Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich, Balraj Singh	NDS 111,1211 (2010)	12-Apr-2010

Q(β^-)=−2.555 *16*; S(n)=6271.01 *5*; S(p)=7.99×10^3 *4*; Q(α)=−244.0 *13* 2012Wa38

Note: Current evaluation has used the following Q record −2.555 16 *6271*.01 *5* 7990 *40* −242.9 *12* 2009AuZZ,2003Au03.

Additional information 1.

1999Dr07, 1996De14, 1996So02: calculation of B(M1) strengths.

Other reactions:

1986Ut01: ^{164}Dy(^{14}N,X) E=280 MeV, measured inclusive σ for projectile-like fragments.

In (γ,γ'), a number of levels are proposed based on the placement of gammas that can Be assigned as arising from either elastic scattering or inelastic scattering. Levels based only these multiply placed gammas are not included here. They are listed in the ^{163}Dy(γ,γ') Data Set. In addition, certain of the level properties for all the (γ,γ') levels are not included here. For these, see this (γ,γ') Data Set.

A total of 142 neutron resonances in the energy range 5.44 eV to 15.814 keV are known, see ^{162}Dy(n,γ),(n,n):resonances data set for details.

^{163}Dy Levels

Cross Reference (XREF) Flags

A	^{163}Tb β^- decay (19.5 min)	F	^{162}Dy(d,p)	K	^{164}Dy(d,t)
B	^{163}Ho ε decay (4570 y)	G	^{163}Dy(γ,γ')	L	^{164}Dy(^{3}He,α)
C	^{160}Gd(^{7}Li,p3nγ)	H	^{163}Dy(n,n'γ)	M	^{165}Ho(μ^-,2nγ)
D	^{161}Dy(t,p)	I	^{163}Dy(p,p')		
E	^{162}Dy(n,γ):E=th, res	J	Coulomb excitation		

E(level)	J$^\pi$‡	T$_{1/2}$†	XREF	Comments
0.0#	5/2$^-$	stable	ABC EFGHIJK M	μ=+0.6726 *35* (1974Fe05,1989Ra17,2005St24) Q=+2.648 *21* (1984Ta04,1989Ra17,2005St24) T$_{1/2}$(^{163}Dy^{66+} ion)=48 d *3* (1997Kl06,1992Ju01). %β-(^{163}Dy^{66+} ion)=100. J$^\pi$: spin from electron paramagnetic resonance (1958Pa11) and atomic beam. (1962Sp03). Parity: L(d,t)=3 from 0$^+$ target; measured μ is consistent with ν5/2[523]. Q$_4$≈+0.67 (1972DaYT, atomic beam magnetic resonance). μ: atomic beam magnetic resonance (1974Fe05,1972FeZY). Others: 0.66 *4* (1973Mu06, hyperfine structure in optical spectroscopy), +0.65 *6* (1970Ch31, atomic beam), +0.66 *13* (1967Eb01, atomic beam), +0.635 *14* (1963Bl25, electron paramagnetic resonance), 0.51 *6* (1958Pa11, electron paramagnetic resonance). Recalculations: 1962Li06, 1972Ro36). Q: quadrupole hyperfine splitting of muonic M x rays (1984Ta04). Sign from μ=+2.57 *17* (AB, Sternheimer correction included, 1970Ch31). Others: 2.318 *6* (1974Fe05,1972FeZY, atomic beam), +2.46 *21* (1973Mu06, hyperfine structure in optical spectroscopy), +2.5 *3* (1970Ch31, atomic beam), +2.46 *4* (1967Eb01, atomic beam), +1.6 *4* (1963Bl25, electron paramagnetic resonance), 1.3 *4* (1958Pa11, electron paramagnetic resonance). 1966Ko14 measured ratio Q(^{163}Dy)/Q(^{161}Dy) in NMR method. Δ<r^2>(^{162}Dy−^{163}Dy)=0.041 fm^2 *2* (1990Wa25). From an evaluation of nuclear rms charge radii, 2004An14 report <r^2>$^{1/2}$=5.2091 fm 25. Hexadecapole moment: 1972FeZY (also 1972DaYT).
73.4448@ *4*	7/2$^-$	1.51 ns *5*	A C EFGHIJK M	J$^\pi$: L(d,t)=3. M1+E2 γ from 9/2$^-$ rules out 5/2$^-$.

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Adopted Levels, Gammas (continued)

^{163}Dy Levels (continued)

E(level)	J^{π}‡	$T_{1/2}$†	XREF	Comments
				$T_{1/2}$: from recoil-distance method in Coul. ex. Other: 1.34 ns *7* from B(E2) in Coul. Ex.
167.3451# *12*	9/2$^-$	0.34 ns *6*	A C EFGHIJKL	J^{π}: L(d,p)=L(d,t)=5; E2 γ to 5/2$^-$ rules out 11/2$^-$.
250.8896c *12*	5/2$^+$		A DEF H K M	J^{π}: L(t,p)=0 from 5/2$^+$.
281.5716@ *21*	11/2$^-$		A C EF H JKlM	B(E4)↑=0.06 *+11−6* (1978Wo02) J^{π}: ΔJ=2, E2 γ to 7/2$^-$; ΔJ=1 γ to 9/2$^-$. Band member.
285.5954d *9*	7/2$^+$		A DEF H KlM	J^{π}: E1 γ's to 5/2$^-$ and 7/2$^-$; γ to 9/2$^-$ and band member.
336.5439c *24*	9/2$^+$		CDEF H KL	J^{π}: L(d,t)=L(^{3}He,α)=4; E1 γ's to 7/2$^-$, 9/2$^-$. Band member.
351.1493& *10*	(1/2)$^-$	0.26 ns *5*	A EF H JK	J^{π}: L(d,p)=L(d,t)=1; band member.
389.7532& *11*	3/2$^-$	0.12 ns *4*	A EF H JK	J^{π}: L(d,p)=L(d,t)=1; E2 γ to 7/2$^-$.
412.382d *5*	11/2$^+$		CDEf H	XREF: D(415). J^{π}: γ's to 9/2$^-$ and 11/2$^-$. Band member.
415.34# *5*	13/2$^-$	46 ps *18*	C f H J	J^{π}: ΔJ=(2) (E2) γ to 9/2$^-$, ΔJ=1 γ to 11/2$^-$. Coulomb excited. Band member. $T_{1/2}$: from DSAM in Coul. ex. (1987Mi04).
421.8439a *11*	(3/2)$^-$	0.18 ns *6*	A EF H JK	J^{π}: L(d,p)=L(d,t)=1; γ to 5/2$^+$; E2 γ to (1/2)$^-$.
427.6796& *9*	(5/2)$^-$	0.15 ns *7*	A EF H J	J^{π}: E2 γ's to 9/2$^-$ and (1/2)$^-$; resonance-averaged n capture.
450	5/2$^-$,7/2$^-$		K	J^{π}: L(d,t)=3.
475.3880a *10*	(5/2)$^-$	0.10 ns *10*	A EF H JK	J^{π}: M1 γ to 7/2$^-$; E2 γ to (1/2)$^-$; resonance-averaged n capture.
497.02c *5*	13/2$^+$		C F KL	J^{π}: L(d,p)=L(d,t)=6. γ's to 9/2$^+$, 11/2$^-$. Band member.
514.5519& *12*	7/2$^-$		A EF H K	J^{π}: L(d,t)=3; E2 γ to 11/2$^-$.
553.0196a *14*	7/2$^-$		A EF H KL	J^{π}: L(d,p)=L(d,t)=3; γ to 11/2$^-$; band member.
566.0 *4*			F	
568.79@ *7*	15/2$^-$	17 ps *4*	C J	J^{π}: ΔJ=1 γ to 13/2$^-$ and ΔJ=2, (E2) γ to 11/2$^-$. Coulomb excited. Band member. $T_{1/2}$: from DSAM in Coul. ex. (1987Mi04).
587.9290& *25*	(9/2)$^-$		EF H K	J^{π}: M1 γ to 11/2$^-$; γ to (5/2)$^-$.
612 *2*	1/2$^-$,3/2$^-$		K	J^{π}: L(d,t)=1.
624.22d *6*	15/2$^+$		C	J^{π}: γ's to 13/2$^+$, 13/2$^-$ and 11/2$^-$. Band member.
646.249a *4*	9/2$^-$		EF H KL	XREF: L(638). J^{π}: L(d,t)=5; γ to 5/2$^-$.
660.0 *5*			F	
705 *8*			F	
711.4721h *21*	5/2$^-$		EF H	J^{π}: M1 γ's to 5/2$^-$ and 7/2$^-$; resonance-averaged n capture.
712 *5*	5/2$^+$		D	J^{π}: L(t,p)=0 from 5/2$^+$.
718.23& *4*	(11/2$^-$)		F H K	J^{π}: γ's to 7/2$^-$ and 13/2$^-$; band member. L(d,p)=(6) is in conflict with this assignment.
727.6 *5*			K	
734.91c *7*	17/2$^+$		C	J^{π}: γ's to 13/2$^+$, 15/2$^+$, 15/2$^-$. Band member.
737.6584e *15*	1/2$^+$		A EF H K	J^{π}: L(d,p)=L(d,t)=0.
739.97# *8*	17/2$^-$	11.1 ps *14*	C J	J^{π}: ΔJ=2, E2 γ to 13/2$^-$, γ to 15/2$^-$. Coulomb excited. Band member. $T_{1/2}$: from DSAM in Coul. ex. (1987Mi04).
766.2071e *18*	(3/2)$^+$		A EF H K	J^{π}: E1 γ's to (5/2)$^-$ and (1/2)$^-$. E(level): from L(d,t)=(2+5), another 11/2$^-$ level (possibly due to 3/2[521]) may be present near this energy.
781.1002e *15*	5/2$^+$		A EF H K	J^{π}: E1 γ's to 7/2$^-$ and 3/2$^-$.
793.3942b *20*	(1/2)$^-$		EF K	J^{π}: L(d,t)=1; E2 γ to 5/2$^-$; resonance-averaged n capture.
801.311h *7*	(7/2)$^-$		EF H K	J^{π}: L(d,p)=3 and band member.
820.7954b *18*	(3/2)$^-$		EF K	J^{π}: M1 γ's to 3/2$^-$ and 5/2$^-$; E2 γ to 7/2$^-$; resonance-averaged n capture.

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Adopted Levels, Gammas (continued)

^{163}Dy Levels (continued)

E(level)	J^{π}‡	$T_{1/2}$†	XREF	Comments
826.8 *3*	$(1/2^+$ to $9/2^+)$		D F K	XREF: D(825). J^{π}: L(t,p)=2 from $5/2^+$.
851.124[e] *3*	$(7/2^+)$		EF H KL	XREF: L(849). J^{π}: (M1,E2) γ to $5/2^-$; γ to $9/2^-$; band member. In (^{3}He,α), 11/2[505] is assigned, based on large cross section and analogy with ^{161}Dy, but here this orbital is assigned to a level at 851.5.
851.5[m] *2*	$11/2^-$		F KL	XREF: L(849). J^{π}: Large cross section in (^{3}He,α) indicates a large L transfer. Relative cross section for population in (d,p) and (d,t) indicates level is a hole state. Most plausibly assigned as the 11/2[505] state. Assignment is also consistent with systematics.
859.287[f] *3*	$(3/2)^+$		A EF K	J^{π}: L(d,t)=2; γ to $(1/2)^-$; resonance-averaged n capture.
883.0136[b] *20*	$(5/2)^-$		Ef H	J^{π}: M1 γ's to $7/2^-$ and $(3/2)^-$.
884.2943[j] *17*	$1/2^+$		A Ef K	J^{π}: L(d,t)=0. Probable bandhead of the $K^{\pi}=2^-$ octupole vibration built on the 5/2[523] g.s. orbital. The low log *ft* value indicates that it is populated via a ν5/2[523]→π7/2[523], *au*, β^- transition, implying that the dominant configuration is ν5/2[523]-π7/2[523]+π3/2[411]. This situation is presumably similar to that in ^{162}Dy, where the $K^{\pi}=2^-$ octupole vibration occurs relatively low in the level scheme (1148.2 keV) and has these two proton orbitals as the dominant configuration, which is what is expected for the $K^{\pi}=2^-$ octupole phonon in this mass region.
893? *2*	$(1/2^+)$		K	J^{π}: L(d,t)=(0).
915.2[h] *3*	$(9/2)^-$		F K	J^{π}: L(d,p)=5 and band member.
915.6577[f] *24*	$5/2^+$		A DE H K	XREF: D(910). J^{π}: γ to $1/2^+$, M1 γ to $7/2^+$; resonance-averaged n capture.
924.22[d] *8*	$19/2^+$		C	J^{π}: γ's to $15/2^+$, $17/2^+$, and $17/2^-$; band member.
930.93[@] *9*	$19/2^-$	6.2 ps *7*	C J	J^{π}: ΔJ=(2) γ to $15/2^-$, ΔJ=1 γ to $17/2^-$. Coulomb excited. Band member. $T_{1/2}$: from DSAM in Coul. ex. (1987Mi04).
935.134[j] *4*	$(3/2)^+$		A EF K	J^{π}: L(d,t)=2; (E1) γ to $(1/2)^-$; band member.
946.003[b] *4*	$(7/2)^-$		EF H K	J^{π}: L(d,p)=L(d,t)=3; γ to $(9/2)^+$.
949.3369[j] *23*	$(5/2)^+$		A E H	J^{π}: E1 γ to $3/2^-$; γ to $7/2^-$; resonance-averaged n capture.
953.5 *3*			F K	
966.4 *3*	$1/2^+$		F K	J^{π}: L(d,t)=0.
981.6 *5*			K	
991.2 *3*	$(3/2^+,5/2^+)$		F K	J^{π}: L(d,t)=(2).
999.5 *6*			d K	J^{π}: L(t,p)=0 gives $5/2^+$ for 999.5 or 1009.5 level.
1009.5 *5*			d F	J^{π}: see comment for 999.5 level.
1022.4 *3*			F	
1030.5 *4*			F L	XREF: L(1037).
1047.48[c] *8*	$21/2^+$		C	J^{π}: γ's to $19/2^-$, $17/2^+$ and $19/2^+$; band member.
1049.0730[i] *16*	$3/2^-$		EF K	J^{π}: L(d,t)=1; E1 γ to $5/2^+$.
1055.7574[i] *23*	$(1/2)^-$		E	J^{π}: M1 γ to $(1/2)^-$; E1 γ to $1/2^+$; band member.
1058.4671[g] *18*	$1/2^+$		A EF K	J^{π}: L(d,t)=0.
1073.2 *6*	$^+$		D F Kl	XREF: D(1071). J^{π}: L(t,p)=2 from $5/2^+$ gives $1/2^+$ to $9/2^+$.
1080.6 *4*			F l	
1084.349[g] *3*	$(3/2)^+$		A E Kl	J^{π}: L(d,t)=2 and γ to $(1/2)^-$; band member.
1086.5 *4*			F	

