Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 145, 25 (2017)	1-Jul-2017

Q(β^-)=1357.8 *9*; S(n)=5925.44 *15*; S(p)=9734 *5*; Q(α)=−2735.1 *9* 2017Wa10
Additional information 1.
Other reactions:
^{98}Mo(n,γ): 2015Ud02, 2015Wa18, 2014Ba33, 2014Kh01, 2013Jo07, 2013Me11, 2013Li43, 2011Vo14, 2010Bu06, 2010El02, 2010La04, 2010Me14, 2009Bh06, 2009Ng01, 2003CaZW, 2002Ab03, 1998Bu28.
^{99}Tc(n,p): 2009Re01.
^{102}Ru(n,α): 2007Lu19.
^{239}Pu(n,F): 2014Ch34, 2012Th05, 2010ChZX, 2010Se15 2005AdZZ.
^{100}Mo(n,2n): 2014NaZX, 2014SeZW, 2014Wo03, 2013Na16, 2010Mi14, 2005Re09, 2003Th11.
U(n,X): 2005MiZZ.
^{209}Bi(γ,F): 2009Na10.
^{100}Mo(γ,n): 2015Ro01, 2013Ej03,2013Sz04, 2013Ut02, 2012Be22, 2011Dz02, 2010Er07, 2009Zh22, 2006Er06, 2005KhZV, 1993Da27.
Mo(n,F), (n,γ), (n,2n): 2011Ad18.
^{100}Mo(γ,p): 2014Is10.
^{100}Mo(p,np): 1999Sc11.
^{100}Mo(p,X): 2015Pu02, 2014Ma77, 2014Wo03, 2010Le13, 2003Ta09, 1993La29.
^{100}Mo(d,X): 2011Ta01.
Mo(α,X): 2012Di10, 2012Ta04, 2011Ch33,
^{136}Xe(p,X): 2007Na31.
^{241}Am(p,X) E=600 MeV: 2002Ad12.
Pb(p,X): 2001Gl05.
Pb(p,F): 2001Ku28.
Pb(γ,F): 2011Na09.
^{235}U, ^{238}U(n,F): 2014Fa17, 2010Ad13.
^{235}U(n,F): 2013Me05, 2013Ri03.
^{237}Np(d,X): 2007KrZY.
^{96}Zr(α,n): 2015Pu02, 2014Pu02, 2014Wo03, 2006Av02, 1995Ch83.
^{181}Ta(^{20}Ne,F): 2006Tr05.
^{232}Th(^{7}Li,F): 2010RE01, 2002Tr09.
^{232}Th(γ,F): 2014Na02, 2012Na04, 2010De01.
^{232}Th(p,X): 2013En02.
^{232}Th(p,F): 2012Ab07.
^{232}Th(^{20}Ne,F): 2013Tr07.
^{100}Mo(^{32}S,^{33}S): 2002Ma01.
^{96}Mo(^{32}S,^{29}S): 1995He17.
Neutron resonances: 2006MuZX.
^{252}Cf spontaneous fission: 2013Mc04.

^{99}Mo Levels

L transfer values in ^{97}Mo(t,p) often do not agree with adopted J^π values; either they are incorrect or belong to a different level.

Cross Reference (XREF) Flags

A	^{99}Nb β^- decay (15.0 s)	F	^{98}Mo(d,p)	K	^{100}Mo(^{3}He,α)
B	^{99}Nb β^- decay (2.5 min)	G	^{98}Mo(d,pγ)	L	^{96}Zr(α,nγ)
C	^{97}Mo(t,p)	H	^{100}Mo(γ,nγ')	M	^{100}Mo(pol p,d)
D	^{98}Mo(n,γ) E=thermal	I	^{100}Mo(p,d),(d,t)	N	^{100}Mo(^{136}Xe,Xγ)
E	^{98}Mo(n,γ) E=resonance	J	^{100}Mo(d,t),(pol d,t),	O	^{27}Al(^{178}Hf,Xγ)

E(level)[‡]	J^{π}[#]	$T_{1/2}$	XREF	Comments
0.0	$1/2^+$	65.924 h *6*	ABCDEFGHI LMNO	%β^-=100 μ=+0.375 *3* (2014StZZ) J^{π}: atomic-beam magnetic resonance (1974Ru05); L(d,t)=0. $T_{1/2}$: Value corrected for ionization chamber source-holder instability (2014Un01). $T_{1/2}$: Other values: 65.976 h *24* (2004Wo02), 65.974 h *14* (2004Sc04), 65.924 h *5* (2002Un02), 65.945 h *3* (1980Ho17), 65.924 h *6* (1982HoZJ), 65.942 h *12* (1983Wa26), 66.02 h *1* (1972Em01), 66.16 h *30* (1979Di07), 66.5 h *2* (1971Ba28), 66.69 h *6* (1968Re04), 65.98 h *10* (1967Ba37), 66.7 h *1* (1965Cr03), 67.2 h *2* (1958Pr71), 66.96 h *9* (1957Wr37), 66.00 h *15* (1957Gu62). Other: 2011Ch51, 2000Ch01.
97.785 *3*	$5/2^+$	15.5 μs *2*	ABCDEFGHIJKLMNO	μ=−0.775 *5* (2014StZZ) J^{π}: L(t,p)=0 on $5/2^+$ target. $T_{1/2}$: from (γ,γ') (1978Ba18). Other: 16.9 μs *14* from pulsed particle beam experiment (1978Ho06), 13 μs *2* from $\beta\gamma$(t) in ^{99}Nb β^- decay (2.56 min) (1971Ca18), 16.3 μs *10* from ^{100}Mo(γ,nγ') (1958Du80). μ: From g=−0.310 *2* (average of g=−0.3110 *14* from (α,nγ) (liquid target) and g=−0.3092 *10* from (d,pγ) (heated solid target)) (1978Ra21).
235.508 *8*	$7/2^+$	0.87 ns *15*	ABCD FGHIJKLMNO	J^{π}: L(p,d)=4; 138γ (M1) to $5/2^+$. $T_{1/2}$: from centroid shift of $\beta\gamma$(t) in β^- decay (15 s) (1982Ba36).
351.22 *6*	$3/2^+$	0.23 ns *17*	ABCDEFG IJ LM	$T_{1/2}$: From 1997Lh01. J^{π}: L(p,d)=2; 351γ M1(+E2) to $1/2^+$.
525.193 *16*	$1/2^+$		BCDEFG IJ LM	J^{π}: L(d,t)=0.
548.73 *8*	$3/2^+$	0.030 ns *25*	ABCDEFG J L	$T_{1/2}$: From 1997Lh01. J^{π}: L(d,t)=2; vector analyzing power in (pol d,p) determines J=3/2. 549γ M1+E2 to $1/2^+$.
615.02 *9*	$5/2^+$		ABCDEFG IJKLM	J^{π}: L(d,t)=2; vector analyzing power in (pol d,t) determines J=5/2.
631.78 *12*	$3/2^+$		BCDE G L	J^{π}: 632γ M1(+E2) γ to $1/2^+$; 534γ to $5/2^+$ is dipole, ΔJ=1.
684.10[†] *19*	$11/2^-$	0.76 μs *6*	A FGHIJKLMNO	XREF: F(688). J^{π}: L(p,d)=5; excit; $\gamma(\theta)$ for 449γ is isotropic. $T_{1/2}$: from (1978Ba18). Other: 0.75 μs *30* in (d,pγ) (1975Di15).
698.09 *16*	($7/2^+$)		A C G J L	J^{π}: from $\gamma(\theta)$ for γ's to $7/2^+$, $5/2^+$ and γ from $9/2^+$; note, however, that L(d,t)=3 and vector-analyzing power in (pol d,p) suggest $J^{\pi}=5/2^-$.
752.41 *22*	($3/2^+$,$5/2^+$)		Bc G I	J^{π}: L=2 in (p,d).
754.18 *20*	$7/2^-$		ABcD G J L	J^{π}: 656γ E1 to $5/2^+$ note, also, that L(d,t)=3 and vector analyzing power in (pol d,t) suggest $J^{\pi}=7/2^-$. See 1988Du02 for discussion of J^{π}.
792.93 *12*	$3/2^+$		BC E G IJ M	XREF: J(797). J^{π}: 442γ M1 to $3/2^+$, 793γ (M1, E2) to $1/2^+$. L(d,t)=2; vector analyzing power in (pol d,p).
798			F	L(d,p)=(3).
865.87 *12*	($7/2^+$)		A KL	XREF: K(858). J^{π}: From logft=6.1 in β^- feeding in ^{99}Nb (15.0 s) β^- decay.
890.58 *14*	$3/2^+$		BC EFG IJ	XREF: F(896)J(894). J^{π}: 890γ M1,E2 to $1/2^+$, L(d,t)=2; vector-analyzing power in (pol d,p).
905.43 *14*	$1/2^+$		BcDE G J LM	XREF: J(912). J^{π}: L(d,t)=0.
905.99 *19*	$(9/2)^+$		A c G L	J^{π}: 808γ E2 to $5/2^+$, 671γ M1+E2 to $7/2^+$.
924 *12*	$3/2^+$,$5/2^+$		F I	XREF: F(913). J^{π}: L=2 in (p,d) and (d,t).
944.61 *14*	$5/2^+$		BC E G J LM	XREF: J(951).

