Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 112,1163 (2011)	15-Dec-2010

Q(β^-)=−3201.0 *10*; S(n)=8069.81 *9*; S(p)=7641.5 *25*; Q(α)=−4355 *4* 2012Wa38
Note: Current evaluation has used the following Q record \$ −3201.0 *10*8069.81 *9* 7643 4 −4358 5 2003Au03,2009AuZZ.
S(p), Q(α): from 2009AuZZ (cf. 7644 *4*, −4360 *5*, respectively, from 2003Au03).

Other Reactions:

^{94}Mo(^{3}He,$\alpha\gamma$), E=30 MeV (2006Ch14,2005Gu16): measured radiative strength function (2005Gu16); measured γ multiplicity, extracted level density, deduced nuclear temperature and heat capacity.

^{93}Mo(pol d,p) theory (2006At05): description of 3p-wave threshold anomalies using hybrid angular momentum scheme; calculated σ and analyzing power as function of E(d).

^{93}Mo Levels

The yrast and near-yrast states of ^{93}Mo are described by 2005Fu01 as resulting from the weak coupling of a $d_{5/2}$ neutron to states in the ^{92}Mo core.

Cross Reference (XREF) Flags

A	^{92}Mo(d,p), (d,pγ)	G	^{93}Tc ε decay (2.75 h)	M	^{92}Mo(^{16}O,^{15}O), (α,^{3}He)
B	^{92}Mo(n,γ) E=res	H	^{93}Tc ε decay (43.5 min)	N	^{92}Mo(n,γ) E=thermal
C	^{92}Mo(t,d)	I	^{94}Mo(d,t)	O	^{80}Se(^{16}O,3nγ)
D	^{92}Mo(^{13}C,^{12}Cγ)	J	^{94}Mo(p,d)	P	^{93}Nb(^{3}He,t)
E	^{93}Mo IT decay	K	^{94}Mo(^{3}He,α)	Q	^{92}Mo(^{13}C,^{12}C)
F	^{93}Nb(p,nγ), (p,n)	L	^{95}Mo(p,t)	R	^{82}Se(^{16}O,5nγ)

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	XREF	Comments
0	5/2$^+$	4.0×10^3[&] y *8*	ABCDEFGHIJKLMNOPQR	%ε=100 J$^\pi$: L(d,p)=2; E2 1477γ from J$^\pi$=9/2$^+$ 1477. configuration: ν d$_{5/2}$. <r^2>$^{1/2}$=4.92 fm for ν 2d$_{5/2}$ orbital from (t,d).
943.28 *7*	1/2$^+$	0.4 ps +*11*−*2*	ABCD F HIJ LMN	J$^\pi$: L(d,p)=0. A significant component of configuration is π(g$_{9/2}$)$^2\nu$s$_{1/2}$ (1999Zh32).
1363.048[b] *20*	7/2$^+$	104 fs *8*	A DEFG IJKLM R	J$^\pi$: L(d,p)=4; M1+E2 1363γ to J$^\pi$=5/2$^+$ g.s.
1477.20[b] *4*	9/2$^+$	0.27 ps *9*	A DEFG IJKLm R	XREF: I(1486)L(1470). T$_{1/2}$: other: ≤14 ps from ^{93}Mo IT decay. J$^\pi$: L(^{3}He,α)=4; E2 658γ from J$^\pi$≥13/2$^+$ 2162.
1492.48[b] *6*	3/2$^+$	13.9 fs *21*	AB D F HIJ LmN	XREF: I(1500)L(1470). J$^\pi$: L(d,p)=2; log *ft*=6.5, log *f*^{1u}*t*=7.6 from J$^\pi$=1/2$^-$. T$_{1/2}$: from (p,nγ). Other: 0.04 ps *3* (^{13}C,^{12}Cγ).
1520.36 *4*	7/2$^+$	0.8 ps *3*	A D FG I Lm	XREF: I(1529). J$^\pi$: L(d,p)=4; M1+E2 1520γ to J$^\pi$=5/2$^+$ g.s.
1695.03[b] *7*	5/2$^+$	75 fs *10*	AB D F L	J$^\pi$: L(d,p)=2; L(t,p)=0 for 5/2$^+$ target (1972Ba49); D 332γ to 7/2$^+$ 1363.
2141.98[@a] *7*	5/2$^+$	0.12 ps +*8*−*2*	B F	J$^\pi$: primary γ from 1/2$^+$ in (n,γ) E=res; D+Q 779γ to 7/2$^+$ 1363. 5/2$^+$ from statistical analysis of (p,nγ) via IAS.
2145.4[@a] *6*	3/2$^+$,5/2$^+$		A	J$^\pi$: L(d,p)=2.
2161.90[a] *4*	13/2$^+$	46 ps *6*	EF R	XREF: may also be present in (d,p).

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Adopted Levels, Gammas (continued)

^{93}Mo Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
				Jπ: E4 263γ from J=21/2, 2425; E2 685γ to Jπ≤9/2+. $T_{1/2}$: from IT decay. Other: >1.6 ps in (p,nγ).
2181.08 *20*	3/2+	37 fs +*15*−*10*	AB D F H L	Jπ: L(d,p)=2; log *ft*=6.1, log $f^{1u}t$=6.9 from Jπ=1/2−.
2247.13[a] *5*	(11/2+)	0.28 ps +*9*−*6*	F	Jπ: D+Q 770γ to 9/2+ 1477; E1 203γ from Jπ=(13/2−) 2450.
2304.18 *6*	(11/2)−	0.36 ps +*8*−*6*	A D F IJK M	XREF: K(2270). L(p,d)=5; 11/2− from statistical analysis of (p,nγ) via IAS.
2356.12 *5*	(5/2−)	0.32 ps +*13*−*8*	F l	XREF: l(2370). Jπ: D+Q 836γ to Jπ=7/2+ 1520; 864γ to 3/2+ 1492; 5/2− from statistical analysis of (p,nγ) via IAS.
2398.20 *10*	(5/2)+	21 fs *3*	AB F l	XREF: l(2370). Jπ: L(d,p)=2; 5/2+ from statistical analysis of (p,nγ) via IAS.
2409.15 *6*	9/2+	0.47 ps +*10*−*6*	FG IJK	Jπ: L(p,d)=4; D 162γ to (11/2+) 2247; Q 2409γ to 5/2+ g.s. 9/2+ from statistical analysis of (p,nγ) via IAS.
2424.95[a] *4*	21/2+	6.85 h *7*	EF O R	%IT=99.88 *1*; %ε+%β+=0.12 *1* μ=9.93 *8* Jπ: from μ=9.49 *22* from low temperature nuclear orientation in iron (1973Ka21) and g=0.936 *25* from NMR with oriented nuclei (weighted average of 0.877 *19* (1973Ka21) and 0.946 *8* (1981Ha12)); E4 263γ to π=+ 2162. Configuration: (ν $(d_{5/2})$⊗(π $(g^2_{9/2})$))$^{21/2+}$; analogous to 21/2+ isomers in N=51 isotones ^{91}Zr and ^{95}Ru. $T_{1/2}$: from IT decay. %IT, %ε+%β+: from 1977Me03. μ: from radiative detection of NMR (1989Ra17), based on g=0.946 *8* (1981Ha12); value relative to ^{95}Mo. Others: 9.49 *22* (1973Ka21), 10.0 *7* (1977Be19). Sign probably +. Configuration=((ν $d_{5/2}$)(π $1g_{9/2}$)$^{+2}$) (1985Su04).
2429.80[a] *8*	(17/2)+	3.53 ns *18*	F	Jπ: E2 268γ to Jπ=13/2+ 2162; γ(θ) in (p,nγ) is consistent with stretched Q transition. 17/2+ from statistical analysis of (p,nγ) via IAS.
2430.93 *7*	(7/2)+	0.121 ps *17*	F	Jπ: M1+E2 2431γ to 5/2+ g.s.; D(+Q) 1068γ to 7/2+ 1363; 403γ from (9/2)− 2834. However, π=− from statistical analysis of (p,nγ) via IAS.
2437.4 *7*	1/2+		AB	Jπ,E(level): from (d,p). L(d,p)=0.
2440.42 *6*	(11/2−)	0.41 ps +*15*−*0*	F	Jπ: 279γ to 13/2+ 2162, 963γ to 9/2+ 1477, 136γ to 11/2− 2304 imply Jπ=(9/2+,11/2,13/2+); (11/2−) from statistical analysis of (p,nγ) via IAS.
2440.60 *6*	(9/2−)		F	Jπ: D(+Q) 1078γ to 7/2+ 1363; 9/2− from statistical analysis of (p,nγ) via IAS.
2450.13 *7*	(13/2−)	0.76 ns *4*	F	Jπ: E1 γ from Jπ=(11/2+,13/2+); E1 203γ to J≤11/2 *2247*; (13/2−) from statistical analysis of (p,nγ) via IAS.
2479.04 *6*	(7/2+)	34 fs *4*	FG	Jπ: log *ft*=7.18, log $f^{1u}t$=7.46 from 9/2+; 2479γ to 5/2+ g.s.; 7/2+ from statistical analysis of (p,nγ) via IAS.
2529.7 *8*	1/2−,3/2−		A IJ	XREF: I(2523)J(2523). Jπ: 1038γ to 3/2+ 1492; L=1 component of L=1+4 doublets at E=2523 *12* in (d,t) and (p,d).
2534.89[a] *7*	(9/2)+	69 fs +*10*−*4*	A F IJK	XREF: I(2523)J(2523). Jπ: L=4 in (^{3}He,α); 2535γ to 5/2+ g.s.; 9/2+ from statistical analysis of (p,nγ) via IAS. Probable L=4 component of L=1+4 doublets in (p,d) and (d,t) at E=2523 *12*.
2539.5 *5*	(3/2)	61 fs +*8*−*7*	F H	Jπ: D+Q 1047γ to 3/2+ 1492; J=3/2 from statistical

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Adopted Levels, Gammas (continued)