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Adopted Levels, Gammas (continued)

^{163}Dy Levels (continued)

E(level)	J^{π}‡	$T_{1/2}$†	XREF	Comments
1093.1 *3*			F K	
1109? *2*			K	J^{π}: L(d,t)=0 gives $1/2^+$.
1119.9 *2*			K	
1122.2 *3*			F	
1129.759[g] *4*	$5/2^+$		DEF H K	XREF: F(1131.0)K(1131.0). J^{π}: L(d,t)=2 for 1131.0 group; M1 γ to $7/2^+$.
1135.494[i] *3*	$(5/2)^-$		EF H Kl	J^{π}: E1 γ's to $3/2^+$ and $(7/2^+)$.
1137.09[#] *12*	$21/2^-$	4.2 ps *7*	C J	XREF: J(1137). J^{π}: $\Delta J=(2)$ γ to $17/2^-$, γ to $19/2^-$. Coulomb excited. Band member. $T_{1/2}$: from DSAM in Coul. ex. (1987Mi04).
1147.454[l] *3*	$3/2^+$		A EF Kl	J^{π}: M1 γ to $1/2^+$; γ to $7/2^+$. L(d,t)=0 for a 1145 *2* group (1976Ma33) is inconsistent with J=3/2. The level in (d,t) may be different.
1157.7 *3*			F	
1160.548[k] *6*	$(1/2)^-$		EF K	XREF: K(1162.2). J^{π}: L(d,t)=1; M1 γ's to $3/2^-$ and $(1/2)^-$; band member.
1183.7 *5*			F K	
1196.051[k] *3*	$(3/2)^-$		EF K	J^{π}: M1 γ's to $(1/2)^-$ and $(5/2)^-$; band member. L(d,t)=(0) for a 1191 group (1976Ma33) is inconsistent with $J^{\pi}=(3/2)^-$.
1202.529[l] *6*	$(5/2)^+$		DE H K	J^{π}: E2(+M1) γ to $7/2^+$; resonance-averaged n capture; band member.
1208.0 *7*	$(5/2^-)$		E	J^{π}: resonance-averaged n capture.
1217	$(3/2^+,5/2^+)$		K	J^{π}: L(d,t)=(2).
1229.6 *1*			F	
1253.160 *7*	$(3/2^+)$		DE	XREF: D(1258). J^{π}: M1,E2 γ's to $5/2^+$; γ's to $7/2^+$ and $(1/2)^-$; L(t,p)=(2) from $5/2^+$;
1258.214[k] *5*	$5/2^-$		EF K	XREF: K(1253.6). J^{π}: M1 γ's to $3/2^-$ and $7/2^-$. E(level): 1253.6 level reported in (d,t) possibly corresponds to this level.
1277.173 *6*	$(5/2^+)$		EF KL	XREF: F(1284). J^{π}: resonance-averaged n capture; band member. L(d,t)=(3) is inconsistent with positive parity.
1299.7 *4*	$(5/2^-)$		E K	XREF: K(1295). J^{π}: resonance-averaged n capture.
1310.74[d] *10*	$23/2^+$		C	J^{π}: γ's to $21/2^+$ and $19/2^+$; band member.
1312	$1/2^+$		K	J^{π}: L(d,t)=0.
1339	$(1/2^+)$		K	J^{π}: L(d,t)=(0).
1342 *5*	$(5/2^-,7/2^-)$		F K	XREF: K(1360). J^{π}: L(d,p)=L(d,t)=(3).
1362.60[@] *14*	$23/2^-$	3.0 ps *6*	C J	XREF: J(1363.59). J^{π}: $\Delta J=2$, (E2) γ to $19/2^-$. Coulomb excited. Band member. $T_{1/2}$: from DSAM in Coul. ex.
1395	$(1/2^-,3/2^-)$		K	J^{π}: L(d,t)=(1).
1430.239 *7*	$(3/2^+)$		E K	J^{π}: (E1) γ to $(1/2)^-$; (M1,E2) γ to $(3/2^+)$; resonance-averaged n capture. L(d,t)=(0) is inconsistent with $(3/2^+)$.
1431.61[c] *11*	$25/2^+$		C	J^{π}: γ's to $21/2^+$ and $23/2^+$; band member.
1439.054 *8*	$(1/2^-,3/2^-)$		EF	XREF: F(1448). J^{π}: (M1,E2) γ's to $(1/2)^-$ and $3/2^-$. Resonance-averaged n capture results (1989Sc31) suggest positive parity.
1463 *5*	+		D	J^{π}: L(t,p)=4 from $5/2^+$ gives $3/2^+$ to $13/2^+$.
1465 *1*	5/2,7/2		G	
1483.263 *19*	$(5/2^-)$		E Kl	XREF: K(1481). J^{π}: γ's to $9/2^-$ and $(3/2)^-$; resonance-averaged n capture.
1489.104 *8*	$(3/2^-)$		E l	J^{π}: γ's to $7/2^-$ and $(1/2)^-$; resonance-averaged n capture.

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Adopted Levels, Gammas (continued)

^{163}Dy Levels (continued)

E(level)	J^{π}‡	XREF	Comments
1494 *5*	$(1/2^+)$	F l	J^{π}: L(d,p)=(0).
1501.665 *5*	$(5/2^+)$	E Kl	XREF: K(1499). J^{π}: L(d,t)=(2); resonance-averaged n capture.
1529.326 *11*	$(1/2^-,3/2^-)$	E K	XREF: K(1527). J^{π}: L(d,t)=(1); resonance-averaged n capture.
1531 *1*	7/2	G	
1533 *5*	$1/2^+$	F	J^{π}: L(d,p)=0.
1542 *1*		G	
1549 *5*		F	
1572 *2*	$1/2^-,3/2^-$	K	J^{π}: L(d,t)=1.
1585.249 *6*	$1/2^+,3/2^+$	E	J^{π}: M1 γ to $1/2^+$.
1597 *5*		F L	
1601.39[#] *16*	$25/2^-$	C J	XREF: J(1601.34). J^{π}: γ to $21/2^-$. Coulomb excited. Band member.
1615.113 *5*	$1/2^-,3/2^-$	E K	XREF: K(1613). J^{π}: L(d,t)=1.
1634 *1*	$5/2^-,7/2^-$	FG K	XREF: F(1629)K(1631). J^{π}: L(d,t)=3, dipole excitation in (γ,γ').
1649		K	
1663 *6*	$(5/2^-,7/2^-)$	F KL	XREF: K(1660)L(1667). J^{π}: L(d,t)=(3).
1684 *1*		G	
1692.675 *6*	$(3/2)^-$	EF K	J^{π}: L(d,t)=1; M1(+E2) γ to $3/2^-$; γ to $(5/2)^+$.
1705 *1*	$5/2^-,7/2^-$	FG KL	XREF: F(1708)K(1708)L(1710). J^{π}: L(d,t)=3.
1730 *1*		G	
1734 *5*	$3/2^+,5/2^+$	F	J^{π}: L(d,p)=2.
1753 *2*	$1/2^-,3/2^-$	K	J^{π}: L(d,t)=1.
1775 *1*		G	
1779.55[d] *12*	$27/2^+$	C	J^{π}: γ's to $23/2^+$ and $25/2^+$; band member.
1797 *1*	1/2,3/2$^-$	FG	XREF: F(1795). J^{π}: L(d,p)=0,1.
1817 *5*		F K	
1831 *1*		G	
1836.2 *7*	$5/2^+$	DE	XREF: D(1831). J^{π}: L(t,p)=0 from $5/2^+$.
1840 *1*	$(5/2^-,7/2^-)$	G K	XREF: K(1843). J^{π}: L(d,t)=(3).
1856 *5*	$3/2^+,5/2^+$	F	J^{π}: L(d,p)=2.
1861.30[@] *17*	$27/2^-$	C J	XREF: J(1858.3). J^{π}: γ to $23/2^-$. Coulomb excited. Band member.
1874.14 *5*	$(5/2^-,7/2^-)$	EF K	XREF: F(1870)K(1876). J^{π}: L(d,t)=(3).
1883.36[c] *13*	$29/2^+$	C	J^{π}: γ to $25/2^+$; band member.
1887		F	
1902 *1*		G	
1942 *1*	$5/2^+$	D FG	XREF: D(1937)F(1936). J^{π}: L(t,p)=0 from $5/2^+$.
1950.770 *6*	$3/2^-$	EF K	XREF: F(1957). J^{π}: L(d,t)=1. γ to $7/2^-$.
1981 *1*		G	
1984 *1*	$3/2^+,5/2^+$	FG K	XREF: F(1988)K(1986). J^{π}: L(d,t)=2.
2009 *1*		G	
2012 *5*		F	

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Adopted Levels, Gammas (continued)

^{163}Dy Levels (continued)

E(level)	J^{π}‡	XREF	Comments
2042 *2*	5/2$^+$	D K	XREF: D(2053). J^{π}: L(d,p)=2 and L(t,p)=0 from 5/2$^+$ for a 2053 *5* group.
2054 *1*		G	
2067 *5*	5/2$^-$,7/2$^-$	F	J^{π}: L(d,p)=3.
2080 *1*		G	
2083 *5*		D f	
2091 *1*		G	
2095 *5*		D f	
2099 *1*		G	
2103 *1*	7/2	G	
2104	1/2$^-$,3/2$^-$	K	J^{π}: L(d,t)=1. The evaluators assume that this level is different from the 2103 level in (γ,γ').
2109.3		EF	XREF: F(2114).
2112 *1*		G	
2127.49# *19*	29/2$^-$	C	J^{π}: γ to 25/2$^-$; band member.
2135.2		E	
2156	(1/2$^+$)	F K	XREF: F(2169). J^{π}: L(d,t)=(0).
2158 *1*		G	
2165 *1*		G	
2169 *1*		G	
2180 *1*	7/2	G K	XREF: K(2179). J^{π}: value suggested by 2003No02 (γ,γ'), but no basis is given.
2191 *1*	5/2$^+$,7/2$^+$	D fG	XREF: f(2196). J^{π}: L(t,p)=4 gives 3/2$^+$ to 13/2$^+$. In (γ,γ'), 2003No02 assign 5/2,7/2.
2197.0	(3/2$^-$)	Ef K	XREF: f(2196)K(2194). J^{π}: L(d,t)=(1) and γ to 5/2$^+$.
2222.2	(1/2$^-$,3/2,5/2$^-$)	EF	XREF: F(2225). J^{π}: γ's to (1/2)$^-$ and (5/2)$^-$.
2224 *1*		G	
2237 *1*		G	
2241.1	(1/2,3/2,5/2$^-$)	E	J^{π}: γ to (1/2)$^-$.
2242 *1*	7/2	G	
2255 *1*		G	
2256 *8*		F L	XREF: F(2259).
2270.3	(3/2$^+$)	E K	XREF: K(2275). J^{π}: L(d,t)=2; γ to (1/2)$^-$.
2272 *1*		G	
2278 *1*		G	
2285 *2*	(3/2$^+$,5/2$^+$)	F K	J^{π}: L(d,t)=(2).
2287 *1*		G	
2317 *5*		F	
2324.30[d] *14*	31/2$^+$	C	J^{π}: γ's to 27/2$^+$ and 29/2$^+$; band member.
2329 *1*		G	
2339.5	(1/2$^-$,3/2,5/2$^-$)	E	J^{π}: γ's to 5/2$^-$ and (1/2)$^-$.
2344 *1*		G	
2350.2		EF	XREF: F(2351).
2353 *1*		G	
2356 *1*		G	
2360.9	(1/2,3/2,5/2$^-$)	E l	J^{π}: γ to (1/2)$^-$.
2367 *1*		G	
2369 *1*		G	
2380 *1*	5/2$^-$,7/2$^-$	G Kl	XREF: K(2378). J^{π}: L(d,t)=3.
2387 *1*	3/2$^+$,5/2$^+$	FG K	J^{π}: L(d,t)=2.
2398.87[c] *15*	33/2$^+$	C	J^{π}: γ to 29/2$^+$; band member.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{163}Dy Levels (continued)

