Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 111,525 (2010)	19-Nov-2009

Q(β^-)=−325 *4*; S(n)=6821.25 *21*; S(p)=9226 *4*; Q(α)=−2845.8 *19* 2012Wa38
Note: Current evaluation has used the following Q record −320 4 *6821.26 21* 9226 *3* −2848.3 *20* 2003Au03.
2008De16,2007Wi07: absolute isotopic abundances of molybdenum.
2005Si07,2005Gu16: radiative strength functions.

^{97}Mo Levels

Above 3573 keV level for $\nu h_{11/2}$ band the levels from 2001Bu01 (^{19}F,p3nγ) were adopted, which differ from those of 2004Ch18 (^{18}O,3nγ) (based on better statistics and evaluation of impurity γ's in 2001Bu01).

Cross Reference (XREF) Flags

A	^{97}Nb β^- decay	H	^{96}Zr(^{3}He,2nγ)	O	^{96}Mo(^{13}C,^{12}C), (^{13}C,^{12}Cγ)
B	^{97}Tc ε decay (4.21×10^6 y)	I	^{96}Zr(α,3nγ)	P	^{97}Mo(n,n′γ)
C	^{97}Tc ε decay (91.0 d)	J	^{96}Mo(n,γ) E=th	Q	Coulomb excitation
D	^{82}Se(^{18}O,3nγ)	K	^{96}Mo(n,γ) E=res: av	R	^{98}Mo(p,d)
E	^{82}Se(^{19}F,p3nγ)	L	^{96}Mo(d,p)	S	^{98}Mo(p,d) IAS
F	^{94}Zr(α,nγ)	M	^{96}Mo(d,pγ)	T	^{98}Mo(d,t)
G	^{95}Mo(t,p)	N	^{96}Mo(t,d), (pol d,p)		

Theory, calculations, systematics:
levels, level densities: 2006Ch14, 2003Sc32, 1986Ro04
rms radii: 2009Ch09, 2007Ii03, 1995Fr22, 1988Bh03, 1985Za02, 1983Se01
pairing correlations: 2007Ka31, 2006Ka40
calculated Gamow-Teller strength distribution: 2005Ju11
calculated quadrupole moments: 1998Jo10
calculated log *ft*: 2002ViZX

E(level)†	J$^\pi$	T$_{1/2}$‡	XREF	Comments
0.0&	5/2$^+$	stable	ABCDEFGHIJKLMNOPQR T	μ=−0.9335 *1* (2005St24); Q=+0.255 *13* (2005St24) J$^\pi$: from L=2 in ^{95}Mo(t,p) (2008Ra13); also J=5/2 (1976Fu06); π=+ from L=2 in ((d,p), (t,d), (p,d) and (d,t) reactions. μ: measured by nuclear magnetic resonance (1951Pr02). Q: measured by atomic beam magnetic resonance − thermal beam (reevaluated by 1989Ra17); Q(^{97}Mo)/Q(^{95}Mo)=−11.48 *1* (1984Ol02), 11.4 *3* (1975Ka23). Δ<r^2>(^{97}Mo,^{92}Mo)=+0.630 fm^2 *12* (2009Ch09); uncertainty is systematic. Isotope shift(^{97}Mo,^{92}Mo)=−1391 MHz *21* (2009Ch09); total uncertainty is given; statistical uncertainty is 1.
275 *1*			G	
320 *1*	1/2 to 9/2$^+$		G	J$^\pi$: L=2 in (t,p).
373 *8*	1/2 to 9/2$^+$		G	J$^\pi$: L=2 in (t,p).
480.91 *6*	3/2$^+$	12.9 ps *19*	FGH JKLM PQ	J$^\pi$: $\gamma(\theta)$ in Coul. ex.; from 480.91γ excit in (α,nγ), (n,n′γ).
528 *5*	5/2$^+$		G	J$^\pi$: L=0 in (t,p).
576 *4*	1/2 to 11/2$^-$		G	J$^\pi$: L=3 in (t,p).
658.13@a *5*	7/2$^+$	2.0 ps *5*	A DEFGHIJ LMN PQR	XREF: N(664).

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Adopted Levels, Gammas (continued)

^{97}Mo Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[‡]	XREF	Comments
				Jπ: L=4 in (d,p), (t,d) reactions; βγ(θ,CP) (^{97}Nb β⁻ decay).
679.59[@] *7*	1/2⁺	28.9 ps *19*	FGH JKLMN PQR T	XREF: N(685). Jπ: L=0 in (d,p), (t,d), (pol d,t).
719.20 *7*	5/2⁺	10 ps *5*	A FGH J lM PQR	XREF: l(720). Jπ: L=2 in (p,d), (d,t) reactions; J=5/2, 7/2 from γ excit (α,nγ), (n,n′γ).
720.92[@] *14*	3/2⁺	4 ps *+5−3*	H KlMN PQ T	XREF: l(720)N(727). Jπ: L=2 in (d,t); J=3/2 in (t,d) (pol d,p).
753 *5*	(3/2⁺,5/2⁺)		L	Jπ: L=(2) in (d,p) reaction.
787 *5*	1/2 to 11/2⁻		G	Jπ: L=3 in (t,p).
795 *5*	(1/2⁺)		J L	XREF: J(778). Jπ: L=(0) in (d,p) reaction.
824 *4*	5/2⁺		G	Jπ: L=0 in (t,p).
888.00 *10*	1/2⁺	2.7 ps *9*	FGH JKLMN PQR T	Jπ: L=0 in (d,p), (p,d), (pol d,t).
993 *5*	(3/2⁺,5/2⁺)		L	Jπ: L=(2) in (d,p).
1004 *1*	1/2 to 9/2⁺		G	Jπ: L=2 in (t,p).
1024.45[@] *8*	7/2⁺	0.55 ps *12*	A F HIJ LMN PQR	XREF: N(1041). Jπ: L=4 in (d,p), (t,d), (p,d); 7/2 from 1024.49γ excit, γ(θ) (α,nγ). If same level as 1025 then $J^{\pi}=5/2^{+}$.
1025? *2*	5/2⁺		G	Might Be same as 1024 level. Jπ: L=0 in (t,p).
1092.63 *14*	3/2⁺	1.3 ps *+16−7*	FGH JKLM PQ	Jπ: from 1092.58γ(θ) (Coul. ex.); excit (α,nγ). M1+E2 γ to g.s.
1116 *5*	11/2⁻		L T	XREF: T(1120). Jπ: L=5 in (d,p); 11/2 from VAP in (pol d,t).
1116.74[@&] *8*	9/2⁺	1.20 ps *8*	A DEFGHIJ MN PQR	XREF: N(1131). Jπ: L=4 in (p,d); 9/2 from 1116.88γ excit, γ(θ) (α,nγ); 1116.88γ(θ) (Coul. ex.).
1120 *10*	3/2⁺,5/2⁺		T	E(level): peak at 1120 *10* keV observed to be L=2 + L=5 doublet. Jπ: L(pol d,t)=2.
1134 *3*	7/2⁺,9/2⁺		G L	Jπ: L=4 in (t,d).
1222 *3*	5/2⁺		G	Jπ: L=0 in (t,p).
1264.9[@] *4*	3/2⁺,5/2⁺		KLMN P	XREF: N(1280). Jπ: L=2 in (d,p); 5/2 from γ excit (n,n′γ); J=3/2 from VAP for 1280 level in (pol d,p).
1268 *5*	3/2 to 7/2⁻		G	Jπ: L=1 in (t,p).
1268.63 *8*	7/2⁺	0.53 ps *20*	A F H J M PQ	Jπ: Coul. ex.; excit 549.34γ (n,n′γ) and 1268.68γ (α,nγ), (n,n′γ).
1270.7 *3*	5/2⁺		H P T	XREF: T(1280). Jπ: ΔJ=−1 for γ to 3/2⁺ level; L=2 and VAP in (pol d,t).
1284.63[@] *12*	3/2⁺,5/2⁺	0.7 ps *+5−6*	F HIJKLMN PQR	XREF: N(1300). Jπ: L=2 in (d,p), (t,d), (p,d); J=5/2 from VAP for 1300 level in (pol d,p) (α,nγ).
1321.5 *9*	3/2	<7[#] ns	F P	Jπ: 840.6γ excit in (n,n′γ).
1341 *6*	1/2 to 9/2⁺		G	Jπ: L=2 in (t,p).
1409.47[a] *11*	11/2⁺	<7[#] ns	DEF HI P	Jπ: 9/2, 11/2 from 751.41γ excit (α,nγ), (^{3}He,2nγ); stretched E2 to 7/2⁺ level, no γ to g.s. $T_{1/2}$: deduced from prompt coin (α,nγ).

