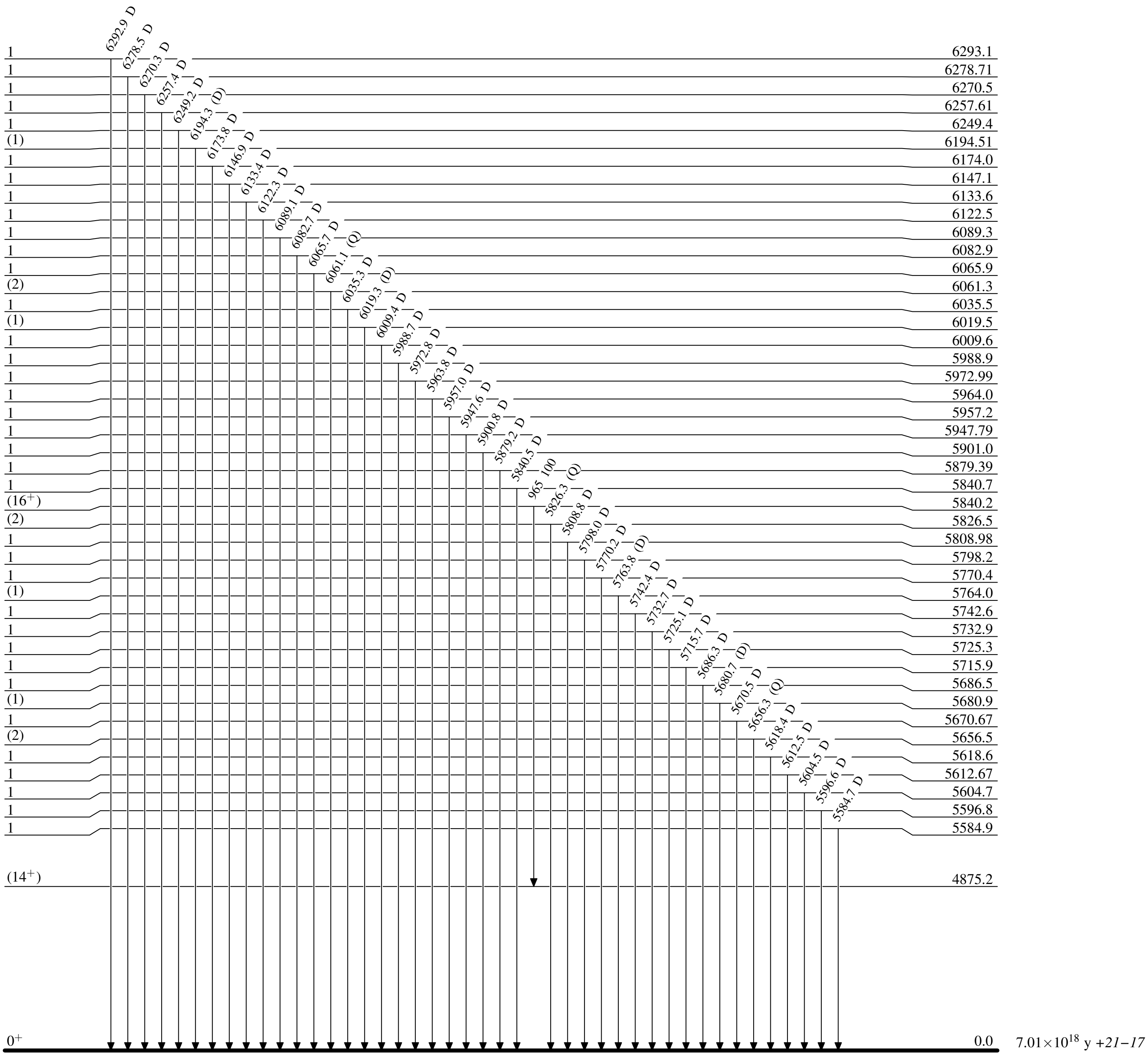


$^{100}_{42}Mo_{58}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

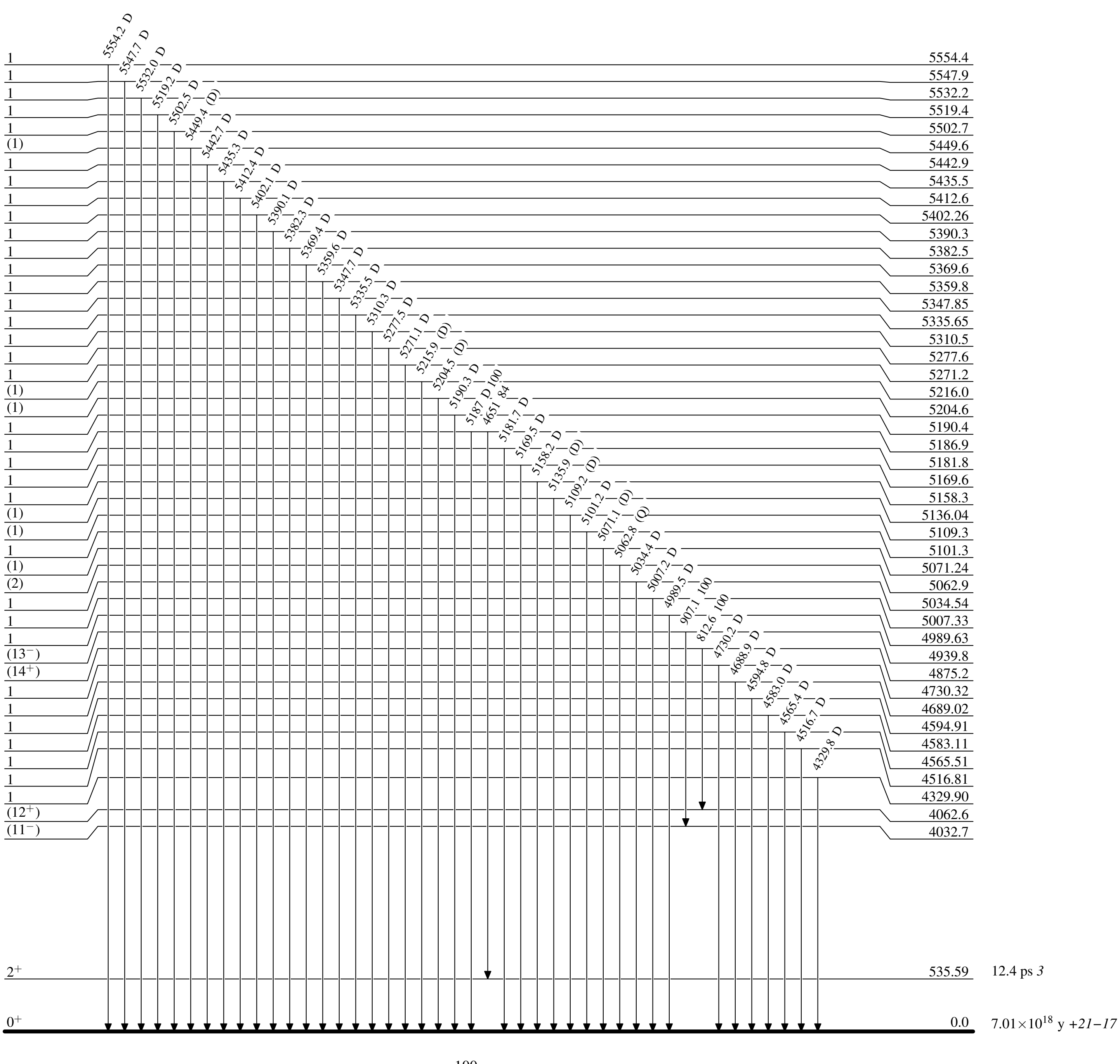


$^{100}_{42}Mo_{58}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

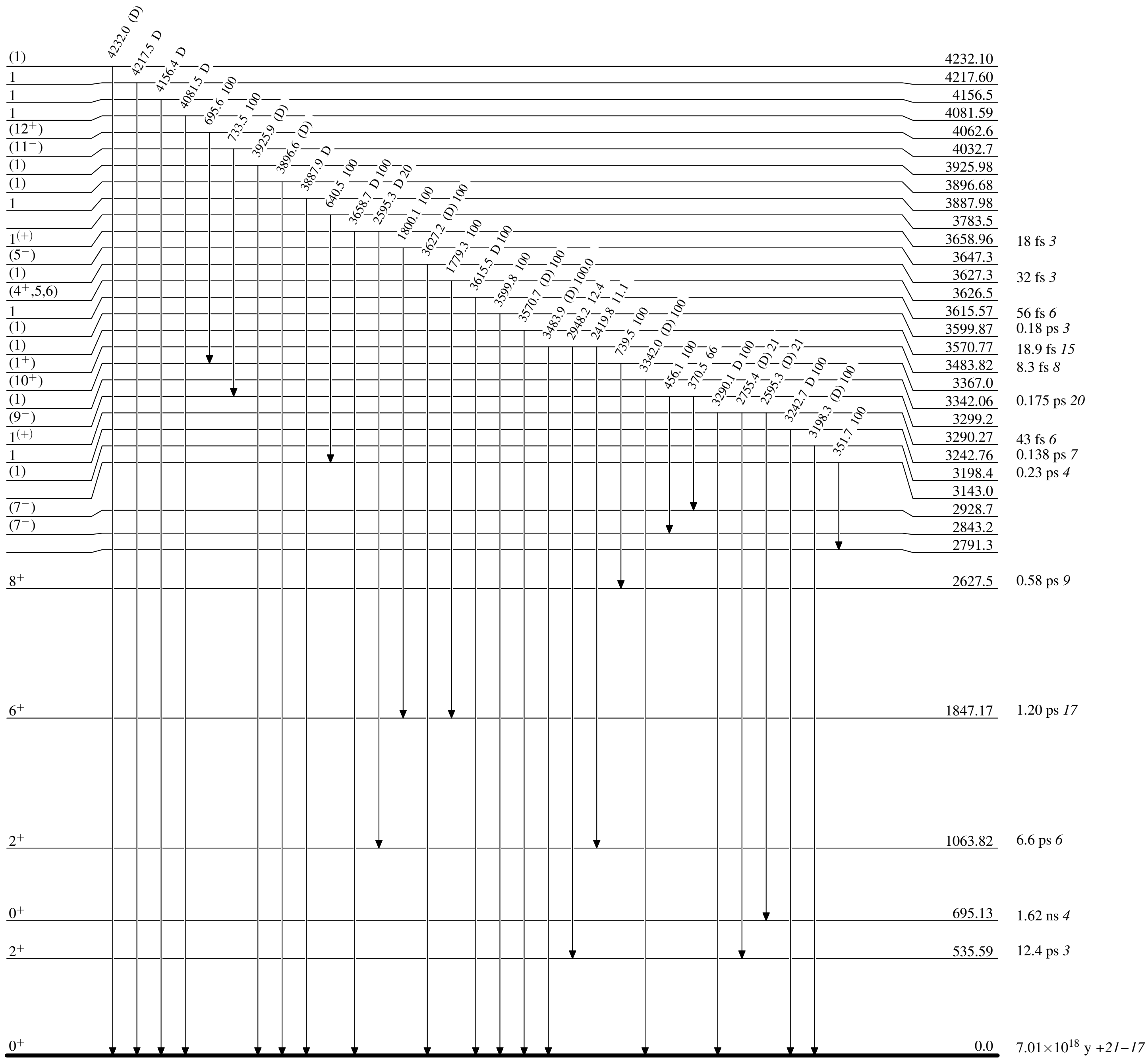


$^{100}_{42}Mo_{58}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

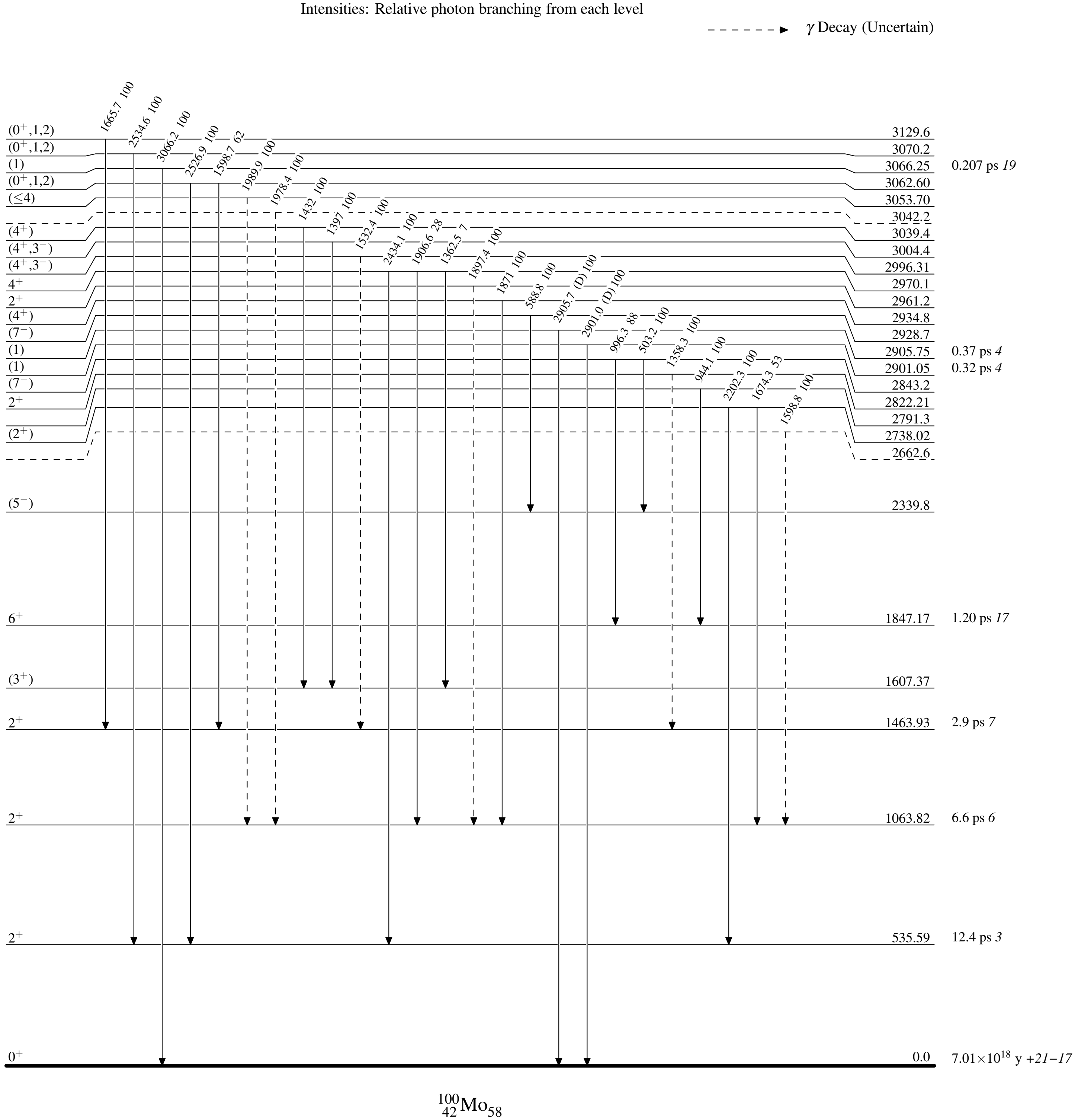


$^{100}_{42}Mo_{58}$

Adopted Levels, Gammas

Level Scheme (continued)

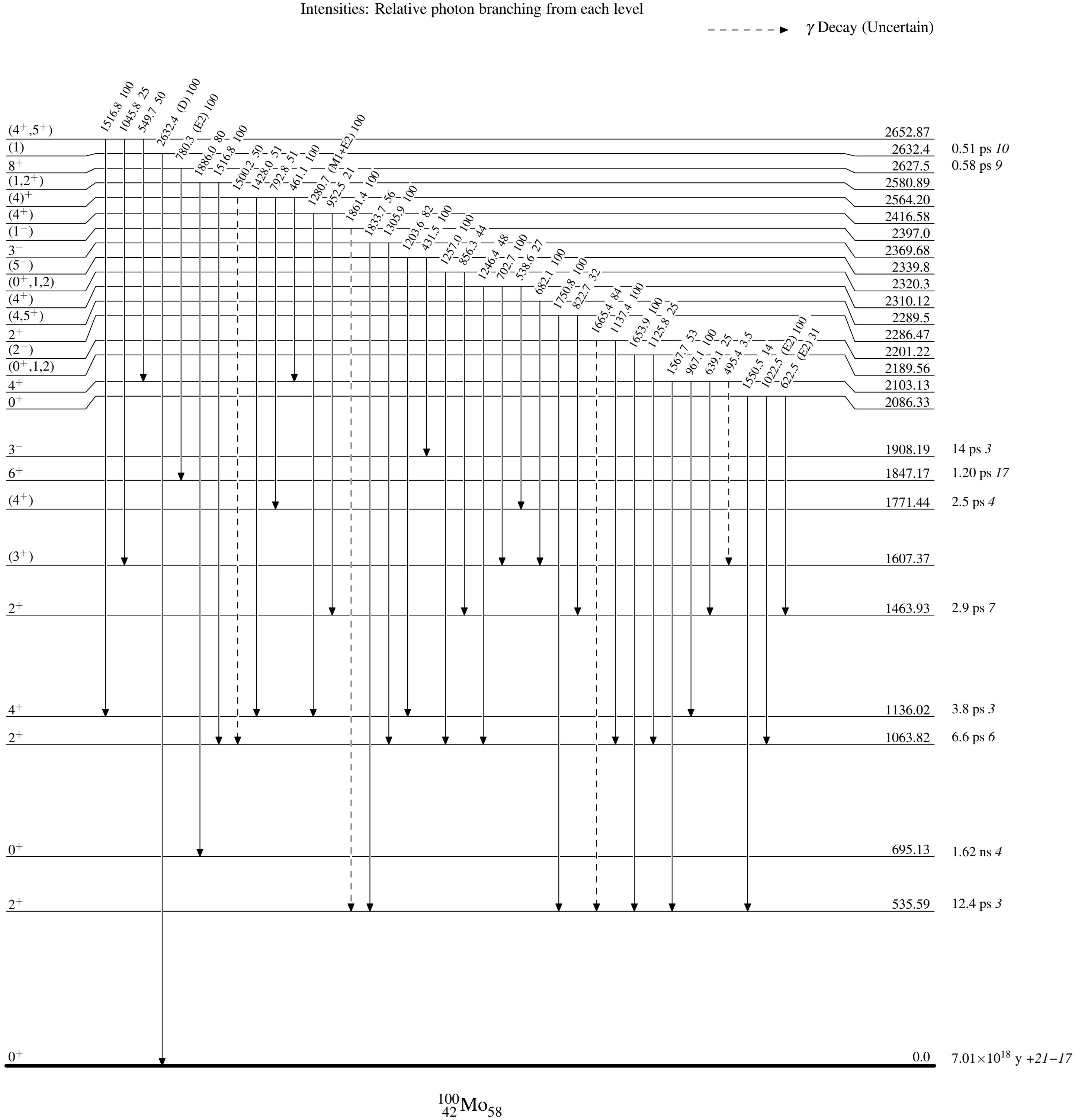
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