^{93}Mo Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
				analysis of (p,nγ) via IAS. Information on parity is contradictory: π=− from log *ft*=5.5 from 1/2⁻ and π=− is favored in (p,nγ), but π=+ based on large δ(1047γ) to π=+ 1492 level. $T_{1/2}$: from DSAM in (p,nγ) (1999Ka60).
2555			A	
2572.93 *8*	(15/2⁻)	<0.4 ns	F	Jπ: 143γ to Jπ=(17/2)⁺ 2430, D 411γ to 13/2⁺ 2162 imply Jπ=(13/2⁺,15/2); 15/2⁻ from statistical analysis of (p,nγ) via IAS. $T_{1/2}$: >0.18 ps from (p,nγ).
2619 *15*	1/2⁻,3/2⁻		IJ	Jπ: L(p,d)=1.
2641.86[a] *8*	(15/2⁺)	<0.4 ns	F	Jπ: D 480γ to 13/2⁺ 2162; D 212γ to (17/2⁺) 2430; π=+ from statistical analysis of (p,nγ) via IAS. $T_{1/2}$: >0.18 ps from (p,nγ).
2644.57 *17*	(3/2)⁻	0.09 ps *+6−3*	A F H	Jπ: log *ft*=4.3 from Jπ=1/2⁻; 2645γ to Jπ=5/2⁺ g.s.
2667.95[a] *7*	(13/2⁺)	>0.30 ps	F	Jπ: 506γ to 13/2⁺ 2162; 421γ to (11/2⁺) 2247; 13/2⁺ from statistical analysis of (p,nγ) via IAS.
2670.1 *4*	1/2⁺	22 fs *+8−6*	AB F	Jπ: L=0 in (d,p).
2695 *15*	7/2⁺,9/2⁺		IJ	Jπ: L=4 component of L(p,d)=1+4 doublet.
2698.0 *3*	(3/2)⁻	37 fs *+28−15*	F HIJ	Jπ: log *ft*=5.6 from 1/2⁻; 2698γ to Jπ=5/2⁺ g.s. However, π=+ from statistical analysis of (p,nγ) via IAS.
2704.6 *6*	1/2⁺	0.11 ps *+6−4*	AB D	Jπ: L(d,p)=0. $T_{1/2}$: from (^{13}C,^{12}Cγ).
2719.37 *13*	(5/2⁻)	44 fs *+8−6*	F	Jπ: 2719γ to 5/2⁺ g.s.; statistical analysis of (p,nγ) via IAS.
2730.72 *14*	(9/2⁺)	114 fs *+21−17*	FG	Jπ: log *ft*=5.9, log $f^{1u}t$=5.8 from Jπ=9/2⁺; 2731γ to Jπ=5/2⁺ g.s.; 9/2⁺ from statistical analysis of (p,nγ) via IAS.
2742.7 *8*	(1/2⁺)	0.14 ps *+17−5*	F	Jπ: 2743γ to Jπ=5/2⁺ g.s.; 1/2 from statistical analysis of (p,nγ) via IAS.
2755.27 *8*	(11/2⁻)	>0.54 ps	F	Jπ: 1278γ to 9/2⁺ 1477; 451γ to (11/2)⁻ 2304; 11/2⁻ from statistical analysis of (p,nγ) via IAS.
2769.09 *14*	(5/2⁺)	37 fs *5*	F	Jπ: 1406γ to 7/2⁺ 1363; 2769γ to 5/2⁺ g.s.; 5/2⁺ from statistical analysis of (p,nγ) via IAS.
2810.21 *10*	(13/2⁻)	<0.4 ns	F	Jπ: 369γ to (11/2⁻) 2440; M1 237γ to (15/2⁻) 2573; 13/2⁻ from statistical analysis of (p,nγ) via IAS.
2821.10[a] *9*	(9/2⁺)	58 fs *10*	F	Jπ: 1344γ to 9/2⁺ 1477; 1458γ to 7/2⁺ 1363; 9/2⁺ from statistical analysis of (p,nγ) via IAS.
2821.8 *4*	(7/2,9/2⁺)		G	Jπ: log *ft*=6.8, log $f^{1u}t$<8.5 from 9/2⁺; 2822γ to 5/2⁺ g.s.
2831.38 *16*	(3/2⁺)	0.08 ps *+10−4*	F	Jπ: 1136γ to 5/2⁺ 1695; 3/2⁺ from statistical analysis of (p,nγ) via IAS.
2832.61 *10*	(7/2⁺)		F	Jπ: gammas to 7/2⁺ 1520 and 9/2⁺ 1477; 7/2⁺ from statistical analysis of (p,nγ) via IAS.
2833.55 *7*	(9/2⁻)	0.14 ps *+22−5*	F	Jπ: 529γ to (11/2)⁻ 2304; 9/2⁻ from statistical analysis of (p,nγ) via IAS.
2834.5[a] *3*	(11/2⁺)		F	Jπ: 1471γ to Jπ=7/2⁺ 1363; 11/2⁺ from statistical analysis of (p,nγ) via IAS.
2840.25 *9*	(7/2⁻)	100 fs *+24−17*	F	
2842.1 *7*	1/2⁺		A	Jπ: L(d,p)=0.
2851.89 *10*	(5/2⁻)	0.13 ps *+140−6*	F	
2861.5 *5*	(3/2)⁻		B F HIJ	Jπ: log *ft*=5.7 from Jπ=1/2⁻; 2862γ to Jπ=5/2⁺ g.s.; 1/2⁻,3/2⁻ from statistical analysis of (p,nγ) via IAS.
2862.77 *22*	(13/2⁺)		F	

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Adopted Levels, Gammas (continued)

^{93}Mo Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$#	XREF	Comments
2880.5 *5*	(1/2+,3/2,5/2+)		AB f	XREF: f(2882). Jπ: 2881γ to 5/2+ g.s.; 1937γ to 1/2+ 943. Jπ=(3/2+) if level is analog of ^{93}Tc(11289 level).
2893 *15*	5/2−,7/2−		A f	XREF: f(2882). Jπ: L=3 in (d,p).
2902.11 *5*	(9/2)+	40 fs +*7*−*3*	FG	Jπ: log *ft*=4.8 from Jπ=9/2+; 2902γ to Jπ=5/2+ g.s.; 9/2+ from statistical analysis of (p,nγ) via IAS.
2915.51 *7*	(11/2+)	0.18 ps +*13*−*5*	F	Jπ: 1438γ to 9/2+ 1477; 754γ to 13/2+ 2162; 11/2+ from statistical analysis of (p,nγ) via IAS.
2955.2 *10*	1/2−,3/2−		F HIJ	Jπ: L(p,d)=1.
2974.04 *12*	(7/2−)	0.13 ps +*4*−*2*	F	2974γ to 5/2+ g.s.; 543γ to (7/2)+ 2431.
2974.21 *21*			F	Jπ: 1611γ to Jπ=7/2+ 1520.
3006 *5*			A F	Additional information 1.
3024.39 *24*	(5/2+,7/2,9/2+)		F	Jπ: 3024γ to 5/2+ g.s.; 1547γ to 9/2+ 1477.
3025.9 *4*	7/2,9/2,11/2		G	Jπ: log $f^{1u}t$<8.5 from 9/2+.
3045	7/2+,9/2+		A	Jπ: L(d,p)=4.
3046.32 *22*	(11/2+)		F	Jπ: 1683γ to 7/2+ 1363; 11/2+ from statistical analysis of (p,nγ) via IAS.
3048.23 *10*	(9/2−)	>38 fs	F	Jπ: 293γ to (11/2−) 2755; 608γ to (9/2−) 2441; 9/2− from statistical analysis of (p,nγ) via IAS.
3057.14 *19*	(15/2+)		F	Jπ: 627γ to (17/2)+ 2430; 895γ to 13/2+ 2162; 15/2+ from statistical analysis of (p,nγ) via IAS.
3064 *15*	1/2−,3/2−		IJ	Jπ: L(p,d)=1.
3068.86 *12*	(13/2+)	>0.125 ps	F	
3084 *5*			A F	Additional information 2. E(level): from (p,nγ).
3100.97 *12*	(9/2−)		F	Jπ: 1738γ to 7/2+ 1363; 797γ to (11/2)− 2304; 9/2− from statistical analysis of (p,nγ) via IAS.
3118.63 *21*	(13/2−)		F	
3142.55 *21*	(11/2+)		F	
3151.6 *5*	(3/2)−		F K	Jπ: L(^{3}He,α)=1; 3/2− from statistical analysis of (p,nγ) via IAS.
3159.2 *5*	3/2+,5/2+		A	Jπ: L(d,p)=2.
3161.3 *10*	(7/2−)		F	Jπ: 3161γ to 5/2+ g.s.; statistical analysis of (p,nγ) via IAS.
3178.13 *21*	(11/2−)		F	
3199.71 *21*	(7/2−)		F	Jπ: 759γ to (9/2−) 2441; 3200γ to 5/2+ g.s.; 7/2− from statistical analysis of (p,nγ) via IAS.
3210.47 *25*	(7/2−,9/2,11/2+)		F	Jπ: 378γ to (7/2+) 2833; 455γ to (11/2−) 2755. The 11/2− assignment by 1983Mi13 in (p,nγ) would imply M2 multipolarity for the 378γ which seems untenable for the strongest deexcitation branch.
3220.4 *6*	(3/2)−		A F HIJ	Jπ: log *ft*=4.6 from Jπ=1/2−; 3220γ to Jπ=5/2+ g.s.
3241.58 *18*	(13/2−)		F	
3295 *15*	7/2+,9/2+		IJK	Additional information 3. Jπ: L=4 component of L(p,d)=1+4 doublet.
3298.2 *6*	(3/2)−		F HIJ	Jπ: log *ft*=4.8 from Jπ=1/2−; 3298γ to 5/2+ g.s.
3348.1 *4*	(9/2−)		F	Jπ: 593γ to (11/2−) 2755; 9/2− from statistical analysis of (p,nγ) via IAS.
3379.2 *3*	(11/2−)		F l	XREF: l(3400). Jπ: 1075γ to (11/2)− 2304; 11/2− from statistical analysis of (p,nγ) via IAS.
3380 *20*	3/2+,5/2+		IJkl	XREF: k(3420)l(3400).