E(level)	J^{π}‡	$T_{1/2}$†	XREF	Comments
2417			F	
2418.40@ *20*	31/2$^-$		C	J^{π}: γ to 27/2$^-$; band member.
2427 *1*			G	
2431 *1*			G	
2432.6	(1/2$^-$,3/2,5/2$^-$)		E	J^{π}: γ's to 5/2$^-$ and (1/2)$^-$.
2449 *1*			G	
2459.9	(3/2,5/2,7/2)		E l	J^{π}: γ's to 5/2$^+$, 5/2$^-$.
2471.6	(1/2,3/2,5/2)		E l	J^{π}: γ to (1/2)$^-$.
2473 *1*			G l	
2475.3			E l	
2483 *1*			G	
2493 *1*	5/2		G	
2503 *1*			G	
2525.0	(1/2,3/2,5/2$^-$)		E	J^{π}: γ to (1/2)$^-$.
2527 *1*			G	
2542 *1*			G	
2559 *1*			G	
2562.1	(1/2$^-$,3/2,5/2$^-$)		E	J^{π}: γ's to (1/2)$^-$ and (5/2)$^-$.
2567 *1*			G	
2570 *1*			G	
2583 *1*	5/2,7/2		G	
2584.2			E	
2587 *1*	7/2		G	
2606.8	(5/2$^-$)		E K	XREF: K(2609). J^{π}: L(d,t)=(3); γ to (1/2)$^-$.
2616.1			E	
2627 *1*			G	
2627.9			E	
2647.7	(3/2$^-$)		E K	XREF: K(2645). J^{π}: L(d,t)=(1); γ to 7/2$^-$.
2658 *1*			G	
2666 *1*			G	
2669 *1*			G	
2691			K	
2698 *1*			G	
2707 *1*	5/2,7/2		G	
2709.79# *22*	33/2$^-$		C	J^{π}: γ to 29/2$^-$; band member.
2715 *1*			G	
2724 *1*			G	
2728.6	(3/2,5/2,7/2)		E	J^{π}: γ's to 5/2$^+$ and (5/2)$^-$.
2752 *1*			G	
2755.2	(1/2$^-$,3/2,5/2$^-$)		E	J^{π}: γ's to (1/2)$^-$ and (5/2)$^-$.
2765 *1*			G	
2774 *1*			G	
2790 *1*			G	
2794 *1*	7/2		G	
2808 *1*			G	
2810 *90*		0.86 MeV *19*	L	E(level): pygmy resonance.
2812 *1*	7/2		G	
2819.2 *7*	7/2		G	
2830 *1*			G	
2835.3	(3/2,5/2$^-$)		E	J^{π}: γ's to 5/2$^+$, 5/2$^-$ and (1/2)$^-$.
2847 *1*			G	
2853 *1*			G	
2859 *1*			G	
2872.2	(1/2$^-$,3/2,5/2$^-$)		E	J^{π}: γ's to 5/2$^-$ and (1/2)$^-$.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{163}Dy Levels (continued)

E(level)	Jπ‡	XREF	Comments
2894 *1*		G	
2911 *1*		G	
2911.6	(1/2,3/2,5/2⁻)	E	Jπ: γ to (1/2)⁻.
2918 *1*		G	
2928 *1*		G	
2931 *1*		G	
2937.29[d] *15*	35/2⁺	C	Jπ: γ's to 31/2⁺ and 33/2⁺; band member.
2942 *1*		G	
2954 *1*	7/2	G	
2958 *1*	7/2	G	
2963 *1*		G	
2968 *1*		G	
2972.97[c] *18*	37/2⁺	C	Jπ: γ to 33/2⁺; band member.
2976 *1*		G	
2979.7	1/2,3/2,5/2	E	Jπ: γ to (1/2)⁻.
2988 *1*		G	
2996.6		E G	
3020 *1*	5/2,7/2	G	
3026 *1*		G	
3028.80[@] *22*	35/2⁻	C	Jπ: γ to 31/2⁻; band member.
3034 *1*		G	
3037 *1*		G	
3048.1		E	
3052 *1*		G	
3057 *1*		G	
3067.1	(1/2⁺,3/2,5/2⁻)	E G	Jπ: γ's to 5/2⁺ and (1/2)⁻.
3075 *1*	5/2,7/2	G	
3087 *1*		G	
3099 *1*		G	
3105.0	(1/2⁻,3/2,5/2⁻)	E	Jπ: γ's to 5/2⁻ and (1/2)⁻.
3107 *1*		G	
3119.3	(1/2⁻,3/2,5/2⁻)	E	Jπ: γ's to (1/2)⁻ and (5/2)⁻.
3125 *1*		G	
3137 *1*		G	
3142 *1*		G	
3173 *1*		G	
3182 *1*	7/2	G	
3182.8	(3/2,5/2,7/2)	E	Jπ: γ's to (5/2) and (5/2⁺).
3186 *1*		G	
3206 *1*		G	
3215.0		E	
3230.9	(3/2,5/2,7/2)	E	Jπ: γ's to 5/2⁺ and (5/2)⁻.
3264 *1*		G	
3282 *1*		G	
3286 *1*	5/2,7/2	G	
3301 *1*		G	
3314.8		E	
3335.2	(1/2⁻,3/2,5/2⁻)	E	Jπ: γ's to (1/2)⁻ and (5/2)⁻.
3342.49[#] *24*	37/2⁻	C	Jπ: γ to 33/2⁻; band member.
3351.3 *7*	5/2,7/2	G	
3351.5	(3/2,5/2⁻)	E	Jπ: γ's to 5/2⁺ and 5/2⁻. Possible γ to (1/2)⁻.
3362.3 *7*	5/2	G	
3390 *1*		G	
≈3400	(3/2⁺,5/2⁺)	F	Jπ: L(d,p)=(2).
3404 *1*		G	
3416 *1*		G	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{163}Dy Levels (continued)

E(level)	J^{π}‡	XREF	Comments
3423 *1*		G	
3434 *1*		G	
3459 *1*		G	
3471 *1*	7/2	G	
3484 *1*	7/2	G	
3495 *1*		G	
3497.0		E	
3500 *1*		G	
3508 *1*		G	
3520 *1*		G	
3537 *1*		G	
3565 *1*	7/2	G	
3579 *1*	7/2	G	
3596 *1*		G	
3601.37[c] *21*	$41/2^+$	C	J^{π}: γ to $37/2^+$; band member.
3610.39[d] *18*	$39/2^+$	C	J^{π}: γ to $35/2^+$; band member.
3612.9	$(1/2^-,3/2,5/2^-)$	E	J^{π}: γ's to $5/2^-$ and $(1/2)^-$.
3614 *1*	5/2,7/2	G	
3638 *1*	7/2	G	
3649 *1*	5/2,7/2	G	
3673 *1*		G	
3678 *1*		G	
3682 *1*		G	
3685 *1*		G	
3685.91[@] *24*	$39/2^-$	C	J^{π}: γ to $35/2^-$; band member.
3690 *1*	5/2,7/2	G	
≈3700?		F	
3732 *1*		G	
3738.0	(3/2,5/2,7/2)	E	J^{π}: γ's to $5/2^-$ and $5/2^+$.
3748 *1*		G	
3753 *1*		G	
3771 *1*	7/2	G	
3791 *1*	7/2	G	
3846 *1*		G	
3861 *1*		G	
3866 *1*		G	
3881 *1*	5/2,7/2	G	
3884.6	$(1/2^-,3/2,5/2^-)$	E	J^{π}: γ to $(5/2)^-$. Possible γ to $(1/2)^-$.
3895 *1*		G	
3924 *1*	7/2	G	
3929 *1*		G	
3936 *1*		G	
3943 *1*		G	
3950 *1*		G	
3962 *1*	7/2	G	
3991 *1*	7/2	G	
4020.3[#] *3*	$41/2^-$	C	J^{π}: γ to $37/2^-$; band member.
4279.58[c] *23*	$45/2^+$	C	J^{π}: γ to $41/2^+$; band member.
4331.59[d] *21*	$43/2^+$	C	J^{π}: γ to $39/2^+$; band member.
4383.3[@] *3*	$43/2^-$	C	J^{π}: γ to $39/2^-$; band member.
4739.1[#] *3*	$45/2^-$	C	J^{π}: γ to $41/2^-$; band member.
4740.4		E	
4927.9	$(3/2^-,5/2,7/2^-)$	E	J^{π}: γ's to $7/2^-$ and $(3/2)^-$.
5003.38[c] *25*	$49/2^+$	C	J^{π}: γ to $45/2^+$; band member.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{163}Dy Levels (continued)

† From B(E2) in Coul. ex. and adopted branchings, unless otherwise stated.
‡ Values from ^{163}Dy(γ,γ') are those reported by 2003No02. See the (γ,γ') data set for a discussion of the bases for these values.
# Band(A): 5/2[523] g.s. band; α=+1/2. A=10.54, B=−0.0037, from the energies of the 5/2$^-$, 7/2$^-$ and 9/2$^-$ band members.
@ Band(a): 5/2[523] g.s. band; α=−1/2. See the comment on the α=+1/2 branch.
& Band(B): Mixed 1/2[521]+(5/2[523]−Q_{22}) band. A=10.41, B=−0.023, a=+0.245, from the energies of the 1/2$^-$ through 7/2$^-$ band members. The admixture of the K-2 γ vibration in the band is expected from theoretical considerations as well as the value of the decoupling parameter, which is considerably smaller than what is observed in 1/2[521] bands in neighboring nuclides where the orbital occurs as a relatively pure one-quasiparticle excitation.
[a] Band(C): 3/2[521] band. A=10.46, B=+0.032, from the energies of the 3/2$^-$, 5/2$^-$ and 7/2$^-$ band members. The large positive value of B suggests that the band spacings are strongly affected by (Coriolis) mixing with other bands, most probably 1/2[521] and 1/2[530].
[b] Band(D): Mixed (5/2[523]-Q_{22})+1/2[521] band. A=10.84, B=−0.0068, a=−0.155, from the energies of the 1/2$^-$ through 7/2$^-$ band members. The presence of 1/2[521] is established by (d,p) and (d,t) cross-section data, as well as the non-zero value of the decoupling parameter.
[c] Band(E): 5/2[642] band, α=+1/2. A=4.43, B=+0.044, from the energies of the 5/2$^+$, 7/2$^+$ and 9/2$^+$ band members. The small value of A and the large value of B indicate that the band is strongly mixed with other bands, most probably other Nilsson orbitals originating from the $i_{13/2}$ spherical shell-model state.
[d] Band(e): 5/2[642] band, α=−1/2. See the comment on the α=+1/2 branch.
[e] Band(F): K^π=1/2$^+$, 5/2[642]-Q_{22} band. A=6.05, B=+0.0244, a=+0.556, from the energies of the 1/2$^+$ through 7/2$^+$ band members. The large value of the decoupling parameter suggests that 1/2[660] may be a significant component in the makeup of this band.
[f] Band(G): 3/2[402] band. A=11.27, from the energies of the 3/2$^+$ and 5/2$^+$ band members. Relative population in (d,p) and (d,t) indicates that the orbital is a hole state; and strong population in these reactions establishes the assigned configuration.
[g] Band(H): 1/2[400] band. A=8.86, a=−0.026, from the energies of the 1/2$^+$, 3/2$^+$ and 5/2$^+$ band members. Relative population in (d,p) and (d,t) indicates that this is a hole state. Strength of population of the 1/2$^+$ state in these reactions establishes the configuration assignment.
[h] Band(I): 5/2[512] band. A=12.97, B=−0.011, from the energies of the 5/2$^-$, 7/2$^-$ and 9/2$^-$ band members.
[i] Band(J): 1/2[530] band. A=7.53, a=−1.30, from the energies of the 1/2$^-$, 3/2$^-$ and 5/2$^-$ band members.
[j] Band(K): 2$^-$ octupole vibration built on the g.s. A=9.89, a=+0.713, from the energies of the 1/2$^+$, 3/2$^+$ and 5/2$^+$ band members. The large value of the decoupling parameter suggests that 1/2[660] may be a significant component in the configuration of this band. For a discussion of the makeup of the K^π=2$^-$ octupole phonon and related items, see the ^{163}Tb β- Decay Data Set.
[k] Band(L): 1/2[510] band. A=12.13, a=−0.025, from the energies of the 1/2$^-$, 3/2$^-$ and 5/2$^-$ band members. The K-2 γ vibration built on 5/2[512] may be a component in the makeup of this band.
[l] Band(M): 3/2[651] band. A=11.02, from the energies of the 3/2$^+$ and 5/2$^+$ band members.
[m] Band(N): 11/2[505] bandhead.