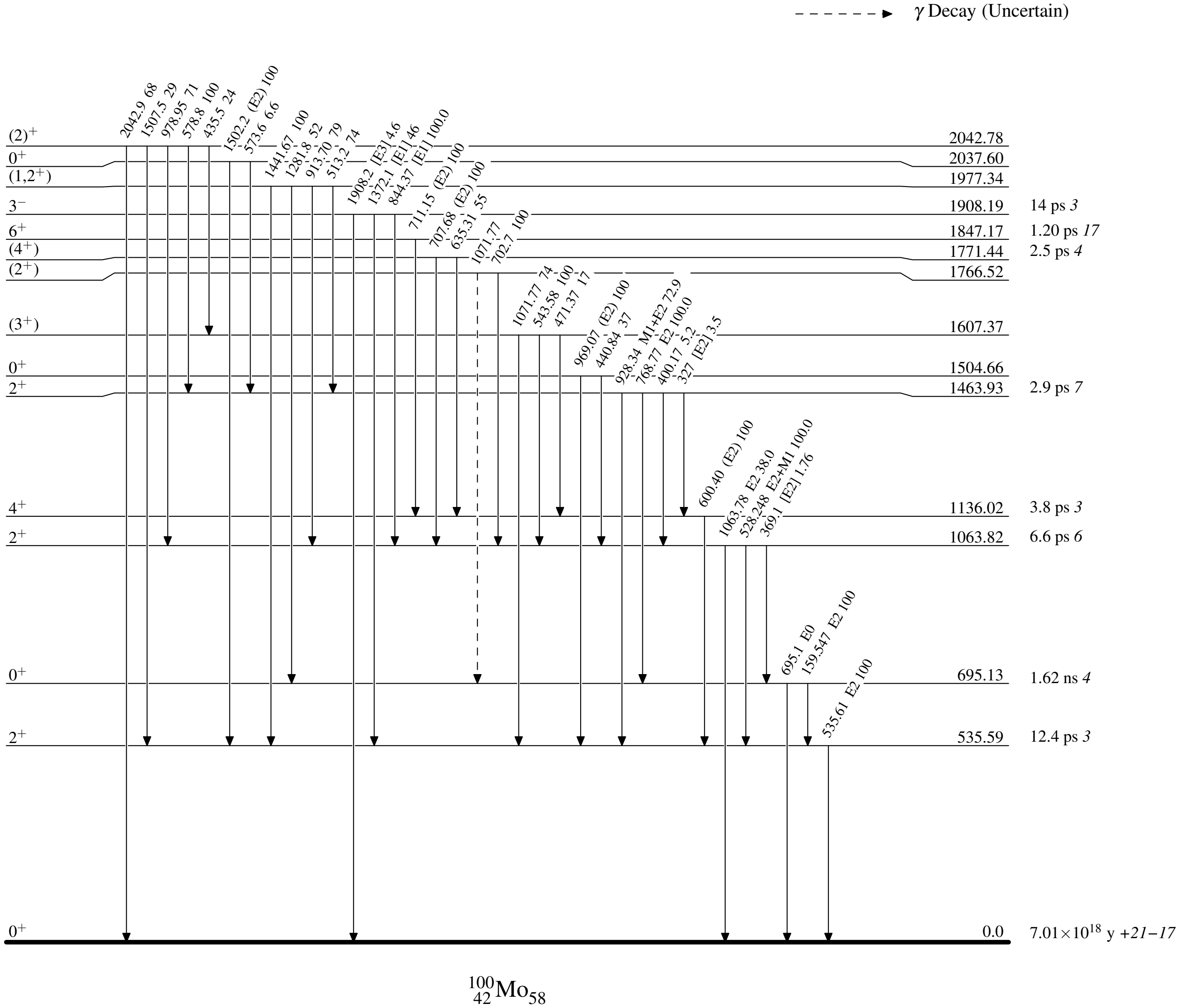


Adopted Levels, Gammas

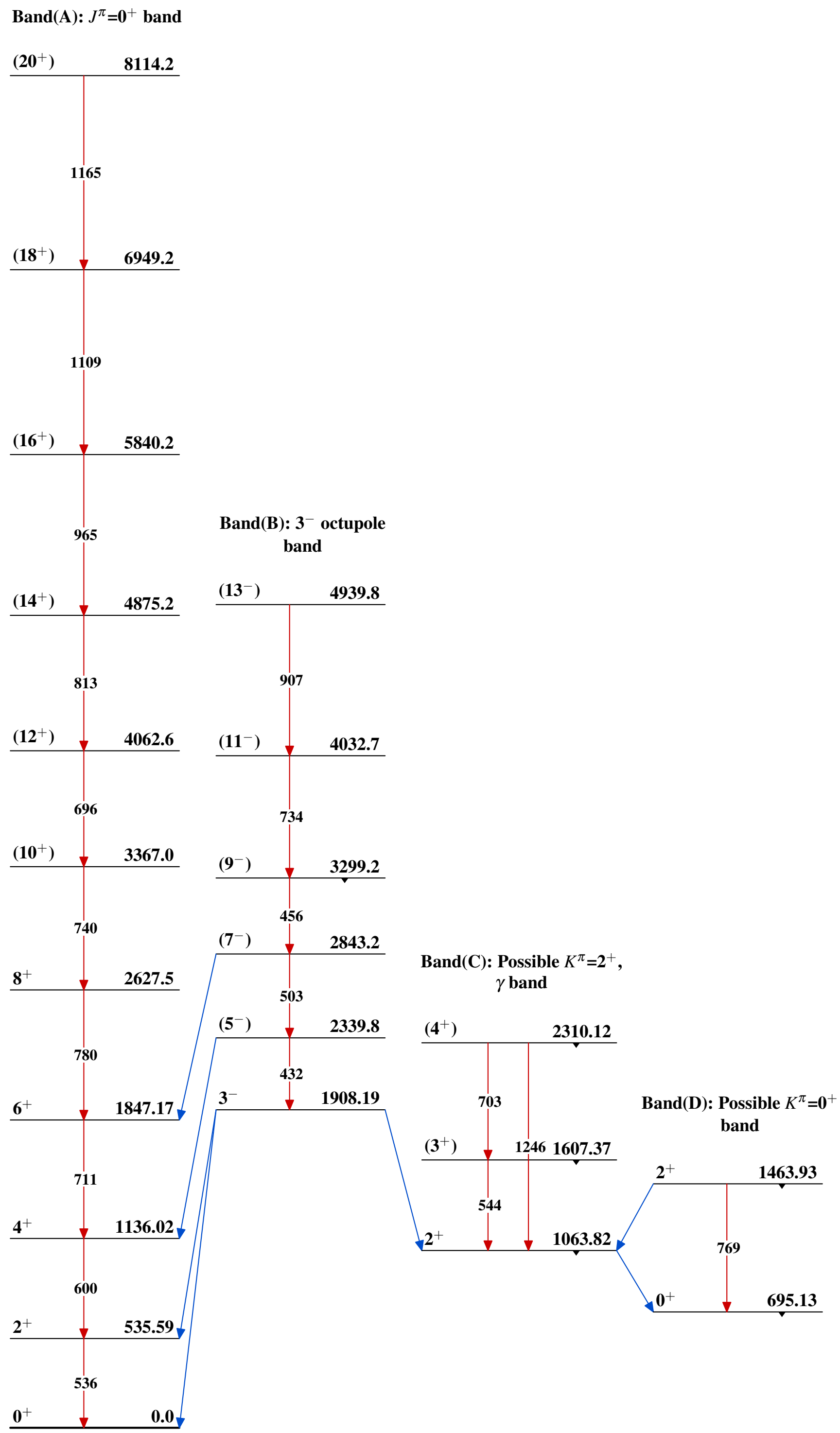
Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level



Adopted Levels, Gammas



$^{100}_{42}Mo_{58}$

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne	NDS 110,1745 (2009)	31-Dec-2008

Q(β^-)=1000 *13*; S(n)=8125 *9*; S(p)=11971 *10*; Q(α)=−4703 *12* 2012Wa38
Note: Current evaluation has used the following Q record 1008 228116 2011904 27-4695 29 2003Au03.
Q(β^-)=996 *14* (2006Ha32) with Penning trap setup at IGISOL.

^{102}Mo Levels

Cross Reference (XREF) Flags

A	^{102}Nb β^- decay (1.3 s)	F	^{235}U(n,F)
B	^{102}Nb β^- decay (4.3 s)	G	^{238}U(α,Fγ)
C	^{248}Cm,^{252}Cf SF decay	H	^{100}Mo(t,p)
D	^{100}Mo(t,pγ)	I	^{168}Er(^{30}Si,Xγ)
E	^{100}Mo(^{18}O,^{16}Oγ)		

E(level)[@]	J$^\pi$[‡#]	T$_{1/2}$[†]	XREF	Comments
0.0[&]	0$^+$	11.3 min *2*	ABCDEFGHI	%β^-=100 T$_{1/2}$: weighted average of: 11.2 min *3* (1980De06), 11.8 min *4* (1976Ki11), 11.0 min *5* (1966Ga28), 11.0 min *3* (1954Wi32), 11.5 min *5* (1954Fl21).
296.610[&] *4*	2$^+$	125 ps *4*	ABCDEFGHI	β_2= 0.311 *5*(2001Ra27) μ=+0.84 *14* (1985Me13,1987Bo17,2005St24,1989Ra17) T$_{1/2}$: from $\beta\gamma$(t) on mass separated fission products (1991Li39). and time-integral perturbed angular correlations with Gammasphere (2005Sm08). Other: 114 ps *3* from ^{100}Mo(^{18}O,^{16}Oγ), see also 2001Ra27. Other: 0.28 *1* deduced from T$_{1/2}$ (1991Li39). J$^\pi$: L(t,p)=2. μ: From PAC measurements of the (401γ-296γ) cascade in the β^- decay of ^{102}Nb (high spin + low spin isomer); + from 2005Sm08. Other: +0.8 *4* (2005Sm08).
698.26[d] *12*	0$^+$	28 ps *11*	AB DEFGH	J$^\pi$: L(t,p)=0.
743.73[&] *5*	4$^+$	12.5 ps *25*	BCDE G I	β_2=0.27 *3* (1991Li39) β_2: Deduced from T$_{1/2\ 1/2}$ (1991Li39). J$^\pi$: L(t,p)=(4) and J=4 from $\gamma\gamma(\theta)$ in ^{102}Nb β^- decay (4.3 s).
847.89[c] *6*	2$^+$		AB DEFGH	J$^\pi$: L(t,p)=2.
1144.5[d] *10*	(2$^+$)		G	No detailed arguments given for J^π assignment (2004Hu02) but γ to 0$^+$.
1245.54 *9*	(3$^+$)		AB D	J^π=(3$^+$) based on the γ decay pattern in ^{102}Nb β^- decay (4.3 s) (1988GiZX).
1249.74 *9*	2$^+$		H	J$^\pi$: L(t,p)=2.
1327.91[&] *10*	6$^+$		BCDE G I	
1334 *5*	0$^+$		H	J$^\pi$: L(t,p)=0.
1398.39[c] *8*	(4$^+$)		B D G	J$^\pi$: from (t,p$\gamma\gamma$). Based on systematics and branching pattern.
1608 *2*	2$^+$		H	J$^\pi$: L(t,p)=2.
1616.89 *12*			B	
1747.76 *12*			B	
1869.76 *13*			B	
1881 *5*	3$^-$		H	J$^\pi$: L(t,p)=3.
2010.4[c] *10*	(6$^+$)		G	No detailed arguments given for J^π assignment by 2004Hu02 but γ to (4$^+$).
2018.82[&] *14*	8$^+$	1.8 ps *3*	CD G I	
2108 *3*	1$^-$		H	J$^\pi$: L(t,p)=1.
2122 *5*	0$^+$		H	J$^\pi$: L(t,p)=0.
2147.5[a] *5*	(5$^-$)		I	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{102}Mo Levels (continued)

E(level)[@]	Jπ[‡#]	$T_{1/2}$[†]	XREF	Comments
2239 *5*	(4+)		H	Jπ: L(t,p)=(4).
2248 *7*	2+		H	Jπ: L(t,p)=2.
2305 *3*	2+		H	Jπ: L(t,p)=2.
2321 *8*	2+		H	Jπ: L(t,p)=2.
2366 *1*	2+		H	Jπ: L(t,p)=2.
2412 *4*			H	
2418.12 *25*	(10+)		D	Jπ: suggested from level at 2416 keV in (t,p) and (t,pγγ) results in which a 399.3γ from an observed γ-ray triplet at 400-keV decays to (8+) level.
2460.3[b] *5*	(6−)		I	Jπ: Jπ=(5−) suggested in ^{238}U(α,Fγ).
2480.94 *8*	(3+)		B D	Jπ: from γγ(θ) in ^{102}Nb β^- decay (4.3 s). Absence in (t,p) suggests positive parity.
2485 *4*	2+		H	Jπ: L(t,p)=2.
2502 *1*	4+		H	Jπ: L(t,p)=4.
2522 *2*	3−		H	Jπ: L(t,p)=3.
2547.8[a] *5*	(7−)		I	Jπ: Jπ=(4+) suggested in ^{238}U(α,Fγ).
2608 *1*			H	
2659 *4*	4+		H	Jπ: L(t,p)=4.
2684 *7*	3−		H	Jπ: L(t,p)=3.
2704 *4*	0+		H	Jπ: L(t,p)=0.
2742 *2*			H	
2790.3[&] *6*	(10+)	1.03 ps *18*	C G I	Jπ: from γγ and band structure in ^{248}Cm SF. $T_{1/2}$: from Doppler-profile method in ^{248}Cm SF (1996Sm04).
2797 *4*			H	
2828.8[b] *8*	(8−)		G	Jπ: Jπ=(7−) suggested in ^{238}U(α,Fγ).
2851 *1*			H	
2872 *3*	2+		H	Jπ: L(t,p)=2.
2943 *4*	0+		H	Jπ: L(t,p)=0.
2988 *11*	4+		H	Jπ: L(t,p)=4.
3005.9[a] *11*	(9−)		I	Jπ: Jπ=(6+) suggested in ^{238}U(α,Fγ).
3010 *7*	2+		H	Jπ: L(t,p)=2.
3063 *2*	4+		H	Jπ: L(t,p)=4.
3091 *3*	3−		H	Jπ: L(t,p)=3.
3125 *3*	2+		H	Jπ: L(t,p)=2.
3162 *5*	4+		H	Jπ: L(t,p)=4.
3193 *7*	2+		H	Jπ: L(t,p)=2.
3248 *1*			H	
3369.5[b] *13*	(10−)		G	Jπ: Jπ=(9−) suggested in ^{238}U(α,Fγ).
3614.9[a] *15*	(11−)		I	Jπ: Jπ=(8+) suggested in ^{238}U(α,Fγ).
3625.2[&] *12*	(12+)		G I	
3632.3 *8*	(12+)	0.66 ps *12*	C	Jπ: from γγ and band structure in ^{248}Cm SF. Following 2007La03 3625 keV level is member of ΔJ=2 g.s. Yrast band and not 3622.3 keV level.
4053.1 *16*	(11−)		G	
4363.7 *18*	(10+)		G	
4504.4[&] *15*	(14+)		G	
4856.8 *19*	(13−)		G	
5230.8 *21*	(12+)		G	
5470.9[&] *18*	(16+)		G	
5764.6 *22*	(15−)		G	
6200.5 *23*	(14+)		G	

† Unless noted otherwise, determined by the recoil-distance Doppler-shift method (1975Bo39) from ^{100}Mo(^{18}O,^{16}Oγ), except for g.s. and 296 level.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{102}Mo Levels (continued)

‡ Unless noted otherwise, from observed band structure and systematics in ^{238}U(α,Fγ) and ^{168}Er(^{30}Si,xγ).

After contact with S.Lalkowski,(November 14, 2007), one of authors of the 168Er(30Si,Xγ) experiment (2007La03), the evaluator got convincing evidence for the correctness of the level scheme and J^{π} assignments for members of band(β) presented by (2007La03) over these of (2004Hu02) in ^{238}U(α,Fγ). The interpretation of the observed band structure given by (2007La03)is a.o. based on systematics of very reliable data on ^{98,100}Mo and ^{104}Ru. Nevertheless an experimental confirmation of the results of 2007La03 would be very welcome.

@ The level energies were calculated using a least-squares procedure using the Adopted Gammas.

& Band(A): Probable member of a ΔJ=2 g.s. Yrast band. (2004Hu02,2007La03).

a Band(B): γ sequence based on (5$^-$) (2007La03).

b Band(C): γ sequence based on (6$^-$) (2007La03).

c Band(D): γ band (2004Hu02).

d Band(E): β band (2004Hu02).