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Adopted Levels, Gammas (continued)

^{97}Mo Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[‡]	XREF	Comments
1436.91[@b] *15*	11/2⁻	2.5 ns *3*	DEFGHI LMN P R	XREF: N(1450). Jπ: L=5 in (d,p), (t,d), (p,d); 11/2 from (pol d,p). $T_{1/2}$: from (α,nγ) (1992Ko08).
1515.72 *9*	9/2⁺	1.48 ps *23*	A F HI M PQR	Jπ: L=4 in (p,d); γ(θ) in Coul. ex.
1516.0[@] *4*	3/2⁺		JKL N	XREF: N(1532). Jπ: L=2 in (d,p); J=3/2 for 1532 level from vector-analyzing power in (pol d,p).
1544.89 *21*	(7/2⁺,9/2⁺,11/2⁺)	<7[#] ns	F P t	XREF: t(1560). Jπ: from γ excit in (α,nγ); π=+ from (M1+E2) γ to 9/2⁺ 1116.72 level.
1547.6 *5*	1/2⁺		JKLM P t	XREF: J(1544)t(1560). Jπ: L=0 in (d,p).
1550 *8*	5/2⁺		G	Jπ: L=0 in (t,p).
1556.6[@] *7*	7/2⁻		H LMN R t	XREF: N(1582)t(1560). Jπ: L=3 in (d,p); J=7/2 for 1582 level from vector-analyzing power in (pol d,p).
1563 *4*	3/2⁺,5/2⁺		J L R t	XREF: J(1567)t(1560). Jπ: L=2 in (d,p), (p,d).
1565.6 *3*	(7/2)	<7[#] ns	F H M P	Jπ: 1565.6γ excit ((α,nγ), (^{3}He,2nγ), (n,n′γ)).
1621 *2*	1/2 to 9/2⁺		G	Jπ: L=2 in (t,p).
1629.91[@] *16*	7/2⁺	<7[#] ns	A F H L N P	XREF: N(1655). Jπ: L=4 in (d,p); 909.0γ excit (α,nγ).
1697.9 *5*	(9/2⁺)		H L t	XREF: t(1710). Jπ: L=(4) in (d,p); 9/2, 11/2 from 1039.8γ excit (n,n′γ).
1700.7 *9*	(1/2⁺)		P t	XREF: t(1710). Jπ: from 1700.7γ excit (n,n′γ); γ to g.s.
1724.1 *5*	3/2,5/2⁺		G KL P t	XREF: K(1726)L(1726)t(1710). Jπ: from γ excit in (n,n′γ); fed by primary γ in (n,γ) E=res: av;
1727.54[@] *20*	(7/2⁺)		N P t	XREF: N(1752)t(1710). Jπ: (5/2,7/2) from 1009.02γ excit (n,n′γ); 7/2⁺,9/2⁺ from L=4 for 1752 level in (t,d), (pol d,p).
1758.3 *10*	(1/2,3/2,5/2⁺)		J	Jπ: fed by primary γ in (n,γ) E=th.
1762.5[@] *6*	9/2⁺		L N P t	XREF: N(1780)t(1780). Jπ: L=4 in (d,p), (t,d); 9/2 from γ excit (n,n′γ).
1782.95 *13*	(11/2⁺)	<7[#] ns	F H t	XREF: t(1780). Jπ: J≥9/2 from γ excit, γ to 9/2⁺ level with ΔJ=1 γ(θ) (^{3}He,2nγ); π from strong γ to 7/2⁺ level.
1786.5[@] *5*	7/2⁺,9/2⁺		L N P t	XREF: N(1812)t(1780). Jπ: L=4 in (d,p); L=4 for 1812 level in (t,d), (pol d,p).
1790.3 *5*	(1/2,3/2)		P t	XREF: t(1780). Jπ: 1790.3 excit (n,n′γ).
1847.8 *4*	(5/2,7/2)		H P	Jπ: 1189.5γ and 1848.0γ excit (n,n′γ).
1848[@] *5*			KL N	XREF: N(1870). Jπ: L=(0) in (d,p); L=1, J=3/2 for 1870 level in (t,d), (pol d,p).
1871 *8*	1/2 to 9/2⁺		G	Jπ: L=2 in (t,p).
1921.0[&] *3*	13/2⁺	<7[#] ns	DEF HI	Jπ: stretched Q to 9/2⁺ level, γ(θ) in (α,3nγ); parity from ΔJ=2 positive parity band.

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Adopted Levels, Gammas (continued)

^{97}Mo Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[‡]	XREF	Comments
1930.2 *3*	(3/2,5/2)		P	Jπ: from 1251γ excit (n,n′γ).
1939.93 *14*	(5/2+)	<7[#] ns	F H P	Jπ: 3/2,5/2 from 823.20γ excit (α,nγ), 1281.78γ excit (n,n′γ); γ′s to 7/2+ and 9/2+ levels. Tentative contradictory assignment (7/2+,11/2+) in (^{3}He,2nγ) based on γ(θ) result obtained with contaminated γ.
1955 *3*	5/2+		G KL R	Jπ: L=0 in (t,p).
1961.6 *4*	7/2+		P R	Jπ: L=4 member of the doublet at 1961 keV in (p,d); 1481.0γ, 1959.3γ excit in (n,n′γ); decay to 5/2+ and 3/2+ levels.
1986.1 *8*	(3/2,5/2,7/2)		P	Jπ: 1989.4γ excit (n,n′γ).
1989.8 *4*	(3/2,5/2)		P	Jπ: 1508.9γ excit (n,n′γ).
2002 *5*	(7/2+,9/2+)		L	Jπ: L=(4) in (d,p).
2002.3[b] *4*	15/2−		DE HI	Jπ: stretched E2 to 11/2− level; γ(θ) in (α,3nγ).
2033.7 *10*	1/2+		JKL P R	Jπ: L=0 in (d,p).
2040.9 *3*	(7/2−)		GH t	XREF: t(2060). Jπ: 3/2−,5/2−,7/2− from L=1 in (t,p); (7/2−) from γ to 9/2+, 1117 (also ΔJ Ne 2 for γ to 9/2+ level in (^{3}He,2nγ)) (^{3}He,2nγ).
2049.8 *4*	7/2+,9/2+		L P R t	XREF: L(2047)R(2044)t(2060).
2055.0 *9*	(5/2,7/2)		P t	XREF: t(2060). Jπ: from 2055.0γ excit (n,n′γ).
2061 *1*			G	
2073.8 *4*			H t	XREF: t(2060).
2092.1 *9*	3/2−		P R	Jπ: L=1 in (p,d); decays to 5/2+ g.s.
2152.5 *6*	3/2+,5/2+		G L P t	XREF: t(2170). Jπ: L=2 in (d,p).
2160.0 *11*	(13/2,15/2−)		I	Jπ: from γ(θ) in (α,3nγ); decays to 11/2− level.
2163.6 *12*	3/2+,5/2+		J R t	XREF: t(2170). Jπ: L=2 in (p,d).
2197.26 *23*			H	
2220 *6*	1/2 to 11/2−		G	Jπ: L=3 in (t,p).
2222 *5*	3/2+,5/2+		L	Jπ: L=2 in (d,p).
2244.1 *3*			H	Jπ: J>9/2 from 1127.4γ excit.
2258.0 *4*	(9/2,11/2)		H	Jπ: J≤11/2 from 821.1γ excit; ΔJ Ne +2 for γ to 11/2− level.
2267 *5*	1/2−,3/2−		L R	Jπ: L=1 in (p,d).
2271.1 *5*			H	
2278.9 *6*	(3/2,5/2+)		J P	Jπ: 2278.9γ excit (n,n′γ); fed by primary γ in (n,γ) E=th.
2315 *5*	3/2+,5/2+		G L	Jπ: L=2 in (d,p).
2331.2 *12*	(7/2+)		L P R	XREF: L(2335)R(2320). Jπ: L=(4) in (p,d); 5/2,7/2 from γ excit (n,n′γ).
2347.6 *12*	(1/2−,3/2−)		J L	XREF: L(2350). Jπ: L=(1) in (d,p).
2357.3 *4*			H	
2365.6 *9*	(9/2)+		G P	Jπ: 9/2,11/2 from 2365.6γ excit (n,n′γ); 1/2 to 9/2+ from L=2 in (t,p).
2377.5 *11*	5/2+		L P	Jπ: L=2 in (d,p); 5/2,7/2 from γ excit (n,n′γ).
2388 *7*	1/2−,3/2−		R T	Jπ: L=1 in (p,d), (pol d,t).
2409.8 *10*	5/2+		L P	Jπ: L=2 in (d,p); J≥5/2 from γ excit (n,n′γ).
2426 *4*	9/2−,11/2−		G L	Jπ: L=5 in (d,p).
2433.9[a] *4*	(15/2+)		DE HI	Jπ: stretched (E2) γ (in-band transition) to 11/2+ level.
2460? *20*	(1/2−,3/2−)		L	Jπ: L=(1) in (d,p).
2462 *5*	1/2+		L	Jπ: L=0 in (d,p).
2491 *2*	5/2+		G L	Jπ: L=0 in (t,p).
2498.0 *12*	(1/2,3/2,5/2+)		J	Jπ: fed by primary γ in (n,γ) E=th.