Adopted Levels, Gammas (continued)

$\gamma(^{163}Dy)$

Gammas in (γ,γ') that can Be interpreted as arising from both elastic and inelastic scattering are shown as multiply placed in that Data Set. This designation is maintained here, even though some of the levels associated with the other placements are not listed here.

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[e]	Comments
73.4448	7/2$^-$	73.4448 *4*	100	0.0	5/2$^-$	M1+E2	1.98 *10*	8.25 *13*	B(M1)(W.u.)=0.00081 *8*; B(E2)(W.u.)=286 *12*
167.3451	9/2$^-$	93.902 *3*	17.1 *7*	73.4448	7/2$^-$	M1+E2	−1.9 *3*	3.31 *6*	B(M1)(W.u.)=0.0013 *5*; B(E2)(W.u.)=2.7×10^2 *6* δ: from ce data in (n,γ); sign from $\gamma(\theta)$ in Coul. ex.
		167.345 *4*	100.0 *5*	0.0	5/2$^-$	E2		0.432	B(E2)(W.u.)=111 *20*
250.8896	5/2$^+$	177.4481 *21*	10.9 *3*	73.4448	7/2$^-$	E1		0.0666	
		250.8865 *22*	100.0 *19*	0.0	5/2$^-$	E1		0.0270	
281.5716	11/2$^-$	114.20 *6*	7.0 *8*	167.3451	9/2$^-$	M1+E2	−1.7 *3*	1.657	E_γ: weighted average of Eγ from (n,n′γ) and Coul. ex. This γ is not reported in (n,γ). Mult.,δ: D+Q from $\gamma(\theta)$ in Coul. ex. $\Delta\pi$=no from level scheme. I_γ: in (^{7}Li,p3nγ), 2003Ju02 report Iγ(114γ)/Iγ(208γ)=0.181 *19*.
		208.1256 *24*	100 *3*	73.4448	7/2$^-$	E2		0.207	
285.5954	7/2$^+$	118.2518 *19*	12.1 *5*	167.3451	9/2$^-$				
		212.1493 *13*	98.3 *23*	73.4448	7/2$^-$	E1		0.0417	
		285.5931 *18*	100 *2*	0.0	5/2$^-$	E1		0.0195	
336.5439	9/2$^+$	50.942[&] *4*	2.4 *11*	285.5954	7/2$^+$				
		169.203[&] *4*	24.3 *7*	167.3451	9/2$^-$	E1		0.0756	
		263.109 *6*	100 *5*	73.4448	7/2$^-$	E1		0.0239	
351.1493	(1/2)$^-$	351.144 *3*	100	0.0	5/2$^-$	E2		0.0403	B(E2)(W.u.)=7.4 *15*
389.7532	3/2$^-$	38.6037 *12*	0.58 *8*	351.1493	(1/2)$^-$				I_γ: 0.12 *6* in ^{163}Tb ε.
		316.311 *3*	38 *3*	73.4448	7/2$^-$	E2		0.0549	B(E2)(W.u.)=7 *3*
		389.749 *3*	100 *3*	0.0	5/2$^-$	E2,M1		0.043 *14*	B(E2)(W.u.)=3.4 *12*; B(M1)(W.u.)=0.0011 *4*
412.382	11/2$^+$	131.01 *15*	4 *3*	281.5716	11/2$^-$				E_γ: from a doublet in (n,n′γ). I_γ: in (^{7}Li,p3nγ), 2003Ju02 report Iγ(131γ)/Iγ(245γ)=0.25 *3*.
		245.036 *4*	100 *5*	167.3451	9/2$^-$				
415.34	13/2$^-$	133.68[#] *10*	4.91[#] *13*	281.5716	11/2$^-$	(M1+E2)[@]	−2.9[@] *3*	0.956	B(M1)(W.u.)=(0.0009 *4*); B(E2)(W.u.)=(2.0×10^2 *8*) I_γ: in (^{7}Li,p3nγ), 2003Ju02 report Iγ(133γ)/Iγ(247γ)=0.108 *14*.
		247.82[#] *10*	100[#] *4*	167.3451	9/2$^-$	(E2)		0.1173	B(E2)(W.u.)=2.1×10^2 *9*
421.8439	(3/2)$^-$	70.6950 *9*	0.64 *4*	351.1493	(1/2)$^-$	E2		10.32	B(E2)(W.u.)=1.9×10^2 *7*
		170.947[&] *15*	0.065 *22*	250.8896	5/2$^+$				
		421.848 *3*	100 *2*	0.0	5/2$^-$	M1		0.0460	B(M1)(W.u.)=0.0015 *5*

$^{163}_{66}Dy_{97}$-11

Adopted Levels, Gammas (continued)

γ(^{163}Dy) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[e]	Comments
427.6796	(5/2)$^-$	37.8[h] *5*	0.10 *5*	389.7532	3/2$^-$	[M1]		6.5 *3*	B(M1)(W.u.)=0.0014 *10* γ from ^{163}Tb ε decay only.
		76.5268 *15*	1.40 *18*	351.1493	(1/2)$^-$	E2		7.54	B(E2)(W.u.)=1.9×10^2 *10*
		142.0861[&] *20*	0.41 *3*	285.5954	7/2$^+$	E1		0.1206	B(E1)(W.u.)=1.1×10^{-6} *6*
		176.790[&] *9*	0.23 *3*	250.8896	5/2$^+$				Mult.: (M1) from ce data in (n,γ) conflicts with ΔJ^π.
		260.3291[c] *17*	17.0 *9*	167.3451	9/2$^-$	E2		0.1003	B(E2)(W.u.)=5.1 *24* Level-energy difference=260.3344.
		354.227 *3*	100 *3*	73.4448	7/2$^-$	E2		0.0393	B(E2)(W.u.)=6 *3*
		427.692[c] *3*	61 *3*	0.0	5/2$^-$	E2,M1		0.034 *11*	Level-energy difference=427.679.
475.3880	(5/2)$^-$	47.7071 *8*	2.26 *21*	427.6796	(5/2)$^-$				
		124.237 *3*	0.71 *7*	351.1493	(1/2)$^-$	E2		1.227	B(E2)(W.u.)=12 *+13−12*
		224.516[c] *5*	1.87 *9*	250.8896	5/2$^+$				Level-energy difference=224.499.
		401.952 *4*	94.0 *22*	73.4448	7/2$^-$	M1		0.0522	B(M1)(W.u.)=0.0015 *15*
		475.389 *4*	100 *4*	0.0	5/2$^-$	M1		0.0338	B(M1)(W.u.)=0.0010 *10*
497.02	13/2$^+$	84.5 *1*		412.382	11/2$^+$				
		160.4 *1*	54.8 *5*	336.5439	9/2$^+$				
		215.4 *1*	100 *7*	281.5716	11/2$^-$				
514.5519	7/2$^-$	39.163[&] *4*	2.7 *13*	475.3880	(5/2)$^-$				
		86.875[&] *3*	3.1 *4*	427.6796	(5/2)$^-$	M1,E2		4.1 *6*	
		124.7985 *12*	17.5 *8*	389.7532	3/2$^-$	E2		1.208	
		178.009 *10*	0.84 *10*	336.5439	9/2$^+$				
		228.960[&] *13*	1.46 *15*	285.5954	7/2$^+$				
		232.980 *4*	5.54 *6*	281.5716	11/2$^-$	E2		0.1431	
		347.216 *5*	78 *3*	167.3451	9/2$^-$	M1,E2		0.059 *18*	
		441.123 *6*	100 *3*	73.4448	7/2$^-$	M1,E2		0.031 *10*	
		514.540 *4*	22.2 *4*	0.0	5/2$^-$	M1		0.0276	
553.0196	7/2$^-$	77.6298 *21*	8.8 *10*	475.3880	(5/2)$^-$	M1(+E2)	0.23 *+12−23*	5.07 *15*	
		131.178 *4*	3.7 *3*	421.8439	(3/2)$^-$	E2		1.011	
		163.269 *17*	1.58 *21*	389.7532	3/2$^-$	E2		0.470	
		267.421[&] *18*	2.6 *4*	285.5954	7/2$^+$				
		271.0[a] *3*	1.3 *8*	281.5716	11/2$^-$				
		385.680 *7*	57 *2*	167.3451	9/2$^-$	M1,E2		0.044 *14*	
		479.5749 *23*	100 *3*	73.4448	7/2$^-$	M1		0.0330	
		553.024 *5*	25.0 *3*	0.0	5/2$^-$	M1		0.0230	
568.79	15/2$^-$	153.52 *10*	2.55 *9*	415.34	13/2$^-$	(M1+E2)[@]	−1.65[@] *25*	0.616 *13*	B(M1)(W.u.)=(0.0022 *8*); B(E2)(W.u.)=(1.2×10^2 *4*) I_γ: in (^{7}Li,p2nγ), 2003Ju02 report Iγ(153γ)/Iγ(287γ)=0.047 *10*.
		287.18 *10*	100 *3*	281.5716	11/2$^-$	(E2)		0.0738	B(E2)(W.u.)=2.9×10^2 *7*
587.9290	(9/2)$^-$	160.244 *3*	100 *2*	427.6796	(5/2)$^-$				

Adopted Levels, Gammas (continued)

γ(^{163}Dy) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[e]	Comments
587.9290	(9/2)$^-$	306.316 *14*	55 *7*	281.5716	11/2$^-$	M1	0.1068	
		420.598 *5*	60 *3*	167.3451	9/2$^-$			
624.22	15/2$^+$	127.0 *1*	37 *3*	497.02	13/2$^+$			
		209.1 *1*	52 *4*	415.34	13/2$^-$			
		211.8 *1*	100 *7*	412.382	11/2$^+$			
646.249	9/2$^-$	170.901[c] *10*	23 *3*	475.3880	(5/2)$^-$			Level-energy difference=170.861.
		364.71[&] *8*	43 *11*	281.5716	11/2$^-$			
		478.923 *9*	72 *9*	167.3451	9/2$^-$			
		572.786[c] *5*	100 *5*	73.4448	7/2$^-$			Level-energy difference=572.803.
711.4721	5/2$^-$	460.578 *5*	4.33 *18*	250.8896	5/2$^+$			
		638.025 *3*	34.3 *21*	73.4448	7/2$^-$	M1	0.01602	
		711.480 *5*	100 *5*	0.0	5/2$^-$	M1	0.01221	
718.23	(11/2$^-$)	203.72 *5*	100 *11*	514.5519	7/2$^-$			
		302.67 *6*	44 *8*	415.34	13/2$^-$			
		381.99 *16*	11 *8*	336.5439	9/2$^+$			
		436.78 *6*	70 *7*	281.5716	11/2$^-$			
734.91	17/2$^+$	110.6 *1*	69 *6*	624.22	15/2$^+$			
		165.9 *1*		568.79	15/2$^-$			
		237.7 *1*	100 *7*	497.02	13/2$^+$			
737.6584	1/2$^+$	347.905 *5*	100 *3*	389.7532	3/2$^-$	E1	0.01195	
		386.508 *3*	61.5 *11*	351.1493	(1/2)$^-$	E1	0.00929	
		486.7684 *20*	10.77 *19*	250.8896	5/2$^+$			
739.97	17/2$^-$	171.2 *3*	1.16 *23*	568.79	15/2$^-$	[M1,E2]	0.46 *7*	
		324.68 *10*	100 *4*	415.34	13/2$^-$	E2	0.0508	B(E2)(W.u.)=2.5×10^2 *4*
766.2071	(3/2)$^+$	290.795[&] *20*	0.66 *6*	475.3880	(5/2)$^-$			
		338.523 *3*	95 *4*	427.6796	(5/2)$^-$	E1	0.01277	
		344.392 *17*	1.39 *23*	421.8439	(3/2)$^-$			I_γ: 8.7 *22* in ^{163}Tb ε.
		376.463 *13*	14.9 *10*	389.7532	3/2$^-$	E1	0.00989	
		415.060 *3*	100 *3*	351.1493	(1/2)$^-$	E1	0.00786	
		480.596[&c] *4*	2.9 *1*	285.5954	7/2$^+$			Level-energy difference=480.611.
		515.349 *13*	8.2 *6*	250.8896	5/2$^+$	E2	0.01401	
781.1002	5/2$^+$	228.074[f&] *14*	1.09[f] *9*	553.0196	7/2$^-$			
		266.548 *3*	53.5 *13*	514.5519	7/2$^-$	E1	0.0232	
		305.710[&] *10*	2.3 *3*	475.3880	(5/2)$^-$			
		353.434 *22*	5.2 *8*	427.6796	(5/2)$^-$			
		359.255[&] *12*	4.5 *5*	421.8439	(3/2)$^-$			
		391.345 *6*	100 *2*	389.7532	3/2$^-$	E1	0.00902	
		495.510[&] *6*	20.1 *3*	285.5954	7/2$^+$	M1,E2	0.023 *8*	
		530.2067 *17*	6.91 *13*	250.8896	5/2$^+$	M1,E2	0.019 *7*	
793.3942	(1/2)$^-$	371.523 *9*	100.0 *17*	421.8439	(3/2)$^-$	M1	0.0641	