γ(^{102}Mo)

E$_i$(level)	J_i^π	E$_\gamma$ †	I$_\gamma$ ‡	E$_f$	J_f^π	Mult.#	α@	Comments
296.610	2$^+$	296.611 *4*	100	0.0	0$^+$	[E2]	0.0257	B(E2)(W.u.)=74 *9*
698.26	0$^+$	401.89 *13*	100	296.610	2$^+$	[E2]		B(E2)(W.u.)=70 *30*
		696.6		0.0	0$^+$	E0		I(696)/I(401)=4.2×10^{-3} (1989Es01).
743.73	4$^+$	447.13 *6*	100	296.610	2$^+$	[E2]		B(E2)(W.u.)=89 *18*
847.89	2$^+$	551.63 *8*	100 *5*	296.610	2$^+$			
		847.37 *9*	58 *6*	0.0	0$^+$			
1144.5	(2$^+$)	446.2	100	698.26	0$^+$			
1245.54	(3$^+$)	397.69 *20*	19. *4*	847.89	2$^+$			
		948.85 *11*	100. *11*	296.610	2$^+$			
1249.74	2$^+$	401.7 *3*	25. *13*	847.89	2$^+$			
		506.10 *20*	25. *13*	743.73	4$^+$			
		552.00 *20*	50. *13*	698.26	0$^+$			
		953.20 *20*	100. *25*	296.610	2$^+$			
		1249.10 *20*	75. *25*	0.0	0$^+$			
1327.91	6$^+$	584.19 *8*	100	743.73	4$^+$			
1398.39	(4$^+$)	550.25 *15*	94. *5*	847.89	2$^+$			
		654.64 *9*	100. *7*	743.73	4$^+$			
		1102.40 *20*	44. *11*	296.610	2$^+$			
1616.89		367.30 *20*	78. *22*	1249.74	2$^+$			
		873.5 *3*	22. *11*	743.73	4$^+$			
		1320.20 *20*	100. *22*	296.610	2$^+$			
1747.76		1004.00 *20*	100. *21*	743.73	4$^+$			
		1451.10 *20*	37. *8*	296.610	2$^+$			
1869.76		624.10 *20*	39. *9*	1245.54	(3$^+$)			
		1021.90 *20*	100. *22*	847.89	2$^+$			
		1126.10 *20*	30. *9*	743.73	4$^+$			
2010.4	(6$^+$)	612.0		1398.39	(4$^+$)			
2018.82	8$^+$	690.90 *10*	100	1327.91	6$^+$			
2147.5	(5$^-$)	1403.6 *5*	100	743.73	4$^+$			
2418.12	(10$^+$)	399.30& *20*	100	2018.82	8$^+$			
2460.3	(6$^-$)	1132.4 *5*	100	1327.91	6$^+$			
2480.94	(3$^+$)	733.10 *20*	3.6 *7*	1747.76				
		864.30 *20*	4.3 *7*	1616.89				
		1082.60 *20*	4.3 *7*	1398.39	(4$^+$)			
		1231.00 *20*	3.6 *7*	1249.74	2$^+$			
		1235.30 *20*	33. *5*	1245.54	(3$^+$)			
		1633.10 *20*	100 *12*	847.89	2$^+$			
		1737.20 *20*	5.0 *12*	743.73	4$^+$			

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{102}Mo)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ‡	E_f	J^π_f	Mult.#	δ	Comments
2480.94	(3^+)	2184.3 *2*	15.0 *21*	296.610	2^+	(M1+E2)	−0.5	δ: from $\gamma\gamma(\theta)$ in ^{102}Nb β^- decay (4.3 s).
2547.8	(7^-)	400.1 *5*	100 *4*	2147.5	(5^-)			
		1220.1 *5*	50 *5*	1327.91	6^+			
2790.3	(10^+)	771.5 *5*	100	2018.82	8^+			
2828.8	(8^-)	368.4		2460.3	(6^-)			
		810.0		2018.82	8^+			
3005.9	(9^-)	458.1		2547.8	(7^-)			
3369.5	(10^-)	540.7		2828.8	(8^-)			
3614.9	(11^-)	609.0		3005.9	(9^-)			
3625.2	(12^+)	834.9		2790.3	(10^+)			
3632.3	(12^+)	842.0 *5*		2790.3	(10^+)			
4053.1	(11^-)	683.6		3369.5	(10^-)			
4363.7	(10^+)	748.8		3625.2	(12^+)			
4504.4	(14^+)	879.2		3625.2	(12^+)			
4856.8	(13^-)	803.7		4053.1	(11^-)			
5230.8	(12^+)	867.1		4363.7	(10^+)			
5470.9	(16^+)	966.5		4504.4	(14^+)			
5764.6	(15^-)	907.8		4856.8	(13^-)			
6200.5	(14^+)	969.7		5230.8	(12^+)			

† The gamma energies were calculated using as a weighted average using gammas of ^{102}Nb $\beta\pm$ decay (1.3 s),^{102}Nb $\beta\pm$ decay (4.3 s), $^{100}Mo(^{18}O,^{16}O)$, ^{248}Cm,^{252}Cf SF decay, $^{100}Mo(t,p\gamma)$, $^{238}U(\alpha,F\gamma)$ and $^{168}Er(^{30}Si,x\gamma)$.

‡ Relative branchings of each level were deduced as a weighted average of data from ^{102}Nb β^- decay (4.3 s), $^{100}Mo(t,p\gamma\gamma)$,$^{168}Er(^{30}Si,X\gamma)$ and $^{100}Mo(^{18}O,^{16}O)$.

\# Unless noted otherwise, deduced from level scheme.

@ 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.

& Placement of transition in the level scheme is uncertain.

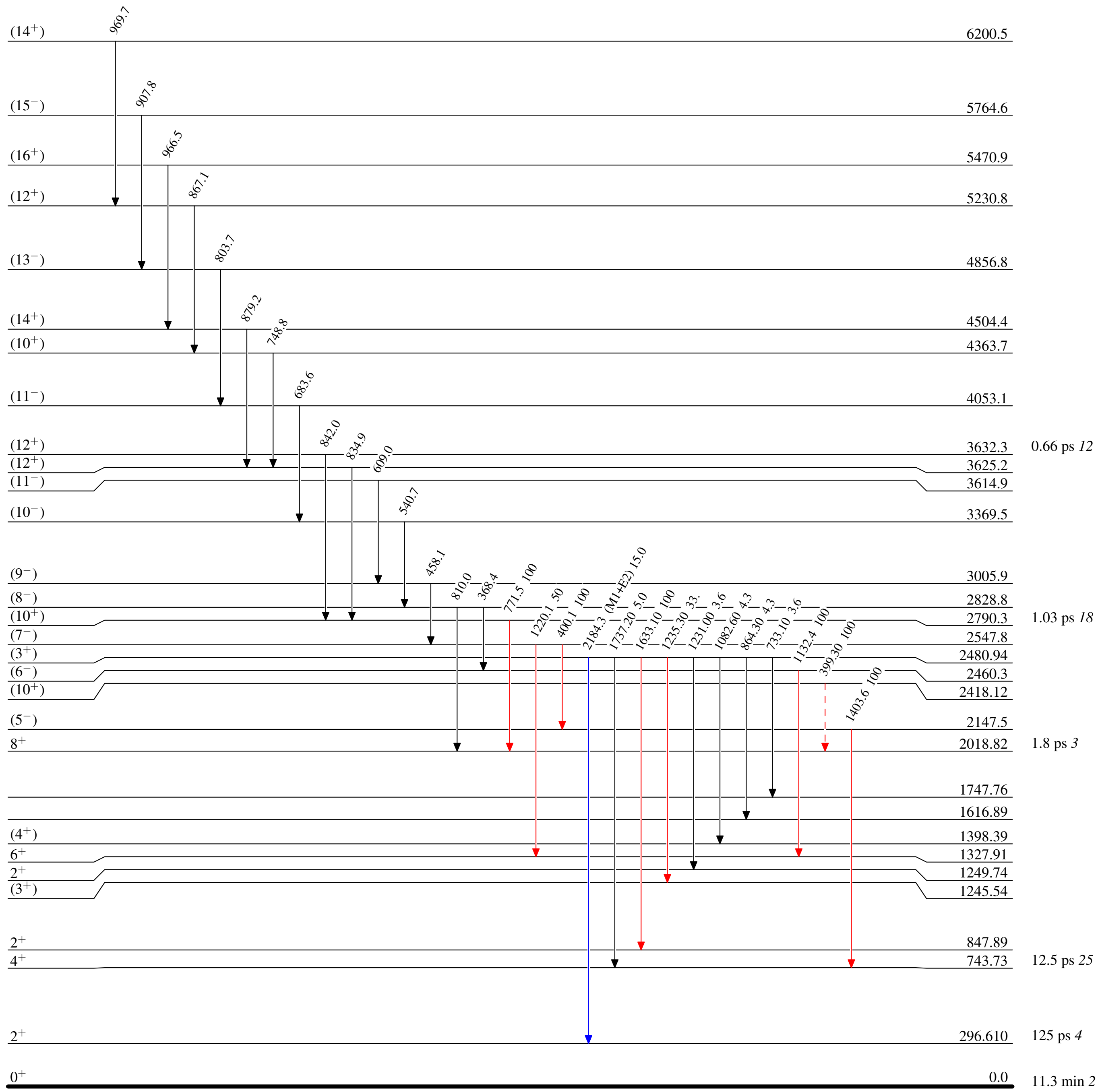
Adopted Levels, Gammas

Level Scheme

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)