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Adopted Levels, Gammas (continued)

^{97}Mo Levels (continued)

E(level)[†]	Jπ	XREF	Comments
2511.3 *6*	9/2$^+$	g P R T	XREF: g(2517)T(2520). Jπ: L=4 in (p,d), (d,t); 9/2 from (pol d,t).
2512.9 *5*	3/2$^+$,5/2$^+$	g J L	XREF: g(2517). Jπ: L=2 in (d,p).
2539 *5*	7/2$^+$,9/2$^+$	L	Jπ: L=4 in (d,p).
2557 *5*	1/2$^+$	L	Jπ: L=0 in (d,p).
2560.4 *8*		P	Jπ: J≥9/2 from 1900.0γ and 2562.2γ excit.
2564.4 *12*	(1/2,3/2,5/2$^+$)	J	Jπ: fed by primary γ in (n,γ) E=th.
2578.7 *10*	(1/2$^+$,3/2,5/2$^+$)	J	Jπ: fed by primary γ in (n,γ) E=th; γ to 5/2$^+$ g.s.
2610 *3*	1/2 to 9/2$^+$	G	Jπ: L=2 in (t,p).
2626.62 *24*		H	
2643.4 *9*	(3/2$^+$,5/2$^+$)	J P	Jπ: fed by primary γ in (n,γ) E=th; γ to 7/2$^+$ level.
2649.5 *8*	(7/2$^+$,9/2$^+$)	g P	XREF: g(2653). Jπ: γ's to 5/2$^+$ and 11/2$^+$ levels.
2650 *5*	3/2$^+$,5/2$^+$	g L	XREF: g(2653). Jπ: L=2 in (d,p).
2677 *5*	3/2$^+$,5/2$^+$	L	Jπ: L=2 in (d,p).
2697 *5*	3/2$^+$,5/2$^+$	L	Jπ: L=2 in (d,p).
2707.8 *5*		H	
2712.2[a] *4*	(17/2$^+$)	DE I	Jπ: stretched (M1+E2) γ (in-band transition) to (15/2$^+$).
2725.2[b] *4*	(19/2$^-$)	DE H	Jπ: stretched (E2) γ (in-band transition) to 15/2$^-$ level.
2745 *5*	1/2$^-$,3/2$^-$	L R	XREF: R(2752). Jπ: L=1 in (p,d).
2772 *4*	7/2$^+$,9/2$^+$	G L	Jπ: L(d,p)=4.
2793.5 *8*	5/2$^+$	G J	Jπ: L=0 in (t,p).
2813.6 *5*		H	
2828.7[a] *4*	(19/2$^+$)	DE I	Jπ: γ(θ) from (α,3nγ); decays only to (17/2$^+$) level.
2831 *13*	1/2$^-$,3/2$^-$	R T	Jπ: L=1 in (p,d), (pol d,t).
2833 *5*	3/2$^+$,5/2$^+$	L	Jπ: L=2 in (d,p).
2859 *3*	5/2$^+$	G L	Jπ: L=0 in (t,p).
2875 *15*	1/2$^-$,3/2$^-$	R	Jπ: L=1 in (p,d).
2878 *5*	3/2$^+$,5/2$^+$	L	Jπ: L=2 in (d,p).
2896 *4*	5/2$^+$	G	Jπ: L=0 in (t,p).
2905.7 *8*	3/2$^+$,5/2$^+$	L P	Jπ: L=2 in (d,p).
2925 *1*	(5/2,7/2)$^-$	G L	Jπ: (5/2$^-$,7/2$^-$) from L=(3) in (d,p); 1/2 to 11/2$^-$ from L=3 in (t,p).
2950 *5*	3/2$^+$,5/2$^+$	L	Jπ: L=2 in (d,p).
2976 *3*	3/2 to 13/2$^+$	G L	Jπ: L=4 in (d,p).
3008.2 *10*	1/2$^-$,3/2$^-$	J R	XREF: R(3004). Jπ: L=1 in (p,d).
3015 *5*	3/2$^+$,5/2$^+$	L	Jπ: L=2 in (d,p).
3020 *1*	3/2 to 7/2$^-$	G	Jπ: L=1 in (t,p).
3035 *5*	(3/2$^+$,5/2$^+$)	L	Jπ: L=(2) in (d,p).
3052 *15*	1/2$^-$,3/2$^-$	R	Jπ: L=1 in (p,d).
3074 *5*	3/2$^+$,5/2$^+$	L	Jπ: L=2 in (d,p).
3076 *1*	3/2 to 7/2$^-$	G	Jπ: L=1 in (t,p).
3096 *5*		L	
3111 *20*	1/2$^-$,3/2$^-$	R	Jπ: L=1 in (p,d).
3122 *3*		G L	
3154 *5*	1/2$^+$	L	Jπ: L=0 in (d,p).
3170 *15*		R	E(level),Jπ: L=4+1 doublet from (p,d).
3191 *4*	1/2 to 11/2$^-$	G L	Jπ: L=3 in (t,p).
3217 *5*	3/2$^+$,5/2$^+$	L	Jπ: L=2 in (d,p).
3258 *5*	1/2$^-$,3/2$^-$	L R	Jπ: L=1 in (p,d).
3293 *5*		L	
3338 *5*	7/2$^+$,9/2$^+$	L	Jπ: L=4 in (d,p).

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Adopted Levels, Gammas (continued)

^{97}Mo Levels (continued)

E(level)[†]	Jπ	XREF	Comments
3345 *20*	1/2⁻,3/2⁻	R	Jπ: L=1 in (p,d).
3370 *5*	3/2⁺,5/2⁺	L	Jπ: L=2 in (d,p).
3391 *5*	3/2⁺,5/2⁺	L	Jπ: L=2 in (d,p).
3406 *15*	7/2⁺,9/2⁺	R	Jπ: L=4 in (p,d).
3466 *5*	(3/2⁺,5/2⁺)	L	Jπ: L=(2) in (d,p).
3501 *5*	3/2⁺,5/2⁺	L R	XREF: R(3519). Jπ: L=2 in (p,d).
3547 *5*	(7/2⁺,9/2⁺)	L	Jπ: L=(4) in (d,p).
3567 *5*	7/2⁺,9/2⁺	L R	XREF: R(3583). Jπ: L=4 in (p,d).
3571.6[b] *4*	(23/2⁻)	DE	Jπ: stretched (E2) γ (in-band transition) to (17/2⁻) level.
3596 *5*		L	E(level): possible doublet.
3620 *5*	3/2⁺,5/2⁺	L	Jπ: L=2 in (d,p).
3659 *5*	7/2⁺,9/2⁺	L R	Jπ: L=4 in (p,d).
3682 *5*		L	
3706 *5*		L	Jπ: L=(3,2) in (d,p).
3734 *5*	7/2⁺,9/2⁺	L R	XREF: R(3740). Jπ: L=4 in (p,d).
3747.7[a] *4*	(21/2)	DE I	Jπ: stretched D transition to (19/2⁺).
3786 *5*	(3/2⁺,5/2⁺)	L	Jπ: L=(2) in (d,p).
3793 *20*		R	E(level),Jπ: L=4+1 doublet from (p,d).
3892 *5*		L	Jπ: L=(3,2) from (d,p).
3912 *5*	(3/2⁺,5/2⁺)	L	Jπ: L=(2) in (d,p).
3935 *5*	(3/2⁺,5/2⁺)	L	Jπ: L=(2) in (d,p).
3959 *25*	1/2⁻,3/2⁻	R	Jπ: L=1 in (p,d).
3983 *5*	(3/2⁺,5/2⁺)	L	Jπ: L=(2) in (d,p).
4025 *5*		L	
4053 *5*		L	
4073 *25*	1/2⁻,3/2⁻	R	Jπ: L=1 in (p,d).
4121 *5*		L	
4144 *5*	(3/2⁺,5/2⁺)	L	Jπ: L=(2) in (d,p).
4254 *25*	1/2⁻,3/2⁻	R	Jπ: L=1 in (p,d).
4298 *25*	1/2⁻,3/2⁻	R	Jπ: L=1 in (p,d).
4423 *25*	1/2⁻,3/2⁻	R	Jπ: L=1 in (p,d).
4470 *25*	1/2⁻,3/2⁻	R	Jπ: L=1 in (p,d).
4472.4[a] *4*	(25/2)	DE	
4518.6[b] *4*	(27/2⁻)	DE	Jπ: stretched (E2) γ (in-band transition) to (23/2⁻) level.
5502.5[b] *4*	(31/2⁻)	E	Jπ: stretched (E2) γ (in-band transition) to (27/2⁻) level.
13030 *30*	9/2⁺	S	Jπ: L=4 in (p,d) IAS; analog of ^{97}Nb 9/2⁺ g.s.
13790 *30*	1/2⁻	S	Jπ: L=1 in (p,d) IAS; analog of ^{97}Nb 1/2- 743-keV level.
14260 *30*		S	
14300 *30*	1/2⁻,3/2⁻	S	Jπ: L=1 in (p,d) IAS.
14340 *30*	1/2⁻,3/2⁻	S	Jπ: L=1 in (p,d) IAS.
14380 *30*		S	
14500 *30*	5/2⁻	S	Jπ: L=3 in (p,d) IAS; analog of ^{97}Nb 5/2- 1433-keV level.