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Adopted Levels, Gammas (continued)

^{93}Mo Levels (continued)

E(level)[†]	J^π[‡]	$T_{1/2}$[#]	XREF	Comments
				J^π: L(p,d)=2.
3395.1 *20*	(7/2$^-$)		F l	XREF: l(3400). J^π: 3395γ to 5/2$^+$ g.s.; 7/2$^-$ from statistical analysis of (p,nγ) via IAS.
3406.2 *5*	($\leq$5/2)		F l	XREF: l(3400). J^π: 2463γ to 1/2$^+$ 943. In (p,nγ), 1983Mi13 suggest J^π=(5/2$^-$) based on excit, but this implies that 4653γ is M2 which seems unlikely.
3436 *3*	(5/2$^-$)		F	J^π: 3436γ to 5/2$^+$ g.s.; statistical analysis of (p,nγ) via IAS.
3440.9 *8*	(1/2$^+$,3/2,5/2$^+$)		A	J^π: 1004γ to (1/2$^+$) 2437; 3441γ to 5/2$^+$ g.s.
3444 *3*	(7/2$^-$)		F	J^π: 3444γ to 5/2$^+$ g.s.; statistical analysis of (p,nγ) via IAS.
3450.3 *6*	3/2$^+$,5/2$^+$		A IJk	XREF: I(3434)J(3434)k(3420). J^π: L(d,p)=2.
3486.17 *23*	(13/2$^-$)		F	J^π: 385γ to (9/2$^-$) 3101; 13/2$^-$ from statistical analysis of (p,nγ) via IAS.
3510 *20*	7/2$^+$,9/2$^+$		IJ	J^π: L(p,d)=4.
3587 *17*	7/2$^+$,9/2$^+$		IJKl	XREF: l(3590). Additional information 4. J^π: L=4 component of L(p,d)=1+4 doublet.
3590 *20*	1/2$^-$,3/2$^-$		IJ l	XREF: l(3590). J^π: L=1 component of L(p,d)=1+4 doublet.
3596.3 *6*	3/2$^+$,5/2$^+$		A l	XREF: l(3590). J^π: L(d,p)=2.
3650 *20*	7/2$^+$,9/2$^+$		IJ	J^π: L(p,d)=4.
3708.9 *7*	3/2$^+$,5/2$^+$		A	J^π: L(d,p)=2.
3720 *20*	1/2$^-$,3/2$^-$		IJ	J^π: L(p,d)=1.
3790 *20*	1/2$^-$,3/2$^-$		IJ	J^π: L(p,d)=1.
3980 *20*	1/2$^-$,3/2$^-$		IJ m	J^π: L(p,d)=1.
3985 *5*			A m	
4070 *20*	5/2$^-$,7/2$^-$		IJ	J^π: L(d,t)=3. L=1+3 doublet in (p,d).
4159.6 *9*	(23/2$^-$)		O R	J^π: (E1) 1735γ to 21/2$^+$ 2425 in (^{16}O,5nγ).
4170			iJ	J^π: (3/2$^+$) if level is analog of ^{93}Tc(12584 level).
4220	5/2$^+$		i L	J^π: L(p,t)=0 on 5/2$^+$ target; from the large cross section measured by 1972OhZT, it follows that this reaction proceeds via a large ΔS=0 component.
4240 *20*	1/2$^-$,3/2$^-$		J	J^π: L(p,d)=1.
4370 *20*	1/2$^-$,3/2$^-$		J	J^π: L(p,d)=1.
4378 *5*			A	J^π: 4378γ to 5/2$^+$ g.s.
4438.1 *11*	(27/2$^-$)	0.8 ns *2*	O R	J^π: stretched E2 279γ to J=(23/2$^-$) 4159. Interpreted in (^{16}O,5nγ) (2005Fu01) as arising from weak coupling of (ν $d_{3/2}$) to 11$^-$ isomer in ^{92}Mo, based on energy of this level and nearby lower-energy states; however, other configurations may contribute. $T_{1/2}$: from centroid-shift method (2005Fu01), based on 278γ and 1735γ time distribution spectra in (^{16}O,5nγ).
4450 *25*	1/2$^-$,3/2$^-$		IJ M	J^π: L(p,d)=1.
4520 *20*	1/2$^-$,3/2$^-$		IJ	J^π: L(p,d)=1.
4630 *30*	1/2$^-$,3/2$^-$		IJ	J^π: L(d,t)=1; L=1+(3,4) doublet in (p,d).
4710 *30*	$^-$		IJ	J^π: L=1+3 doublet in (p,d) and (d,t).
4756 *5*			A	J^π: 4756γ to 5/2$^+$ g.s.
4780 *30*			IJ	J^π: L=1+4 doublet in (p,d) and (d,t).
4899.4 *9*	(25/2$^+$)		O R	J^π: stretched (E2) 2474γ to 21/2$^+$ 2425.
4938 *5*			A	J^π: 4938γ to 5/2$^+$ g.s.
5000 *30*	1/2$^-$,3/2$^-$		IJ	J^π: L(d,t)=1. L=1+3 doublet in (p,d).
5034 *5*			A	J^π: 5034γ to 5/2$^+$ g.s.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{93}Mo Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]	XREF	Comments
5070 *30*			IJ	J^{π}: L=1+4 doublet in (p,d) and (d,t).
5150 *30*	$1/2^-,3/2^-$		IJ	J^{π}: L(p,d)=1.
5585.7 *11*	$(29/2^+)$		O R	J^{π}: stretched Q 686γ to $(25/2^+)$; (E1) 1148γ to $(27/2^-)$ 4437.
6652.2 *15*	31/2		O	J^{π}: D 1067γ to $(29/2^+)$ 5586.
6837.5 *15*	(29/2)		R	J^{π}: 2399γ to $(29/2^-)$ 4437.
7027.3 *15*	$(33/2^-)$		O R	J^{π}: M2 1442γ to $(29/2^+)$ 5586.
7097.7 *18*			R	J^{π}: 260γ to (29/2) 6837.
7268.9 *18*	(35/2)		O R	J^{π}: D 242γ to $(33/2^-)$ 7027; band assignment.
8335.6 *18*	(35/2,37/2)		O R	J^{π}: 1067γ to (35/2) 7269.
8353.8 *18*	(31/2,33/2)		R	1516γ to (29/2) 6837 level.
8598.0 *18*	(37/2)		R	262γ to (35/2,37/2) 8335; 1571γ to $(33/2^-)$ 7026.
8821.4 *20*	(37/2)		R	1552γ to (35/2) 7269 level.
9001.4 *21*	(33/2,35/2)		R	648γ to (31/2,33/2) 8353 level.
9171.4 *20*	(39/2)		R	573γ to (37/2) 8597 level.
9647.4 *23*	(41/2)		R	476γ to (39/2) 9170 level.
9670.0 *23*	(35/2,37/2)		R	J^{π}: D or Q transition from $(39/2^-)$ 9669+x level assumed by 2005Fu01 in (^{16}O,5nγ). 669γ to (33/2,35/2) 9001 level.
9670.0+x	$(39/2^-)$	1.1 μs *+15−4*	R	Additional information 5. E(level): x is expected to be small. The existence of this isomer is deduced by 2005Fu01 from the observation of many delayed gamma rays belonging to ^{93}Mo. The location of the isomer in the level scheme was deduced from intensities of each cascade in the nuclide. Probably not an yrast state (2005Fu01). J^{π}: possible 5-quasiparticle configuration: $\nu((d_{5/2}g_{7/2}h_{11/2})\otimes(\pi\ (g^2_{9/2}))^{39/2-}$ (2005Fu01).
10890 *30*	$9/2^+$		F IJ P	E(level): from (d,t). Isobaric analog of ^{93}Nb(g.s.). Other E: 10740 *60* from (^{3}He,t). J^{π}: L(p,d)=4; isobaric analog of $9/2^+$ state.
10940 *30*	$1/2^-$		IJ	E(level): isobaric analog of ^{93}Nb(31 level). J^{π}: L(p,d)=1; isobaric analog of $1/2^-$ state.
11590 *30*	$3/2^-$		IJ	E(level): isobaric analog of ^{93}Nb(687 level). J^{π}: L(p,d)=1; isobaric analog of $3/2^-$ state.
12220 *30*	$1/2^-,3/2^-$		IJ	Isobaric analog of ^{93}Nb(1290 level). J^{π}: L(p,d)=1.
12300 *30*	$5/2^-,7/2^-$		IJ	J^{π}: L(p,d)=3. Possible isobaric analog of ^{93}Nb 1315, 1364 or 1395 level.

[†] From least-squares fit to adopted Eγ for levels deexcited by gammas.

[‡] From (p,nγ), based on comparison of measured and calculated (statistical theory) n-decay probabilities from analog resonances in ^{94}Mo and on the shape of n excitation functions across several IAS, unless noted otherwise.

[#] From (p,nγ), unless indicated otherwise.

[@] The 2142.0 level reported in (p,nγ) and the 2146.0 level reported in (d,pγ) appear to be different levels, based on Eγ. Otherwise, the placements of the 2146.0γ and 733.9γ in (d,pγ) must be assumed to be incorrect.

[&] 1967Dm01 report $T_{1/2}=3.0\times10^3$ y *6* based on assumption that, at E_d=21 MeV, σ(d,2n) values are constant for odd mass elements of the same π in the A$\approx$100 region, and that I(K x ray)=0.54 per ^{93}Mo decay. Evaluator has adjusted this value to be consistent with adopted I(K x ray)=0.73 per ^{93}Mo decay (from εK/ε(theory), ω_K=0.75 and α(K)/α (M4 theory) for 31-keV transition); however, evaluator regards value as tentative. Other: >100 y (1964Ho08).

[a] Band(A): π=+ $\nu\ d_{5/2}\otimes{}^{92}$Mo($4^+,6^+,8^+$). States probably result from weak coupling of $\nu\ d_{5/2}$ to lowest J=4^+, 6^+ or 8^+ states of ^{92}Mo core (1999Zh32).

[b] Band(B): π=+ $\nu\ d_{5/2}\otimes{}^{92}$Mo($2^+$). $\pi(g_{9/2})^2\nu d_{5/2}$ states. Assignment consistent with energies predicted in jj-coupling shell model calculations using partition truncation method (1999Zh32) which predict a dominant component from this configuration.