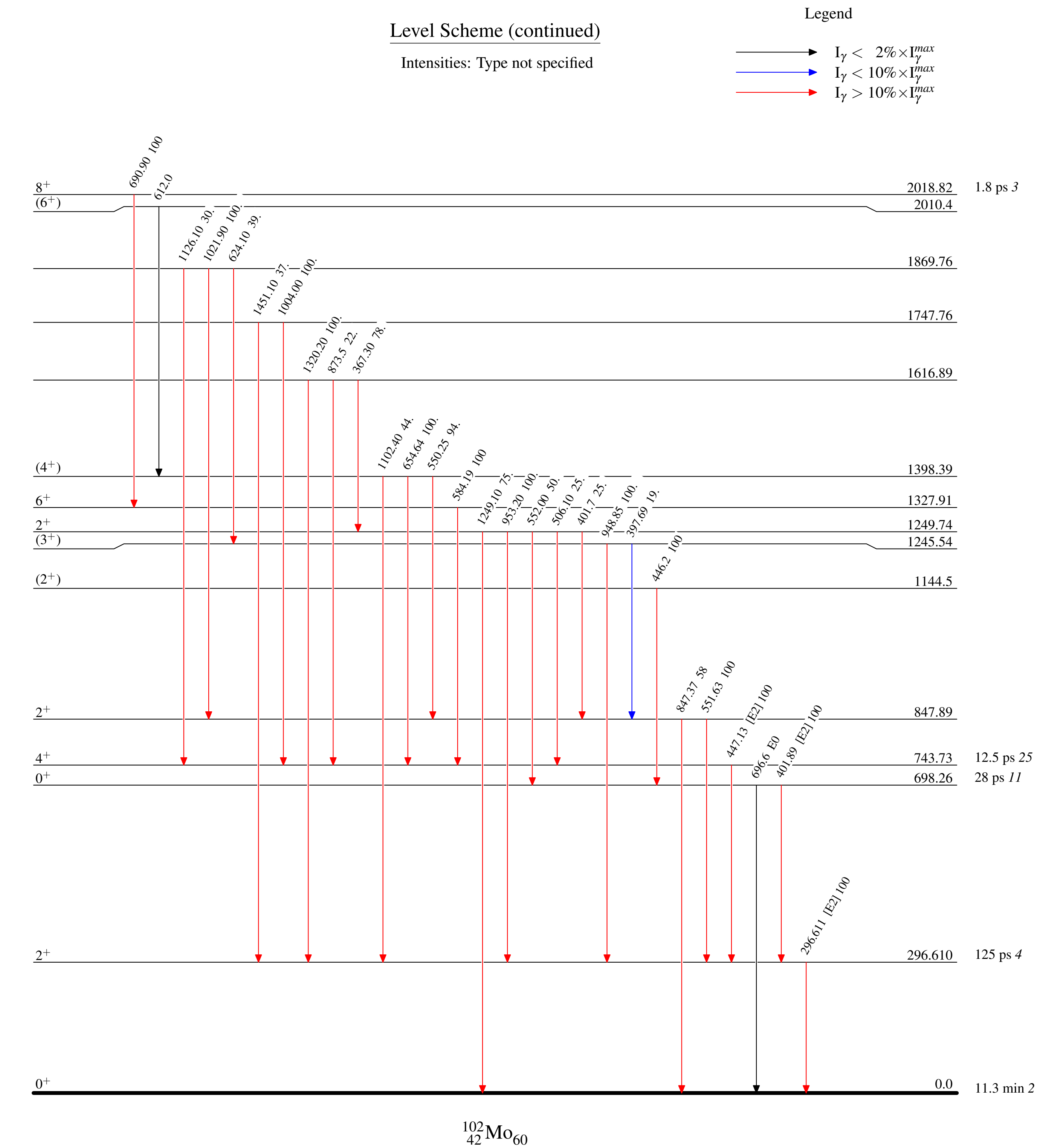


$^{102}_{42}$Mo$_{60}$

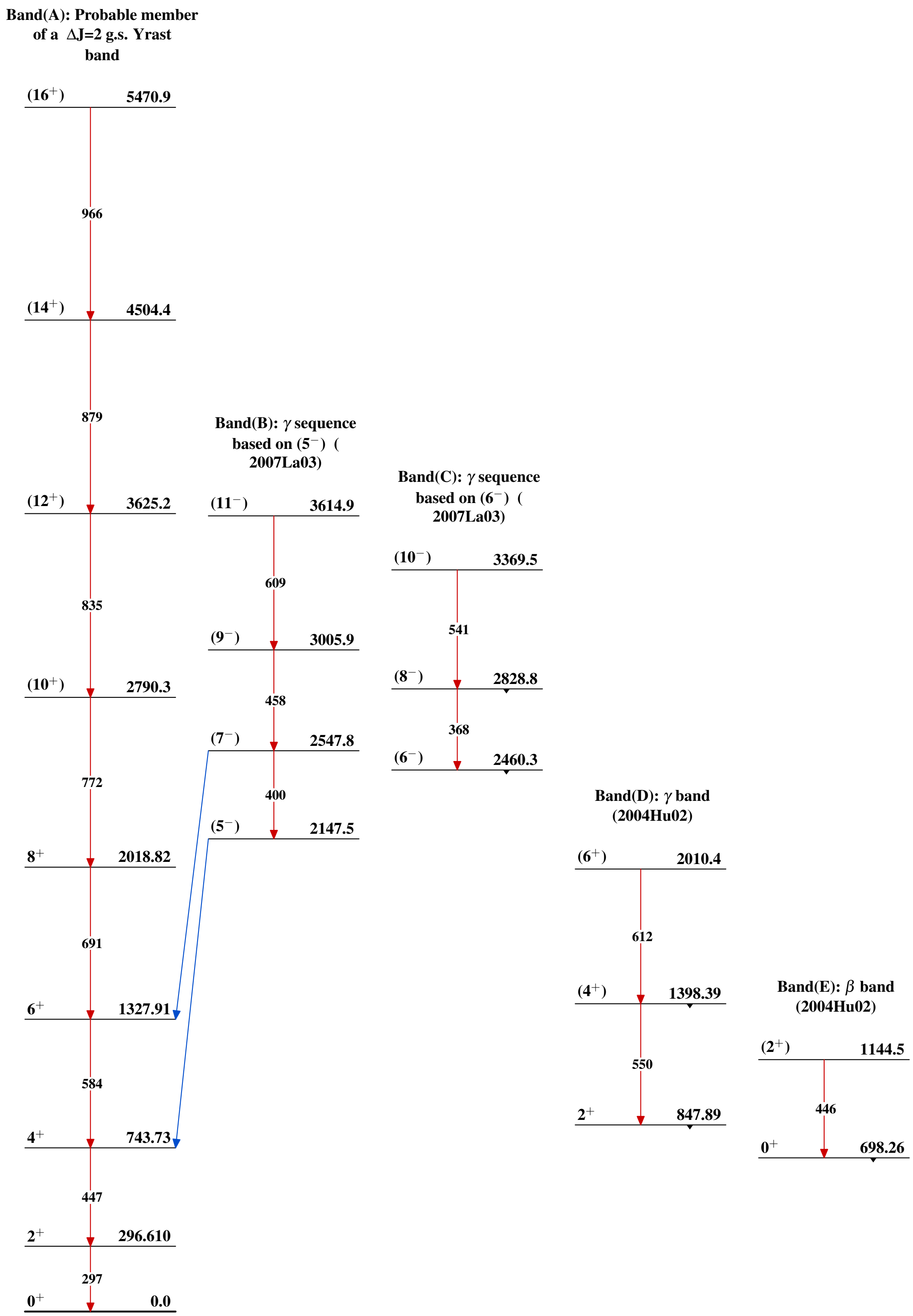
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



Adopted Levels, Gammas



$^{102}_{42}Mo_{60}$

Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne and A. Negret	NDS 109,943 (2008)	1-May-2007

Q(β^-)=3635 *16*; S(n)=6869 *13*; S(p)=13518 *11*; Q(α)=−6972 *13* 2012Wa38
Note: Current evaluation has used the following Q record 3520 126990 *70* 1.269e$^+$410-6.94×10^{35} 2003Au03.

^{106}Mo Levels

Cross Reference (XREF) Flags

A	^{106}Nb β^- decay
B	^{248}Cm SF decay
C	^{252}Cf SF decay
D	^{238}U(α,F)

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	XREF	Comments
0.0	0$^+$	8.73 s *12*	ABCD	%β^-=100 T$_{1/2}$: From β^- decay curves (1995Jo02) Others: 8.4 s *5* via (55,86,430,466,595,618γ)-decay curves (1977Ti02); 8.2 s *10* (1976KaYO), 11 s *2* (1972Tr08), 9.5 s *5* (1969Ha59), 7.9 s *12* (1969WiZX).
171.549[#] *8*	2$^+$	1.25 ns *3*	ABCD	μ=0.42 *4* T$_{1/2}$: from recoil-distance Doppler shift in ^{252}Cf SF decay (1974JaZN). Others: 0.75 ns *15* (1970Ch11); 1.2 ns *1* from ^{252}Cf SF decay (2006Hw01). μ: Measured with Gammasphere using time-integral perturbed angular correlations (2004Sm04).
522.32[#] *8*	4$^+$	25.4 ps *51*	ABCD	T$_{1/2}$: measured using recoil distance method in ^{252}Cf SF decay (2003Hu07).
710.48[@] *6*	2$^+$		ABCD	
885.17[@] *7*	3$^+$		ABCD	
956.55 *20*	(0$^+$)		A	J$^\pi$: Suggested from γ decay to 2$^+$ level only.
1033.34[#] *10*	6$^+$	4.2 ps *18*	ABCD	T$_{1/2}$: measured using the recoil distance method (2003Hu07).
1067.77[@] *7*	4$^+$		ABCD	
1149.84[c] *19*	(2$^+$)		C	
1279.9 *5*			A	
1306.81[@] *8*	5$^+$		BCD	
1434.73[b] *8*	4$^+$		ABCD	
1536.46[c] *17*	(4$^+$)		C	
1563.25[@] *10*	6$^+$		BCD	
1657.64[b] *8*	5$^+$		BCD	
1688.26[#] *12*	8$^+$	1.77 ps *24*	BCD	T$_{1/2}$: measured from Doppler-broadened line shapes analysis; value based on the assumption that the transition quadrupole moment=2.85 *13* for all members of the g.s. band with 8<J<12 (1996Sm04).
1817.22[&] *17*	(3$^-$)		C	
1868.08[@] *16*	7$^+$		BCD	
1910.30[b] *9*	6$^+$		BCD	
1936.82[&] *9*	(4$^-$)		BC	
1952.20[a] *11*	(5$^-$)		BC	
2014.73[c] *18*	(6$^+$)		BC	
2090.40[&] *14*	(5$^-$)		C	
2142.50[a] *15*	(6$^-$)		BC	J$^\pi$: (5$^-$) from 2002Ha46 in ^{252}Cf SF decay.
2146.81[d] *20*	(5$^-$)		C	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{106}Mo Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$	XREF	Comments
2194.27[@] *13*	8^+		BCD	
2199.66[b] *10*	7^+		BCD	
2276.32[&] *10*	(6^-)		BC	
2302.71[e] *20*	(5^+)		C	
2368.89[a] *14*	(7^-)		BC	J^{π}: (6^-) from 2002Ha46 in ^{252}Cf SF decay.
2472.4[#] *4*	10^+	0.69 ps *9*	BCD	$T_{1/2}$: measured from Doppler-broadened line shapes analysis; value based on the assumption that the transition quadrupole moment =2.85 *13* for all members of the g.s. band with 8<J<12 (1996Sm04).
2498.84[&] *12*	(7^-)		BC	
2520.93[b] *23*	8^+		CD	
2559.2[@] *3*	9^+		CD	
2565.98[c] *14*	(8^+)		BC	
2566.04[d] *20*	(7^-)		C	
2629.14[a] *17*	(8^-)		BC	J^{π}: (7^-) from 2002Ha46 in ^{252}Cf SF decay.
2713.15[e] *20*	(7^+)		C	
2746.50[&] *12*	(8^-)		BC	
2877.5[b] *4*	9^+		CD	
2921.37[a] *16*	(9^-)		BC	J^{π}: (8^-) from 2002Ha46 in ^{252}Cf SF decay.
2950.72[@] *24*	10^+		CD	
3041.5[&] *3*	(9^-)		C	
3132.2[d] *3*	(9^-)		C	
3184.8[c] *4*	(10^+)		C	
3238.35[a] *23*	(10^-)		BC	J^{π}: (9^-) from 2002Ha46 in ^{252}Cf SF decay.
3253.7[e] *3*	(9^+)		C	
3263.9[b] *4*	10^+		C	
3349.7[&] *3*	(10^-)		C	
3369.1[#] *6*	12^+	0.37 ps *4*	CD	$T_{1/2}$: measured from Doppler-broadened line shapes analysis; value based on the assumption that the transition quadrupole moment =2.85 *13* for all members of the g.s. band with 8<J<12 (1996Sm04).The evaluators assume that the 889.9γ of 1996Sm04 is the same as the adopted 896.7 keV gamma.
3369.6[@] *11*	11^+		C	
3591.9[a] *4*	(11^-)		C	J^{π}: (10^-) from 2002Ha46 in ^{252}Cf SF decay.
3682.2[b] *5*	11^+		CD	
3707.6[&] *5*	(11^-)		C	
3810.5[@] *11*	12^+		CD	
3843.6[d] *4*	(11^-)		C	
3928.5[e] *4*	(11^+)		C	
3945.3[a] *8*	(12^-)		C	
4049.3[&] *11*	(12^-)		C	
4132.5[b] *5*	(12^+)		C	
4291.9[@] *15*	13^+		CD	
4362.0[#] *12*	14^+		CD	
4371.8[a] *11*	(13^-)		C	
4596.1 *21*	13^+		D	
4751.4[@] *23*	14^+		D	E(level): Taken from ^{238}U(α,Fγ) (2004Hu02).
4752.1[a] *13*	(14^-)		C	E(level): from 2005Zh36 and 2006Jo05.
4756.3 *12*	14^+		C	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{106}Mo Levels (continued)

E(level)[†]	J^{π}[‡]	XREF	Comments
5307.3[@] *25*	15^+	D	E(level): Taken from ^{238}U(α,Fγ) (2004Hu02).
5412.8[#] *24*	16^+	D	E(level): Taken from ^{238}U(α,Fγ) (2004Hu02).
5425.2[#] *7*	16^+	C	
5766.8[@] *24*	16^+	D	E(level): Taken from ^{238}U(α,Fγ) (2004Hu02).
6392?[@] *3*	17^+	D	E(level): Taken from ^{238}U(α,Fγ) (2004Hu02).
6501[#] *3*	18^+	D	
6867[@] *3*	18^+	D	
7660[#] *4*	20^+	D	

[†] Calculated from adopted gammas using least-squares fit, unless noted otherwise. There are discrepancies of several kev between corresponding levels observed in different fission data sets. The level energies above 4.5 MeV were taken from 2004Hu02 from ^{238}U(α,F), if available, but are considered by the evaluators as approximate.