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Adopted Levels, Gammas (continued)

^{99}Mo Levels (continued)

E(level)[‡]	Jπ[#]	XREF	Comments
			Jπ: L(t,p)=0 on 5/2+ target.
952	–	F	Jπ: L(d,p)=3.
1025.68 *12*	(5/2+)	BcDE G I L	Jπ: (M1,E2) γ rays to 1/2+ and 5/2+; γ ray to 7/2(+), 7/2−.
1030 *3*	3/2−	FG IJ	Jπ: L(d,t)=1; vector-analyzing power in (pol d,t).
1048.03 *16*	7/2+	A c G J LM	Jπ: 433γ M1+E2 to 5/2+, 697γ E2 to 3/2+; note, however, that L(d,t)=3 and vector analyzing power in (pol d,p) suggest Jπ=5/2−.
1142.81 *12*	(7/2+)	A L	Jπ: From logft=5.9 in β− feeding in ^{99}Nb (15.0 s) β− decay. Additional information 2.
1148 *3*	5/2−,7/2−	J	Jπ: L(d,t)=3.
1165.4[†] *11*	(15/2)−	I LMNO	Jπ: 481γ E2 to 11/2−; excit.
1167.43 *21*	5/2+	BC E G IJ	XREF: J(1173). Jπ: L(t,p)=0 on 5/2+ target.
1195.6 *11*		c L	XREF: c(1198).
1197.69 *23*	3/2+	BcD J M	XREF: c(1198)J(1201). Jπ: L(d,t)=2; vector-analyzing power in (pol d,t).
1254.2 *5*	5/2+	E G J	XREF: J(1258). Jπ: L(d,t)=2; vector-analyzing power in (pol d,p).
1261	1/2+	F M	Jπ: L(d,p)=0.
1272.3 *7*		A c L	XREF: c(1278).
1280.4 *5*		c G	XREF: c(1278).
1283.0 *4*		Bc L	
1314.03 *22*	(11/2)+	A L	Jπ: 1078γ E2 to 7/2+, 408γ M1+E2 to (9/2)+.
1342.76 *15*	(7/2)+	IJ L	XREF: I(1320)J(1352). Jπ: L=4 in (pol p,d), (d,t), (d,p), ^{99}Nb (15.0 d) β− decay.
1352.7 *6*		J	Jπ: L(p,d)=4.
1354.3 *3*		B L	
1367.6 *11*		L	
1382.6 *4*	3/2+,5/2+	Bc EF M	XREF: c(1397). Jπ: L(d,p)=2.
1401.31 *17*	(7/2+)	A c L	XREF: c(1397). Jπ: β− feeding in ^{99}Nb (15.0 s) β− decay.
1404.8 *15*	(17/2)	L	Jπ: excit; 239γ dipole to 15/2− gives ΔJ=1.
1442.1 *5*	(3/2,5/2)+	BC G	Jπ: L(t,p)=2; log $f^{1u}t$=9.6, log *ft*=8.3 from 1/2−.
1449.5 *10*	3/2+,5/2+	f i L	Jπ: L(p,d) and L(d,t)=2.
1455.3 *21*	3/2+,5/2+	Ef i	Jπ: L(p,d)=2.
1464.5 *6*	(9/2)+	A c L	Jπ: 1229γ M1+E2 to 7/2+; 1367γ to 5/2+; no γ ray to J≤3/2.
1466.5 *12*	1/2+,3/2+,5/2	D	
1471.7 *8*	(11/2)+	L	Jπ: 566γ M1+E2 to (9/2)+; excit.
1493.50 *24*	5/2+	B F iJKLM	XREF: J(1497). Jπ: L(d,t)=2; vector analyzing power in (pol d,t).
1533.1 *21*	3/2+,5/2+	C E i	XREF: C(1546). Jπ: L(p,d)=2.
1536.5 *11*		A C L	XREF: C(1518).
1545 *3*	5/2+	F J	Jπ: L(d,t)=2; vector analyzing power in (pol d,t).
1560.59 *22*	1/2,3/2,5/2+	B E	Jπ: log $f^{1u}t$=8.7, log *ft*=7.5 from 1/2−.
1571.3 *4*	1/2,3/2,5/2+	Bc E G	Jπ: log $f^{1u}t$=9.5, log *ft*=8.3 from 1/2−.
1580 *3*	3/2+	c J	Jπ: L(d,t)=2; vector analyzing power in (pol d,p).
1618 *10*	(3/2−,5/2−,7/2−)	C K	XREF: C(1615)K(1621). Jπ: L(t,p)=(1). L(^{3}He,α)=4 is not consistent with wih Jπ assignment.
1634.8 *21*	3/2+,5/2+	C E L	XREF: C(1645). Jπ: L(t,p)=4 on 5/2+ target; γ from p-wave resonance.
1639.37 *25*	9/2−	A I L	Jπ: L(p,d) and L(d,t)=5, 1403.7γ to 7/2+.
1661.1 *25*		C EF	
1675.5 *11*		L	
1679.5 *11*	(13/2+)	L	Jπ: excit; γ to 9/2+ is ΔJ=2, E2.
1682.2 *4*	(3/2+,5/2+)	Bc	Jπ: log $f^{1u}t$=9.1, log *ft*=7.9 from 1/2−; γ to 7/2+.

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Adopted Levels, Gammas (continued)

^{99}Mo Levels (continued)

E(level)[‡]	Jπ[#]	XREF	Comments
1710.2 *19*	3/2+,5/2+	c E I	Jπ: L(p,d)=2.
1722	1/2−,3/2−	C F	Jπ: L(d,p)=1.
1741.5 *21*		E	
1755	3/2+,5/2+	F M	Jπ: L(d,p)=2.
1778	5/2−,7/2−	K	Jπ: L(^{3}He,α)=3.
1799 *7*	7/2+,9/2+	C F I	E(level): weighted average of 1793 *10* from (p,d) and 1806 *10* from (t,p). Jπ: L(p,d)=4.
1813.4 *3*		A	
1828 *10*	+	C	Jπ: L(t,p)=2.
1845		F	
1857.91 *16*	(9/2,11/2)+	A	Jπ: 1622γ to 7/2+.
1858.0[†] *15*	(19/2−)	LMNO	Jπ: excit; γ to (15/2−) is ΔJ=2, E2.
1884.9 *15*	(15/2−)	L	Jπ: excit.
1893.39 *16*	(3/2−)	BC E IJK	XREF: J(1893). Jπ: log *ft*=6.6, log $f^{1u}t$=7.7 from 1/2−. L(p,d)=1. L(d,t)=3 is probably in error. γ ray to (5/2+) states.
1909 *10*	1/2−,3/2−	C I	Jπ: L(p,d)=1.
1931.6 *12*	1/2+	DEF j	Jπ: L(d,p)=0.
1934 *12*	7/2+,9/2+	C I	Jπ: L(p,d)=4.
1949.5 *21*	1/2+	C EF J M	XREF: J(1944). Jπ: L(d,t)=0.
1965	1/2+	A F	Jπ: L(d,p)=0.
1987.4 *3*		A	
2000 *15*		C	
2024 *15*	3/2−,5/2−,7/2−	C	Jπ: L(t,p)=1.
2055.5 *21*	3/2−,5/2−,7/2−	A C E	Jπ: L(t,p)=1.
2059.68 *24*		A	
2078	9/2−,11/2−	K	Jπ: L(^{3}He,α)=5.
2103 *20*	7/2+,9/2+	I	Jπ: L(p,d)=4.
2134.46 *18*	3/2−	B E I	XREF: I(2155). Jπ: L(p,d)=1; γ to 5/2+.
2160 *3*	7/2+,9/2+	J M	Jπ: L(d,t)=4.
2174.67 *23*	9/2−,11/2−	A	
2179.5 *25*		E	
2218.5 *25*	−	E J	Jπ: L(d,t)=3.
2220.9 *15*	(17/2−)	L	Jπ: excit; γ to 15/2− is ΔJ=(1), M1+E2.
2232.2 *15*	(15/2)	L	Jπ: γ to 15/2− is ΔJ=0, (D+Q).
2299.5 *25*		E	
2318.5 *21*		E i	Jπ: L(p,d)=2 for E=2330 *10*.
2340.27 *25*	1/2,3/2	B E i M	Jπ: log *ft*=6.3, log $f^{1u}t$=7.2 from 1/2−. J^π=3/2+ if level is identical to L(p,d)=2 level observed at 2330 keV *10*.
2409.5 *15*	(17/2+)	L	Jπ: γ to (13/2+) is ΔJ=2, E2; no γ to J<13/2.
2436 *10*	1/2−,3/2−	I M	Jπ: L(p,d)=1.
2441.1 *15*	(13/2)	L	Jπ: γ to (13/2+) is ΔJ=(0), D+Q.
2482 *3*	1/2+	J	Jπ: L(d,t)=0.
2517 *3*	7/2+,9/2+	J	Jπ: L(d,t)=4.
2531 *12*	1/2−,3/2−	I	Jπ: L(p,d)=1.
2594.5 *12*	1/2−,3/2−	D I M	Jπ: L(p,d)=1.
2641.23 *14*	(3/2)−	B I M	Jπ: log *ft*=5.1 from 1/2−; γ to 5/2+.
2686.94 *23*	(3/2)−	B i	Jπ: log *ft*=5.8 from 1/2−; γ to 5/2+.
2705.3[†] *8*	(23/2−)	MNO	Jπ: 845.9 γ to 19/2−.
2729.9 *3*	(3/2)−	B i	Jπ: log *ft*=5.7 from 1/2−; γ to 5/2+.
2785.77 *24*	1/2−,3/2−	B M	Jπ: log *ft*=5.6 from 1/2−.
2797 *15*	3/2+,5/2+	I	Jπ: L(p,d)=2.
2851.6 *3*	3/2−	B M	Jπ: log *ft*=5.2 from 1/2−, γ to 5/2+.

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Adopted Levels, Gammas (continued)

^{99}Mo Levels (continued)

E(level)‡	Jπ#	$T_{1/2}$	XREF	Comments
2870 *15*	$1/2^-,3/2^-$		I	Jπ: L(p,d)=1.
2925 *15*	$1/2^-,3/2^-$		I M	Jπ: L(p,d)=1.
2944.0 *6*	1/2,3/2		B	Jπ: log *ft*=6.2, log $f^{1u}t$=6.8 from $1/2^-$.
2990 *15*	$(1/2^-,3/2^-)$		I	Jπ: L(p,d)=(1).
3010.2 *8*	$(27/2^-)$	8 ns *2*	NO	$T_{1/2}$: from 2007Jo13, γγ(t). Configuration=$\nu h_{11/2}\otimes\pi g^2_{9/2}$.
3066 *15*	$3/2^+,5/2^+$		I	
3130 *15*	$(7/2^+,9/2^+)$		I	
3214 *20*	$7/2^+,9/2^+$		I	
3260 *20*			I	
3305 *20*	$(1/2^-,3/2^-)$		I	
3358 *20*	$1/2^-,3/2^-$		I	
3397 *20*	$(1/2^-,3/2^-)$		I	
3483 *20*	$7/2^+,9/2^+$		I	
3623 *25*	$(1/2^-,3/2^-)$		I	
3666 *20*	$7/2^+,9/2^+$		I	
3685.3† *13*	$(27/2^-)$		MNO	Jπ: From band assignment.
3707 *25*			I	
3753 *20*	$1/2^-,3/2^-$		I	
3817 *20*	$7/2^+,9/2^+$		I	
3918 *25*			I	
4002 *25*	$1/2^-,3/2^-$		I	
4062 *25*	$1/2^-,3/2^-$		I	
4140 *25*	$1/2^-,3/2^-$		I	
4179 *25*	$1/2^-,3/2^-$		I	
4241 *25*	$1/2^-,3/2^-$		I	
4749.3† *16*	$(31/2^-)$		MNO	Jπ: From band assignment.
5795.5† *25*	$(35/2^-)$		N	Jπ: From band assignment.
6896† *3*	$(39/2^-)$		N	Jπ: From band assignment.
8118† *3*	$(43/2^-)$		N	Jπ: From band assignment.