$\gamma(^{93}Mo)$

E_i(level)	J^{π}_i	E_γ[†]	I_γ[†]	E_f	J^{π}_f	Mult.[‡]	δ[‡]	α[d]	Comments
943.28	1/2$^+$	943.27 *7*	100	0	5/2$^+$	[E2]			B(E2)(W.u.)=8.E+1 *+4−8* Other Eγ: 943.81 *12* from (n,γ) E=thermal, 943.7 *5* from ε decay (43.5 min), 941.8 *7* from (^{13}C,^{12}Cγ).
1363.048	7/2$^+$	1363.009 *22*	100	0	5/2$^+$	M1+E2	+0.48 *−8+6*		B(M1)(W.u.)=0.068 *7*; B(E2)(W.u.)=8.7 *25* E_γ: weighted average of 1362.94 *7* in ε decay (2.75 h) and 1363.02 *3* and 1363.01 *3* in IT decay. Other Eγ: 1363.16 *7* in (p,nγ), 1964.1 *10* in (^{13}C,^{12}Cγ). Mult.,δ: from α(K)exp=0.0036 *7* in ^{93}Mo IT decay, and γ(θ,H,t) in ^{93}Tc ε decay (2.75 h). Other δ: +0.5 *+9−7* from (p,nγ).
1477.20	9/2$^+$	114.14 *6*	0.81 *6*	1363.048	7/2$^+$	M1(+E2)	−0.05 *+3−2*	0.175 *3*	B(M1)(W.u.)=0.44 *15*; B(E2)(W.u.)=90 *80* E_γ: unweighted average of 114.024 *9* and 114.065 *5* from IT decay, 114.20 *5* from ε decay (2.75 h) and 114.27 *12* from (p,nγ). The weighted average is 114.057 *13*. I_γ: unweighted average of 0.69 *2* from IT decay, 0.84 *15* from ε decay (2.75 h) and 0.906 *15* from (p,nγ). The weighted average is 0.83 *7*. Mult.: from α(K)exp=0.30 *15* in ^{93}Mo IT decay and γ(θ) in (n,γ). δ: from γ(θ) in (p,nγ). Abs(δ)<1.3 from α(K)exp in ^{93}Mo IT decay, <0.11 if B(E2)(W.u.)<300.
		1477.18 *5*	100.0 *4*	0	5/2$^+$	E2			B(E2)(W.u.)=12 *4* E_γ: unweighted average of 1477.113 *20* and 1477.138 *2* from IT decay, 1477.14 *8* from ε decay (2.75 h) and 1477.33 *7* from (p,nγ). The weighted average is 1477.138 *4*. Other: 1480.7 *16* in (^{13}C,^{12}Cγ). I_γ: weighted average from IT decay, ε decay (2.75 h) and (p,nγ). Mult.: from α(K)exp=0.0026 *4* in ^{93}Mo IT decay; Q from γ(θ) in (p,nγ).
1492.48	3/2$^+$	1492.43 *8*	100	0	5/2$^+$	(M1)			B(M1)(W.u.)=0.48 *8* Mult.: D from (p,nγ); Δπ=no from level scheme.
1520.36	7/2$^+$	1520.35 *6*	100	0	5/2$^+$	M1+E2	+1.3 *6*		B(M1)(W.u.)=0.0029 *21*; B(E2)(W.u.)=2.2 *12* E_γ: weighted average of 1520.28 *9* from ε decay (2.75 h) and 1520.39 *7* from (p,nγ). Mult.,δ: from α(K)exp=0.0029 *6* and γ(θ,H,t) in ^{93}Tc ε decay (2.75 h). Other δ: −1.2 *+3−5* from γ(θ) in (p,nγ).
1695.03	5/2$^+$	202.9[e] *1*	13.4 *5*	1492.48	3/2$^+$				E_γ,I_γ: from (p,nγ); however Eγ=203.9, Iγ=3.1 in (d,pγ) suggest that this γ is misplaced there.
		331.90 *9*	8.5 *10*	1363.048	7/2$^+$	(M1)		0.01047	B(M1)(W.u.)=0.56 *10*

Adopted Levels, Gammas (continued)

γ(^{93}Mo) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[d]	Comments
									Other Iγ: <5.3 in (d,pγ). Mult.: D from (p,nγ); Δπ=no from level scheme.
1695.03	5/2$^+$	1695.10 *12*	100.0 *7*	0	5/2$^+$	(M1)			B(M1)(W.u.)=0.049 *7* Mult.: D from (p,nγ); Δπ=no from level scheme.
2141.98	5/2$^+$	778.80 *9*	17.9 *5*	1363.048	7/2$^+$	M1+E2			Mult.: D+Q from (p,nγ); Δπ=no from level scheme.
		2142.09 *9*	100.0 *24*	0	5/2$^+$				
2145.4	3/2$^+$,5/2$^+$	2146.1[a]	100[a]	0	5/2$^+$				
2161.90	13/2$^+$	684.693 *21*	100	1477.20	9/2$^+$	E2			B(E2)(W.u.)=3.3 *5* E_γ: from IT decay. 684.66 *7* from (p,nγ). Mult.: from α(K)exp=0.00153 *24*, K/L=8 *1* in ^{93}Mo IT decay and γ(θ) in (p,nγ). δ(Q,O)=+0.12 *2* from γ(θ) in (p,nγ), but <0.07 from α(K)exp and <4×10^{-5} if B(M3)(W.u.)<10 (based on RUL).
2181.08	3/2$^+$	486.9[a]	30[a] *6*	1695.03	5/2$^+$				
		1238.4[a]	70[a] *16*	943.28	1/2$^+$				
		2181.08 *21*	100 *20*	0	5/2$^+$	(M1)			B(M1)(W.u.)=0.029 *+11−14* Mult.: D from (p,nγ); Δπ=no from level scheme. I_γ: from (d,pγ).
2247.13	(11/2$^+$)	769.92 *8*	100.0 *10*	1477.20	9/2$^+$	M1+E2	+0.113 *26*		B(M1)(W.u.)=0.17 *+4−6*; B(E2)(W.u.)=3.7 *+19−21* Mult.: D+Q from (p,nγ); Δπ=(no) from level scheme.
		884.03 *8*	3.0 *4*	1363.048	7/2$^+$	[E2]			B(E2)(W.u.)=4.4 *+11−16*
2304.18	(11/2)$^-$	827.02 *8*	100	1477.20	9/2$^+$	(E1+M2)			Mult.: D+Q from (p,nγ); adopted Δπ=yes. δ: abs(δ)<0.01 from B(M2)(W.u.)<1; however, δ=+0.27 *+13−10* in (p,nγ). B(E1)(W.u.)=1.25×10^{-5} if δ=0.
2356.12	(5/2$^-$)	835.65 *8*	100.0 *22*	1520.36	7/2$^+$	(E1+M2)	−0.05 *+3−2*		B(E1)(W.u.)=0.00090 *+23−37* Mult.: D+Q from (p,nγ); Δπ=(yes) from level scheme.
		863.65 *8*	28.7 *19*	1492.48	3/2$^+$				
		2356.18 *8*	67 *3*	0	5/2$^+$				
2398.20	(5/2)$^+$	905.67 *10*	17.8 *24*	1492.48	3/2$^+$	(M1)			B(M1)(W.u.)=0.21 *5* Mult.: D from (p,nγ); Δπ=no from level scheme.
		2398.28 *17*	100 *3*	0	5/2$^+$	(M1)			B(M1)(W.u.)=0.065 *10* Mult.: D from (p,nγ); Δπ=no from level scheme.
2409.15	9/2$^+$	161.86 *13*	8.7 *10*	2247.13	(11/2$^+$)	(M1)		0.0672	B(M1)(W.u.)=0.51 *+9−13* Mult.: D from (p,nγ); Δπ=no from level scheme.
		931.97 *8*	79 *3*	1477.20	9/2$^+$	(M1)			B(M1)(W.u.)=0.024 *+4−6* Mult.: D from (p,nγ); Δπ=no from level scheme.
		2409.16 *10*	100.0 *21*	0	5/2$^+$	(E2)			B(E2)(W.u.)=0.31 *+5−7* E_γ: weighted average of 2409.05 *19* from ε decay (2.75 h) and 2409.20 *12* from (p,nγ). Mult.: Q from (p,nγ); Δπ=no from level scheme.

Adopted Levels, Gammas (continued)

$\gamma(^{93}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α[d]	Comments
2424.95	21/2+	263.049 *13*	100.0	2161.90	13/2+	E4		0.698	B(E4)(W.u.)=1.449 *17* E_γ,I_γ,Mult.: from IT decay. Mult based on α(exp)=0.71 *4* and sub-shell ratios in IT decay.
2429.80	(17/2)+	267.93 *8*	100	2161.90	13/2+	E2		0.0356	B(E2)(W.u.)=4.48 *23* Mult.: from α(K)exp in (p,nγ).
2430.93	(7/2)+	1067.81 *17*	2.73 *18*	1363.048	7/2+	(M1+E2)	+0.03 *1*		B(M1)(W.u.)=0.0040 *7*; B(E2)(W.u.)=0.0032 *22* Mult.: D+Q from (p,nγ); $\Delta\pi$=no from level scheme.
		2431.00 *12*	100.0 *4*	0	5/2+	M1+E2	−6.5 *+14−11*		B(M1)(W.u.)=0.00029 *13*; B(E2)(W.u.)=2.1 *3* Mult.: D+Q from $\gamma(\theta)$ in (p,nγ); $\Delta\pi$=no from RUL.
2437.4	1/2+	256.7[a]	[a]	2181.08	3/2+				
		943.6[#ae]	[a]	1492.48	3/2+				
		1493.3[#ae]	[a]	943.28	1/2+				
2440.42	(11/2−)	136.23 *12*	0.20 *4*	2304.18	(11/2)−				Other Iγ in (p,nγ): 1.22 *10*.
		278.50 *14*	0.30 *12*	2161.90	13/2+				Other Iγ in (p,nγ): 0.82 *10*.
		963.18 *8*	100.0 *10*	1477.20	9/2+				
2440.60	(9/2−)	920.28 *8*	29.8 *11*	1520.36	7/2+				
		1077.50 *8*	100.0 *14*	1363.048	7/2+	D(+Q)	−0.05 *11*		
2450.13	(13/2−)	9.73 *12*	8.5	2440.42	(11/2−)	[M1]		29.5 *12*	B(M1)(W.u.)=0.72 *7*
		146.00 *12*	5.8 *4*	2304.18	(11/2)−	[M1]		0.0887	B(M1)(W.u.)=0.000146 *14*
		202.98 *8*	100.0 *11*	2247.13	(11/2+)	E1		0.01630	B(E1)(W.u.)=1.40×10^{-5} *9* Mult.: from α(K)exp in (p,nγ).
		288.30 *17*	3.70 *21*	2161.90	13/2+				
2479.04	(7/2+)	1001.80 *8*	72 *4*	1477.20	9/2+	[M1]			B(M1)(W.u.)=0.25 *4*
		1115.95 *8*	100 *5*	1363.048	7/2+	D(+Q)			
		2479.17 *13*	14.8 *22*	0	5/2+				Other Iγ from (p,nγ): 39.6 *25* (1976Ru03), 30 *4* (1983Mi13).
2529.7	1/2−,3/2−	1038.0[a]	100[a]	1492.48	3/2+				
2534.89	(9/2)+	287.78 *9*	24.3 *13*	2247.13	(11/2+)				
		1057.61 *14*	100.0 *25*	1477.20	9/2+	(M1)			B(M1)(W.u.)=0.147 *+10−22* Mult.: D from (p,nγ); $\Delta\pi$=no from level scheme.
		1171.84 *17*	22.1 *9*	1363.048	7/2+				
		2534.88 *15*	37.7 *17*	0	5/2+	[E2]			B(E2)(W.u.)=0.64 *+5−10*
2539.5	(3/2)	1047.0 *5*	100	1492.48	3/2+	D+Q	−1.28 *+14−15*		B(M1)(W.u.)=0.119 *+22−23*; B(E2)(W.u.)=1.8×10^2 *3* E_γ: from (p,nγ). Mult.,δ: D+Q from $\gamma(\theta)$ in (p,nγ). δ implies $\Delta\pi$=no from RUL, but this contradicts π(2540 level)=− implied by log *ft* in ε decay (43.5 min).
2572.93	(15/2−)	122.87 *12*	100.0 *13*	2450.13	(13/2−)	(M1)		0.1420	B(M1)(W.u.)>0.021 Mult.: D from α(K)exp in (p,nγ); $\Delta\pi$=(no) from level scheme.
		143.19 *19*	0.52 *14*	2429.80	(17/2)+				Other Iγ: 3.4 *5* from 1983Mi13 in (p,nγ).