[†] From least squares fit to Eγ, where possible. Normalized χ^2=1.85 greater than critical χ^2=1.73.
[‡] From Coul. ex. unless otherwise noted.
[#] Deduced from prompt coin (α,nγ).
[@] See comment in the (t,d), (pol d,p) data set for the explanation for the difference in the measured energy and the adopted level energy.
[&] Band(A): $\nu d_{5/2}$ band.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{97}Mo Levels (continued)

[a] Band(B): $\nu g_{7/2}$ band.
[b] Band(C): $\nu h_{11/2}$ band.

Adopted Levels, Gammas (continued)

$\gamma(^{97}Mo)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
480.91	$3/2^+$	480.91 *7*	100	0.0	$5/2^+$	M1+E2	+0.47 *3*	0.00444	α(K)=0.00389 *6*; α(L)=0.000448 *7*; α(M)=8.00×10^{-5} *13*; α(N+..)=1.283×10^{-5} *20* α(N)=1.215×10^{-5} *19*; α(O)=6.77×10^{-7} *10* B(M1)(W.u.)=0.0125 *19*; B(E2)(W.u.)=11.6 *21*
658.13	$7/2^+$	658.08 *6*	100	0.0	$5/2^+$	M1+E2	−0.05 *3*	0.00204	α(K)=0.00179 *3*; α(L)=0.000202 *3*; α(M)=3.60×10^{-5} *5*; α(N+..)=5.81×10^{-6} *9* α(N)=5.49×10^{-6} *8*; α(O)=3.14×10^{-7} *5* B(M1)(W.u.)=0.038 *10*; B(E2)(W.u.)=0.22 *+27−22* δ: from $\gamma(\theta)$ from polarized nuclei (^{97}Nb β^- decay). Other: −0.06≤δ≤+0.01 (α,nγ); −0.04 *1* (Coul. ex.).
679.59	$1/2^+$	679.59 *7*	100	0.0	$5/2^+$	E2		0.00200	B(E2)(W.u.)=5.1 *4* α(K)=0.001755 *25*; α(L)=0.000204 *3*; α(M)=3.65×10^{-5} *6*; α(N+..)=5.82×10^{-6} *9* α(N)=5.52×10^{-6} *8*; α(O)=2.99×10^{-7} *5*
719.20	$5/2^+$	238.30 *9*	35 *5*	480.91	$3/2^+$	M1+E2	−0.06 *6*	0.0244 *5*	α(K)=0.0214 *4*; α(L)=0.00248 *6*; α(M)=0.000444 *10*; α(N+..)=7.12×10^{-5} *15* α(N)=6.74×10^{-5} *14*; α(O)=3.78×10^{-6} *7* B(M1)(W.u.)=0.042 *22*; B(E2)(W.u.)=3 *+6−3*
		719.46 *17*	100 *4*	0.0	$5/2^+$	M1+E2	−0.47 *10*	1.67×10^{-3}	B(M1)(W.u.)=0.0036 *19*; B(E2)(W.u.)=1.5 *9* α(K)=0.001472 *21*; α(L)=0.0001663 *25*; α(M)=2.97×10^{-5} *5*; α(N+..)=4.78×10^{-6} *7* α(N)=4.52×10^{-6} *7*; α(O)=2.56×10^{-7} *4*
720.92	$3/2^+$	720.92 *14*	100	0.0	$5/2^+$	M1+E2	−0.19 *9*	1.66×10^{-3}	α(K)=0.001459 *21*; α(L)=0.0001640 *24*; α(M)=2.93×10^{-5} *5*; α(N+..)=4.72×10^{-6} *7* α(N)=4.46×10^{-6} *7*; α(O)=2.55×10^{-7} *4* B(M1)(W.u.)=0.014 *+11−14*; B(E2)(W.u.)=1.0 *+12−10*
888.00	$1/2^+$	407.06 *9*	100 *6*	480.91	$3/2^+$	M1(+E2)		0.0076 *13*	α(K)=0.0067 *11*; α(L)=0.00079 *16*; α(M)=0.00014 *3*; α(N+..)=2.3×10^{-5} *5* α(N)=2.1×10^{-5} *5*; α(O)=1.13×10^{-6} *16* Mult.: from (d,pγ).
		888.20 *23*	16 *5*	0.0	$5/2^+$	E2		1.02×10^{-3}	B(E2)(W.u.)=2.0 *9* α(K)=0.000896 *13*; α(L)=0.0001023 *15*; α(M)=1.83×10^{-5} *3*; α(N+..)=2.92×10^{-6} *4* α(N)=2.77×10^{-6} *4*; α(O)=1.534×10^{-7} *22*
1024.45	$7/2^+$	366.27 *9* 543.8 *5*	3.0 *4* 0.36 *10*	658.13 480.91	$7/2^+$ $3/2^+$	D,E2 E2		 0.00371	Mult.: from RUL. B(E2)(W.u.)=2.8 *10* α(K)=0.00325 *5*; α(L)=0.000386 *6*; α(M)=6.90×10^{-5} *10*; α(N+..)=1.093×10^{-5} *16* α(N)=1.038×10^{-5} *15*; α(O)=5.48×10^{-7} *8*

$^{97}_{42}Mo_{55}$-8

Adopted Levels, Gammas (continued)

γ(^{97}Mo) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
1024.45	7/2$^+$	1024.49 *11*	100 *3*	0.0	5/2$^+$	M1+E2	−0.54 *+14−24*	7.55×10^{-4} *12*	B(M1)(W.u.)=0.028 *7*; B(E2)(W.u.)=8 *4* α(K)=0.000665 *11*; α(L)=7.44×10^{-5} *11*; α(M)=1.327×10^{-5} *20*; α(N+..)=2.14×10^{-6} *4* α(N)=2.02×10^{-6} *3*; α(O)=1.156×10^{-7} *20* δ: other: −0.25≤δ≤−0.13 (α,nγ).
1092.63	3/2$^+$	611.9 *3*	11 *2*	480.91	3/2$^+$				
		1092.58 *15*	100	0.0	5/2$^+$	M1+E2	+0.51 *+24−15*	6.58×10^{-4} *11*	α(K)=0.000580 *10*; α(L)=6.47×10^{-5} *10*; α(M)=1.153×10^{-5} *18*; α(N+..)=1.86×10^{-6} *3* α(N)=1.76×10^{-6} *3*; α(O)=1.007×10^{-7} *18* B(M1)(W.u.)=0.009 *+6−9*; B(E2)(W.u.)=2.0 *+18−20*
1116.74	9/2$^+$	397.43 *17*	1.15 *14*	719.20	5/2$^+$	E2		0.00961	B(E2)(W.u.)=20 *3* α(K)=0.00836 *12*; α(L)=0.001031 *15*; α(M)=0.000184 *3*; α(N+..)=2.90×10^{-5} *4* α(N)=2.76×10^{-5} *4*; α(O)=1.387×10^{-6} *20*
		458.57 *18*	1.3 *5*	658.13	7/2$^+$	D,E2			Mult.: from RUL.
		1116.88 *12*	100 *1*	0.0	5/2$^+$	E2		6.04×10^{-4}	B(E2)(W.u.)=10.0 *7* α(K)=0.000531 *8*; α(L)=5.98×10^{-5} *9*; α(M)=1.067×10^{-5} *15*; α(N+..)=2.76×10^{-6} *4* α(N)=1.622×10^{-6} *23*; α(O)=9.11×10^{-8} *13*; α(IPF)=1.046×10^{-6} *16*
1264.9	3/2$^+$,5/2$^+$	1264.9 *4*	100	0.0	5/2$^+$				
1268.63	7/2$^+$	549.34 *12*	35 *6*	719.20	5/2$^+$	M1,E2		0.0033 *3*	α(K)=0.00294 *22*; α(L)=0.00034 *4*; α(M)=6.1×10^{-5} *6*; α(N+..)=9.7×10^{-6} *9* α(N)=9.2×10^{-6} *9*; α(O)=5.0×10^{-7} *3* Mult.: from α(K)exp (d,pγ).
		787.27[&] *20*	35 *5*	480.91	3/2$^+$	(E2)		1.37×10^{-3}	α(K)=0.001203 *17*; α(L)=0.0001385 *20*; α(M)=2.47×10^{-5} *4*; α(N+..)=3.95×10^{-6} *6* α(N)=3.74×10^{-6} *6*; α(O)=2.05×10^{-7} *3* B(E2)(W.u.)=27 *12* Mult.: M1,E2 from α(K)exp (d,pγ), E2 from level scheme.
		1268.68 *9*	100 *5*	0.0	5/2$^+$				
1270.7	5/2$^+$	790.0 *3*	100 *11*	480.91	3/2$^+$	(M1+E2)		1.35×10^{-3} *2*	α(K)=0.001189 *17*; α(L)=0.000135 *3*; α(M)=2.41×10^{-5} *6*; α(N+..)=3.87×10^{-6} *7* α(N)=3.66×10^{-6} *7*; α(O)=2.05×10^{-7} *4* Mult.: from γ(θ), γ(pol) from (^{3}He,2nγ).
		1269.6 *8*	67 *11*	0.0	5/2$^+$				
1284.63	3/2$^+$,5/2$^+$	803.70 *19*	76 *47*	480.91	3/2$^+$	M1,E2		1.30×10^{-3}	α(K)=0.001142 *16*; α(L)=0.000130 *3*;