† Band(A): Decoupled band built on $h_{11/2}$.

‡ Level energies with ΔE<1 keV have been deduced by evaluators from least-squares fit to γ-ray energies. Levels with 1 keV<ΔE<3 keV are from primary γ rays in (n,γ). Other level energies are from (t,p), (d,p), (p,d), (d,t).

Jπ assignments are based on rotational structure and γ-ray decay patterns. Arguments for additional levels are based on radioactive decay and nuclear reaction quantities such as log ft′s, γ-ray multipolarities, reaction cross sections and angular momentum transfer. Above 3000 keV, J^π values are from L(p,d).

Adopted Levels, Gammas (continued)

γ(^{99}Mo)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[†]	δ[†d]	α[c]	Comments
97.785	5/2+	97.785[a] *3*	100[a]	0.0	1/2+	E2		1.308	B(E2)(W.u.)=0.0650 *10* α(K)=1.056 *15*; α(L)=0.209 *3*; α(M)=0.0379 *6* α(N)=0.00533 *8*; α(O)=0.0001503 *21* E_γ: From curved-crystal measurement (1979Bo26).
235.508	7/2+	137.723[a] *7*	100[a]	97.785	5/2+	(M1)		0.1040	B(M1)(W.u.)=0.0088 *16* α(K)=0.0910 *13*; α(L)=0.01072 *15*; α(M)=0.00192 *3* α(N)=0.000292 *4*; α(O)=1.619×10^{-5} *23* E_γ: From curved-crystal measurement (1979Bo26). Mult.: D from γ(θ); Δπ=no from level scheme.
351.22	3/2+	253.5[a] *1*	100[a] *6*	97.785	5/2+	(M1)		0.0207	α(K)=0.0182 *3*; α(L)=0.00210 *3*; α(M)=0.000376 *6* α(N)=5.71×10^{-5} *8*; α(O)=3.21×10^{-6} *5* B(M1)(W.u.)=0.0033 *25*
		351.2[a] *1*	75[a] *5*	0.0	1/2+	M1(+E2)	0.2 *2*	0.0093 *6*	α(K)=0.0082 *5*; α(L)=0.00094 *7*; α(M)=0.000168 *12* α(N)=2.55×10^{-5} *17*; α(O)=1.43×10^{-6} *7* B(M1)(W.u.)=0.0009 *7*
525.193	1/2+	174.4[a] *2*	22.3[a] *17*	351.22	3/2+	M1+E2	0.8 *4*	0.097 *27*	α(K)=0.083 *23*; α(L)=0.0113 *37*; α(M)=0.00204 *67* α(N)=3.00×10^{-4} *95*; α(O)=1.3×10^{-5} *4*
		427.401[a] *15*	52[a] *5*	97.785	5/2+	(E2)		0.00764	α(K)=0.00666 *10*; α(L)=0.000813 *12*; α(M)=0.0001455 *21* α(N)=2.18×10^{-5} *3*; α(O)=1.110×10^{-6} *16* E_γ: From curved-crystal measurement (1979Bo26). Mult.: α(K)exp suggests M1+E2, but placement in level scheme requires, ΔJ=2.
		525.4[a] *2*	100[a] *6*	0.0	1/2+	(M1)[#]		0.00344	α(K)=0.00302 *5*; α(L)=0.000342 *5*; α(M)=6.11×10^{-5} *9* α(N)=9.31×10^{-6} *13*; α(O)=5.30×10^{-7} *8*
548.73	3/2+	197.5[a] *2*	14.3[a] *12*	351.22	3/2+	[M1,E2]		0.072 *32*	α(K)=0.062 *27*; α(L)=0.0083 *43*; α(M)=0.00149 *77* α(N)=2.2×10^{-4} *11*; α(O)=1.00×10^{-5} *39*
		450.9[a] *1*	100[a] *6*	97.785	5/2+	M1(+E2)	<0.3	0.00501 *10*	α(K)=0.00440 *9*; α(L)=0.000502 *11*; α(M)=8.97×10^{-5} *19* α(N)=1.37×10^{-5} *3*; α(O)=7.71×10^{-7} *14* B(M1)(W.u.)>0.00083; B(E2)(W.u.)<3.9
		548.9[a] *2*	29.1[a] *20*	0.0	1/2+	M1+E2	≈0.8	≈0.00330	α(K)≈0.00290; α(L)≈0.000334; α(M)≈5.98×10^{-5} α(N)≈9.06×10^{-6}; α(O)≈5.00×10^{-7} B(M1)(W.u.)≈0.00054; B(E2)(W.u.)≈1.1
615.02	5/2+	263.8[a] *1*	100[a] *8*	351.22	3/2+	M1		0.0187	α(K)=0.01640 *23*; α(L)=0.00189 *3*; α(M)=0.000339 *5* α(N)=5.15×10^{-5} *8*; α(O)=2.90×10^{-6} *4*
		379.6[a] *3*	24[a] *3*	235.508	7/2+	E2		0.01112	α(K)=0.00968 *14*; α(L)=0.001200 *17*; α(M)=0.000215 *3* α(N)=3.21×10^{-5} *5*; α(O)=1.600×10^{-6} *23*
		517.0[&a] *3*		97.785	5/2+				
631.78	3/2+	280.5[a] *2*	16.0[a] *13*	351.22	3/2+	[M1,E2]		0.0232 *73*	α(K)=0.0201 *62*; α(L)=0.00252 *91*; α(M)=4.5×10^{-4} *17* α(N)=6.7×10^{-5} *24*; α(O)=3.36×10^{-6} *89*
		534.4[a] *4*	42[a] *6*	97.785	5/2+	(M1)		0.00330	α(K)=0.00290 *4*; α(L)=0.000329 *5*; α(M)=5.87×10^{-5} *9* α(N)=8.95×10^{-6} *13*; α(O)=5.09×10^{-7} *8* Mult.: D from γ(θ), Δπ=no from level scheme.

$^{99}_{42}Mo_{57}$-6

Adopted Levels, Gammas (continued)

γ(^{99}Mo) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[†]	δ[†d]	α[c]	Comments
631.78	3/2$^+$	631.8[a] *2*	100[a] *6*	0.0	1/2$^+$	M1(+E2)		0.00234 *11*	α(K)=0.00205 *9*; α(L)=0.000236 *15*; α(M)=4.2×10^{-5} *3* α(N)=6.4×10^{-6} *4*; α(O)=3.53×10^{-7} *11* α: pure M1.
684.10	11/2$^-$	448.6[&] *2*	100[&]	235.508	7/2$^+$	[M2]		0.01735	B(M2)(W.u.)=0.103 *8*
698.09	(7/2$^+$)	462.4[&] *3*	21[&] *5*	235.508	7/2$^+$	[M1+E2]		0.0053 *7*	α(K)=0.0047 *6*; α(L)=0.00055 *9*; α(M)=9.8×10^{-5} *16* α(N)=1.48×10^{-5} *22*; α(O)=8.0×10^{-7} *8*
		600.4[&] *2*	100[&] *22*	97.785	5/2$^+$	[M1+E2]	−0.9 *4*	0.00264 *8*	α(K)=0.00232 *7*; α(L)=0.000267 *11*; α(M)=4.78×10^{-5} *19* α(N)=7.2×10^{-6} *3*; α(O)=4.00×10^{-7} *9*
752.41	(3/2$^+$,5/2$^+$)	517.0[a] *3*	100[a]	235.508	7/2$^+$				
754.18	7/2$^-$	518.8[&] *5*	23[&] *16*	235.508	7/2$^+$	[E1]		1.36×10^{-3}	α(K)=0.001194 *17*; α(L)=0.0001335 *19*; α(M)=2.38×10^{-5} *4* α(N)=3.61×10^{-6} *6*; α(O)=2.02×10^{-7} *3*
		656.5[&a] *3*	100[&] *40*	97.785	5/2$^+$	E1[‡]		7.89×10^{-4}	α(K)=0.000695 *10*; α(L)=7.74×10^{-5} *11*; α(M)=1.377×10^{-5} *20* α(N)=2.09×10^{-6} *3*; α(O)=1.179×10^{-7} *17*
792.93	3/2$^+$	441.7[a] *2*	21.5[a] *15*	351.22	3/2$^+$	M1(+E2)	<0.4	0.00531 *14*	α(K)=0.00467 *12*; α(L)=0.000534 *17*; α(M)=9.5×10^{-5} *3* α(N)=1.45×10^{-5} *5*; α(O)=8.17×10^{-7} *18*
		694.8[a] *3*	100[a] *6*	97.785	5/2$^+$	M1,E2		0.00184 *6*	α(K)=0.00162 *5*; α(L)=0.000185 *8*; α(M)=3.31×10^{-5} *14* α(N)=5.02×10^{-6} *19*; α(O)=2.80×10^{-7} *5*
		793.0[a] *2*	99[a] *11*	0.0	1/2$^+$	(M1,E2)		1.34×10^{-3} *2*	α(K)=0.001179 *17*; α(L)=0.000134 *3*; α(M)=2.39×10^{-5} *5* α(N)=3.63×10^{-6} *7*; α(O)=2.04×10^{-7} *4*
865.87	(7/2$^+$)	250.8[&] *4*	10[&] *5*	615.02	5/2$^+$				
		514.7[&] *3*	11[&] *5*	351.22	3/2$^+$				
		631.6[&] *7*	3[&] *2*	235.508	7/2$^+$				
		768.1[&] *2*	100[&] *19*	97.785	5/2$^+$				
890.58	3/2$^+$	365.2[a] *3*	38[a] *3*	525.193	1/2$^+$	[M1,E2]		0.0104 *22*	α(K)=0.0091 *19*; α(L)=0.0011 *3*; α(M)=0.00020 *5* α(N)=3.0×10^{-5} *7*; α(O)=1.5×10^{-6} *3*
		539.2[a] *4*	19[a] *3*	351.22	3/2$^+$				
		793.0[a] *2*	100[a] *12*	97.785	5/2$^+$				
		890.2[a] *4*	57[a] *6*	0.0	1/2$^+$	M1,E2		1.02×10^{-3} *2*	α(K)=0.000901 *17*; α(L)=0.0001018 *15*; α(M)=1.82×10^{-5} *3* α(N)=2.76×10^{-6} *4*; α(O)=1.56×10^{-7} *4*
905.43	1/2$^+$	553.7[b] *3*	57[b] *8*	351.22	3/2$^+$				