[‡] From observed band structure and systematics in ^{252}Cf SF decay based on well established data of g.s.-band, one-phonon and two-phonon gamma-vibrational bands and Nilsson model considerations. If not mentioned otherwise from 2002Xu03 because this paper has the most detailed discussion on the experimental data taken with Gammasphere.

[#] Band(A): g.s.,Yrast band.

[@] Band(B): γ band.

[&] Band(C): ν(3/2[411]$\otimes\nu$(3/2)[541])$^{-1}$. Possible 'chiral' partner of ν(5/2[413]$\otimes\nu$(5/2[532]) (2005Zh36).

[a] Band(D): ν(5/2[413]$\otimes\nu$(5/2)[532]). Possible 'chiral' partner of ν(3/2[411]$\otimes\nu$(3/2[541])$^{-1}$ (2005Zh36).

[b] Band(E): $\gamma\gamma$ phonon band.

[c] Band(F): Band based on a (2^+).

[d] Band(G): π(7/2[413]$\otimes\pi$(3/2[301]).

[e] Band(H): π(1/2[420]$\otimes\pi$(9/2[404]).

γ(^{106}Mo)

E_i(level)	J^{π}_i	E_γ[†]	I_γ[‡]	E_f	J^{π}_f	Mult.	Comments
171.549	2^+	171.548 *8*	100 *2*	0.0	0^+	[E2]	B(E2)(W.u.)=102.3 *25* Mult.: consistent with (171.9γ)(θ) (1972Wi15) being Q; E2 from observed band structure. E_γ: from curved crystal spectrometer (1979Bo26); others: 171.57 *10* (1969WiZX), 171.7 (1970Ch11), 172.2 *2* (1970Jo20), 171.6 *2* (1974ClZX), 172.0 (1977YoZM).
522.32	4^+	350.69 *14*	100	171.549	2^+	[E2]	B(E2)(W.u.)=1.4×10^2 *3* The transition quadrupole moment calculated from the lifetime =3.82 *50*.
710.48	2^+	538.88 *12*	100 *20*	171.549	2^+		
		710.54 *9*	73 *27*	0.0	0^+		
885.17	3^+	174.60 *10*	100	710.48	2^+		
		362.80 *10*		522.32	4^+		
		713.60 *14*		171.549	2^+		
956.55	(0^+)	785.00 *20*	100	171.549	2^+		
1033.34	6^+	511.20 *25*	100	522.32	4^+	[E2]	B(E2)(W.u.)=1.3×10^2 *6* The transition quadrupole moment calculated from the lifetime =3.39 *50*.
1067.77	4^+	182.60 *30*		885.17	3^+		
		357.40 *20*		710.48	2^+		
		545.52 *10*	67 *33*	522.32	4^+		
		896.23 *10*	100 *56*	171.549	2^+		
1149.84	(2^+)	978.2 *3*		171.549	2^+		

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{106}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.	Comments
1149.84	(2+)	1150.0 3		0.0	0+		
1279.9		1108.3 5	100	171.549	2+		
1306.81	5+	239.1 1		1067.77	4+		
		273.5 3		1033.34	6+		
		421.5 2		885.17	3+		
		784.4 1		522.32	4+		
1434.73	4+	367.0 3		1067.77	4+		
		549.6 1	53 18	885.17	3+		
		724.5 2	100 35	710.48	2+		
		912.3 3		522.32	4+		
		1263.1 3		171.549	2+		
1536.46	(4+)	386.7 3		1149.84	(2+)		
		1014.1 3		522.32	4+		
		1364.9 3		171.549	2+		
1563.25	6+	256.4 3		1306.81	5+		
		495.6 2		1067.77	4+		
		529.9 1		1033.34	6+		
		1041.2 3		522.32	4+		
1657.64	5+	223.0 1		1434.73	4+		
		350.7 3		1306.81	5+		
		589.9 1		1067.77	4+		
		772.4 1		885.17	3+		
1688.26	8+	654.9 1	100	1033.34	6+	[E2]	B(E2)(W.u.)=89 12
1817.22	(3−)	931.6 3		885.17	3+		
		1107.0 3		710.48	2+		
1868.08	7+	305.5[#]		1563.25	6+		
		561.2 2		1306.81	5+		
		834.8 2		1033.34	6+		
1910.30	6+	252.5 2		1657.64	5+		
		475.4 2		1434.73	4+		
		603.5 1		1306.81	5+		
		842.5 1		1067.77	4+		
1936.82	(4−)	119.5 3		1817.22	(3−)		
		869.1 1		1067.77	4+		
		1051.6 1		885.17	3+		
		1414.4 3		522.32	4+		
1952.20	(5−)	294.6 3		1657.64	5+		
		517.5 1		1434.73	4+		
		884.4 3		1067.77	4+		
2014.73	(6+)	478.3 3		1536.46	(4+)		
		981.3 3		1033.34	6+		
		1492.4 3		522.32	4+		
2090.40	(5−)	153.6 3		1936.82	(4−)		
		273.1 3		1817.22	(3−)		
		783.6 3		1306.81	5+		
		1022.6 3		1067.77	4+		
		1057.1 3		1033.34	6+		
2142.50	(6−)	190.4 2		1952.20	(5−)		
		231.7 3		1910.30	6+		
		484.8 3		1657.64	5+		
2146.81	(5−)	1113.5 3		1033.34	6+		
		1624.4 3		522.32	4+		
2194.27	8+	326.1		1868.08	7+		
		506.2 4		1688.26	8+		E_γ: 508.9 from 2002Ha46 in ^{252}Cf SF decay.
		631.0 1		1563.25	6+		

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{106}Mo)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ‡	E_f	J^π_f	Mult.	Comments
2194.27	8^+	1160.9 *2*		1033.34	6^+		E_γ: 1162.6 from 2002Ha46 in ^{252}Cf SF decay.
2199.66	7^+	289.3 *1*		1910.30	6^+		
		542.1 *1*		1657.64	5^+		
		636.4 *3*		1563.25	6^+		
		892.8 *3*		1306.81	5^+		
2276.32	(6^-)	185.9 *3*		2090.40	(5^-)		
		339.4 *2*		1936.82	(4^-)		
		713.1 *1*		1563.25	6^+		
		969.5 *1*		1306.81	5^+		
		1243.0 *1*		1033.34	6^+		
2302.71	(5^+)	1269.4 *3*		1033.34	6^+		
		1780.3 *3*		522.32	4^+		
2368.89	(7^-)	226.5 *2*		2142.50	(6^-)		
		416.7 *1*		1952.20	(5^-)		
		458.6 *4*		1910.30	6^+		
2472.4	10^+	784.1 *3*	100	1688.26	8^+	[E2]	B(E2)(W.u.)=93 *13*
2498.84	(7^-)	222.5 *1*		2276.32	(6^-)		
		408.4 *3*		2090.40	(5^-)		
		935.6 *1*		1563.25	6^+		
2520.93	8^+	321.3 *3*		2199.66	7^+		
		610.6 *3*		1910.30	6^+		
2559.2	9^+	690.9 *5*		1868.08	7^+		
		871.0 *3*		1688.26	8^+		E_γ: 869.8 (2002Ha46) in ^{252}Cf SF decay.
2565.98	(8^+)	551.2 *3*		2014.73	(6^+)		
		877.7 *1*		1688.26	8^+		E_γ: 876.7 (2002Ha46) in ^{252}Cf SF decay.
		1532.7 *2*		1033.34	6^+		E_γ: 1531.6 (2002Ha46) in ^{252}Cf SF decay.
2566.04	(7^-)	419.2 *3*		2146.81	(5^-)		
		877.8 *3*		1688.26	8^+		
		1532.7 *3*		1033.34	6^+		
2629.14	(8^-)	260.4 *3*		2368.89	(7^-)		
		430.3 *6*		2199.66	7^+		E_γ: 429.7 from 2002Ha46 in ^{252}Cf SF decay.
		486.4 *2*		2142.50	(6^-)		
2713.15	(7^+)	410.4 *3*		2302.71	(5^+)		
		1024.9 *3*		1688.26	8^+		
		1679.8 *3*		1033.34	6^+		
2746.50	(8^-)	247.9#		2498.84	(7^-)		
		470.2 *1*		2276.32	(6^-)		
		878.6 *4*		1868.08	7^+		E_γ: 881.6 from 2002Ha46 in ^{252}Cf SF decay.
		1058.2 *1*		1688.26	8^+		
2877.5	9^+	677.8 *3*		2199.66	7^+		
2921.37	(9^-)	292.2 *1*		2629.14	(8^-)		
		552.5 *1*		2368.89	(7^-)		E_γ: 552.8 from 2002Ha46 in ^{252}Cf SF decay.
2950.72	10^+	756.4 *3*		2194.27	8^+		
		1262.5 *3*		1688.26	8^+		
3041.5	(9^-)	295.0#		2746.50	(8^-)		
		542.7 *3*		2498.84	(7^-)		
3132.2	(9^-)	566.1 *3*		2566.04	(7^-)		
		1443.9 *3*		1688.26	8^+		
3184.8	(10^+)	618.8 *3*		2565.98	(8^+)		
3238.35	(10^-)	317.0 *3*		2921.37	(9^-)		
		609.2 *2*		2629.14	(8^-)		
3253.7	(9^+)	540.5 *3*		2713.15	(7^+)		
		1565.4 *3*		1688.26	8^+		
3263.9	10^+	743.0 *3*		2520.93	8^+		

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{106}Mo)$ (continued)

E_i(level)	J^π_i	E_γ [†]	E_f	J^π_f	Mult.	Comments
3349.7	(10⁻)	308[#]	3041.5	(9⁻)		
		603.2 *3*	2746.50	(8⁻)		E_γ: 604.0 (2002Ha46) in ^{252}Cf SF decay.
3369.1	12⁺	896.7 *5*	2472.4	10⁺	[E2]	B(E2)(W.u.)=89 *10*
3369.6	11⁺	810.4 *10*	2559.2	9⁺		
3591.9	(11⁻)	670.5 *3*	2921.37	(9⁻)		
3682.2	11⁺	804.7 *3*	2877.5	9⁺		
3707.6	(11⁻)	666.0 *3*	3041.5	(9⁻)		
3810.5	12⁺	859.8 *10*	2950.72	10⁺		
3843.6	(11⁻)	711.4 *3*	3132.2	(9⁻)		
3928.5	(11⁺)	674.8 *3*	3253.7	(9⁺)		
3945.3	(12⁻)	353.5[#]	3591.9	(11⁻)		
		706.9	3238.35	(10⁻)		
4049.3	(12⁻)	699.6[#]	3349.7	(10⁻)		
4132.5	(12⁺)	868.6 *3*	3263.9	10⁺		
4291.9	13⁺	922.3 *10*	3369.6	11⁺		
4362.0	14⁺	992.9 *10*	3369.1	12⁺		
4371.8	(13⁻)	779.9	3591.9	(11⁻)		
4596.1	13⁺	913.9 *20*	3682.2	11⁺		
4751.4	14⁺	941.8 *20*	3810.5	12⁺		
4752.1	(14⁻)	806.8[#]	3945.3	(12⁻)		
4756.3	14⁺	945.8 *6*	3810.5	12⁺		
5307.3	15⁺	1017.3 *20*	4291.9	13⁺		
5412.8	16⁺	1051.5 *20*	4362.0	14⁺		
5425.2	16⁺	1064.2	4362.0	14⁺		
5766.8	16⁺	1015.4 *20*	4751.4	14⁺		
6392?	17⁺	1085.0[@] *20*	5307.3	15⁺		
6501	18⁺	1087.6 *20*	5412.8	16⁺		
6867	18⁺	1100.6 *20*	5766.8	16⁺		
7660	20⁺	1160.4 *20*	6501	18⁺		