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Adopted Levels, Gammas (continued)

γ(^{97}Mo) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
									α(M)=2.31×10^{-5} *5*; α(N+..)=3.71×10^{-6} *7* α(N)=3.52×10^{-6} *6*; α(O)=1.97×10^{-7} *4*
1284.63	3/2$^+$,5/2$^+$	1284.64 *14*	100 *7*	0.0	5/2$^+$	M1+E2	−0.8 *+3−4*	4.83×10^{-4} *8*	Mult.: from α(K)exp (d,pγ). α(K)=0.000408 *8*; α(L)=4.54×10^{-5} *8*; α(M)=8.09×10^{-6} *14*; α(N+..)=2.16×10^{-5} *9* α(N)=1.234×10^{-6} *22*; α(O)=7.06×10^{-8} *14*; α(IPF)=2.03×10^{-5} *9* B(M1)(W.u.)=0.005 *5*; B(E2)(W.u.)=1.9 *+20−18*
1321.5	3/2	840.6 *9*	100	480.91	3/2$^+$				
1409.47	11/2$^+$	292.7 *1*	62 *5*	1116.74	9/2$^+$				Eγ,Iγ: from (^{19}F,p3nγ); discrepant branching, 5.3 *6*, in ^{94}Zr(α,nγ).
		751.41 *18*	100 *8*	658.13	7/2$^+$	E2		1.54×10^{-3}	α(K)=0.001353 *19*; α(L)=0.0001563 *22*; α(M)=2.79×10^{-5} *4*; α(N+..)=4.45×10^{-6} *7* α(N)=4.22×10^{-6} *6*; α(O)=2.31×10^{-7} *4* B(E2)(W.u.)>0.0079
1436.91	11/2$^-$	320.31 *15*	100 *3*	1116.74	9/2$^+$	E1		0.00461	Mult.: from γ(θ), RUL (α,nγ). B(E1)(W.u.)=3.5×10^{-6} *+5−4* α(K)=0.00406 *6*; α(L)=0.000457 *7*; α(M)=8.14×10^{-5} *12*; α(N+..)=1.299×10^{-5} *19* α(N)=1.232×10^{-5} *18*; α(O)=6.75×10^{-7} *10*
		778.2 *3*	11 *3*	658.13	7/2$^+$	[M2]		0.00368	Mult.: from α(K)exp in (d,pγ); γ(θ), γ(pol) (α,nγ). α(K)=0.00322 *5*; α(L)=0.000375 *6*; α(M)=6.72×10^{-5} *10*; α(N+..)=1.081×10^{-5} *16* α(N)=1.023×10^{-5} *15*; α(O)=5.78×10^{-7} *9* B(M2)(W.u.)=0.20 *7*
1515.72	9/2$^+$	796.76 *18*	21 *11*	719.20	5/2$^+$	[E2]		1.33×10^{-3}	α(K)=0.001167 *17*; α(L)=0.0001343 *19*; α(M)=2.40×10^{-5} *4*; α(N+..)=3.83×10^{-6} *6* α(N)=3.63×10^{-6} *5*; α(O)=1.99×10^{-7} *3* B(E2)(W.u.)=6 *4*
		857.59 *13*	28 *5*	658.13	7/2$^+$	M1+E2	+0.40 *10*	1.12×10^{-3}	B(M1)(W.u.)=0.0038 *10*; B(E2)(W.u.)=0.8 *4* α(K)=0.000987 *14*; α(L)=0.0001107 *16*; α(M)=1.98×10^{-5} *3*; α(N+..)=3.18×10^{-6} *5* α(N)=3.01×10^{-6} *5*; α(O)=1.719×10^{-7} *25*
		1515.59 *12*	100 *5*	0.0	5/2$^+$	E2		4.08×10^{-4}	B(E2)(W.u.)=1.21 *23* α(K)=0.000281 *4*; α(L)=3.13×10^{-5} *5*; α(M)=5.58×10^{-6} *8*; α(N+..)=9.00×10^{-5} *13* α(N)=8.50×10^{-7} *12*; α(O)=4.84×10^{-8} *7*; α(IPF)=8.91×10^{-5} *13*
1516.0	3/2$^+$	1516.0 *4*	100	0.0	5/2$^+$				

$^{97}_{42}Mo_{55}$-10

Adopted Levels, Gammas (continued)

γ(^{97}Mo) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
1544.89	(7/2$^+$,9/2$^+$,11/2$^+$)	428.15 *19*	100	1116.74	9/2$^+$	(M1+E2)	0.0066 *10*	α(K)=0.0058 *9*; α(L)=0.00068 *13*; α(M)=0.000122 *23*; α(N+..)=1.9×10^{-5} *4* α(N)=1.8×10^{-5} *4*; α(O)=9.8×10^{-7} *12* Mult.: γ(θ), γ(pol) (α,nγ). δ: +0.06≤δ≤+0.15.
1547.6	1/2$^+$	1066.7 *5*	100	480.91	3/2$^+$			
1556.6	7/2$^-$	837.4 *7*	100	719.20	5/2$^+$	(E1)	4.70×10^{-4}	α(K)=0.000415 *6*; α(L)=4.59×10^{-5} *7*; α(M)=8.18×10^{-6} *12*; α(N+..)=1.315×10^{-6} *19* α(N)=1.244×10^{-6} *18*; α(O)=7.05×10^{-8} *10* Mult.: from α(K)exp (d,pγ). δ: −0.02≤δ≤+0.08 (α,2nγ).
1565.6	(7/2)	1565.6 *3*	100	0.0	5/2$^+$			
1629.91	7/2$^+$	909.0 *4*	100 *8*	720.92	3/2$^+$	[E2]	9.65×10^{-4}	B(E2)(W.u.)>0.0014 α(K)=0.000848 *12*; α(L)=9.67×10^{-5} *14*; α(M)=1.726×10^{-5} *25*; α(N+..)=2.76×10^{-6} *4* α(N)=2.62×10^{-6} *4*; α(O)=1.452×10^{-7} *21*
		911.19 *22*	66 *20*	719.20	5/2$^+$			
		1148.4 *5*	115 *40*	480.91	3/2$^+$	[E2]	5.70×10^{-4}	α(K)=0.000500 *7*; α(L)=5.62×10^{-5} *8*; α(M)=1.003×10^{-5} *14*; α(N+..)=4.15×10^{-6} *7* α(N)=1.525×10^{-6} *22*; α(O)=8.58×10^{-8} *12*; α(IPF)=2.54×10^{-6} *5* B(E2)(W.u.)>0.00051
		1629.2 *3*	63 *13*	0.0	5/2$^+$			
1697.9	(9/2$^+$)	1039.8 *5*	100	658.13	7/2$^+$			
1700.7	(1/2$^+$)	1700.7 *9*	100	0.0	5/2$^+$	[E2]	4.21×10^{-4}	α(K)=0.000225 *4*; α(L)=2.49×10^{-5} *4*; α(M)=4.44×10^{-6} *7*; α(N+..)=0.0001672 *24* α(N)=6.77×10^{-7} *10*; α(O)=3.87×10^{-8} *6*; α(IPF)=0.0001665 *24*
1724.1	3/2,5/2$^+$	1724.06 *42*	100	0.0	5/2$^+$			
1727.54	(7/2$^+$)	1009.02 *43*	46	719.20	5/2$^+$			
		1727.35 *22*	100	0.0	5/2$^+$			
1762.5	9/2$^+$	1762.5 *6*	100	0.0	5/2$^+$			
1782.95	(11/2$^+$)	666.10 *21*	75 *8*	1116.74	9/2$^+$			Mult.: ΔJ=1 from γ(θ) in (^{3}He,2nγ).
		758.49 *15*	100 *7*	1024.45	7/2$^+$	[E2]	1.50×10^{-3}	α(K)=0.001321 *19*; α(L)=0.0001525 *22*; α(M)=2.72×10^{-5} *4*; α(N+..)=4.35×10^{-6} *6* α(N)=4.12×10^{-6} *6*; α(O)=2.25×10^{-7} *4* B(E2)(W.u.)>0.0069
1786.5	7/2$^+$,9/2$^+$	1128.4 *5*		658.13	7/2$^+$			
1790.3	(1/2,3/2)	1790.3 *5*	100	0.0	5/2$^+$			
1847.8	(5/2,7/2)	1189.5 *4*	100	658.13	7/2$^+$			
		1848.0 *6*	75	0.0	5/2$^+$			

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Adopted Levels, Gammas (continued)