$^{99}_{42}Mo_{57}$-7

Adopted Levels, Gammas (continued)

γ(^{99}Mo) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[†]	δ[†d]	α[c]	Comments
905.43	1/2$^+$	807.8[b] *2*	100[b] *15*	97.785	5/2$^+$	E2		1.28×10^{-3}	α(K)=0.001128 *16*; α(L)=0.0001296 *19*; α(M)=2.31×10^{-5} *4* α(N)=3.51×10^{-6} *5*; α(O)=1.93×10^{-7} *3*
		905.6[b] *5*	43[b] *15*	0.0	1/2$^+$	(M1)[#]		9.96×10^{-4}	α(K)=0.000878 *13*; α(L)=9.80×10^{-5} *14*; α(M)=1.749×10^{-5} *25* α(N)=2.67×10^{-6} *4*; α(O)=1.532×10^{-7} *22*
905.99	(9/2)$^+$	208.0[&] *4*	12[&] *5*	698.09	(7/2$^+$)	M1+E2	−0.8 *+4−6*	0.055 *14*	α(K)=0.047 *12*; α(L)=0.0062 *19*; α(M)=0.00111 *34* α(N)=1.64×10^{-4} *48*; α(O)=7.8×10^{-6} *17*
		671.3[&] *8*	12[&] *5*	235.508	7/2$^+$	M1+E2	+1.1 *+11−5*	0.00201 *5*	α(K)=0.00177 *4*; α(L)=0.000203 *6*; α(M)=3.62×10^{-5} *11* α(N)=5.50×10^{-6} *16*; α(O)=3.05×10^{-7} *5*
		808.4[&] *3*	1.0×10^2[&] *4*	97.785	5/2$^+$	E2		1.28×10^{-3}	α(K)=0.001126 *16*; α(L)=0.0001294 *19*; α(M)=2.31×10^{-5} *4* α(N)=3.50×10^{-6} *5*; α(O)=1.92×10^{-7} *3*
944.61	5/2$^+$	395.5[b] *4*	82[b] *12*	548.73	3/2$^+$	M1		0.00679	α(K)=0.00597 *9*; α(L)=0.000681 *10*; α(M)=0.0001218 *18* α(N)=1.85×10^{-5} *3*; α(O)=1.050×10^{-6} *15*
		593.2[b] *4*	47[b] *12*	351.22	3/2$^+$	M1		0.00259	α(K)=0.00228 *4*; α(L)=0.000257 *4*; α(M)=4.59×10^{-5} *7* α(N)=6.99×10^{-6} *10*; α(O)=3.99×10^{-7} *6* Mult.: M1 or E2 from α(K)exp. D from γ(θ).
		846.8[b] *2*	100[b] *24*	97.785	5/2$^+$	M1,E2		1.15×10^{-3} *2*	α(K)=0.001011 *16*; α(L)=0.0001145 *18*; α(M)=2.04×10^{-5} *4* α(N)=3.11×10^{-6} *5*; α(O)=1.75×10^{-7} *4*
		944.7[b] *4*	41[b] *12*	0.0	1/2$^+$				
1025.68	(5/2$^+$)	271.6[a] *3*	15.1[a] *14*	754.18	7/2$^-$				
		393.9[a] *3*	15.1[a] *20*	631.78	3/2$^+$				
		500.2[a] *3*	30[a] *4*	525.193	1/2$^+$	(M1,E2)		0.0043 *5*	α(K)=0.0038 *4*; α(L)=0.00044 *6*; α(M)=7.9×10^{-5} *10* α(N)=1.19×10^{-5} *15*; α(O)=6.5×10^{-7} *5*
		674.5[a] *3*	80[a] *4*	351.22	3/2$^+$				
		927.8[a] *3*	100[a] *6*	97.785	5/2$^+$	(M1,E2)		9.32×10^{-4} *19*	α(K)=0.000820 *17*; α(L)=9.25×10^{-5} *14*; α(M)=1.650×10^{-5} *25* α(N)=2.51×10^{-6} *4*; α(O)=1.42×10^{-7} *4*
		1025.4[a] *3*	43[a] *3*	0.0	1/2$^+$	(M1,E2)		7.45×10^{-4} *19*	α(K)=0.000656 *17*; α(L)=7.37×10^{-5} *15*; α(M)=1.31×10^{-5} *3* α(N)=2.00×10^{-6} *5*; α(O)=1.14×10^{-7} *4*
1048.03	7/2$^+$	432.8[&] *3*	67[&] *17*	615.02	5/2$^+$	M1+E2	−1.4 *+4−6*	0.0067 *4*	α(K)=0.0059 *3*; α(L)=0.00070 *4*; α(M)=0.000126 *7* α(N)=1.89×10^{-5} *11*; α(O)=9.9×10^{-7} *4*

$^{99}_{42}Mo_{57}$-8

Adopted Levels, Gammas (continued)

γ(^{99}Mo) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[†]	δ[†d]	α[c]	Comments
1048.03	7/2$^+$	499.3[&] *3*	25[&] *9*	548.73	3/2$^+$				
		696.9[&] *4*	100[&] *25*	351.22	3/2$^+$	E2		0.00187	α(K)=0.001643 *24*; α(L)=0.000191 *3*; α(M)=3.41×10^{-5} *5* α(N)=5.16×10^{-6} *8*; α(O)=2.80×10^{-7} *4*
		812.9[&] *3*	67[&] *17*	235.508	7/2$^+$				
1142.81	(7/2$^+$)	277.1[&] *2*	3.6[&] *15*	865.87	(7/2$^+$)	[M1+E2]		0.0241 *76*	α(K)=0.0209 *65*; α(L)=0.00262 *96*; α(M)=4.7×10^{-4} *18* α(N)=7.0×10^{-5} *25*; α(O)=3.49×10^{-6} *94*
		459.4[&e] *7*	2.2[&] *8*	684.10	11/2$^-$				
		527.9[&] *3*	5.8[&] *15*	615.02	5/2$^+$				
		907.2[&] *2*	100[&] *16*	235.508	7/2$^+$				
		1044.8[&] *5*	28[&] *12*	97.785	5/2$^+$				
1165.4	(15/2)$^-$	481.3[@]	100[@]	684.10	11/2$^-$	E2		0.00532	α(K)=0.00464 *7*; α(L)=0.000559 *8*; α(M)=9.99×10^{-5} *14* α(N)=1.500×10^{-5} *21*; α(O)=7.79×10^{-7} *11*
1167.43	5/2$^+$	535.5[a] *6*	25[a] *15*	631.78	3/2$^+$				
		1069.5[a] *3*	100[a] *8*	97.785	5/2$^+$				
		1166.1[b] *4*	25[b] *6*	0.0	1/2$^+$				
1195.6		497.5[@]	100[@]	698.09	(7/2$^+$)				
1197.69	3/2$^+$	672.3[a] *5*	78[a] *18*	525.193	1/2$^+$				
		1100.0[a] *3*	100[a] *13*	97.785	5/2$^+$				
		1197.6[a] *5*	17[a] *13*	0.0	1/2$^+$				
1254.2	5/2$^+$	903.0[b] *5*	100[b]	351.22	3/2$^+$				
1272.3		657.3[&] *7*	100[&]	615.02	5/2$^+$				
1280.4		1044.9[@] *5*	100[@]	235.508	7/2$^+$				
1283.0		668.0[a] *4*	100[a] *12*	615.02	5/2$^+$				
		1047.0[a] *8*	56[a] *23*	235.508	7/2$^+$				
1314.03	(11/2)$^+$	408.1[&] *3*	14[&] *6*	905.99	(9/2)$^+$	M1+E2	−1.6 *+5−9*	0.0081 *5*	α(K)=0.0071 *4*; α(L)=0.00086 *6*; α(M)=0.000153 *10* α(N)=2.30×10^{-5} *15*; α(O)=1.19×10^{-6} *6*
		1078.4[&] *3*	100[&] *20*	235.508	7/2$^+$	E2		6.52×10^{-4}	α(K)=0.000573 *8*; α(L)=6.47×10^{-5} *9*; α(M)=1.155×10^{-5} *17* α(N)=1.755×10^{-6} *25*; α(O)=9.84×10^{-8} *14*
1342.76	(7/2)$^+$	294.3[&] *6*	3.3[&] *14*	1048.03	7/2$^+$				
		727.7[&] *3*	8[&] *3*	615.02	5/2$^+$				
		1107.4[&] *2*	100[&] *20*	235.508	7/2$^+$	(D+Q)			
1352.7		654.6[b] *5*	100[b]	698.09	(7/2$^+$)				

$^{99}_{42}Mo_{57}$-9

Adopted Levels, Gammas (continued)