$^{93}_{42}Mo_{51}$-9

γ(^{93}Mo) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[d]	Comments
2572.93	(15/2⁻)	410.94 *9*	28.9 *13*	2161.90	13/2⁺	(E1)		B(E1)(W.u.)>2.4×10^{-6} Mult.: D from (p,nγ); Δπ=(yes) from level scheme.
2641.86	(15/2⁺)	212.09 *9*	39.9 *15*	2429.80	(17/2)⁺	(M1)	0.0329	B(M1)(W.u.)>0.0016 Mult.: D from α(K)exp in (p,nγ); Δπ=(no) from level scheme.
		479.92 *9*	100.0 *23*	2161.90	13/2⁺	(M1)		B(M1)(W.u.)>0.00035 Mult.: δ(D,Q)=+0.02 *5* from (p,nγ); Δπ=(no) from level scheme.
2644.57	(3/2)⁻	2644.53 *17*	100	0	5/2⁺			
2667.95	(13/2⁺)	420.85 *8*	36.5 *22*	2247.13	(11/2⁺)			
		506.00 *8*	100 *4*	2161.90	13/2⁺			
2670.1	1/2⁺	2670.1 *4*	100	0	5/2⁺	[E2]		B(E2)(W.u.)=7.6 *+21−28*
2698.0	(3/2)⁻	2698.0 *3*	100	0	5/2⁺			
2704.6	1/2⁺	524.7[a]	18[a] *5*	2181.08	3/2⁺			Other Eγ: 522.7 *12* in (^{13}C,^{12}Cγ).
		1211.3[a]	64[a] *15*	1492.48	3/2⁺			
		2704.9[a]	100[a] *18*	0	5/2⁺	[E2]		B(E2)(W.u.)=0.8 *+4−5* E_γ: 2705.4 *16* in (^{13}C,^{12}Cγ).
2719.37	(5/2⁻)	1024.20 *19*	30.0 *18*	1695.03	5/2⁺	[E1]		B(E1)(W.u.)=0.00161 *+25−31*
		2719.44 *17*	100.0 *24*	0	5/2⁺	[E1]		B(E1)(W.u.)=0.00029 *+4−6*
2730.72	(9/2⁺)	1035.60 *21*	5.6 *5*	1695.03	5/2⁺	[E2]		B(E2)(W.u.)=8.8 *+16−18*
		2730.74 *17*	100.0 *5*	0	5/2⁺	[E2]		B(E2)(W.u.)=1.24 *+19−23*
2742.7	(1/2⁺)	2742.7 *8*	100	0	5/2⁺	[E2]		B(E2)(W.u.)=1.0 *+4−10*
2755.27	(11/2⁻)	451.10 *9*	100.0 *12*	2304.18	(11/2)⁻			
		1278.10 *10*	13.6 *7*	1477.20	9/2⁺			
2769.09	(5/2⁺)	1406.15 *21*	64 *7*	1363.048	7/2⁺	[M1]		B(M1)(W.u.)=0.084 *15*
		2768.97 *17*	100 *3*	0	5/2⁺			
2810.21	(13/2⁻)	237.20 *14*	100.0 *15*	2572.93	(15/2⁻)	M1	0.0246	B(M1)(W.u.)>0.0025 Mult.: from α(K)exp in (p,nγ).
		369.82 *9*	61.6 *18*	2440.42	(11/2⁻)	[M1]		B(M1)(W.u.)>0.00041
2821.10	(9/2⁺)	1343.90 *9*	95 *5*	1477.20	9/2⁺			
		1458.01 *17*	100 *3*	1363.048	7/2⁺	[M1]		B(M1)(W.u.)=0.063 *12*
2821.8	(7/2,9/2⁺)	2821.8[b] *4*	100[b]	0	5/2⁺			
2831.38	(3/2⁺)	433.13 *17*	30 *3*	2398.20	(5/2)⁺	[M1]		B(M1)(W.u.)=0.8 *+4−8*
		1136.45 *25*	100 *6*	1695.03	5/2⁺			
2832.61	(7/2⁺)	1312.20 *10*	100 *4*	1520.36	7/2⁺			
		1355.67 *24*	63 *7*	1477.20	9/2⁺			
2833.55	(9/2⁻)	393.02 *9*	100.0 *22*	2440.42	(11/2⁻)	[M1]		B(M1)(W.u.)=1.5 *+6−15*
		402.68 *9*	42 *3*	2430.93	(7/2)⁺	[E1]		B(E1)(W.u.)=0.009 *+4−9*
		529.40 *9*	34.4 *22*	2304.18	(11/2)⁻	[M1]		B(M1)(W.u.)=0.21 *+8−21*
2834.5	(11/2⁺)	1471.4 *3*	100	1363.048	7/2⁺			
2840.25	(7/2⁻)	484.2 *3*	20.0 *25*	2356.12	(5/2⁻)	[M1]		B(M1)(W.u.)=0.20 *+5−6*
		1145.22 *9*	76 *5*	1695.03	5/2⁺			

$\gamma(^{93}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[d]	Comments
2840.25	(7/2⁻)	2840.15 *15*	100 *6*	0	5/2⁺			
2842.1	1/2⁺	405.0[a]	23[a]	2437.4	1/2⁺			
		1146.3[a]	66[a]	1695.03	5/2⁺			
		2842.4[a]	100[a]	0	5/2⁺			
2851.89	(5/2⁻)	420.9 *2*	67 *8*	2430.93	(7/2)⁺	[E1]		B(E1)(W.u.)=0.014 *+7−14*
		495.78 *9*	100 *8*	2356.12	(5/2⁻)			
2861.5	(3/2)⁻	2861.5 *5*	100	0	5/2⁺			
2862.77	(13/2⁺)	700.86 *21*	100	2161.90	13/2⁺			
2880.5	(1/2⁺,3/2,5/2⁺)	698.9[a]	25[a] *8*	2181.08	3/2⁺			
		733.9[a]	40[a]	2145.4	3/2⁺,5/2⁺			
		≈1516[ae]	25[a] *13*	1363.048	7/2⁺			
		1937.1[a]	100[a] *25*	943.28	1/2⁺			
		2880.7[a]	100[a] *25*	0	5/2⁺			
2902.11	(9/2)⁺	1381.75 *4*	74 *5*	1520.36	7/2⁺	[M1]		B(M1)(W.u.)=0.071 *+8−14* E_γ,I_γ: weighted average from (p,nγ) and ε decay (2.75 h).
		1424.82 *15*	31.1 *27*	1477.20	9/2⁺			E_γ,I_γ: weighted average from (p,nγ) and ε decay (2.75 h).
		1539.01 *10*	100 *4*	1363.048	7/2⁺	[M1]		B(M1)(W.u.)=0.070 *+7−13* E_γ,I_γ: weighted average from (p,nγ) and ε decay (2.75 h).
		2902.2 *5*	10.9 *9*	0	5/2⁺	[E2]		B(E2)(W.u.)=0.139 *+16−28* E_γ,I_γ: weighted average from (p,nγ) and ε decay (2.75 h).
2915.51	(11/2⁺)	247.55 *14*	30.1 *22*	2667.95	(13/2⁺)	[M1]	0.0220	B(M1)(W.u.)=1.1 *+4−9*
		668.34 *9*	100 *6*	2247.13	(11/2⁺)			
		753.62 *9*	68 *3*	2161.90	13/2⁺	[M1]		B(M1)(W.u.)=0.09 *+3−7*
		1438.40 *21*	15.2 *22*	1477.20	9/2⁺			
2955.2	1/2⁻,3/2⁻	2011.9[&] *10*	100[&]	943.28	1/2⁺			
2974.04	(7/2⁻)	543.0 *2*	33 *4*	2430.93	(7/2)⁺			
		1453.78 *18*	43 *4*	1520.36	7/2⁺	[E1]		B(E1)(W.u.)=0.00020 *+4−7*
		2973.94 *19*	100 *3*	0	5/2⁺	[E1]		B(E1)(W.u.)=5.5×10⁻⁵ *+9−17*
2974.21		1611.15 *21*	100	1363.048	7/2⁺			
3024.39	(5/2⁺,7/2,9/2⁺)	1547.2 *3*	100 *6*	1477.20	9/2⁺			
		3024.3 *4*	41 *4*	0	5/2⁺			
3025.9	7/2,9/2,11/2	3025.8[b] *4*	100[b]	0	5/2⁺			
3046.32	(11/2⁺)	1526.0 *3*	44 *7*	1520.36	7/2⁺			
		1683.2 *3*	100 *7*	1363.048	7/2⁺			
3048.23	(9/2⁻)	292.9 *2*	8.8 *12*	2755.27	(11/2⁻)	[M1]	0.01433	B(M1)(W.u.)<1.9
		607.64 *9*	100.0 *12*	2440.60	(9/2⁻)			
3057.14	(15/2⁺)	627.34 *17*	100 *15*	2429.80	(17/2)⁺			
		895.3 *10*	41 *12*	2161.90	13/2⁺			
3068.86	(13/2⁺)	427.00 *9*	100	2641.86	(15/2⁺)	[M1]		B(M1)(W.u.)<2.3
3100.97	(9/2⁻)	345.8 *2*	59 *5*	2755.27	(11/2⁻)			