Adopted Levels, Gammas (continued)

γ(^{163}Dy) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[e]	Comments
793.3942	(1/2)$^-$	403.653 *8*	5.2 *4*	389.7532	3/2$^-$	M1,E2	0.039 *13*	
		442.249 *3*	30.6 *14*	351.1493	(1/2)$^-$	M1	0.0407	
		793.387 *8*	43 *3*	0.0	5/2$^-$	E2	0.00500	
801.311	(7/2)$^-$	248.42[f] & *6*	<13[f]	553.0196	7/2$^-$			
		633.94[a] *4*		167.3451	9/2$^-$			
		727.864 *8*	100 *8*	73.4448	7/2$^-$	M1(+E2)	0.009 *3*	
		801.37 *4*	86 *9*	0.0	5/2$^-$			
820.7954	(3/2)$^-$	345.405 *4*	86.6 *25*	475.3880	(5/2)$^-$	M1	0.0776	
		393.118 *3*	89.2 *19*	427.6796	(5/2)$^-$	M1	0.0553	
		398.950 *4*	100 *3*	421.8439	(3/2)$^-$	M1	0.0532	
		431.045 *6*	35.7 *19*	389.7532	3/2$^-$	M1	0.0435	
		747.351 *4*	27.6 *8*	73.4448	7/2$^-$	E2	0.00571	
		820.793 *6*	61.1 *25*	0.0	5/2$^-$	(E2)	0.00464	
851.124	(7/2$^+$)	263.190 *5*	36 *3*	587.9290	(9/2)$^-$			
		336.57[a] *21*	7.2 *22*	514.5519	7/2$^-$			
		423.451 *4*	100 *3*	427.6796	(5/2)$^-$			Mult.: (M1,E2) from ce data in (n,γ) conflicts with ΔJ^π.
859.287	(3/2)$^+$	383.896 *7*	8.61 *12*	475.3880	(5/2)$^-$			
		431.537[&c] *22*	6.0 *14*	427.6796	(5/2)$^-$			Level-energy difference=431.606.
		437.450 *4*	17.9 *11*	421.8439	(3/2)$^-$	(E1)	0.00695	
		508.132[&] *5*	4.4 *6*	351.1493	(1/2)$^-$			
		573.5[b] *2*	4.3 *12*	285.5954	7/2$^+$			
		608.401 *8*	100 *2*	250.8896	5/2$^+$	M1	0.0181	
883.0136	(5/2)$^-$	330.012 *7*	40.0 *11*	553.0196	7/2$^-$	M1	0.0876	
		368.42[&] *3*	9.5 *15*	514.5519	7/2$^-$	(M1)	0.0655	
		407.625 *4*	100.0 *23*	475.3880	(5/2)$^-$	M1	0.0503	
		455.341[&] *6*	8.1 *5*	427.6796	(5/2)$^-$	M1	0.0378	
		461.169[&] *5*	22.0 *9*	421.8439	(3/2)$^-$	M1	0.0365	
		493.257[&] *4*	9.3 *3*	389.7532	3/2$^-$	(M1,E2)	0.023 *8*	
		597.49[&] *6*	<2.2	285.5954	7/2$^+$			
		809.491[f] *25*	68.5[f] *18*	73.4448	7/2$^-$	M1	0.00888	Level-energy difference=809.57.
		883.00[&] *3*	26.4 *11*	0.0	5/2$^-$	(M1,E2)	0.0056 *17*	
884.2943	1/2$^+$	118.062[&] *9*	2.9 *4*	766.2071	(3/2)$^+$			
		146.6342 *25*	1.06 *10*	737.6584	1/2$^+$	M1	0.806	Mult.: M1(+E2) from ce data in (n,γ), but E2 is not allowed by 1/2 to 1/2 transition.
		462.453 *5*	10.8 *4*	421.8439	(3/2)$^-$			
		494.546 *5*	100.0 *17*	389.7532	3/2$^-$	E1	0.00526	
		533.142 *3*	36.2 *4*	351.1493	(1/2)$^-$	E1	0.00446	
		633.4[b] *2*	1.3 *3*	250.8896	5/2$^+$			

$^{163}_{66}Dy_{97}$-14

Adopted Levels, Gammas (continued)

γ(^{163}Dy) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[e]	Comments
915.6577	5/2+	177.964[&] *16*	2.4 *7*	737.6584	1/2+				
		362.650 *20*	8.2 *11*	553.0196	7/2−				
		440.225 *21*	7.8 *3*	475.3880	(5/2)−				
		493.823[&] *7*	9.2 *4*	421.8439	(3/2)−				
		579.108[&] *13*	3.9 *3*	336.5439	9/2+				
		630.049 *5*	100 *3*	285.5954	7/2+	M1		0.01654	
		664.767 *3*	33.8 *9*	250.8896	5/2+	(M1,E2)		0.011 *4*	
924.22	19/2+	184.4 *1*		739.97	17/2−				
		189.3 *1*	48 *4*	734.91	17/2+				
		300.0 *1*	100 *6*	624.22	15/2+				
930.93	19/2−	190.7 *2*	0.9 *3*	739.97	17/2−	(M1+E2)[@]	−1.7[@] *5*	0.305 *18*	B(M1)(W.u.)=(0.0011 *7*); B(E2)(W.u.)=(44 *17*)
		362.28 *10*	100 *3*	568.79	15/2−	(E2)		0.0368	B(E2)(W.u.)=2.6×10^2 *4* Mult.: from γ(θ) in Coul. ex.
935.134	(3/2)+	154.019[b] *6*	3.8 *10*	781.1002	5/2+				
		459.737[h] *5*	16.3 *5*	475.3880	(5/2)−				Mult.: M1,E2 from ce data in (n,γ) is inconsistent with Δπ.
		507.454 *7*	56.7 *6*	427.6796	(5/2)−	E1		0.00497	
		545.3772[h] *19*	21.1 *6*	389.7532	3/2−				Mult.: E2 from ce data in (n,γ) is inconsistent with Δπ.
		583.987 *9*	100.0 *24*	351.1493	(1/2)−	(E1)		0.00366	
		649.6[b] *2*	1.6 *7*	285.5954	7/2+				
		684.257 *7*	5.16 *24*	250.8896	5/2+				
946.003	(7/2)−	125.217[&] *13*	18 *6*	820.7954	(3/2)−				
		234.42[&] *6*	8 *4*	711.4721	5/2−				
		299.73[&] *3*	28.2 *21*	646.249	9/2−				
		358.05 *3*	75 *8*	587.9290	(9/2)−	M1,E2		0.054 *17*	
		392.979 *6*	90 *8*	553.0196	7/2−				
		470.614[&] *5*	49.2 *22*	475.3880	(5/2)−	M1		0.0347	
		609.462[&] *5*	100 *10*	336.5439	9/2+				
		872.54 *5*	92 *13*	73.4448	7/2−				
949.3369	(5/2)+	396.310 *5*	27.8 *3*	553.0196	7/2−				
		434.790 *6*	101 *7*	514.5519	7/2−				
		527.490 *4*	9.2 *23*	421.8439	(3/2)−				
		559.568 *15*	100 *4*	389.7532	3/2−	E1		0.00401	
		663.773[c] *8*	9.9 *5*	285.5954	7/2+				Level-energy difference=663.739.
		698.424 *15*	5.5 *7*	250.8896	5/2+				
1047.48	21/2+	116.6 *1*	1.6 *5*	930.93	19/2−				
		123.2 *1*	36 *3*	924.22	19/2+				
		312.6 *1*	100 *7*	734.91	17/2+				

$^{163}_{66}Dy_{97}$-15

Adopted Levels, Gammas (continued)

$\gamma(^{163}Dy)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[e]	Comments
1049.0730	3/2$^-$	99.738 *4*	1.83 *24*	949.3369	(5/2)$^+$			
		164.774 *3*	1.98 *24*	884.2943	1/2$^+$			
		166.063 *4*	2.26 *8*	883.0136	(5/2)$^-$			
		247.75 *7*	0.83 *17*	801.311	(7/2)$^-$			
		255.6797 *22*	5.87 *24*	793.3942	(1/2)$^-$	M1	0.1735	
		267.968 *3*	100.0 *24*	781.1002	5/2$^+$	E1	0.0228	
		311.413 *3*	85 *4*	737.6584	1/2$^+$	E1	0.01568	
		496.072[f] *7*	5.0[f] *3*	553.0196	7/2$^-$			
		621.397 *10*	11.8 *7*	427.6796	(5/2)$^-$	M1	0.01712	
		627.242 *7*	16.1 *4*	421.8439	(3/2)$^-$	M1	0.01672	
		697.924 *10*	10.5 *4*	351.1493	(1/2)$^-$	(M1,E2)	0.010 *3*	
		975.58 *4*	4.4 *5*	73.4448	7/2$^-$			
1055.7574	(1/2)$^-$	120.55 *3*	0.9 *4*	935.134	(3/2)$^+$			
		171.464 *4*	2.19 *14*	884.2943	1/2$^+$			
		234.965 *8*	1.99 *14*	820.7954	(3/2)$^-$	M1	0.218	
		262.366 *8*	4.0 *3*	793.3942	(1/2)$^-$	M1	0.1618	
		289.547 *4*	100.0 *22*	766.2071	(3/2)$^+$	E1	0.0188	
		318.103 *4*	71.6 *22*	737.6584	1/2$^+$	E1	0.01487	
		580.371 *11*	2.24 *8*	475.3880	(5/2)$^-$			
		633.926 *10*	25.4 *15*	421.8439	(3/2)$^-$	M1	0.01628	
		704.616 *13*	25.8 *15*	351.1493	(1/2)$^-$	M1	0.01251	Mult.: M1(+E2) from ce data in (n,γ), but E2 is not allowed by 1/2 to 1/2 transition.
1058.4671	1/2$^+$	237.708[&] *14*	8.9 *5*	820.7954	(3/2)$^-$			
		292.250[&] *8*	4.7 *6*	766.2071	(3/2)$^+$	M1,E2	0.10 *3*	
		320.822 *11*	5.3 *6*	737.6584	1/2$^+$	M1	0.0944	
		636.616 *4*	20.7 *6*	421.8439	(3/2)$^-$			
		668.7126 *19*	100 *3*	389.7532	3/2$^-$			
		707.320 *5*	56.3 *18*	351.1493	(1/2)$^-$	E1	0.00245	
		807.66 *6*	127 *5*	250.8896	5/2$^+$			
1084.349	(3/2)$^+$	656.667 *4*	27.6 *9*	427.6796	(5/2)$^-$	(E1)	0.00286	
		662.507 *8*	19.9 *10*	421.8439	(3/2)$^-$			
		694.591 *10*	15.5 *9*	389.7532	3/2$^-$			
		733.195 *6*	33.7 *12*	351.1493	(1/2)$^-$			
		833.469 *9*	100 *4*	250.8896	5/2$^+$	M1	0.00827	
1129.759	5/2$^+$	246.75[f&] *6*	<2.7[f]	883.0136	(5/2)$^-$			
		363.47[&] *13*	4.2 *18*	766.2071	(3/2)$^+$			
		615.213[&] *9*	42.1 *18*	514.5519	7/2$^-$			
		707.92[f&] *6*	<23[f]	421.8439	(3/2)$^-$			
		740.012[&] *8*	63.2 *14*	389.7532	3/2$^-$			