γ(^{99}Mo) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[†]	δ[†d]	α[c]	Comments
1354.3		600.2[a] *3*	100[a]	754.18	7/2⁻				
1367.6		613.4[@]	100[@]	754.18	7/2⁻				
1382.6	3/2⁺,5/2⁺	767.8[a] *5*	100[a] *13*	615.02	5/2⁺				
		1146.9[a] *4*	47[a] *13*	235.508	7/2⁺				
1401.31	(7/2⁺)	1165.6[&] *2*	100[&] *16*	235.508	7/2⁺				
		1304.4[&] *6*	22[&] *8*	97.785	5/2⁺				
1404.8	(17/2)	239.4[@]	100[@]	1165.4	(15/2)⁻	D			
1442.1	(3/2,5/2)⁺	1090.9[a] *5*	100[a]	351.22	3/2⁺				
1449.5	3/2⁺,5/2⁺	834.5[@]	100[@]	615.02	5/2⁺				
1464.5	(9/2)⁺	765.7[&] *5*	7.0×10[1][&] *3*	698.09	(7/2⁺)	M1+E2	−2.6 *+4−5*	1.47×10⁻³	α(K)=0.001287 *19*; α(L)=0.0001480 *21*; α(M)=2.64×10⁻⁵ *4* α(N)=4.00×10⁻⁶ *6*; α(O)=2.20×10⁻⁷ *4*
		780.1[&] *9*	29 *14*	684.10	11/2⁻	[E1]		5.44×10⁻⁴	α(K)=0.000480 *7*; α(L)=5.32×10⁻⁵ *8*; α(M)=9.48×10⁻⁶ *14* α(N)=1.442×10⁻⁶ *21*; α(O)=8.16×10⁻⁸ *12*
		1228.9[&] *4*	100[&] *7*	235.508	7/2⁺	M1+E2	−4.0 *+10−17*	5.04×10⁻⁴ *8*	α(K)=0.000433 *7*; α(L)=4.86×10⁻⁵ *7*; α(M)=8.67×10⁻⁶ *13* α(N)=1.319×10⁻⁶ *19*; α(O)=7.46×10⁻⁸ *11*; α(IPF)=1.200×10⁻⁵ *21*
		1366.4[&] *7*	90 *60*	97.785	5/2⁺				
1471.7	(11/2)⁺	565.8[@]		905.99	(9/2)⁺	M1+E2	−1.0 *5*	0.00310 *14*	α(K)=0.00272 *12*; α(L)=0.000315 *18*; α(M)=5.6×10⁻⁵ *4* α(N)=8.5×10⁻⁶ *5*; α(O)=4.68×10⁻⁷ *15*
		773.5[@]		698.09	(7/2⁺)				
1493.50	5/2⁺	1258.1[a] *3*	100[a] *11*	235.508	7/2⁺				
		1395.5[a] *4*	11[a] *4*	97.785	5/2⁺				
1536.5		782.3[@]	100[@]	754.18	7/2⁻				
1560.59	1/2,3/2,5/2⁺	534.4[a] *4*	100[a]	1025.68	(5/2⁺)				
1571.3	1/2,3/2,5/2⁺	1220.1[a] *4*	100[a]	351.22	3/2⁺				
1639.37	9/2⁻	733.3[&] *9*	11[&] *6*	905.99	(9/2)⁺				
		773.6[&] *3*	20[&] *6*	865.87	(7/2⁺)				
		1403.7[&] *4*	100[&] *20*	235.508	7/2⁺				
1675.5		921.3[@]	100[@]	754.18	7/2⁻				
1679.5	(13/2⁺)	773.5[@]	100[@]	905.99	(9/2)⁺	E2		1.43×10⁻³	α(K)=0.001257 *18*; α(L)=0.0001449 *21*; α(M)=2.59×10⁻⁵ *4* α(N)=3.92×10⁻⁶ *6*; α(O)=2.15×10⁻⁷ *3*
1682.2	(3/2⁺,5/2⁺)	1446.7[a] *4*	100[a]	235.508	7/2⁺				
1813.4		671.0[&] *4*	27[&] *14*	1142.81	(7/2⁺)				

$^{99}_{42}Mo_{57}$-10

Adopted Levels, Gammas (continued)

γ(^{99}Mo) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[†]	α[c]	Comments
1813.4		1577.5[&] *4*	1.0×10²[&] *3*	235.508	7/2⁺			
1857.91	(9/2,11/2)⁺	515.4[&] *3*	2.0[&] *8*	1342.76	(7/2)⁺			
		715.2[&] *3*	4.4[&] *12*	1142.81	(7/2⁺)			
		991.9[&] *3*	9.2[&] *24*	865.87	(7/2⁺)			
		1173.7[&] *6*	1.6[&] *8*	684.10	11/2⁻			
		1622.2[&] *3*	100[&] *16*	235.508	7/2⁺			
1858.0	(19/2⁻)	692.6[@]	100[@]	1165.4	(15/2)⁻	E2	0.00190	α(K)=0.001670 *24*; α(L)=0.000194 *3*; α(M)=3.47×10⁻⁵ *5* α(N)=5.24×10⁻⁶ *8*; α(O)=2.84×10⁻⁷ *4*
1884.9	(15/2⁻)	719.5[@]	100[@]	1165.4	(15/2)⁻			
1893.39	(3/2⁻)	948.4[a] *5*	81[a] *6*	944.61	5/2⁺			
		988.0[a] *4*	61[a] *8*	905.43	1/2⁺			
		1002.8[a] *4*	52[a] *8*	890.58	3/2⁺			
		1140.9[a] *4*	19[a] *8*	752.41	(3/2⁺,5/2⁺)			
		1345.1[a] *5*	13[a] *8*	548.73	3/2⁺			
		1367.8[a] *4*	48[a] *6*	525.193	1/2⁺			
		1542.2[a] *3*	100[a] *10*	351.22	3/2⁺			
		1893.9[a] *5*	59[a] *8*	0.0	1/2⁺			
1987.4		586.5[&] *6*	6.0×10¹[&] *3*	1401.31	(7/2⁺)			
		673.2[&] *6*	43[&] *14*	1314.03	(11/2)⁺			
		844.4[&] *5*	6.0×10¹[&] *3*	1142.81	(7/2⁺)			
		1303.7[&] *9*	4.0×10¹[&] *3*	684.10	11/2⁻			
		1751.8[&] *6*	1.0×10²[&] *5*	235.508	7/2⁺			
2059.68		657.9[&] *6*	15[&] *5*	1401.31	(7/2⁺)			
		716.8[&] *4*	25[&] *10*	1342.76	(7/2)⁺			
		1012.2[&] *4*	7.0×10¹[&] *3*	1048.03	7/2⁺			
		1193.7[&] *7*	25[&] *10*	865.87	(7/2⁺)			
		1823.7[&] *6*	100[&] *20*	235.508	7/2⁺			
2134.46	3/2⁻	780.3[a] *5*	11[a] *3*	1354.3				
		1108.5[a] *3*	19.5[a] *12*	1025.68	(5/2⁺)			
		1228.9[a] *3*	17.8[a] *18*	905.43	1/2⁺			
		1382.3[a] *4*	11.2[a] *18*	752.41	(3/2⁺,5/2⁺)			
		1783.6[a] *9*	20[a] *4*	351.22	3/2⁺			
		2134.7[a] *4*	100[a] *7*	0.0	1/2⁺			
2174.67	9/2⁻,11/2⁻	316.8[&] *5*	33[&] *12*	1857.91	(9/2,11/2)⁺			
		773.0[&] *4*	67[&] *23*	1401.31	(7/2⁺)			
		1031.7[&] *4*	9.0×10¹[&] *4*	1142.81	(7/2⁺)			
		1269.5[&] *5*	9.0×10¹[&] *4*	905.99	(9/2)⁺			

$^{99}_{42}Mo_{57}$-11

Adopted Levels, Gammas (continued)

γ(^{99}Mo) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[†]	δ[†d]	α[c]	Comments
2174.67	9/2⁻,11/2⁻	1939.0[&] *7*	1.0×10²[&] *4*	235.508	7/2⁺				
2220.9	(17/2⁻)	1055.5[@]	100[@]	1165.4	(15/2)⁻	M1+E2	+3.1 *+20−11*	6.86×10⁻⁴ *11*	α(K)=0.000604 *9*; α(L)=6.82×10⁻⁵ *10*; α(M)=1.217×10⁻⁵ *18* α(N)=1.85×10⁻⁶ *3*; α(O)=1.039×10⁻⁷ *17*
2232.2	(15/2)	1066.8[@]	100[@]	1165.4	(15/2)⁻	D+Q			
2340.27	1/2,3/2	1314.6[a] *3*	100[a] *10*	1025.68	(5/2⁺)				
		1708.2[a] *4*	31[a] *11*	631.78	3/2⁺				
		2340.9[a] *7*	76[a] *19*	0.0	1/2⁺				
2409.5	(17/2⁺)	730.0[@]	100[@]	1679.5	(13/2⁺)	E2		1.66×10⁻³	α(K)=0.001456 *21*; α(L)=0.0001686 *24*; α(M)=3.01×10⁻⁵ *5* α(N)=4.56×10⁻⁶ *7*; α(O)=2.48×10⁻⁷ *4*
2441.1	(13/2)	761.6[@]	100[@]	1679.5	(13/2⁺)	(D+Q)			
2641.23	(3/2)⁻	1080.6[a] *3*	7.5[a] *6*	1560.59	1/2,3/2,5/2⁺				
		1473.6[a] *3*	12.5[a] *9*	1167.43	5/2⁺				
		1696.4[a] *3*	21.1[a] *20*	944.61	5/2⁺				
		1735.8[a] *4*	15.2[a] *15*	905.43	1/2⁺				
		1848.1[a] *4*	3.6[a] *6*	792.93	3/2⁺				
		2009.6[a] *4*	13.8[a] *11*	631.78	3/2⁺				
		2026.5[a] *5*	7.1[a] *8*	615.02	5/2⁺				
		2092.7[a] *5*	5.5[a] *6*	548.73	3/2⁺				
		2290.2[a] *6*	3.4[a] *11*	351.22	3/2⁺				
		2543.7[a] *5*	21.1[a] *16*	97.785	5/2⁺				
		2641.3[a] *5*	100[a] *8*	0.0	1/2⁺				
2686.94	(3/2)⁻	1126.1[a] *3*	32[a] *4*	1560.59	1/2,3/2,5/2⁺				
		1893.9[a] *5*	15[a] *5*	792.93	3/2⁺				
		2055.5[a] *5*	27[a] *4*	631.78	3/2⁺				
		2336.1[a] *9*	24[a] *5*	351.22	3/2⁺				
		2589.8[a] *9*	18[a] *7*	97.785	5/2⁺				
		2687.0[a] *5*	100[a] *9*	0.0	1/2⁺				
2705.3	(23/2⁻)	845.9[@] *3*	100[@]	1858.0	(19/2⁻)				
2729.9	(3/2)⁻	2098.2[a] *4*	49[a] *5*	631.78	3/2⁺				
		2377.9[a] *9*	25[a] *5*	351.22	3/2⁺				
		2632.0[a] *6*	17[a] *5*	97.785	5/2⁺				
		2729.9[a] *5*	100[a] *15*	0.0	1/2⁺				
2785.77	1/2⁻,3/2⁻	1992.7[a] *4*	90[a] *8*	792.93	3/2⁺				
		2237.1[a] *4*	100[a] *10*	548.73	3/2⁺				
		2434.8[a] *6*	10[a] *3*	351.22	3/2⁺				
		2785.6[a] *5*	75[a] *11*	0.0	1/2⁺				
2851.6	3/2⁻	2302.6[a] *6*	2.4[a] *11*	548.73	3/2⁺				