$^{93}_{42}Mo_{51}$-11

Adopted Levels, Gammas (continued)

$\gamma(^{93}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[d]	Comments
3100.97	$(9/2^-)$	796.9 3	32 3	2304.18	$(11/2)^-$			
		1623.7 2	100 6	1477.20	$9/2^+$			
		1737.8 2	74 5	1363.048	$7/2^+$			
3118.63	$(13/2^-)$	668.5 2	100	2450.13	$(13/2^-)$			
3142.55	$(11/2^+)$	733.4 2	100	2409.15	$9/2^+$			
3151.6	$(3/2)^-$	2208.3 5	100	943.28	$1/2^+$			
3159.2	$3/2^+,5/2^+$	455.3[a]	4[a]	2704.6	$1/2^+$			
		1014.1[a]	27[a]	2145.4	$3/2^+,5/2^+$			
		1462.9[a]	50[a] 13	1695.03	$5/2^+$			
		1665.7[a]	100[a] 25	1492.48	$3/2^+$			
		≈1795[ae]	25[a] 8	1363.048	$7/2^+$			
		3160.2[ae]	75[a] 25	0	$5/2^+$			E_γ: possibly the same as the 3161.2γ seen in (p,nγ) and placed from a separate level, so placement is shown as uncertain here.
3161.3	$(7/2^-)$	3161.2 10	100	0	$5/2^+$			
3178.13	$(11/2^-)$	737.7 2	100	2440.42	$(11/2^-)$			
3199.71	$(7/2^-)$	759.1 2	85 6	2440.60	$(9/2^-)$			
		3199.8 10	100 6	0	$5/2^+$			
3210.47	$(7/2^-,9/2,11/2^+)$	377.9 3	100 3	2832.61	$(7/2^+)$			
		455.1 4	25 3	2755.27	$(11/2^-)$			
3220.4	$(3/2)^-$	3220.3[&] 6	100[&]	0	$5/2^+$			
3241.58	$(13/2^-)$	791.4 3	18.8 20	2450.13	$(13/2^-)$			
		801.0 2	100.0 23	2440.60	$(9/2^-)$			
3298.2	$(3/2)^-$	3298.1[&] 6	100[&]	0	$5/2^+$			
3348.1	$(9/2^-)$	592.8 4	100	2755.27	$(11/2^-)$			
3379.2	$(11/2^-)$	938.7 4	66 6	2440.42	$(11/2^-)$			
		1075.0 4	100 6	2304.18	$(11/2)^-$			
3395.1	$(7/2^-)$	3395 2	100	0	$5/2^+$			
3406.2	$(\le 5/2)$	2462.9 5	100	943.28	$1/2^+$			
3436	$(5/2^-)$	3436 3	100	0	$5/2^+$			
3440.9	$(1/2^+,3/2,5/2^+)$	1003.5		2437.4	$1/2^+$			E_γ: from (d,pγ).
		3440.8		0	$5/2^+$			E_γ: from (d,pγ).
3444	$(7/2^-)$	3444 3	100	0	$5/2^+$			
3450.3	$3/2^+,5/2^+$	1270.3[a]	100[a]	2181.08	$3/2^+$			
		2506.3[a]	83[a]	943.28	$1/2^+$			
		3449.9[a]	69[a]	0	$5/2^+$			
3486.17	$(13/2^-)$	385.2 2	100	3100.97	$(9/2^-)$	[E2]	0.01061	
3596.3	$3/2^+,5/2^+$	1452.3[a]	72[a]	2145.4	$3/2^+,5/2^+$			
		2103.0[a]	40[a]	1492.48	$3/2^+$			
		3595.7[a]	100[a]	0	$5/2^+$			

$^{93}_{42}Mo_{51}$-12

Adopted Levels, Gammas (continued)

$\gamma(^{93}Mo)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[d]	Comments
3708.9	3/2+,5/2+	827.0[a]	36[a]	2880.5	(1/2+,3/2,5/2+)			
		1180.0[a]	45[a]	2529.7	1/2−,3/2−			
		3709.5[a]	100[a]	0	5/2+			
3985		3985[a] 5	100[a]	0	5/2+			
4159.6	(23/2−)	1734.7[c]	100[c]	2424.95	21/2+	(E1)		Mult.: from $\gamma(\theta)$ and polarization in (^{16}O,5nγ).
4378		4378[a] 5	100[a]	0	5/2+			
4438.1	(27/2−)	278.5[c]	100[c]	4159.6	(23/2−)	E2	0.0311	B(E2)(W.u.)=16 5 Mult.: Q from (^{16}O,3nγ); not M2 from RUL.
4756		4756[a] 5	100[a]	0	5/2+			
4899.4	(25/2+)	2474.4[c]	100[c]	2424.95	21/2+	(E2)		Mult.: from $\gamma(\theta)$ and polarization in (^{16}O,5nγ).
4938		4938[a] 5	100[a]	0	5/2+			
5034		5034[a] 5	100[a]	0	5/2+			
5585.7	(29/2+)	686.2[c]	100[c] 3	4899.4	(25/2+)	(E2)		Mult.: stretched Q from $\gamma(\theta)$ in (^{16}O,3nγ); $\Delta\pi$=(no) from polarization in (^{16}O,5nγ).
		1147.7[c]	34.8[c] 7	4438.1	(27/2−)	(E1)		Mult.: D from $\gamma(\theta)$ in (^{16}O,3nγ); $\Delta\pi$=(no) from polarization in (^{16}O,5nγ).
6652.2	31/2	1066.5[c]	100[c]	5585.7	(29/2+)	D		Mult.: from (^{16}O,3nγ).
6837.5	(29/2)	2399.4[@]	100[@]	4438.1	(27/2−)			
7027.3	(33/2−)	1441.6[c]	100[c]	5585.7	(29/2+)	M2		Mult.: stretched Q from $\gamma(\theta)$ in (^{16}O,3nγ); $\Delta\pi$ from linear polarization in (^{16}O,5nγ).
7097.7		260.2[@]	100[@]	6837.5	(29/2)			
7268.9	(35/2)	241.6[@]	100[@]	7027.3	(33/2−)	D		Mult.: from $\gamma(\theta)$ in (^{16}O,5nγ).
8335.6	(35/2,37/2)	1066.6[@]	100[@]	7268.9	(35/2)			Mult.: from $\gamma(\theta)$ in (^{16}O,3nγ).
8353.8	(31/2,33/2)	1516.3[@]	100[@]	6837.5	(29/2)			
8598.0	(37/2)	262.4		8335.6	(35/2,37/2)			E_γ: from (^{16}O,5nγ).
		1570.7[@]	100[@] 20	7027.3	(33/2−)			
8821.4	(37/2)	1552.4[@]	100[@]	7268.9	(35/2)			
9001.4	(33/2,35/2)	647.6[@]	100[@]	8353.8	(31/2,33/2)			
9171.4	(39/2)	573.4[@]	100[@]	8598.0	(37/2)			
9647.4	(41/2)	476.0[@]	100[@]	9171.4	(39/2)			
9670.0	(35/2,37/2)	668.6[@]	100[@]	9001.4	(33/2,35/2)			
9670.0+x	(39/2−)	(x[@])	100[@]	9670.0	(35/2,37/2)			

† From ^{93}Nb(p,nγ), except as noted.
‡ From $\gamma(\theta)$ in (p,nγ), except as noted.

$^{93}_{42}Mo_{51}$-13

Adopted Levels, Gammas (continued)

$\gamma(^{93}Mo)$ (continued)

\# The 944γ and 1493γ are possibly in cascade in (d,pγ), but the order can not be determined because levels exist at both 944 keV and 1493 keV. Thus, either or both gammas may deexcite the 2437 level.

@ From (^{16}O,5nγ). Uncertainty in Eγ unstated by authors.

& From ε decay (43.5 min).

a From (d,pγ).

b From ε decay (2.75 h).

c From (^{16}O,3nγ).

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.

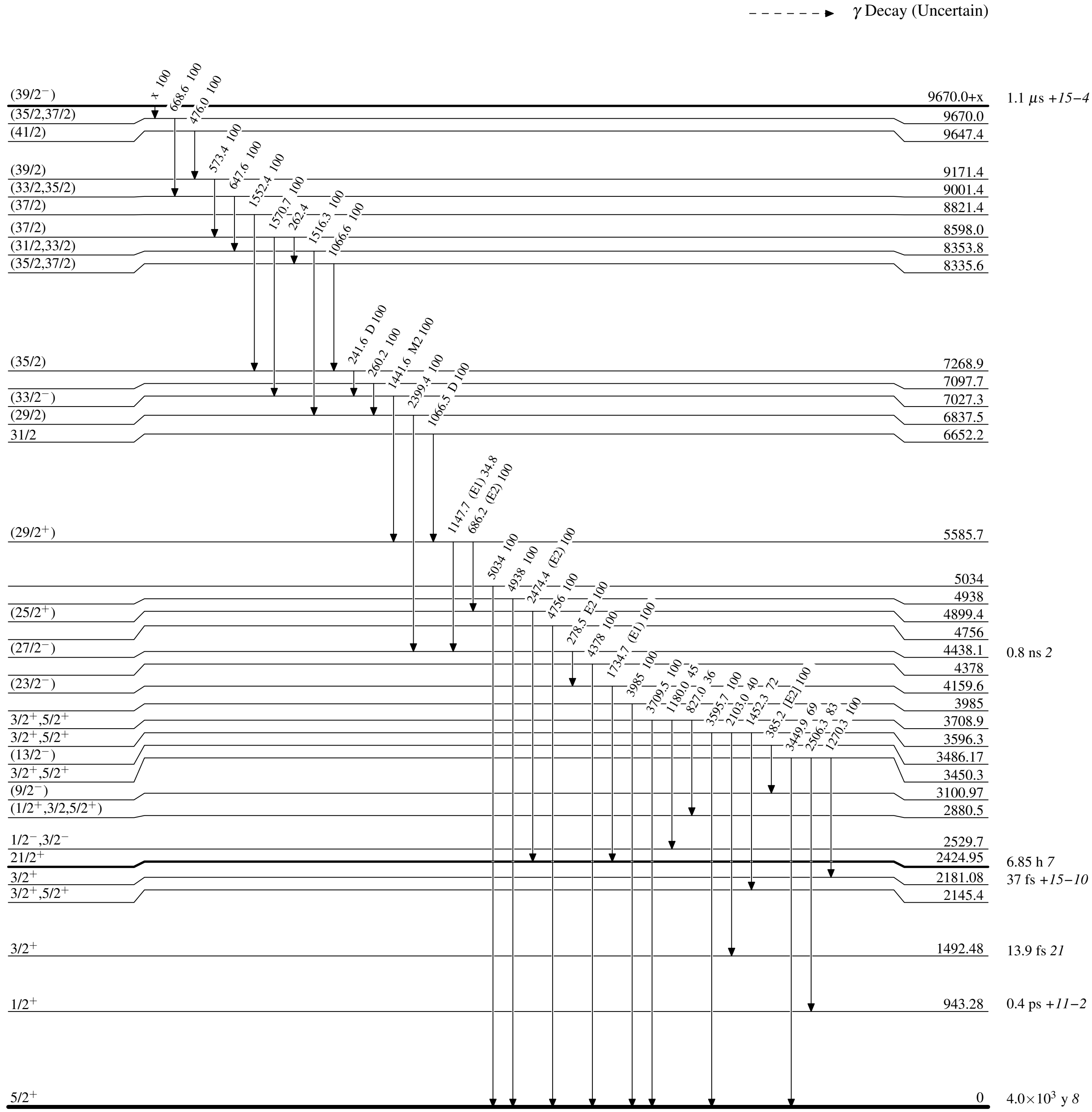
e Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