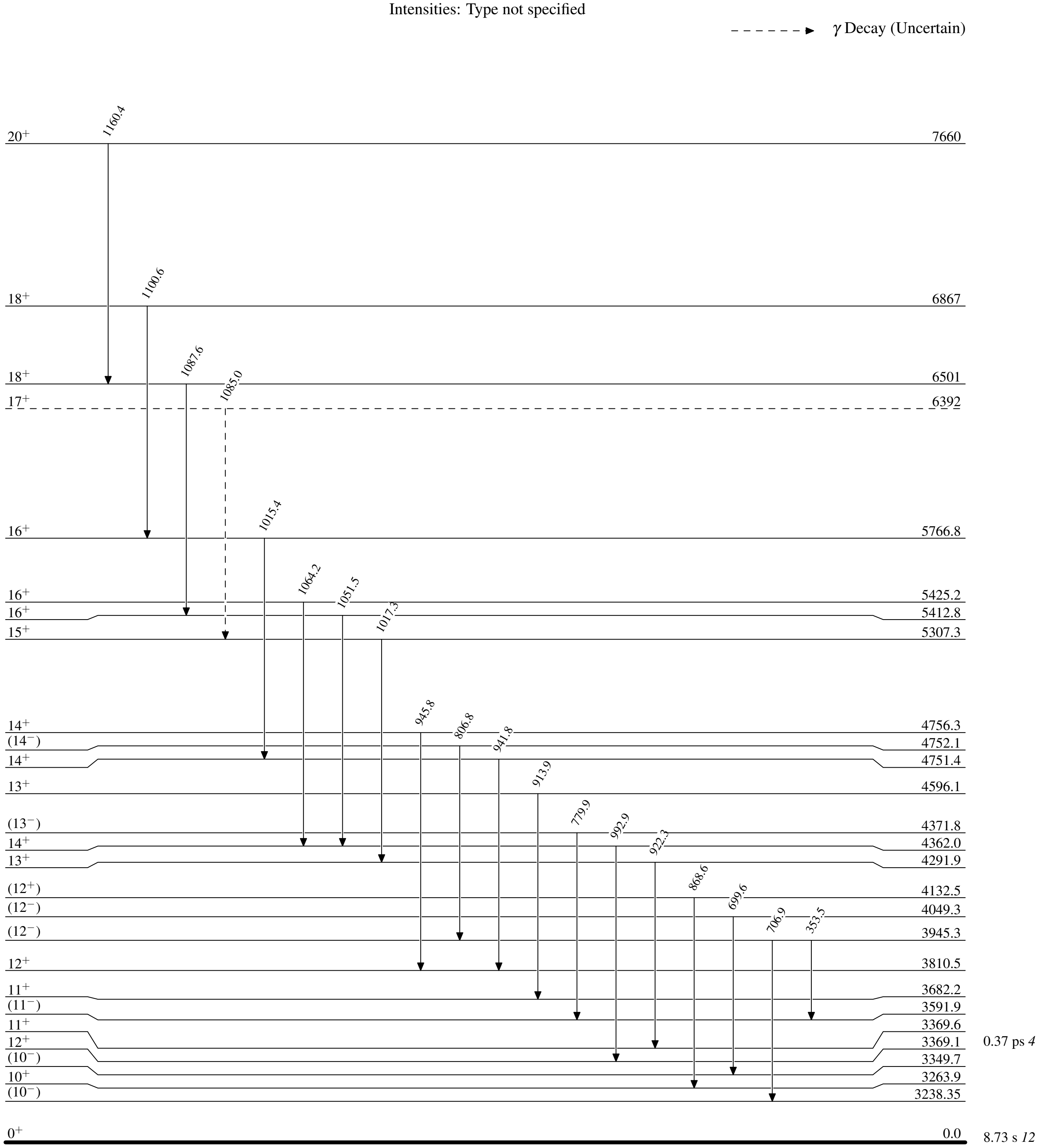
† γ energies calculated as weighted averages of values from ^{106}Nb β-decay, ^{248}Cm SF Decay and ^{252}Cf SF Decay.
‡ Branching ratios are from ^{106}Nb β^- decay.
# From ^{252}Cf SF Decay (2006Jo05).
@ Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Legend