$^{99}_{42}Mo_{57}$-12

Adopted Levels, Gammas (continued)

γ(^{99}Mo) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π
2851.6	3/2$^-$	2326.2[a] *5*	7.1[a] *9*	525.193	1/2$^+$	3685.3	(27/2$^-$)	980[@] *1*	100[@]	2705.3	(23/2$^-$)
		2500.8[a] *6*	1.5[a] *7*	351.22	3/2$^+$	4749.3	(31/2$^-$)	1064[@] *1*	[@]	3685.3	(27/2$^-$)
		2753.6[a] *9*	1.5[a] *7*	97.785	5/2$^+$			1739[@e] *1*	[@]	3010.2	(27/2$^-$)
		2851.5[a] *5*	100[a] *7*	0.0	1/2$^+$	5795.5	(35/2$^-$)	1049[@] *1*	100[@]	4749.3	(31/2$^-$)
2944.0	1/2,3/2	1660.9[a] *6*	31[a] *18*	1283.0		6896	(39/2$^-$)	1100[@] *1*	100[@]	5795.5	(35/2$^-$)
		2593.0[a] *8*	100[a] *21*	351.22	3/2$^+$	8118	(43/2$^-$)	1222[@] *1*	100[@]	6896	(39/2$^-$)
3010.2	(27/2$^-$)	304.9 *3*	100	2705.3	(23/2$^-$)						

† From α(K)exp in (d,pγ) (1975Di15). Unsigned δ's are from (d,pγ) for 600γ, 534γ, 462γ. Most of the γ's from levels >905 are from (α,nγ) (1988Du02) (assuming Q=E2, D+Q with large δ is M1+E2).

‡ D or E2 from α(K)exp in (d,pγ). D, δ=0 or D+Q, δ=−2.8 *+9−20* from $\gamma(\theta)$ in (α,nγ).

Both pure M1 and E2 are within the uncertainty limits. ΔJ allows only M1.

@ From ^{96}Zr(α,nγ).

& From ^{99}Nb β^- Decay (15 s).

a From ^{99}Nb β^- Decay (2.5 min).

b From ^{98}Mo(d,pγ).

c Additional information 3.

d If No value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.

e Placement of transition in the level scheme is uncertain.

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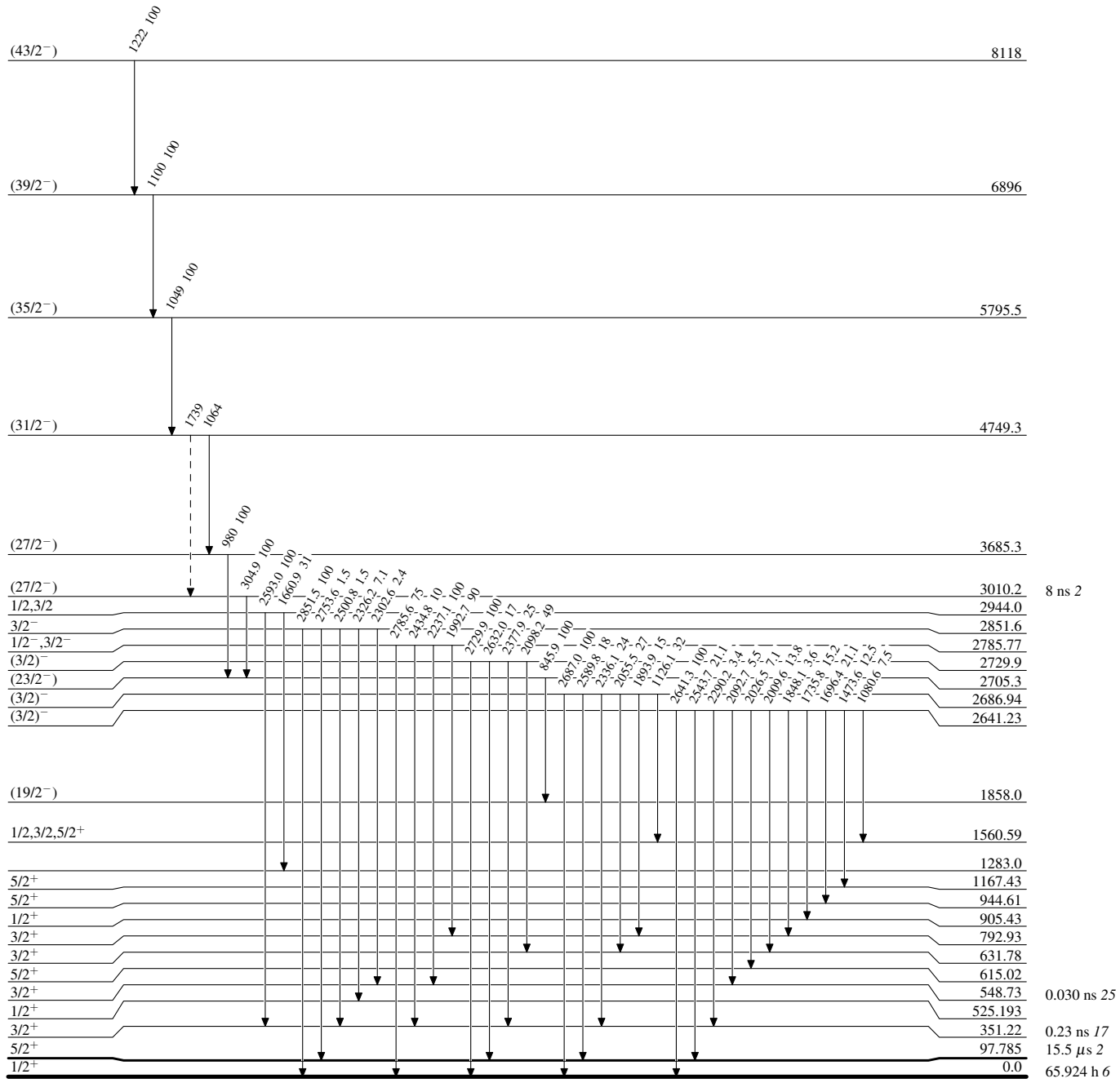
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