γ(^{97}Mo) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
1921.0	13/2$^+$	804.3 *3*	100	1116.74	9/2$^+$	E2	1.30×10^{-3}	α(K)=0.001140 *16*; α(L)=0.0001311 *19*; α(M)=2.34×10^{-5} *4*; α(N+..)=3.74×10^{-6} *6* α(N)=3.55×10^{-6} *5*; α(O)=1.95×10^{-7} *3* B(E2)(W.u.)>0.0090 Mult.: from γ(θ) (α,3nγ).
1930.2	(3/2,5/2)	1250.6 *3*	100	679.59	1/2$^+$			
1939.93	(5/2$^+$)	823.20 *21*	100 *10*	1116.74	9/2$^+$	[E2]	1.23×10^{-3}	α(K)=0.001077 *15*; α(L)=0.0001236 *18*; α(M)=2.21×10^{-5} *3*; α(N+..)=3.53×10^{-6} *5* α(N)=3.34×10^{-6} *5*; α(O)=1.84×10^{-7} *3* B(E2)(W.u.)>0.0048
		1281.78 *16*	67 *7*	658.13	7/2$^+$			
1961.6	7/2$^+$	1481.0 *4*	70	480.91	3/2$^+$	[E2]	4.11×10^{-4}	α(K)=0.000294 *5*; α(L)=3.28×10^{-5} *5*; α(M)=5.84×10^{-6} *9*; α(N+..)=7.74×10^{-5} *11* α(N)=8.90×10^{-7} *13*; α(O)=5.06×10^{-8} *7*; α(IPF)=7.65×10^{-5} *11*
		1959.3 *10*	100	0.0	5/2$^+$			
1986.1	(3/2,5/2,7/2)	1986.1 *8*	100	0.0	5/2$^+$			
1989.8	(3/2,5/2)	1508.9 *4*	100	480.91	3/2$^+$			
2002.3	15/2$^-$	565.4 *3*	100	1436.91	11/2$^-$	E2	0.00332	α(K)=0.00290 *4*; α(L)=0.000344 *5*; α(M)=6.15×10^{-5} *9*; α(N+..)=9.75×10^{-6} *14* α(N)=9.26×10^{-6} *13*; α(O)=4.91×10^{-7} *7* Mult.: stretched Q from γ(θ) in (α,3nγ); E2 based on level scheme.
2033.7	1/2$^+$	2033.7 *10*	100	0.0	5/2$^+$	[E2]	5.05×10^{-4}	α(K)=0.0001610 *23*; α(L)=1.775×10^{-5} *25*; α(M)=3.16×10^{-6} *5*; α(N+..)=0.000323 *5* α(N)=4.82×10^{-7} *7*; α(O)=2.77×10^{-8} *4*; α(IPF)=0.000322 *5*
2040.9	(7/2$^-$)	924.2 *3*	100	1116.74	9/2$^+$			Mult.: ΔJ Ne 2 from γ(θ) in (^{3}He,2nγ).
2049.8	7/2$^+$,9/2$^+$	2049.8 *4*	100	0.0	5/2$^+$			
2055.0	(5/2,7/2)	2055.0 *9*	100	0.0	5/2$^+$			
2073.8		558.1 *3*	100	1515.72	9/2$^+$			
2092.1	3/2$^-$	2092.1 *9*	100	0.0	5/2$^+$	[E1]	7.77×10^{-4}	α(K)=8.37×10^{-5} *12*; α(L)=9.13×10^{-6} *13*; α(M)=1.625×10^{-6} *23*; α(N+..)=0.000683 *10* α(N)=2.48×10^{-7} *4*; α(O)=1.429×10^{-8} *20*; α(IPF)=0.000683 *10*
2152.5	3/2$^+$,5/2$^+$	2152.5 *6*	100	0.0	5/2$^+$			
2160.0	(13/2,15/2$^-$)	723.1 *10*	100	1436.91	11/2$^-$			
2197.26		787.4 *3*	100 *33*	1409.47	11/2$^+$			
		1080.9 *3*	100 *33*	1116.74	9/2$^+$			
2244.1		1127.4 *3*	100	1116.74	9/2$^+$			
2258.0	(9/2,11/2)	821.1 *3*	100	1436.91	11/2$^-$			Mult.: ΔJ Ne 2 from γ(θ) in (^{3}He,2nγ).
2271.1		705.5[@] *3*	100	1565.6	(7/2)			
2278.9	(3/2,5/2$^+$)	2278.9 *6*	100	0.0	5/2$^+$			

$^{97}_{42}Mo_{55}$-12

Adopted Levels, Gammas (continued)

γ(^{97}Mo) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
2331.2	(7/2$^+$)	2331.2 *12*	100	0.0	5/2$^+$			
2357.3		947.8 *3*	100	1409.47	11/2$^+$			
2365.6	(9/2)$^+$	2365.6 *9*	100	0.0	5/2$^+$	[E2]	6.22×10^{-4}	α(K)=0.0001228 *18*; α(L)=1.349×10^{-5} *19*; α(M)=2.40×10^{-6} *4*; α(N+..)=0.000484 *7* α(N)=3.67×10^{-7} *6*; α(O)=2.11×10^{-8} *3*; α(IPF)=0.000483 *7*
2377.5	5/2$^+$	2377.5 *11*	100	0.0	5/2$^+$			
2409.8	5/2$^+$	2409.8 *10*	100	0.0	5/2$^+$			
2433.9	(15/2$^+$)	1024.4[@] *3*	100	1409.47	11/2$^+$	(E2)	7.31×10^{-4}	α(K)=0.000643 *9*; α(L)=7.28×10^{-5} *11*; α(M)=1.299×10^{-5} *19*; α(N+..)=2.08×10^{-6} *3* α(N)=1.97×10^{-6} *3*; α(O)=1.104×10^{-7} *16* Mult.: stretched (E2) (DCO, (^{19}F,p3nγ)).
2511.3	9/2$^+$	2511.3 *6*	100	0.0	5/2$^+$	[E2]	6.78×10^{-4}	α(K)=0.0001106 *16*; α(L)=1.214×10^{-5} *17*; α(M)=2.16×10^{-6} *3*; α(N+..)=0.000553 *8* α(N)=3.30×10^{-7} *5*; α(O)=1.90×10^{-8} *3*; α(IPF)=0.000552 *8*
2512.9	3/2$^+$,5/2$^+$	2512.9 *5*	100	0.0	5/2$^+$			
2560.4		1900.0 *11*	97	658.13	7/2$^+$			
		2562.2 *10*	100	0.0	5/2$^+$			
2578.7	(1/2$^+$,3/2,5/2$^+$)	2578.7 *10*	100	0.0	5/2$^+$			
2626.62		843.4 *3*	100 *99*	1782.95	(11/2$^+$)			I_γ: 1 *1* in (^{3}He,2nγ), same as for 1217.4γ.
		1217.4 *3*	100 *99*	1409.47	11/2$^+$			I_γ: 1 *1* in (^{3}He,2nγ), same as for 843.4γ.
2643.4	(3/2$^+$,5/2$^+$)	1618.9 *9*	100	1024.45	7/2$^+$			
2649.5	(7/2$^+$,9/2$^+$)	1240.1 *8*	69	1409.47	11/2$^+$			
		2649.0 *20*	100	0.0	5/2$^+$			
2707.8		705.5[@] *3*	100	2002.3	15/2$^-$			
2712.2	(17/2$^+$)	278.3 *1*	100	2433.9	(15/2$^+$)	(M1+E2)	0.024 *8*	α(K)=0.021 *7*; α(L)=0.0026 *10*; α(M)=0.00046 *17*; α(N+..)=7.E−5 *3* α(N)=6.9×10^{-5} *25*; α(O)=3.4×10^{-6} *10* E_γ,I_γ,Mult.: from (^{18}O,3nγ); mult from DCO.
2725.2	(19/2$^-$)	722.9 *1*	100	2002.3	15/2$^-$	(E2)	1.70×10^{-3}	α(K)=0.001494 *21*; α(L)=0.0001731 *25*; α(M)=3.09×10^{-5} *5*; α(N+..)=4.93×10^{-6} *7* α(N)=4.68×10^{-6} *7*; α(O)=2.55×10^{-7} *4* E_γ,Mult.: from (^{19}F,p3nγ); stretched (E2) from DCO.
2813.6		892.6 *3*	100	1921.0	13/2$^+$			
2828.7	(19/2$^+$)	116.5 *1*	100	2712.2	(17/2$^+$)	D		E_γ,I_γ,Mult.: from (^{19}F,p3nγ); stretched D from γ(θ).
2905.7	3/2$^+$,5/2$^+$	1641.1 *9*	58	1264.9	3/2$^+$,5/2$^+$			
		2905.2 *11*	100	0.0	5/2$^+$			
3571.6	(23/2$^-$)	846.4 *1*	100	2725.2	(19/2$^-$)	(E2)	1.15×10^{-3}	α(K)=0.001006 *14*; α(L)=0.0001153 *17*; α(M)=2.06×10^{-5} *3*; α(N+..)=3.29×10^{-6} *5*

$^{97}_{42}Mo_{55}$-13

Adopted Levels, Gammas (continued)