Level Scheme

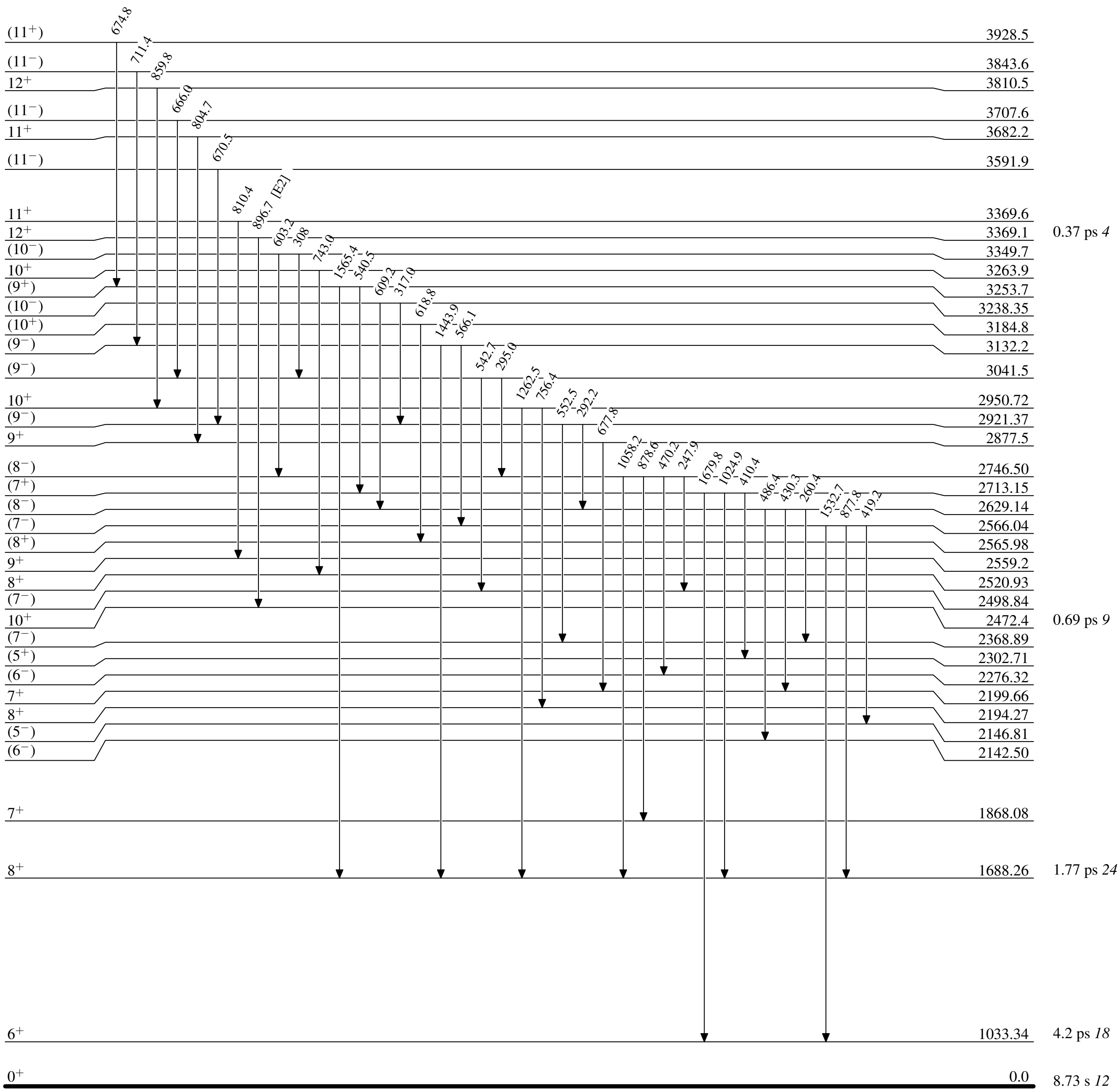
Intensities: Type not specified



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

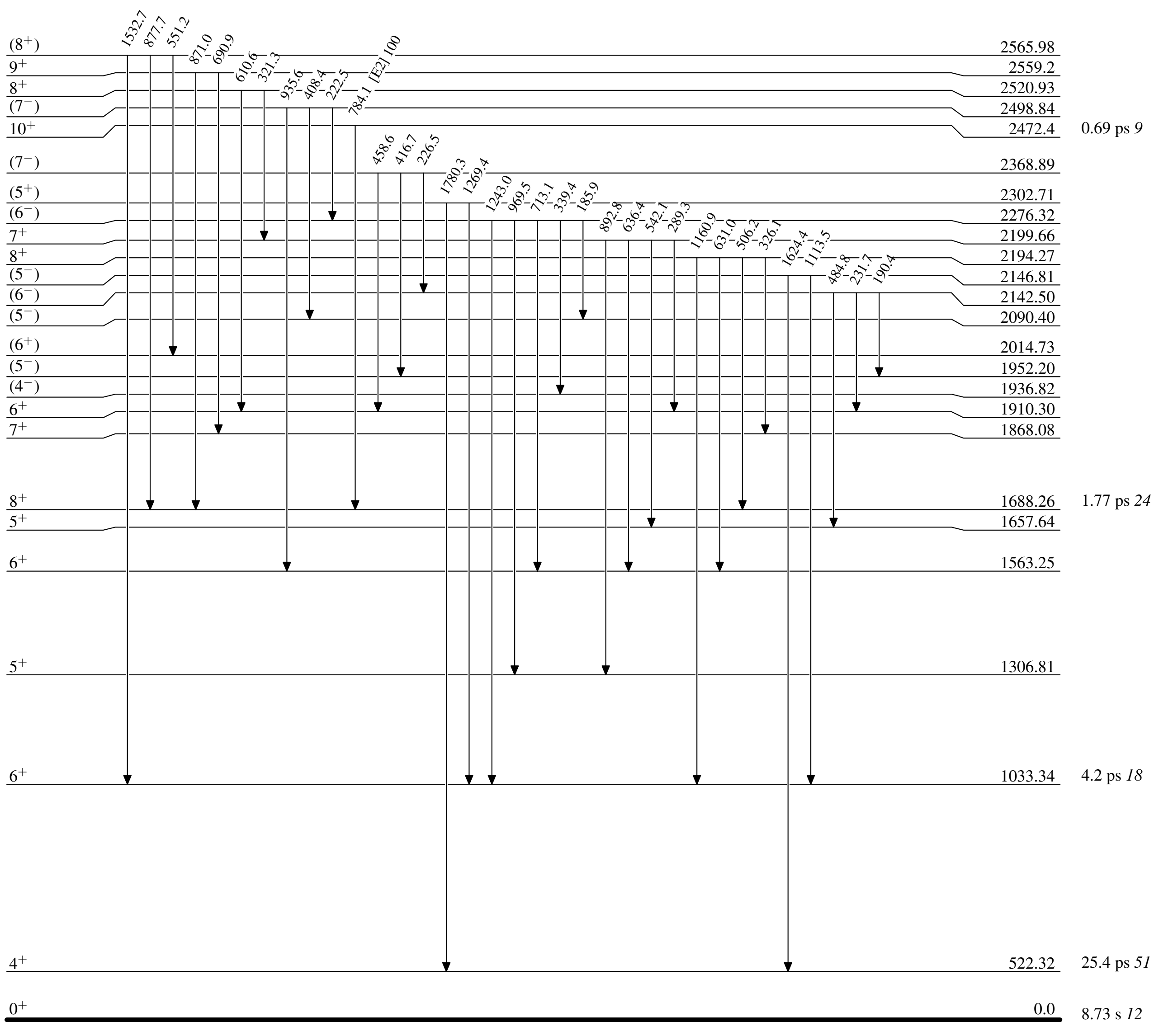


$^{106}_{42}Mo_{64}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

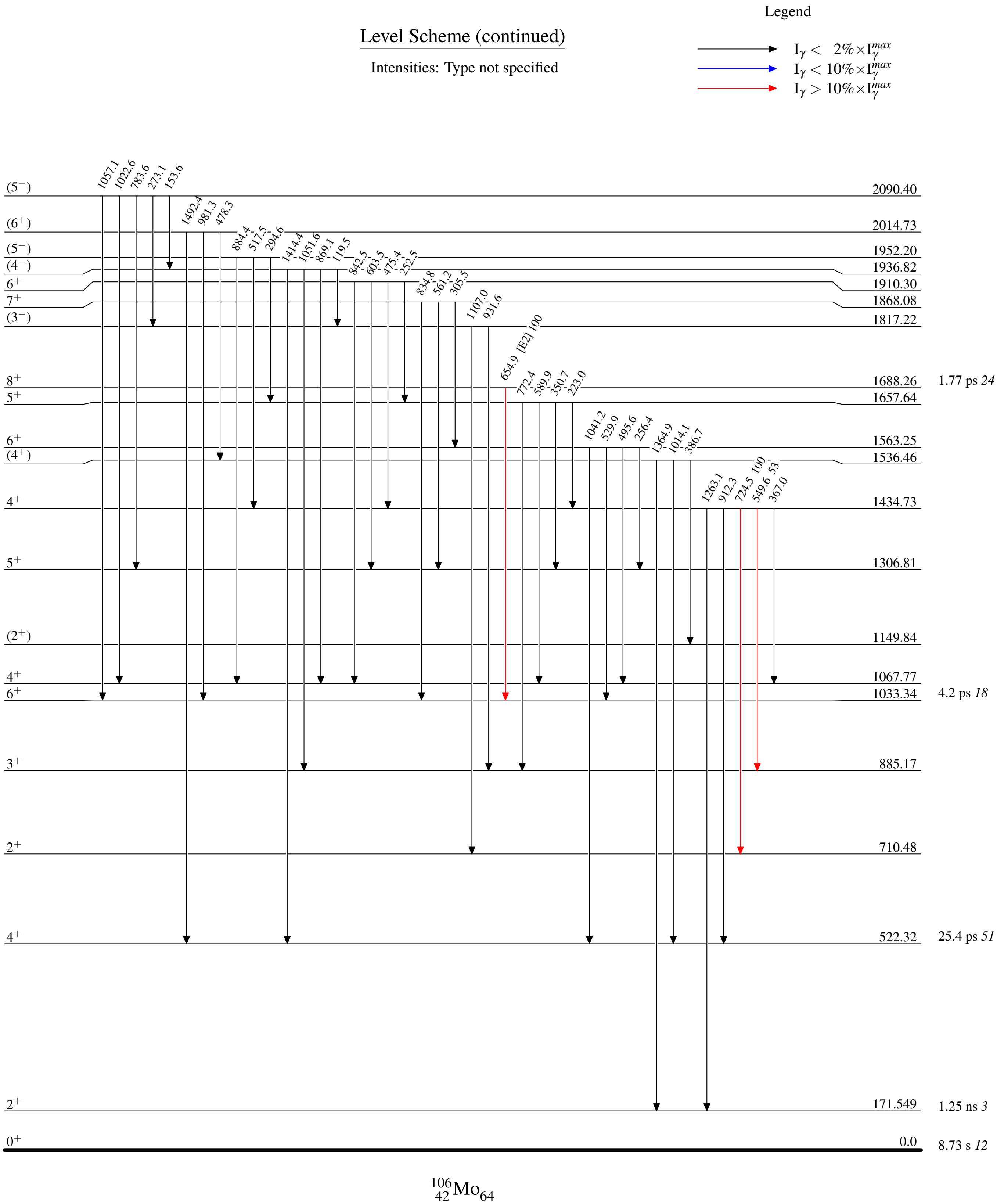


$^{106}_{42}Mo_{64}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