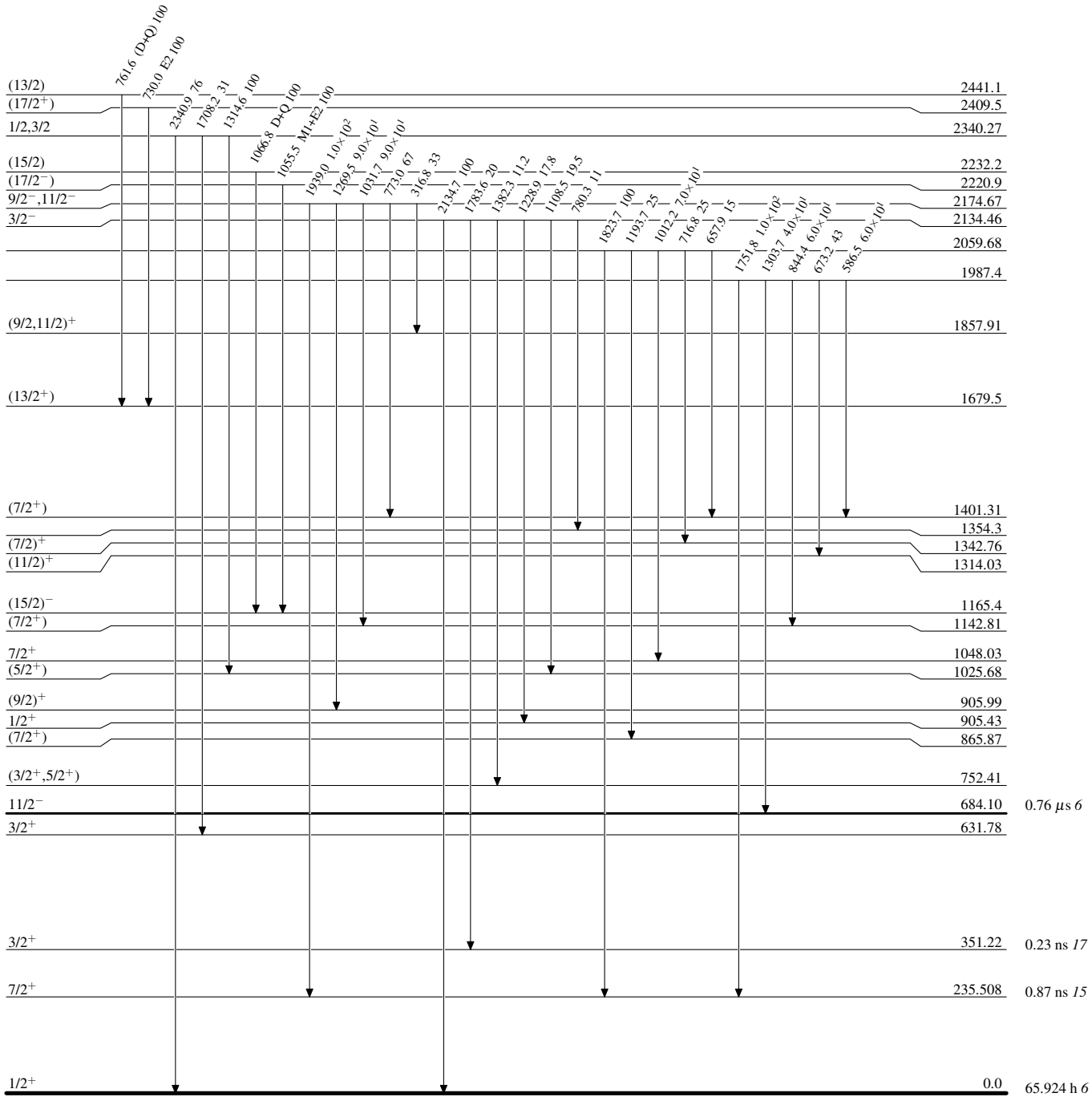


$^{99}_{42}Mo_{57}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

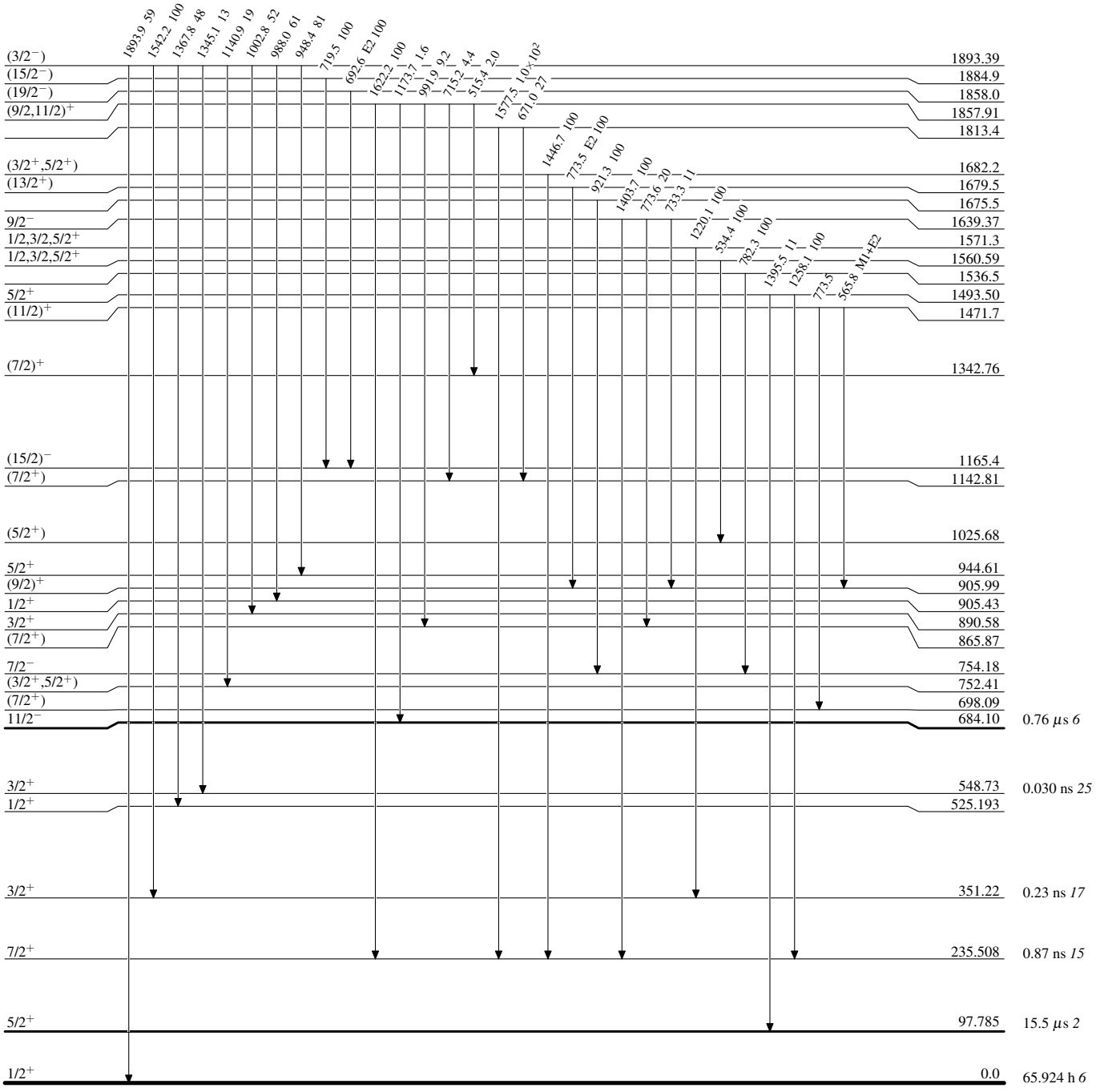


$^{99}_{42}Mo_{57}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

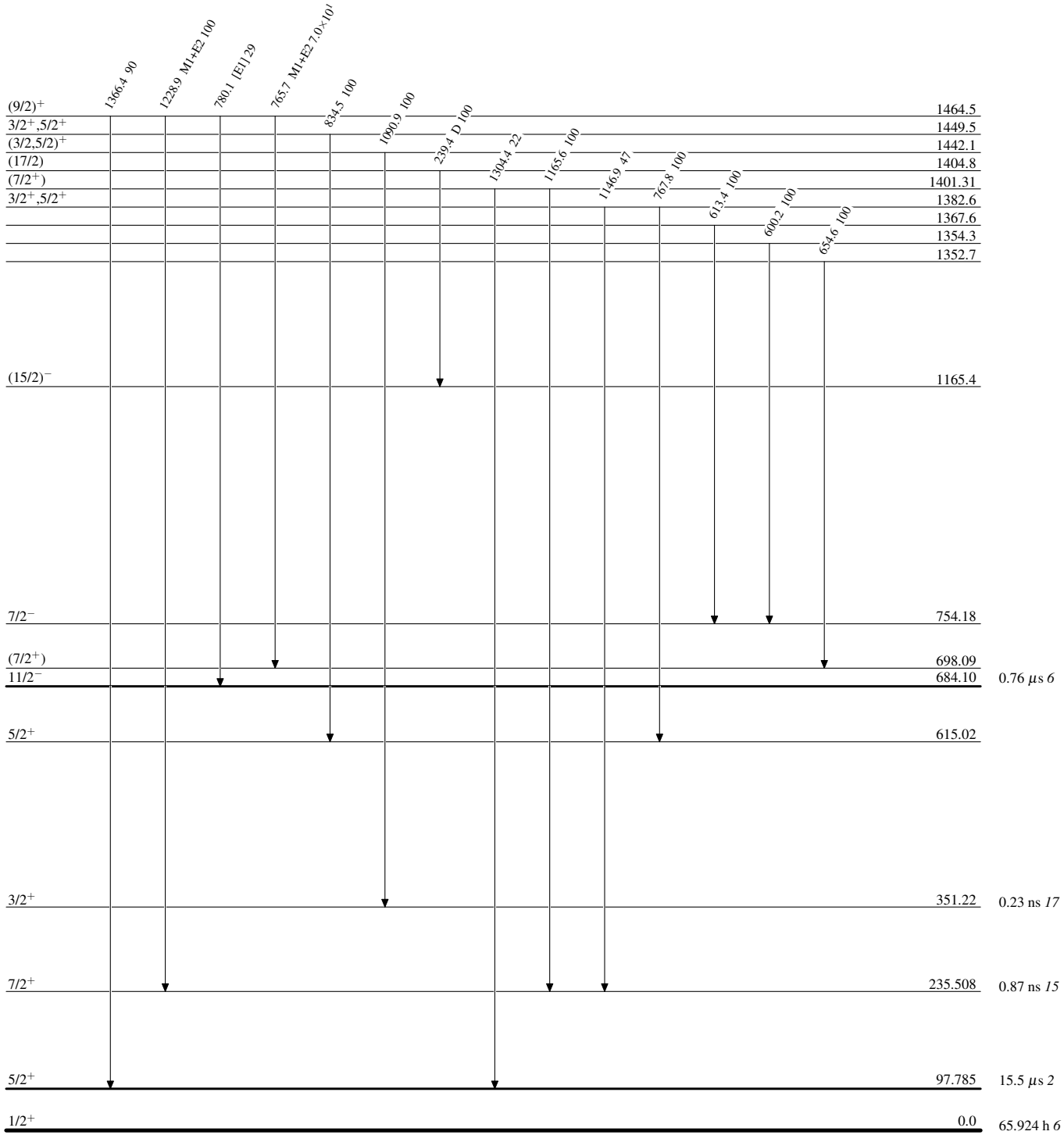


$^{99}_{42}Mo_{57}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

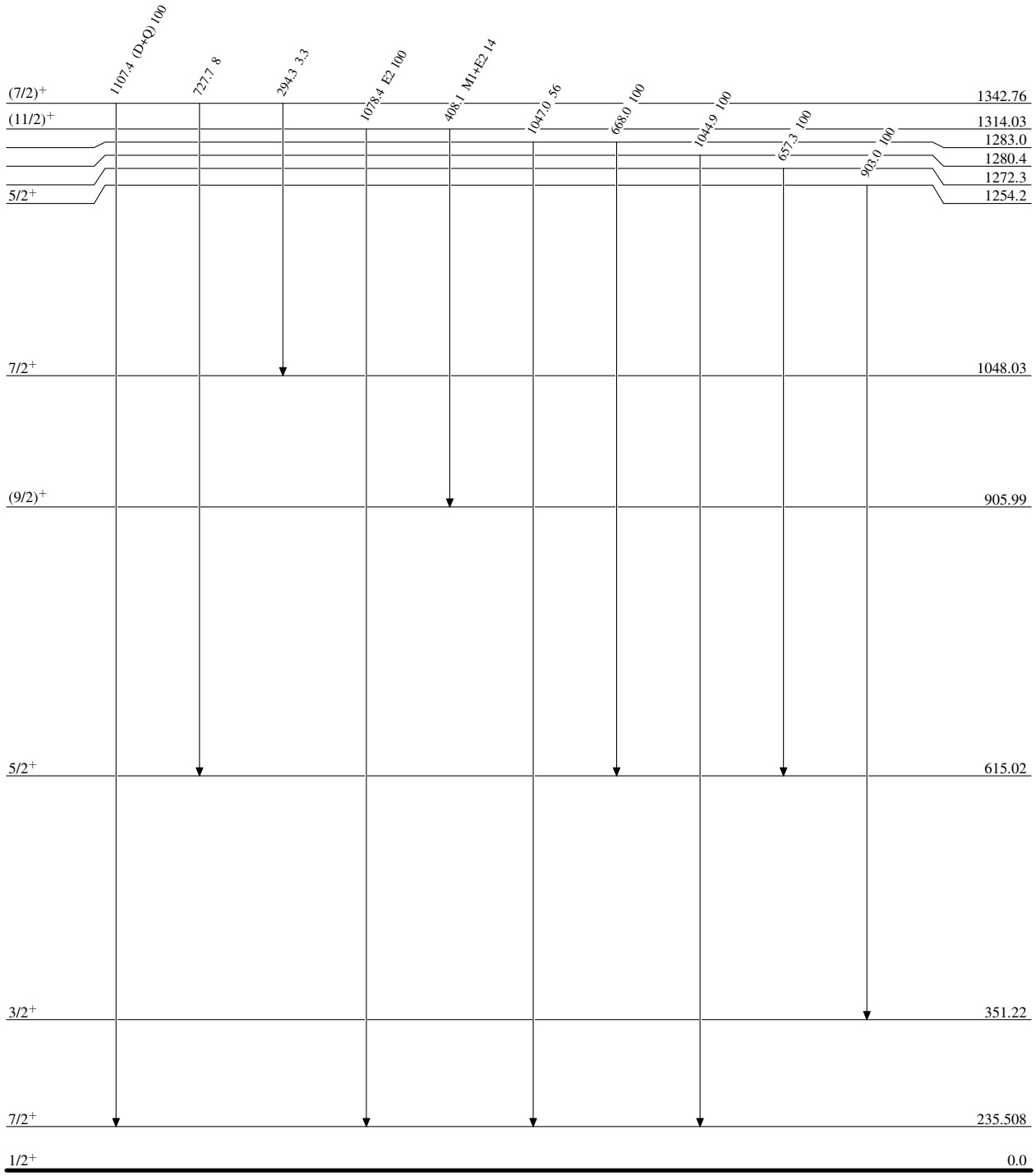