$^{163}_{66}Dy_{97}$-16

Adopted Levels, Gammas (continued)

γ(^{163}Dy) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[e]	Comments
1129.759	5/2+	844.148[&] *6*	100 *3*	285.5954	7/2+	M1	0.00801	
		878.886[&] *18*	62.1 *14*	250.8896	5/2+			
1135.494	(5/2)−	186.03[&] *7*	2.7 *6*	949.3369	(5/2)+			Mult.: (M1,E2) from ce data in (n,γ) conflicts with ΔJ^π.
		276.231[&] *11*	5.5 *5*	859.287	(3/2)+			
		284.372 *3*	72.4 *19*	851.124	(7/2+)	E1	0.0197	
		314.698[&] *12*	5.3 *8*	820.7954	(3/2)−	M1,E2	0.078 *22*	
		369.267 *9*	100 *3*	766.2071	(3/2)+	E1	0.01035	
		620.916[&] *18*	5.7 *4*	514.5519	7/2−			
		660.093[&] *7*	19.6 *10*	475.3880	(5/2)−	M1	0.01472	
		707.92[f&] *6*	<13.0[f]	427.6796	(5/2)−			
		745.743 *8*	26.5 *18*	389.7532	3/2−	(M1,E2)	0.008 *3*	
1137.09	21/2−	206.4 *3*		930.93	19/2−			
		397.09 *10*	100 *3*	739.97	17/2−	(E2)	0.0283	B(E2)(W.u.)=2.5×10^2 *5*
1147.454	3/2+	326.72[f&] *4*	<1.9[f]	820.7954	(3/2)−			
		381.240[&] *14*	2.12 *22*	766.2071	(3/2)+			
		409.802[&] *6*	8.19 *22*	737.6584	1/2+	M1	0.0496	
		436.004[&h] *22*	3.2 *2*	711.4721	5/2−			Mult.: M1 from ce data in (n,γ) is inconsistent with $\Delta\pi$. Thus, the placement is questionable (evaluators).
		672.060[&] *4*	37.0 *14*	475.3880	(5/2)−			
		725.619 *6*	64.0 *22*	421.8439	(3/2)−	E1	0.00233	
		757.665[&] *24*	4.8 *10*	389.7532	3/2−			
		796.28[&] *3*	4.5 *5*	351.1493	(1/2)−			
		861.73[&] *6*	3.3 *18*	285.5954	7/2+			
		896.568 *12*	100 *4*	250.8896	5/2+	M1	0.00692	
1160.548	(1/2)−	276.30[f] *4*	<2.2[f]	884.2943	1/2+			
		367.14 *3*	4.2 *6*	793.3942	(1/2)−	M1	0.0661	
		449.079[f] *8*	6.05[f] *18*	711.4721	5/2−			
		738.69 *3*	4.63 *9*	421.8439	(3/2)−			
		770.771 *10*	100 *5*	389.7532	3/2−	M1	0.01002	
		809.491[f] *25*	47.8[f] *13*	351.1493	(1/2)−	M1	0.00888	Level-energy difference=809.40.
1196.051	(3/2)−	246.75[f] *6*	<0.8[f]	949.3369	(5/2)+			
		313.056 *14*	4.0 *6*	883.0136	(5/2)−	M1,E2	0.079 *22*	
		394.745 *11*	2.7 *3*	801.311	(7/2)−			
		484.580 *4*	4.9 *5*	711.4721	5/2−	(M1,E2)	0.024 *8*	
		768.363 *5*	90 *3*	427.6796	(5/2)−	M1	0.01010	
		774.33[c] *4*	3.6 *9*	421.8439	(3/2)−			Level-energy difference=774.33.

Adopted Levels, Gammas (continued)

γ(^{163}Dy) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[e]	Comments
1196.051	(3/2)$^-$	806.32 *5*	19.5 *15*	389.7532	3/2$^-$	(M1,E2)	0.0069 *21*	
		844.898 *5*	100.0 *15*	351.1493	(1/2)$^-$	M1	0.00800	
1202.529	(5/2)$^+$	649.488 *18*	27 *3*	553.0196	7/2$^-$			
		727.152 *11*	14.6 *10*	475.3880	(5/2)$^-$			
		780.71 *4*	30 *4*	421.8439	(3/2)$^-$			
		916.950 *11*	100.0 *2*	285.5954	7/2$^+$	E2(+M1)	0.0051 *16*	
		951.574[c] *19*	32.4 *8*	250.8896	5/2$^+$			Level-energy difference=951.636.
		1202.55 *10*	12.3 *18*	0.0	5/2$^-$			
1253.160	(3/2$^+$)	472.111 *23*	1.4 *3*	781.1002	5/2$^+$			
		863.43 *3*	23 *4*	389.7532	3/2$^-$			
		902.016 *15*	20.3 *7*	351.1493	(1/2)$^-$			Mult.: M1,E2 from α(K)exp data in (n,γ) conflicts with ΔJ^π.
		967.54 *10*	3.1 *6*	285.5954	7/2$^+$			
		1002.261 *12*	100 *5*	250.8896	5/2$^+$	M1,E2	0.0042 *12*	
		1253.12 *7*	10.1 *9*	0.0	5/2$^-$			
1258.214	5/2$^-$	209.162 *9*	7.0 *16*	1049.0730	3/2$^-$			
		492.011 *13*	7.0 *6*	766.2071	(3/2)$^+$			
		705.141 *23*	24.6 *12*	553.0196	7/2$^-$			
		743.672 *9*	100 *4*	514.5519	7/2$^-$	M1	0.01094	
		868.462 *8*	95 *5*	389.7532	3/2$^-$	M1	0.00748	
		1184.49[f] *11*	<37[f]	73.4448	7/2$^-$			
1277.173	(5/2$^+$)	228.074[f] *14*	<15[f]	1049.0730	3/2$^-$			
		496.072[f] *7*	<48[f]	781.1002	5/2$^+$			
		1026.33[f] *4*	<190[f]	250.8896	5/2$^+$	(M1,E2)	0.0039 *11*	
		1277.35[c] *6*	100 *23*	0.0	5/2$^-$			Level-energy difference=1277.167.
1310.74	23/2$^+$	263.2 *1*		1047.48	21/2$^+$			
		386.6 *1*		924.22	19/2$^+$			
1362.60	23/2$^-$	432.67 *10*	100	930.93	19/2$^-$	(E2)	0.0223	B(E2)(W.u.)=2.3×10^2 *5*
1430.239	(3/2$^+$)	177.106 *16*	1.9 *5*	1253.160	(3/2$^+$)	(M1,E2)	0.42 *6*	
		649.06 *3*	6.6 *13*	781.1002	5/2$^+$			
		692.578[f] *8*	<20[f]	737.6584	1/2$^+$	(M1,E2)	0.010 *4*	
		1008.21 *8*	8.1 *11*	421.8439	(3/2)$^-$			
		1040.47 *3*	100.0 *17*	389.7532	3/2$^-$			
		1079.22 *6*	77 *8*	351.1493	(1/2)$^-$	(E1)	1.08×10^{-3}	
1431.61	25/2$^+$	120.8 *1*	17.9 *18*	1310.74	23/2$^+$			
		384.1 *1*	100 *6*	1047.48	21/2$^+$			
1439.054	(1/2$^-$,3/2$^-$)	185.875 *18*	4.7 *7*	1253.160	(3/2$^+$)			
		291.625 *10*	8.8 *5*	1147.454	3/2$^+$			
		1011.35 *11*	8.5 *15*	427.6796	(5/2)$^-$			
		1017.22 *3*	29.4 *17*	421.8439	(3/2)$^-$			

$^{163}_{66}Dy_{97}$-18

Adopted Levels, Gammas (continued)

γ(^{163}Dy) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[e]	Comments
1439.054	(1/2⁻,3/2⁻)	1049.239[c] *18*	78 *5*	389.7532	3/2⁻	(M1,E2)	0.0037 *10*	Level-energy difference=1049.296.
		1087.891 *18*	100 *2*	351.1493	(1/2)⁻	(M1,E2)	0.0034 *9*	
1465	5/2,7/2	1392 *1*	27 *4*	73.4448	7/2⁻			
		1465 *1*	100	0.0	5/2⁻			
1483.263	(5/2⁻)	968.50 *10*	26 *7*	514.5519	7/2⁻			
		1055.70[c] *4*	100 *7*	427.6796	(5/2)⁻			Level-energy difference=1055.58.
		1061.398[f] *21*	<246[f]	421.8439	(3/2)⁻			
		1197.11 *20*	39 *10*	285.5954	7/2⁺			
		1315.89 *18*	63 *11*	167.3451	9/2⁻			
1489.104	(3/2⁻)	433.377 *12*	3.8 *5*	1055.7574	(1/2)⁻			
		707.92[f] *6*	<13.7[f]	781.1002	5/2⁺			
		1013.0[h]		475.3880	(5/2)⁻			
		1061.398[f] *21*	<50[f]	427.6796	(5/2)⁻			
		1099.316 *14*	58 *4*	389.7532	3/2⁻			
		1137.99 *4*	82 *4*	351.1493	(1/2)⁻			
		1238.9		250.8896	5/2⁺			
		1416.1		73.4448	7/2⁻			
		1489.09 *3*	100 *3*	0.0	5/2⁻			
1501.665	(5/2⁺)	248.42[f] *6*	<5.7[f]	1253.160	(3/2⁺)			
		585.976[c] *8*	47 *8*	915.6577	5/2⁺	(M1,E2)	0.015 *5*	Level-energy difference=586.005.
		618.645 *9*	51.9 *14*	883.0136	(5/2)⁻			
		680.88 *3*	6.5 *14*	820.7954	(3/2)⁻			
		1026.33[f] *4*	<116[f]	475.3880	(5/2)⁻			Mult.: (M1,E2) from ce data in (n,γ) conflicts with ΔJ^π.
		1073.95 *3*	91 *5*	427.6796	(5/2)⁻			
		1150.50 *4*	63 *12*	351.1493	(1/2)⁻			
		1501.43 *13*	100 *11*	0.0	5/2⁻			
1529.326	(1/2⁻,3/2⁻)	252.128 *20*	3.8 *9*	1277.173	(5/2⁺)			
		276.30[f] *4*	<7.7[f]	1253.160	(3/2⁺)			Level-energy difference=276.17.
		326.72[f] *4*	<5.9[f]	1202.529	(5/2)⁺			
		735.94 *3*	10 *3*	793.3942	(1/2)⁻			
		1107.450 *22*	72 *8*	421.8439	(3/2)⁻			
		1139.54 *5*	100 *8*	389.7532	3/2⁻			
		1178.25 *3*	81 *6*	351.1493	(1/2)⁻			
1531	7/2	1364 *1*	117 *21*	167.3451	9/2⁻			
		1531 *1*	100	0.0	5/2⁻			
1542		1542 *1*	100	0.0	5/2⁻			
1585.249	1/2⁺,3/2⁺	83.573 *9*	9.0 *23*	1501.665	(5/2⁺)			
		332.10 *4*	7.0 *17*	1253.160	(3/2⁺)	M1(+E2)	0.067 *20*	
		791.88 *3*	19 *3*	793.3942	(1/2)⁻			

$^{163}_{66}Dy_{97}$-19

Adopted Levels, Gammas (continued)