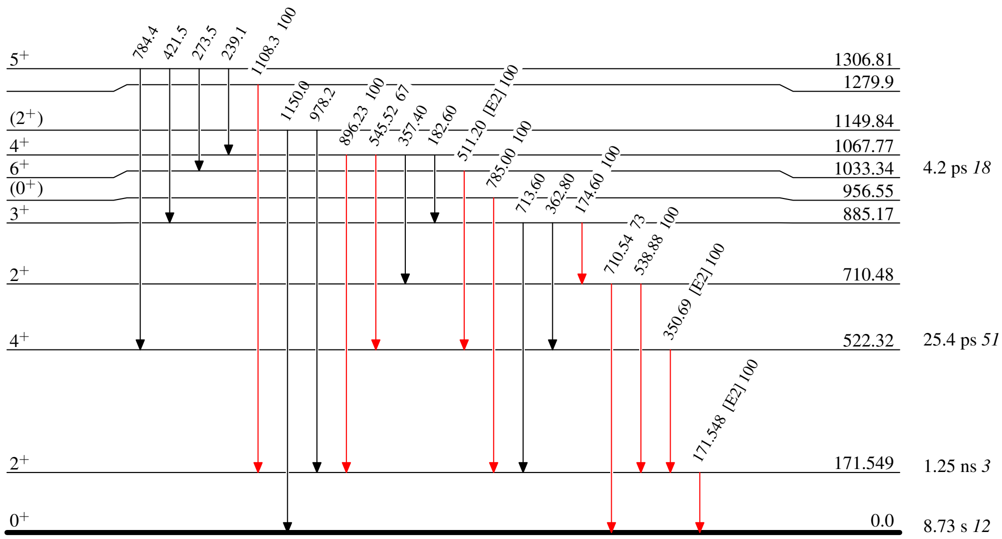
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

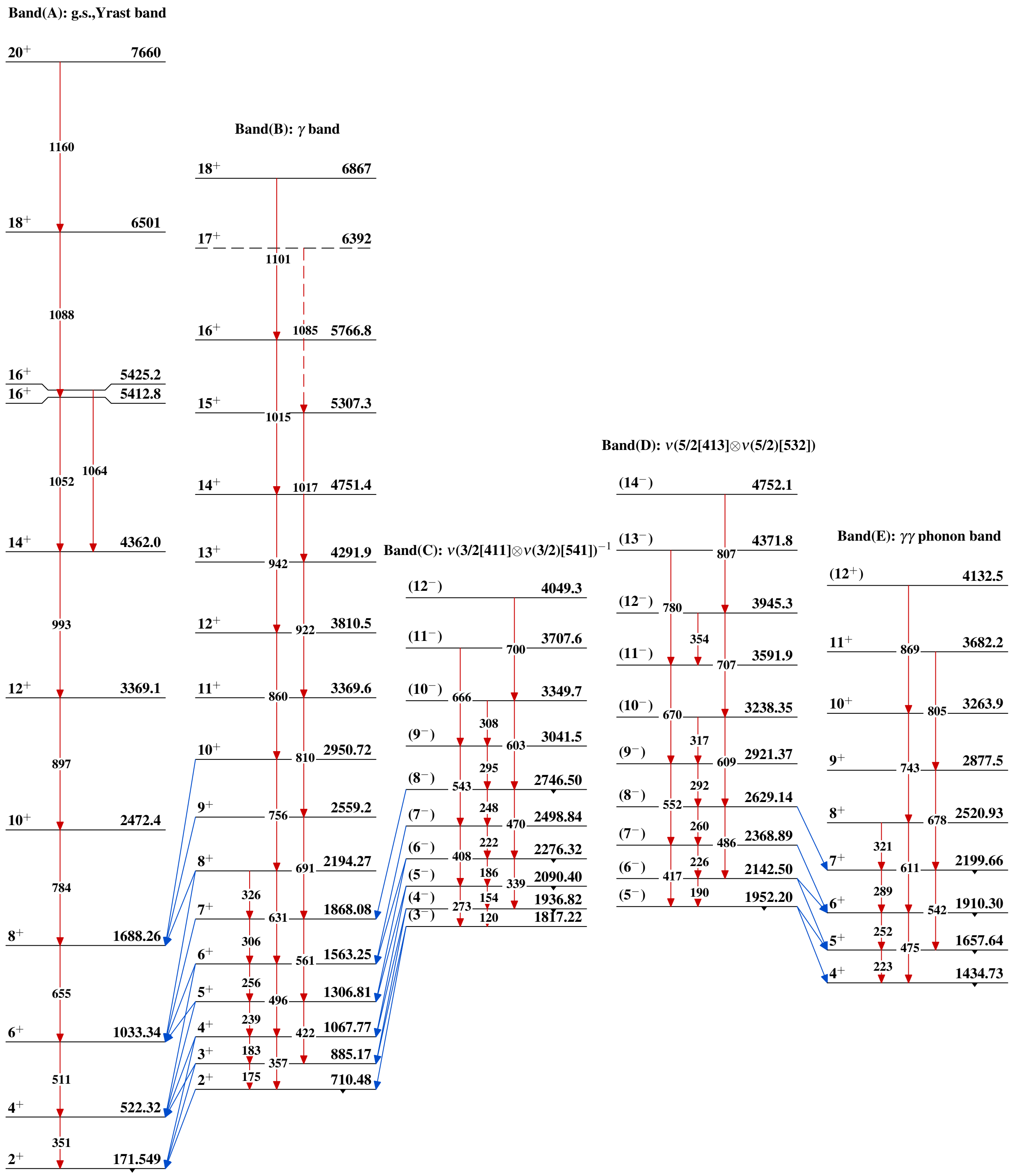
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



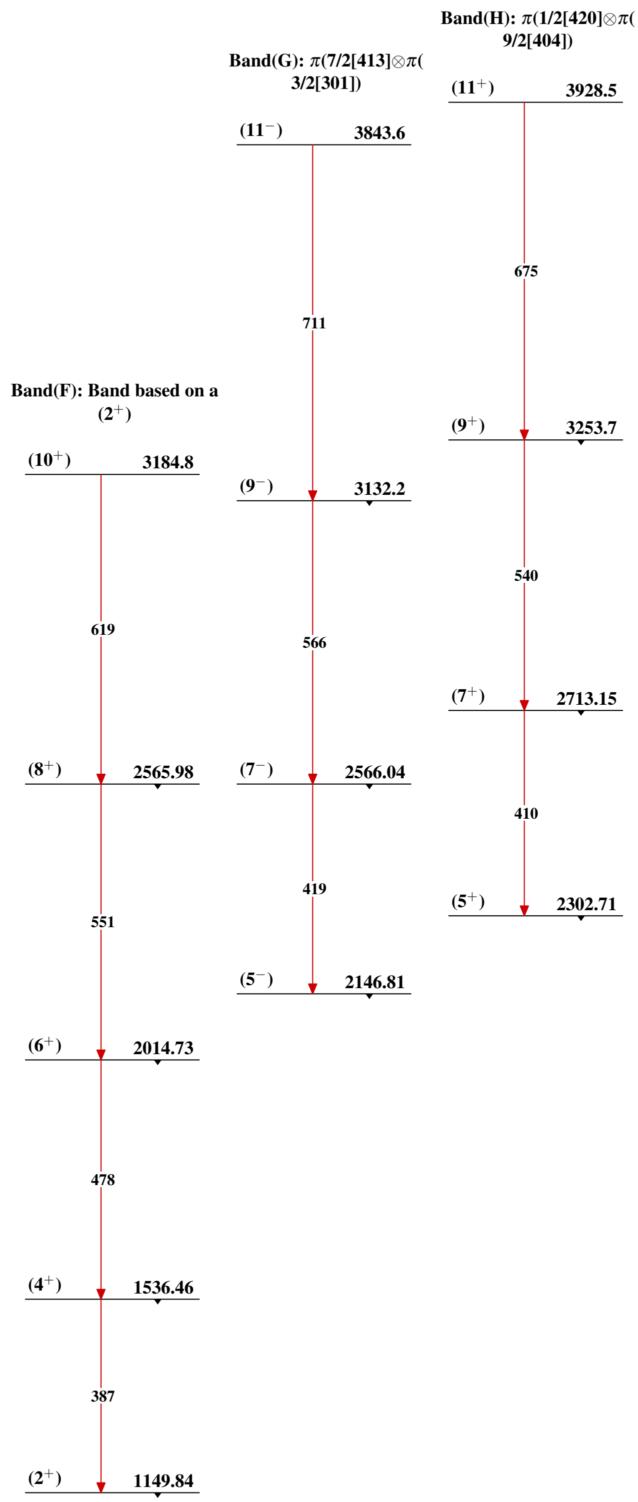
$^{106}_{42}Mo_{64}$

Adopted Levels, Gammas



$^{106}_{42}Mo_{64}$

Adopted Levels, Gammas (continued)



$^{106}_{42}Mo_{64}$