$\gamma(^{97}Mo)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
								α(N)=3.12×10^{-6} *5*; α(O)=1.721×10^{-7} *24* E_γ,Mult.: from (^{19}F,p3nγ); stretched (E2) from DCO.
3747.7	(21/2)	919.0 *1*	100	2828.7	(19/2$^+$)	D		E_γ,Mult.: from (^{19}F,p3nγ); stretched D from DCO.
4472.4	(25/2)	724.7 *1*	100	3747.7	(21/2)	(E2)	1.69×10^{-3}	α(K)=0.001484 *21*; α(L)=0.0001719 *24*; α(M)=3.07×10^{-5} *5*; α(N+..)=4.90×10^{-6} *7* α(N)=4.64×10^{-6} *7*; α(O)=2.53×10^{-7} *4* E_γ,Mult.: from (^{19}F,p3nγ); stretched (E2) from DCO.
4518.6	(27/2$^-$)	947.0 *1*	100	3571.6	(23/2$^-$)	(E2)	8.76×10^{-4}	α(K)=0.000770 *11*; α(L)=8.76×10^{-5} *13*; α(M)=1.563×10^{-5} *22*; α(N+..)=2.50×10^{-6} *4* α(N)=2.37×10^{-6} *4*; α(O)=1.320×10^{-7} *19* E_γ,Mult.: from (^{19}F,p3nγ); stretched (E2) from DCO.
5502.5	(31/2$^-$)	983.9 *1*	100	4518.6	(27/2$^-$)	(E2)	8.02×10^{-4}	α(K)=0.000705 *10*; α(L)=8.00×10^{-5} *12*; α(M)=1.428×10^{-5} *20*; α(N+..)=2.29×10^{-6} *4* α(N)=2.17×10^{-6} *3*; α(O)=1.209×10^{-7} *17* E_γ,Mult.: from (^{19}F,p3nγ); stretched (E2) from DCO.

[†] Weighted average of measurements from ^{97}Nb β^- decay, ^{94}Zr(α,nγ), ^{96}Zr(^{3}He,2nγ), ^{96}Zr(α,3nγ), ^{96}Mo(n,γ) E=th, ^{96}Mo(d,pγ), ^{97}Mo(n,n′γ) and Coulomb excitation where available. High-energy capture γ′s from ^{96}Mo(n,γ) E=24.3: av.

[‡] From Coul. ex., unless otherwise noted.

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

[@] Multiply placed.

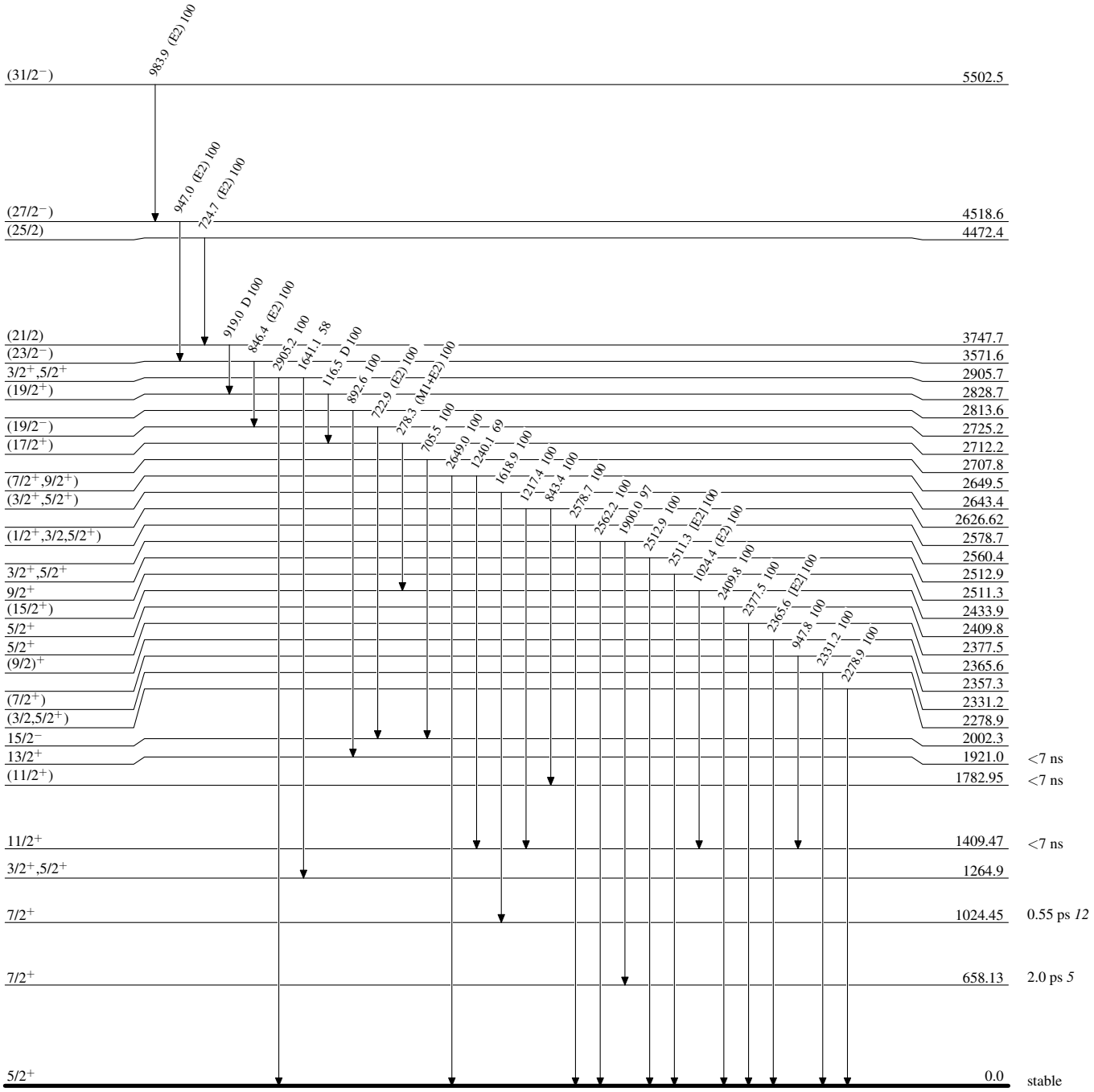
[&] Placement of transition in the level scheme is uncertain.

$^{97}_{42}Mo_{55}$-14

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

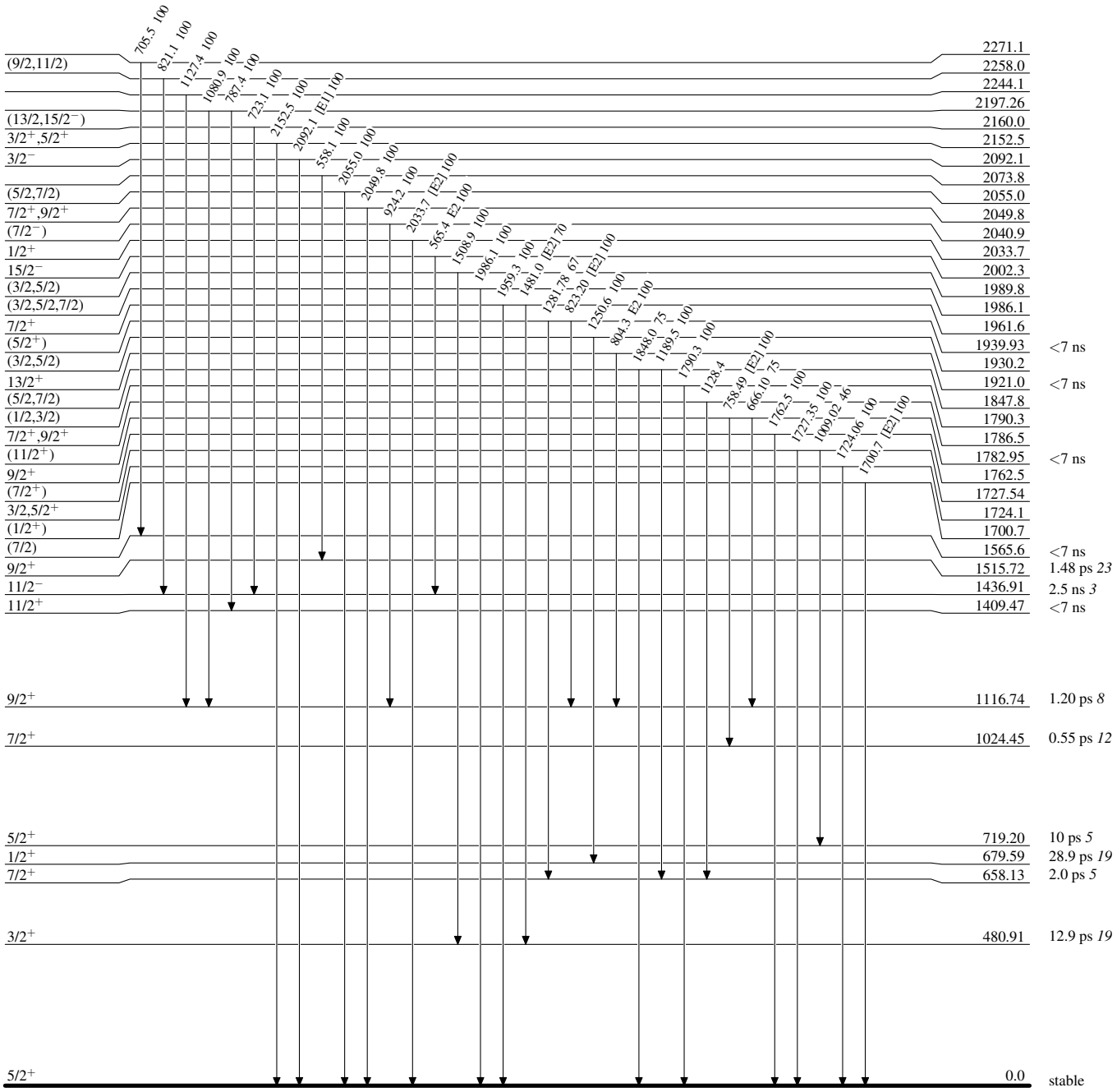


$^{97}_{42}Mo_{55}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{97}_{42}Mo_{55}$