$^{99}_{42}Mo_{57}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{99}_{42}Mo_{57}$

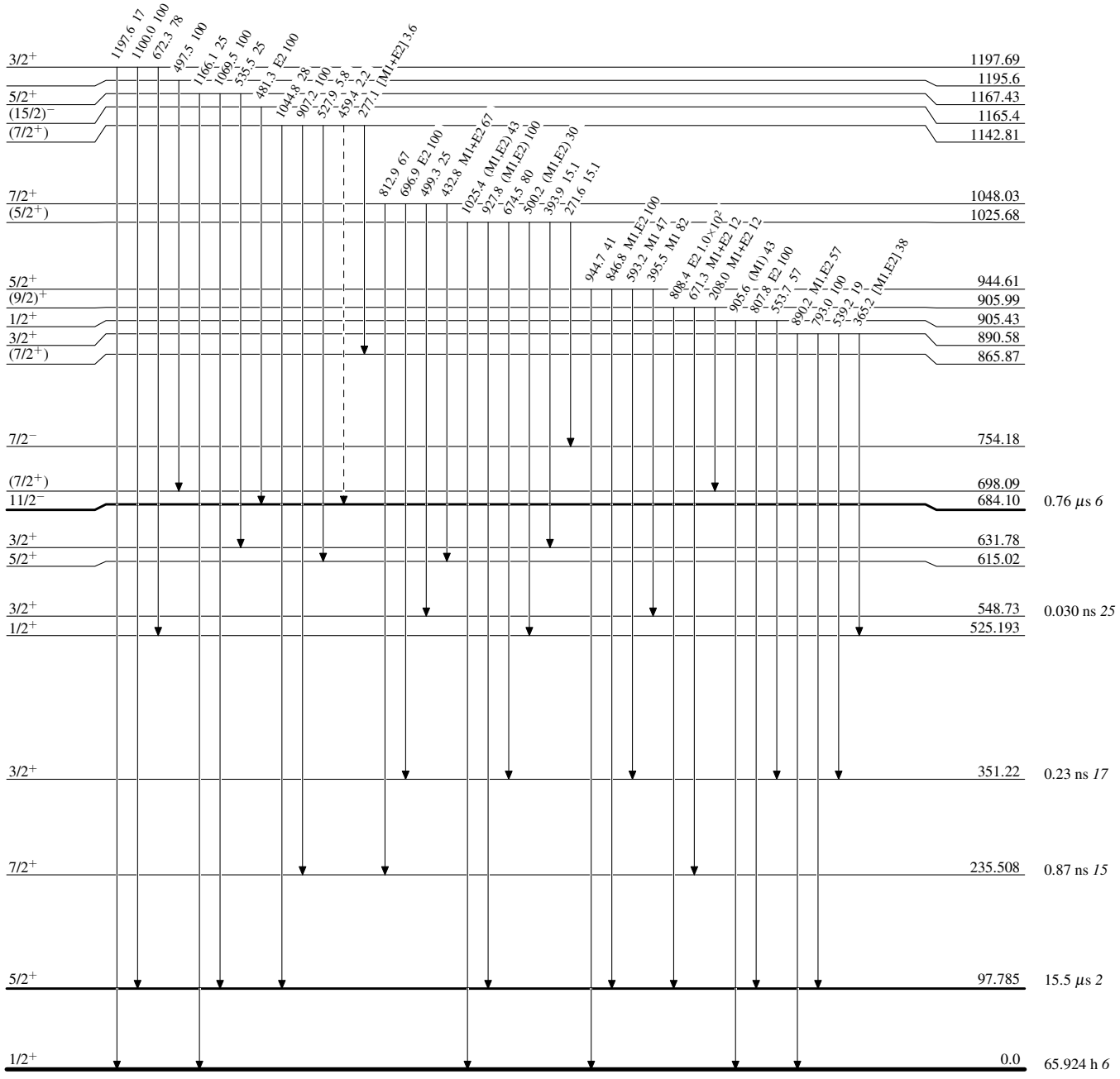
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



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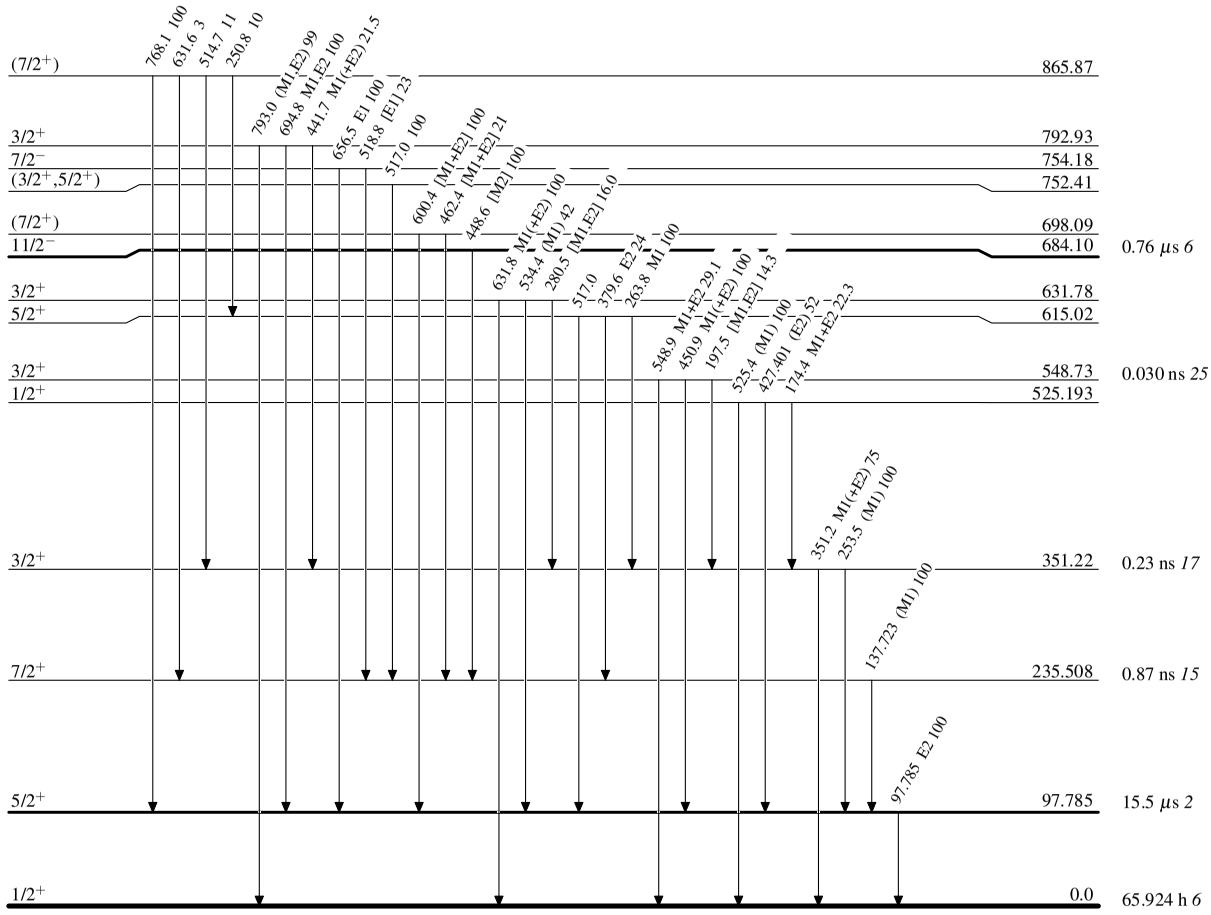
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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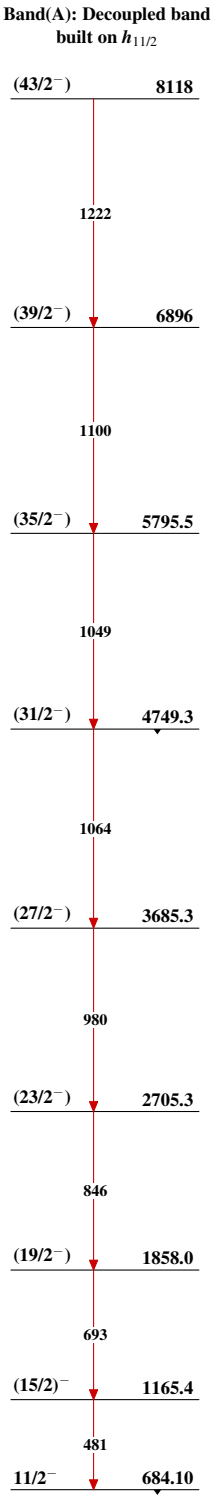
Adopted Levels, Gammas



$^{99}_{42}Mo_{57}$