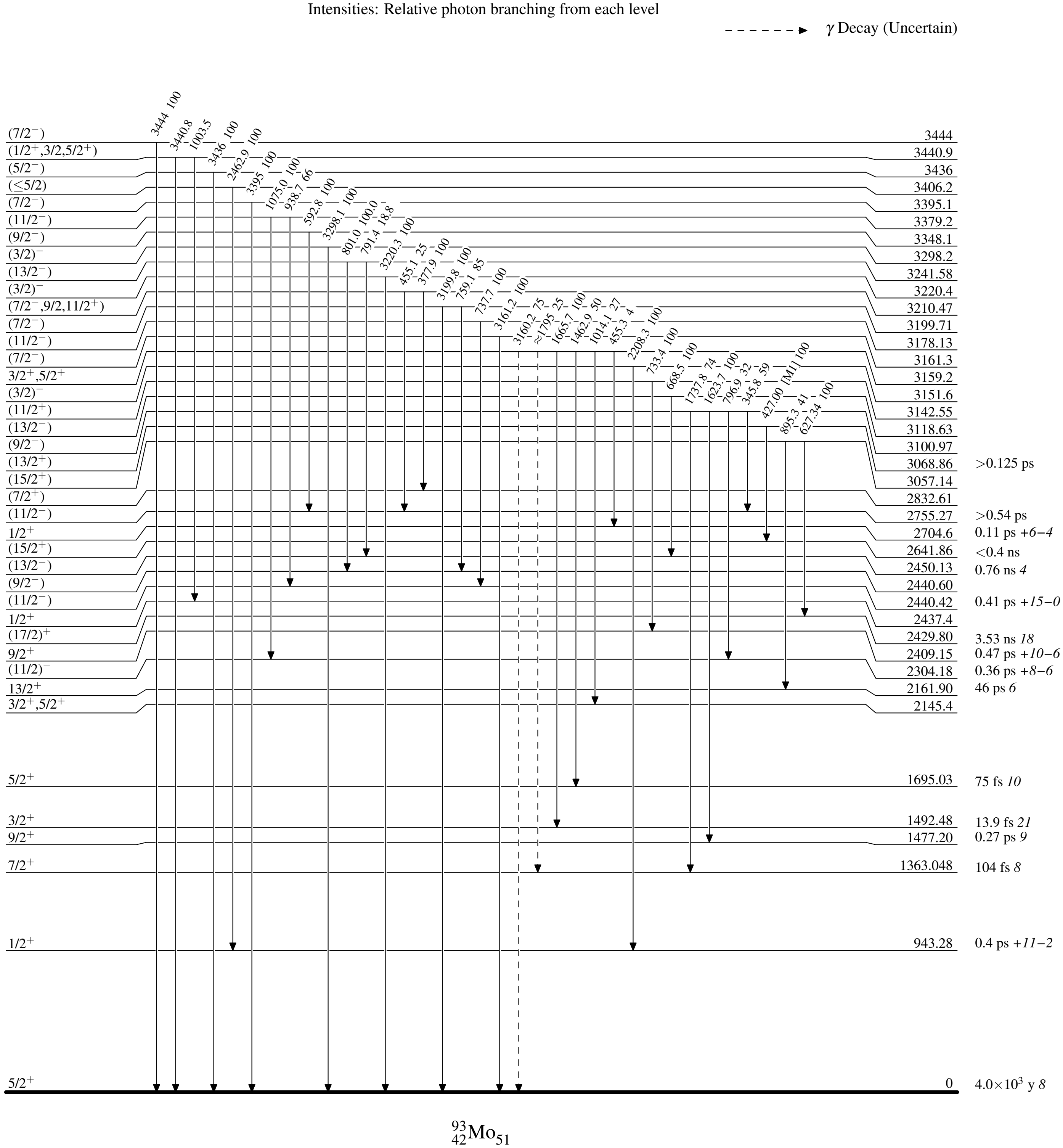


$^{93}_{42}Mo_{51}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



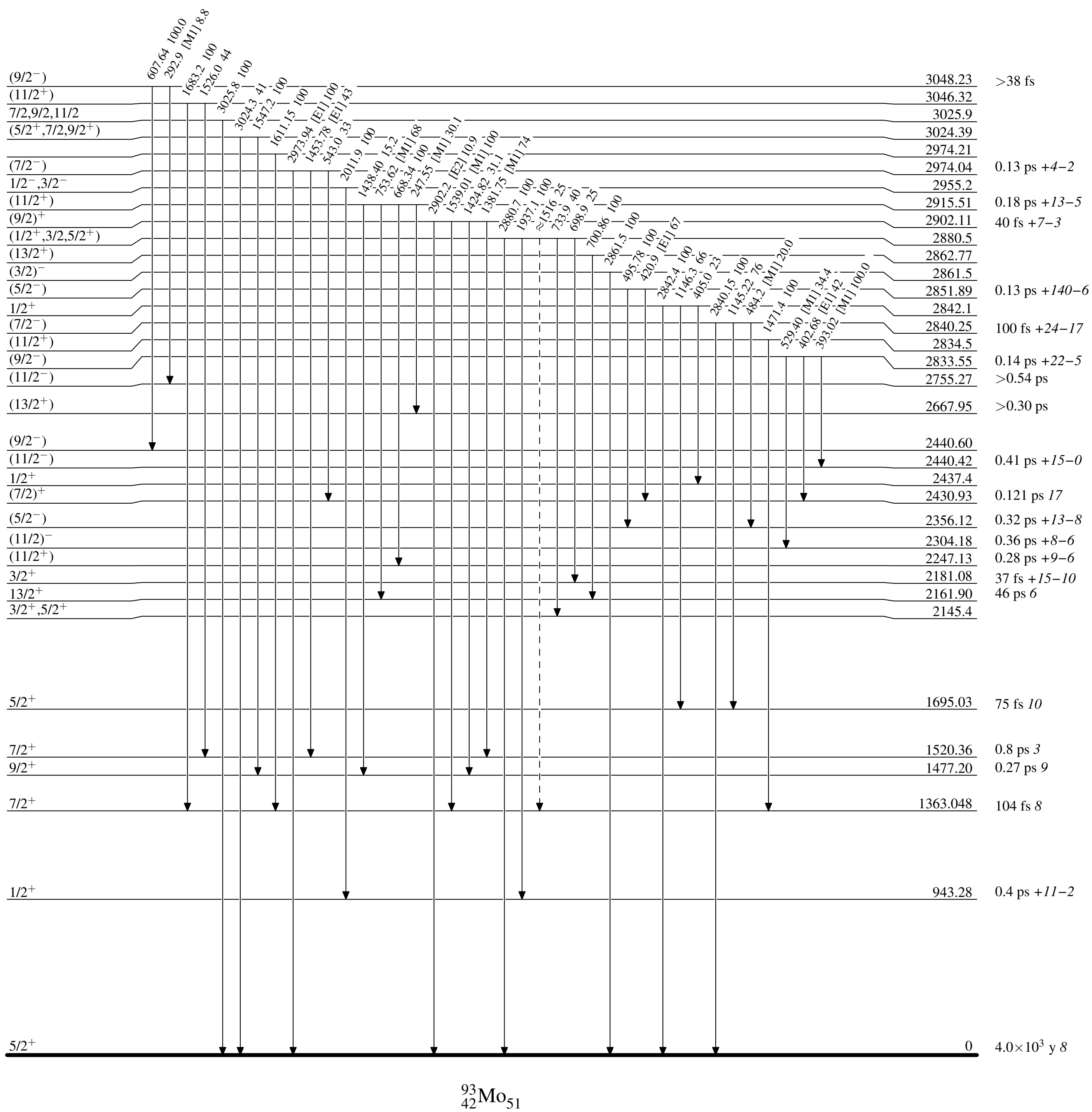
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