γ(^{163}Dy) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[e]
1585.249	1/2$^+$,3/2$^+$	819.061 *13*	23 *3*	766.2071	(3/2)$^+$	(M1,E2)	0.0066 *20*
		847.589 *9*	44.7 *13*	737.6584	1/2$^+$	M1	0.00793
		1195.44 *6*	100 *10*	389.7532	3/2$^-$		
		1233.92 *18*	17 *3*	351.1493	(1/2)$^-$		
1601.39	25/2$^-$	464.3 *1*	100	1137.09	21/2$^-$		
1615.113	1/2$^-$,3/2$^-$	412.605 *14*	4.1 *5*	1202.529	(5/2)$^+$		
		467.656 *4*	12.1 *9*	1147.454	3/2$^+$		
		485.341 *15*	3.2 *9*	1129.759	5/2$^+$		
		559.402 *23*	21 *9*	1055.7574	(1/2)$^-$		
		566.046 *19*	8.4 *5*	1049.0730	3/2$^-$		
		1187.39 *7*	34 *4*	427.6796	(5/2)$^-$	(M1,E2)	0.0028 *7*
		1193.33 *7*	28 *3*	421.8439	(3/2)$^-$		
		1614.87 *10*	100 *12*	0.0	5/2$^-$		
1634	5/2$^-$,7/2$^-$	1561 *1*	33 *7*	73.4448	7/2$^-$		
		1634 *1*	100	0.0	5/2$^-$		
1684		1684 *1*	100	0.0	5/2$^-$		
1692.675	(3/2)$^-$	562.900 *18*	2.1 *10*	1129.759	5/2$^+$		
		636.919 *7*	30 *3*	1055.7574	(1/2)$^-$	M1,E2	0.012 *4*
		871.79 *8*	4.6 *10*	820.7954	(3/2)$^-$		
		926.43 *4*	20.5 *24*	766.2071	(3/2)$^+$		
		1217.19 *4*	34.9 *19*	475.3880	(5/2)$^-$		
		1265.06 *11*	14.4 *19*	427.6796	(5/2)$^-$		
		1270.831 *12*	100 *4*	421.8439	(3/2)$^-$	M1(+E2)	0.0025 *6*
		1302.94 *3*	60 *6*	389.7532	3/2$^-$	M1(+E2)	0.0023 *6*
		1620.6		73.4448	7/2$^-$		
1705	5/2$^-$,7/2$^-$	1705 *1*	100	0.0	5/2$^-$		
1730		1730 *1*	100	0.0	5/2$^-$		
1775		1775 *1*	100	0.0	5/2$^-$		
1779.55	27/2$^+$	347.9 *1*	17 *3*	1431.61	25/2$^+$		
		468.9 *1*	100 *8*	1310.74	23/2$^+$		
1797	1/2,3/2$^-$	1797 *1*	100	0.0	5/2$^-$		
1831		1831 *1*	100	0.0	5/2$^-$		
1836.2	5/2$^+$	1411.8		427.6796	(5/2)$^-$		
		1759.5		73.4448	7/2$^-$		
		1837.9[dh]		0.0	5/2$^-$		
1840	(5/2$^-$,7/2$^-$)	1840 *1*	100	0.0	5/2$^-$		
1861.30	27/2$^-$	497.7 *1*	100	1362.60	23/2$^-$		
1874.14	(5/2$^-$,7/2$^-$)	1398.75 *5*		475.3880	(5/2)$^-$		
		1449.8[h]		421.8439	(3/2)$^-$		
1883.36	29/2$^+$	451.7 *1*	100	1431.61	25/2$^+$		
1902		1902 *1*	100	0.0	5/2$^-$		

$^{163}_{66}Dy_{97}$-20

Adopted Levels, Gammas (continued)

γ(^{163}Dy) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[e]	Comments
1942	5/2$^+$	1869 *1*	39 *5*	73.4448	7/2$^-$			
		1942	100	0.0	5/2$^-$			
1950.770	3/2$^-$	449.079[f] *8*	<11.7[f]	1501.665	(5/2$^+$)			Level-energy difference=449.105.
		692.578[f] *8*	<19.1[f]	1258.214	5/2$^-$	(M1,E2)	0.010 *4*	
		815.279 *14*	24.1 *18*	1135.494	(5/2)$^-$			
		866.43 *3*	19.4 *8*	1084.349	(3/2)$^+$			
		1184.49[f] *11*	<19[f]	766.2071	(3/2)$^+$			
		1474.2		475.3880	(5/2)$^-$			
		1523.02 *5*	73 *4*	427.6796	(5/2)$^-$			
		1528.99 *4*	100 *12*	421.8439	(3/2)$^-$			
		1599.66 *16*	31 *4*	351.1493	(1/2)$^-$			
		1875.2		73.4448	7/2$^-$			
		1953.8[dh]		0.0	5/2$^-$			
1981		1981 *1*	100	0.0	5/2$^-$			
1984	3/2$^+$,5/2$^+$	1984 *1*	100	0.0	5/2$^-$			
2009		2009 *1*	100	0.0	5/2$^-$			
2054		2054 *1*	100	0.0	5/2$^-$			
2080		2080 *1*	100	0.0	5/2$^-$			
2091		2091 *1*	100	0.0	5/2$^-$			
2099		2099 *1*	100	0.0	5/2$^-$			
2103	7/2	1936 *1*	1.3×10^2 *4*	167.3451	9/2$^-$			
		2103 *1*	100	0.0	5/2$^-$			
2109.3		1634.8		475.3880	(5/2)$^-$			
		1686.6		421.8439	(3/2)$^-$			
2112		2112 *1*	100	0.0	5/2$^-$			
2127.49	29/2$^-$	526.1 *1*	100	1601.39	25/2$^-$			
2135.2		2060.8		73.4448	7/2$^-$			
		2136.1		0.0	5/2$^-$			
2158		2158 *1*	100	0.0	5/2$^-$			
2165		2165 *1*	100	0.0	5/2$^-$			
2169		2169 *1*	100	0.0	5/2$^-$			
2180	7/2	2013 *1*	6.3 *16*	167.3451	9/2$^-$			
		2107 *1*	37 *6*	73.4448	7/2$^-$			
		2180 *1*	100	0.0	5/2$^-$			
2191	5/2$^+$,7/2$^+$	2118 *1*	2.3×10^2 *5*	73.4448	7/2$^-$			
		2191 *1*	100	0.0	5/2$^-$			
2197.0	(3/2$^-$)	1775.07[h] *13*		421.8439	(3/2)$^-$			
		1808.7		389.7532	3/2$^-$			
		1846.2		351.1493	(1/2)$^-$			
		1944.5		250.8896	5/2$^+$			

$^{163}_{66}Dy_{97}$-21

Adopted Levels, Gammas (continued)

γ(^{163}Dy) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
2197.0	(3/2⁻)	2196.8		0.0	5/2⁻
2222.2	(1/2⁻,3/2,5/2⁻)	1748.0		475.3880	(5/2)⁻
		1869.8		351.1493	(1/2)⁻
2224		2224 *1*	100	0.0	5/2⁻
2237		2237 *1*	100	0.0	5/2⁻
2241.1	(1/2,3/2,5/2⁻)	1819.5		421.8439	(3/2)⁻
		1851.1		389.7532	3/2⁻
		1894.6[dh]		351.1493	(1/2)⁻
2242	7/2	2075 *1*	110 *21*	167.3451	9/2⁻
		2242 *1*	100	0.0	5/2⁻
2255		2255 *1*	100	0.0	5/2⁻
2270.3	(3/2⁺)	1843.1		427.6796	(5/2)⁻
		1879.5		389.7532	3/2⁻
		1919.7		351.1493	(1/2)⁻
2272		2272 *1*	100	0.0	5/2⁻
2278		2278 *1*	100	0.0	5/2⁻
2287		2213 *1*	9.6×10^2 *12*	73.4448	7/2⁻
		2287 *1*	100	0.0	5/2⁻
2324.30	31/2⁺	441.2 *1*		1883.36	29/2⁺
		544.8 *1*		1779.55	27/2⁺
2329		2329 *1*	100	0.0	5/2⁻
2339.5	(1/2⁻,3/2,5/2⁻)	1912.8		427.6796	(5/2)⁻
		1987.2		351.1493	(1/2)⁻
		2339.6		0.0	5/2⁻
2344		2344 *1*	100	0.0	5/2⁻
2350.2		1922.8		427.6796	(5/2)⁻
		2349.9		0.0	5/2⁻
2353		2353 *1*	100	0.0	5/2⁻
2356		2356 *1*	100	0.0	5/2⁻
2360.9	(1/2,3/2,5/2⁻)	1939.0		421.8439	(3/2)⁻
		2009.7		351.1493	(1/2)⁻
2367		2367 *1*	100	0.0	5/2⁻
2369		2369 *1*	100	0.0	5/2⁻
2380	5/2⁻,7/2⁻	2380 *1*	100	0.0	5/2⁻
2387	3/2⁺,5/2⁺	2387 *1*	100	0.0	5/2⁻
2398.87	33/2⁺	515.2 *1*	100	1883.36	29/2⁺
2418.40	31/2⁻	557.1 *1*	100	1861.30	27/2⁻
2427		2427 *1*	100	0.0	5/2⁻
2431		2431 *1*	100	0.0	5/2⁻
2432.6	(1/2⁻,3/2,5/2⁻)	2080.5		351.1493	(1/2)⁻
		2433.5		0.0	5/2⁻
2449		2449 *1*	100	0.0	5/2⁻
2459.9	(3/2,5/2,7/2)	2208.5		250.8896	5/2⁺
		2460.3		0.0	5/2⁻
2471.6	(1/2,3/2,5/2)	2081.7		389.7532	3/2⁻
		2120.5		351.1493	(1/2)⁻
2473		2473 *1*	100	0.0	5/2⁻
2475.3		2001.7		475.3880	(5/2)⁻
		2051.6		421.8439	(3/2)⁻
2483		2483 *1*	100	0.0	5/2⁻
2493	5/2	2420 *1*	2.9×10^2 *5*	73.4448	7/2⁻
		2493 *1*	100	0.0	5/2⁻
2503		2503 *1*	100	0.0	5/2⁻
2525.0	(1/2,3/2,5/2⁻)	2101.7		421.8439	(3/2)⁻
		2175.2		351.1493	(1/2)⁻
2527		2527 *1*	100	0.0	5/2⁻
2542		2542 *1*	100	0.0	5/2⁻
2559		2559 *1*	100	0.0	5/2⁻
2562.1	(1/2⁻,3/2,5/2⁻)	2086.0		475.3880	(5/2)⁻
		2141.5		421.8439	(3/2)⁻
		2210.4		351.1493	(1/2)⁻
2567		2567 *1*	100	0.0	5/2⁻
2570		2570 *1*	100	0.0	5/2⁻
2583	5/2,7/2	2510 *1*	3.1×10^2 *8*	73.4448	7/2⁻
		2583 *1*	100	0.0	5/2⁻
2584.2		2108.3		475.3880	(5/2)⁻
		2161.8		421.8439	(3/2)⁻
		2190.9[dh]		389.7532	3/2⁻
		2585.2		0.0	5/2⁻
2587	7/2	2514 *1*	28 *4*	73.4448	7/2⁻
		2587 *1*	100	0.0	5/2⁻
2606.8	(5/2⁻)	2216.8		389.7532	3/2⁻
		2255.8		351.1493	(1/2)⁻
2616.1		2189.0		427.6796	(5/2)⁻
		2264.4		351.1493	(1/2)⁻
2627		2627 *1*	100	0.0	5/2⁻
2627.9		2152.9		475.3880	(5/2)⁻
		2199.7		427.6796	(5/2)⁻
		2238.4		389.7532	3/2⁻
		2627.9		0.0	5/2⁻
2647.7	(3/2⁻)	2224.2		421.8439	(3/2)⁻
		2575.9		73.4448	7/2⁻

$^{163}_{66}Dy_{97}$-22

Adopted Levels, Gammas (continued)