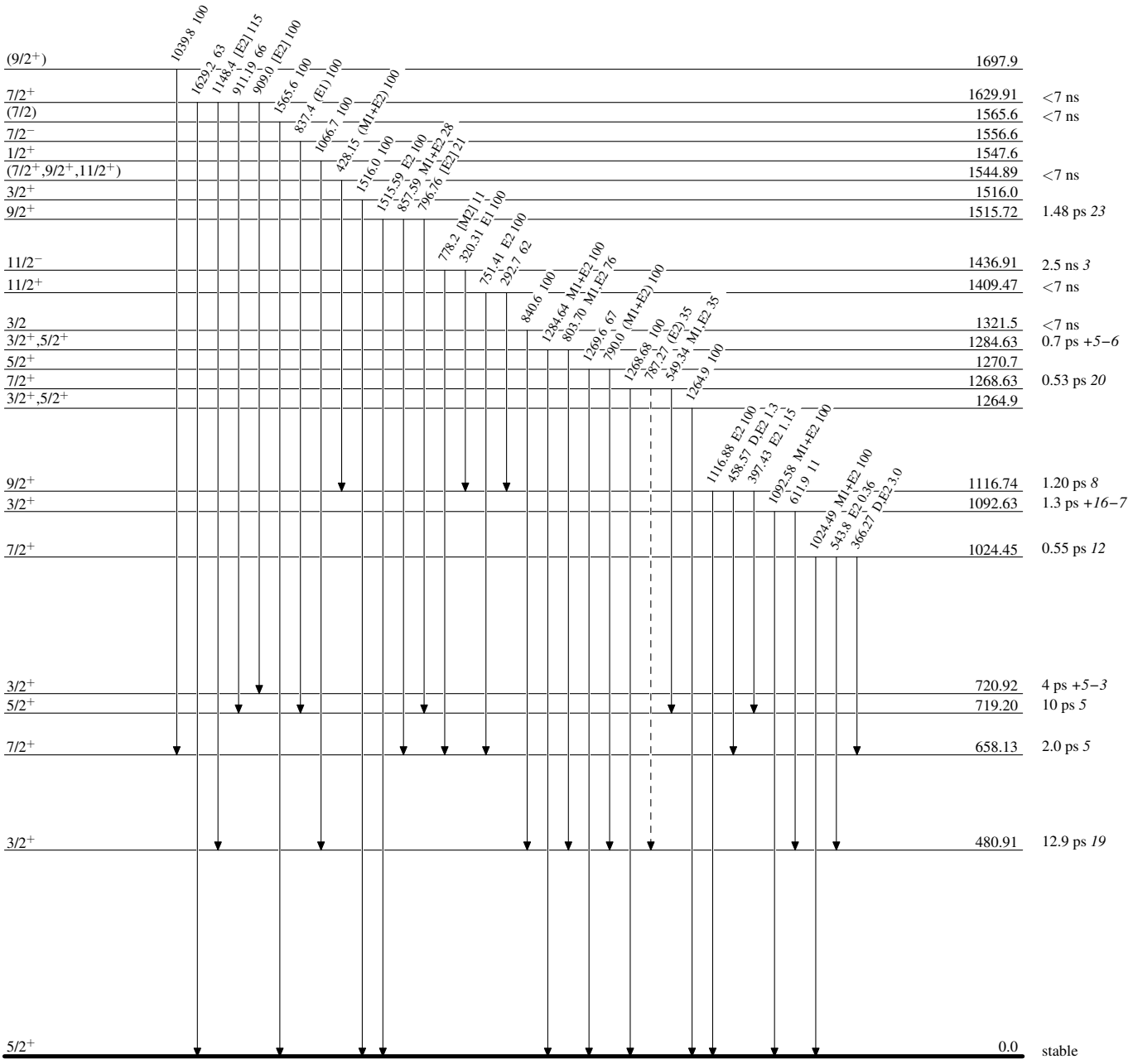
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)

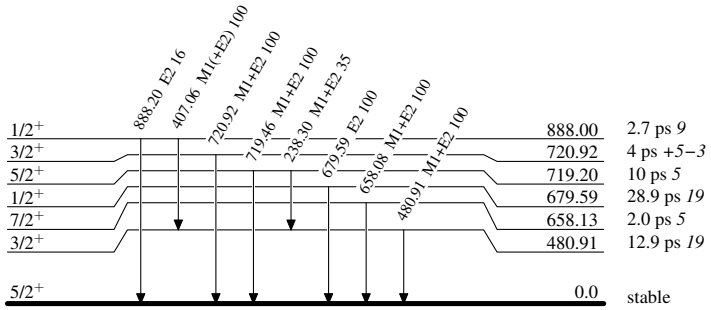


$^{97}_{42}Mo_{55}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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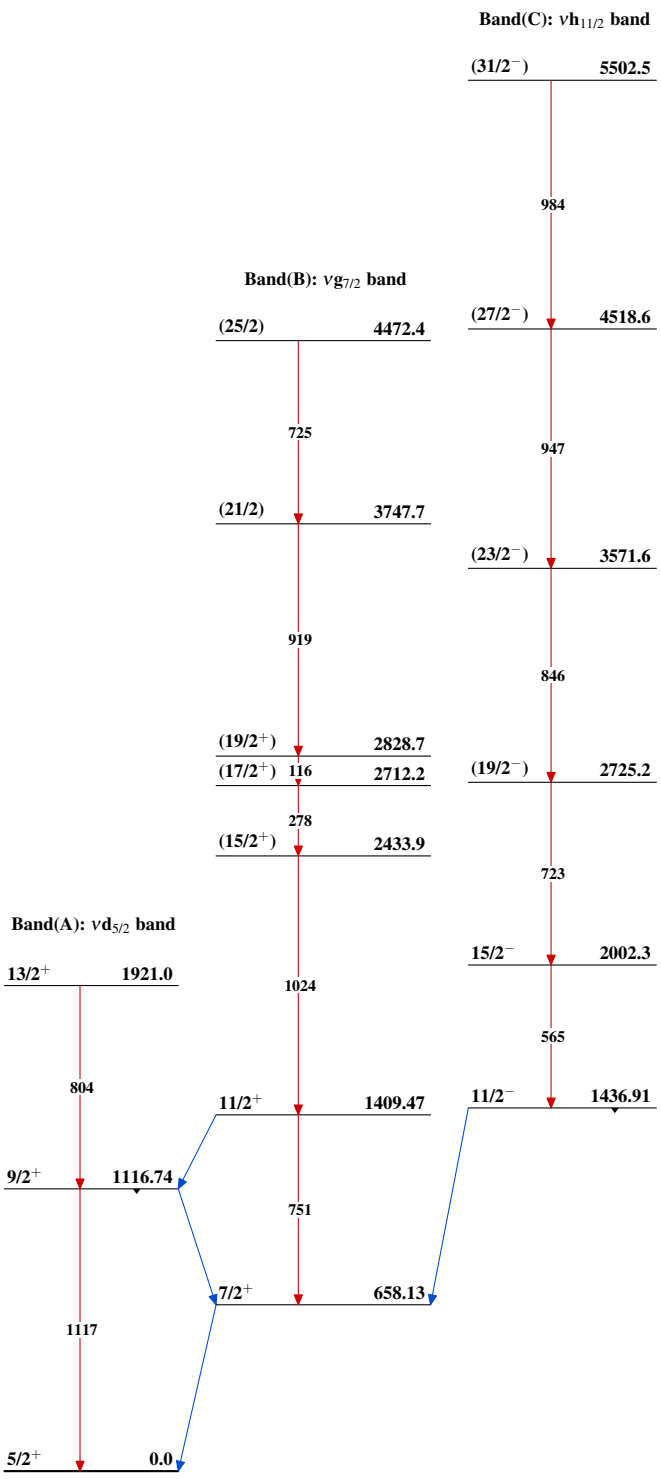
Adopted Levels, Gammas



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