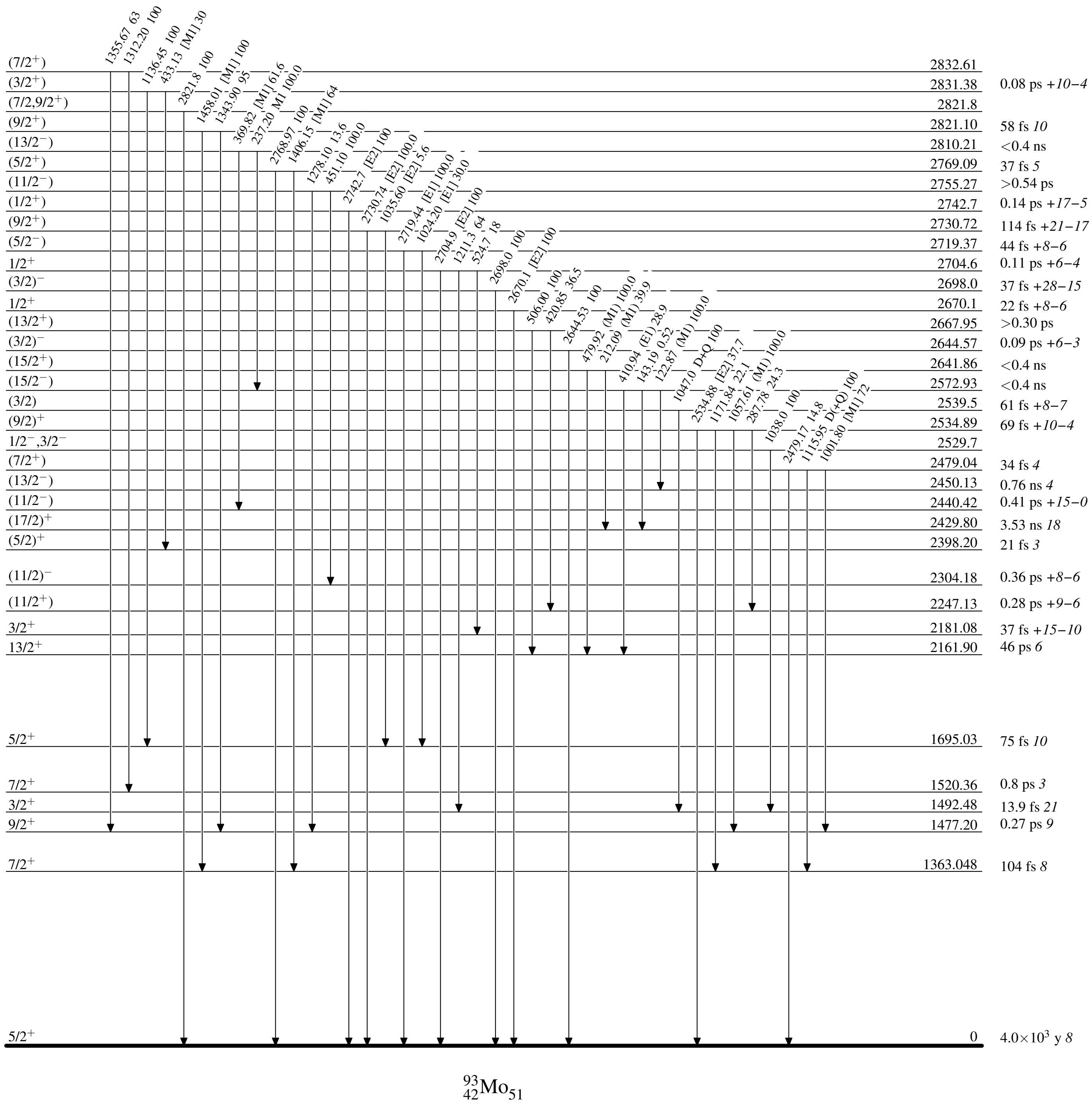
γ Decay (Uncertain)



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



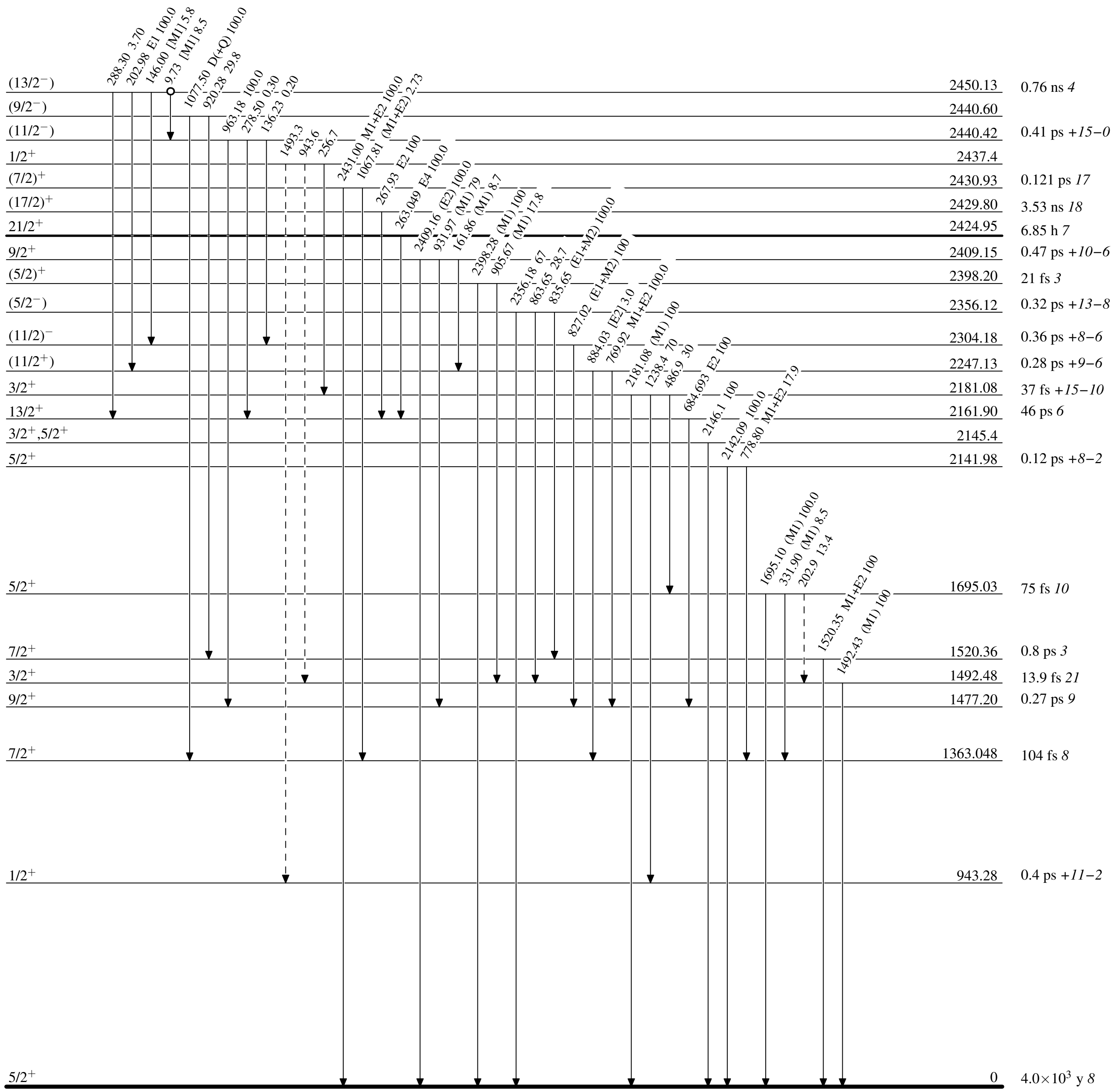
Legend

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)
Coincidence
Coincidence (Uncertain)

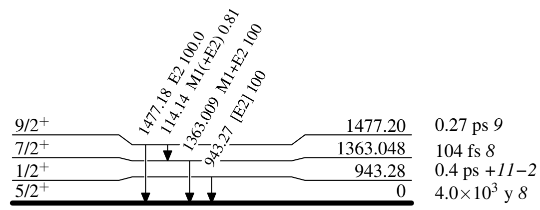


$^{93}_{42}Mo_{51}$

Adopted Levels, Gammas

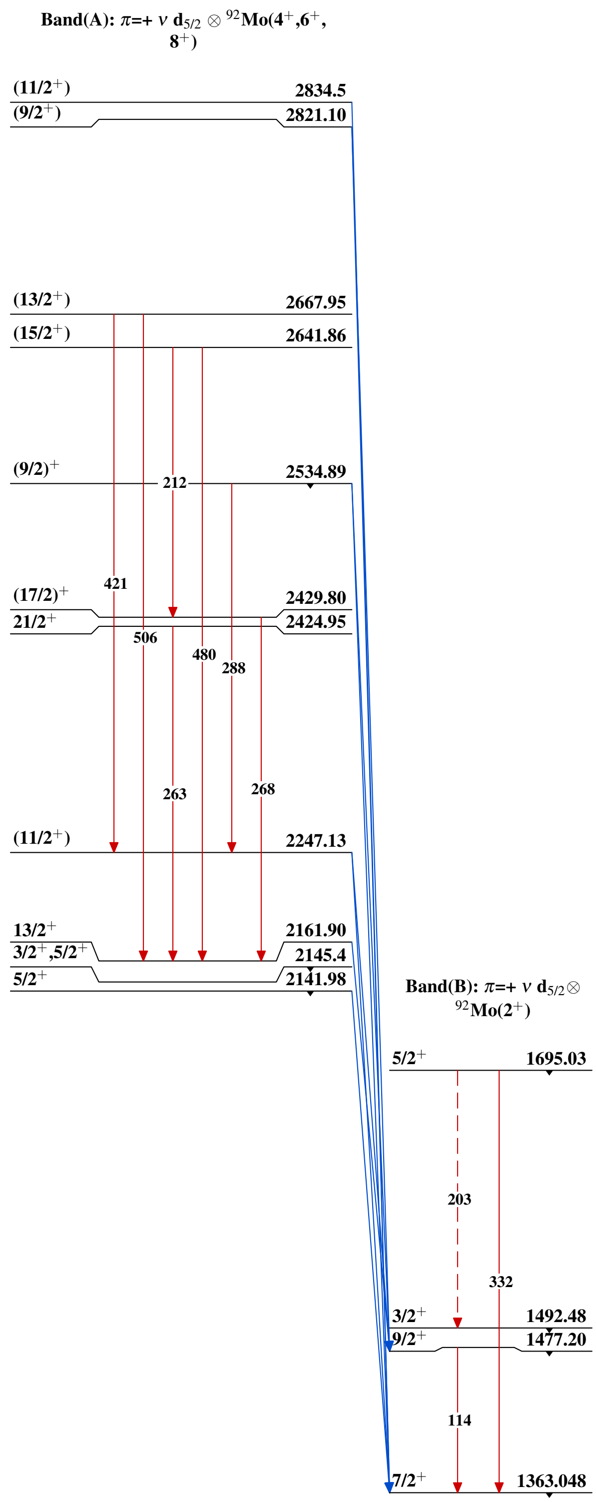
Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{93}_{42}Mo_{51}$

Adopted Levels, Gammas



$^{93}_{42}Mo_{51}$