γ(^{163}Dy) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
2658		2658 *1*	100	0.0	5/2$^-$
2666		2666 *1*	100	0.0	5/2$^-$
2669		2669 *1*	100	0.0	5/2$^-$
2698		2698 *1*	100	0.0	5/2$^-$
2707	5/2,7/2	2634 *1*	41 *7*	73.4448	7/2$^-$
		2707 *1*	100	0.0	5/2$^-$
2709.79	33/2$^-$	582.3 *1*	100	2127.49	29/2$^-$
2715		2715 *1*	100	0.0	5/2$^-$
2724		2724 *1*	100	0.0	5/2$^-$
2728.6	(3/2,5/2,7/2)	2254.8		475.3880	(5/2)$^-$
		2476.1		250.8896	5/2$^+$
2752		2752 *1*	100	0.0	5/2$^-$
2755.2	(1/2$^-$,3/2,5/2$^-$)	2278.7		475.3880	(5/2)$^-$
		2332.7		421.8439	(3/2)$^-$
		2405.9		351.1493	(1/2)$^-$
2765		2765 *1*	100	0.0	5/2$^-$
2774		2774 *1*	100	0.0	5/2$^-$
2790		2790 *1*	100	0.0	5/2$^-$
2794	7/2	2721 *1*	7.3×10^2 *17*	73.4448	7/2$^-$
		2794 *1*	100	0.0	5/2$^-$
2808		2808 *1*	100	0.0	5/2$^-$
2812	7/2	2645 *1*	107 *17*	167.3451	9/2$^-$
		2739 *1*	1.8×10^2 *3*	73.4448	7/2$^-$
		2812 *1*	100	0.0	5/2$^-$
2819.2	7/2	2746 *1*	147 *22*	73.4448	7/2$^-$
		2819 *1*	100	0.0	5/2$^-$
2830		2830 *1*	100	0.0	5/2$^-$
2835.3	(3/2,5/2$^-$)	2411.7		421.8439	(3/2)$^-$
		2484.1		351.1493	(1/2)$^-$
		2586.3		250.8896	5/2$^+$
		2835.1		0.0	5/2$^-$
2847		2847 *1*	100	0.0	5/2$^-$
2853		2853 *1*	100	0.0	5/2$^-$
2859		2859 *1*	100	0.0	5/2$^-$
2872.2	(1/2$^-$,3/2,5/2$^-$)	2522.0		351.1493	(1/2)$^-$
		2871.2		0.0	5/2$^-$
2894		2894 *1*	100	0.0	5/2$^-$
2911		2911 *1*	100	0.0	5/2$^-$
2911.6	(1/2,3/2,5/2$^-$)	2489.3		421.8439	(3/2)$^-$
		2560.9		351.1493	(1/2)$^-$
2918		2844 *1*	22 *6*	73.4448	7/2$^-$
2918		2918 *1*	100	0.0	5/2$^-$
2928		2928 *1*	100	0.0	5/2$^-$
2931		2931 *1*	100	0.0	5/2$^-$
2937.29	35/2$^+$	538.1 *1*		2398.87	33/2$^+$
		613.3 *1*		2324.30	31/2$^+$
2942		2942 *1*	100	0.0	5/2$^-$
2954	7/2	2787 *1*	140 *20*	167.3451	9/2$^-$
		2954 *1*	100	0.0	5/2$^-$
2958	7/2	2885 *1*	27 *3*	73.4448	7/2$^-$
		2958 *1*	100	0.0	5/2$^-$
2963		2963 *1*	100	0.0	5/2$^-$
2968		2968 *1*	100	0.0	5/2$^-$
2972.97	37/2$^+$	574.1 *1*	100	2398.87	33/2$^+$
2976		2976 *1*	100	0.0	5/2$^-$
2979.7	1/2,3/2,5/2	2628.3		351.1493	(1/2)$^-$
		2724.1[dh]		250.8896	5/2$^+$
		2979.8		0.0	5/2$^-$
2988		2988 *1*	100	0.0	5/2$^-$
2996.6		2573.8		421.8439	(3/2)$^-$
		2997.5		0.0	5/2$^-$
3020	5/2,7/2	2946 *1*	26 *7*	73.4448	7/2$^-$
		3020 *1*	100	0.0	5/2$^-$
3026		3026 *1*	100	0.0	5/2$^-$
3028.80	35/2$^-$	610.4 *1*	100	2418.40	31/2$^-$
3034		3034 *1*	100	0.0	5/2$^-$
3037		3037 *1*	100	0.0	5/2$^-$
3048.1		2698.3		351.1493	(1/2)$^-$
		3046.7		0.0	5/2$^-$
3052		3052 *1*	100	0.0	5/2$^-$
3057		3057 *1*	100	0.0	5/2$^-$
3067.1	(1/2$^+$,3/2,5/2$^-$)	2676.4		389.7532	3/2$^-$
		2715.9		351.1493	(1/2)$^-$
		2816.6		250.8896	5/2$^+$
		3067.6		0.0	5/2$^-$
3075	5/2,7/2	3002 *1*	1.9×10^2 *4*	73.4448	7/2$^-$
		3075 *1*	100	0.0	5/2$^-$
3087		3087 *1*	100	0.0	5/2$^-$
3099		3099 *1*	100	0.0	5/2$^-$
3105.0	(1/2$^-$,3/2,5/2$^-$)	2630.2		475.3880	(5/2)$^-$
		2678.1		427.6796	(5/2)$^-$
		2754.4		351.1493	(1/2)$^-$

$^{163}_{66}Dy_{97}$-23

Adopted Levels, Gammas (continued)

γ(^{163}Dy) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
3105.0	(1/2$^-$,3/2,5/2$^-$)	3102.9		0.0	5/2$^-$
3107		3107 *1*	100	0.0	5/2$^-$
3119.3	(1/2$^-$,3/2,5/2$^-$)	2693.1		427.6796	(5/2)$^-$
		2729.1		389.7532	3/2$^-$
		2767.1		351.1493	(1/2)$^-$
3125		3125 *1*	100	0.0	5/2$^-$
3137		3137 *1*	100	0.0	5/2$^-$
3142		3142 *1*	100	0.0	5/2$^-$
3173		3173 *1*	100	0.0	5/2$^-$
3182	7/2	3015 *1*	1.9×10^3 *6*	167.3451	9/2$^-$
		3182 *1*	100	0.0	5/2$^-$
3182.8	(3/2,5/2,7/2)	2755.5		427.6796	(5/2)$^-$
		2931.5		250.8896	5/2$^+$
3186		3186 *1*	100	0.0	5/2$^-$
3206		3206 *1*	100	0.0	5/2$^-$
3215.0		2793.1		421.8439	(3/2)$^-$
		3214.3[dh]		0.0	5/2$^-$
3230.9	(3/2,5/2,7/2)	2756.2		475.3880	(5/2)$^-$
		2979.2		250.8896	5/2$^+$
3264		3264 *1*	100	0.0	5/2$^-$
3282		3282 *1*	100	0.0	5/2$^-$
3286	5/2,7/2	3212 *1*	1.6×10^2 *6*	73.4448	7/2$^-$
		3286 *1*	100	0.0	5/2$^-$
3301		3301 *1*	100	0.0	5/2$^-$
3314.8		3063.7		250.8896	5/2$^+$
		3241.5		73.4448	7/2$^-$
3335.2	(1/2$^-$,3/2,5/2$^-$)	2859.3		475.3880	(5/2)$^-$
		2907.1		427.6796	(5/2)$^-$
		2946.1		389.7532	3/2$^-$
		2984.3		351.1493	(1/2)$^-$
3342.49	37/2$^-$	632.7 *1*	100	2709.79	33/2$^-$
3351.3	5/2,7/2	3278 *1*	49 *12*	73.4448	7/2$^-$
		3351 *1*	100	0.0	5/2$^-$
3351.5	(3/2,5/2$^-$)	3004.9[dh]		351.1493	(1/2)$^-$
		3099.9		250.8896	5/2$^+$
		3352.1		0.0	5/2$^-$
3362.3	5/2	3289 *1*	53 *9*	73.4448	7/2$^-$
		3362 *1*	100	0.0	5/2$^-$
3390		3390 *1*	100	0.0	5/2$^-$
3404		3404 *1*	100	0.0	5/2$^-$
3416		3416 *1*	100	0.0	5/2$^-$
3423		3423 *1*	100	0.0	5/2$^-$
3434		3434 *1*	100	0.0	5/2$^-$
3459		3459 *1*	100	0.0	5/2$^-$
3471	7/2	3398 *1*	100 *27*	73.4448	7/2$^-$
		3471[f] *1*	91[f]	0.0	5/2$^-$
3484	7/2	3317 *1*	1.0×10^2 *3*	167.3451	9/2$^-$
		3411 *1*	1.1×10^2 *3*	73.4448	7/2$^-$
		3484 *1*	100	0.0	5/2$^-$
3495		3495 *1*	100	0.0	5/2$^-$
3497.0		3074.6		421.8439	(3/2)$^-$
		3497.4		0.0	5/2$^-$
3500		3500 *1*	100	0.0	5/2$^-$
3508		3508 *1*	100	0.0	5/2$^-$
3520		3520 *1*	100	0.0	5/2$^-$
3537		3537 *1*	100	0.0	5/2$^-$
3565	7/2	3398 *1*	1.30×10^2 *4*	167.3451	9/2$^-$
		3565[g] *1*	100[g]	0.0	5/2$^-$
3579	7/2	3506[f] *1*	1.1×10^2[f] *6*	73.4448	7/2$^-$
		3579 *1*	100	0.0	5/2$^-$
3596		3596 *1*	100	0.0	5/2$^-$
3601.37	41/2$^+$	628.4 *1*	100	2972.97	37/2$^+$
3610.39	39/2$^+$	673.1 *1*	100	2937.29	35/2$^+$
3612.9	(1/2$^-$,3/2,5/2$^-$)	3259.9		351.1493	(1/2)$^-$
		3614.7		0.0	5/2$^-$
3614	5/2,7/2	3541 *1*	1.4×10^2 *6*	73.4448	7/2$^-$
		3614 *1*	100	0.0	5/2$^-$
3638	7/2	3471[f] *1*	1.5×10^2[f] *5*	167.3451	9/2$^-$
		3565[g] *1*	1.3×10^2[g] *5*	73.4448	7/2$^-$
		3638 *1*	100	0.0	5/2$^-$
3649	5/2,7/2	3576 *1*	3.1×10^2 *8*	73.4448	7/2$^-$
		3649 *1*	100	0.0	5/2$^-$
3673		3506[f] *1*	1.1×10^2[f] *6*	167.3451	9/2$^-$
		3673 *1*	100	0.0	5/2$^-$
3678		3678	100	0.0	5/2$^-$
3682		3682 *1*	100	0.0	5/2$^-$
3685		3685 *1*	100	0.0	5/2$^-$
3685.91	39/2$^-$	657.1 *1*	100	3028.80	35/2$^-$
3690	5/2,7/2	3617 *1*	35 *9*	73.4448	7/2$^-$
		3690 *1*	100	0.0	5/2$^-$
3732		3565[g] *1*	1.0×10^2[g] *3*	167.3451	9/2$^-$
		3732 *1*	100	0.0	5/2$^-$

$^{163}_{66}Dy_{97}$-24

Adopted Levels, Gammas (continued)

γ(^{163}Dy) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
3738.0	(3/2,5/2,7/2)	3347.9		389.7532	3/2$^-$
		3488.7		250.8896	5/2$^+$
		3736.5		0.0	5/2$^-$
3748		3748 *1*	100	0.0	5/2$^-$
3753		3753 *1*	100	0.0	5/2$^-$
3771	7/2	3604 *1*	1.6×10^2 *4*	167.3451	9/2$^-$
		3771 *1*	100	0.0	5/2$^-$
3791	7/2	3624 *1*	2.2×10^2 *5*	167.3451	9/2$^-$
		3791 *1*	100	0.0	5/2$^-$
3846		3846 *1*	100	0.0	5/2$^-$
3861		3861 *1*	100	0.0	5/2$^-$
3866		3866 *1*	100	0.0	5/2$^-$
3881	5/2,7/2	3808 *1*	1.9×10^2 *7*	73.4448	7/2$^-$
		3881 *1*	100	0.0	5/2$^-$
3884.6	(1/2$^-$,3/2,5/2$^-$)	3410.7		475.3880	(5/2)$^-$
		3461.2		421.8439	(3/2)$^-$
		3536.1[dh]		351.1493	(1/2)$^-$
		3880.6[dh]		0.0	5/2$^-$
3895		3895 *1*	100	0.0	5/2$^-$
3924	7/2	3757 *1*	1.7×10^2 *6*	167.3451	9/2$^-$
		3924 *1*	100	0.0	5/2$^-$
3929		3929 *1*	100	0.0	5/2$^-$
3936		3936 *1*	100	0.0	5/2$^-$
3943		3776 *1*	1.5×10^2 *5*	167.3451	9/2$^-$
		3943 *1*	100	0.0	5/2$^-$
3950		3950 *1*	100	0.0	5/2$^-$
3962	7/2	3795 *1*	2.3×10^2 *7*	167.3451	9/2$^-$
		3962 *1*	100	0.0	5/2$^-$
3991	7/2	3824	1.5×10^2 *5*	167.3451	9/2$^-$
		3991 *1*	100	0.0	5/2$^-$
4020.3	41/2$^-$	677.8 *1*	100	3342.49	37/2$^-$
4279.58	45/2$^+$	678.2 *1*	100	3601.37	41/2$^+$
4331.59	43/2$^+$	721.2 *1*	100	3610.39	39/2$^+$
4383.3	43/2$^-$	697.4 *1*	100	3685.91	39/2$^-$
4739.1	45/2$^-$	718.8 *1*	100	4020.3	41/2$^-$
4740.4		4264.8		475.3880	(5/2)$^-$
		4312.8		427.6796	(5/2)$^-$
		4349.2		389.7532	3/2$^-$
		4741.6		0.0	5/2$^-$
4927.9	(3/2$^-$,5/2,7/2$^-$)	4506.3		421.8439	(3/2)$^-$
		4854.1		73.4448	7/2$^-$
5003.38	49/2$^+$	723.8 *1*	100	4279.58	45/2$^+$

[†] From (n,γ), unless otherwise stated. When a level is not populated in (n,γ), the values are from Coul. ex., (n,n′γ) or (γ,γ′).
[‡] From ce data in (n,γ), unless otherwise stated.
[#] From Coulomb excitation.
[@] From γ(θ) in Coulomb excitation.
[&] From (n,γ) only.
[a] From (n,n′γ) only.
[b] From β$^-$ decay only.
[c] Least-squares adjustment procedure suggests somewhat poor fit. For comparison, the level-energy difference is given under comments.
[d] The evaluators regard the placement of this γ as uncertain, since its energy differs from the level-energy difference by several keV. See the related comment in the (n,γ) Data Set.
[e] 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.
[f] Multiply placed with undivided intensity.
[g] Multiply placed with intensity suitably divided.
[h] Placement of transition in the level scheme is uncertain.

$^{163}_{66}Dy_{97}$-25

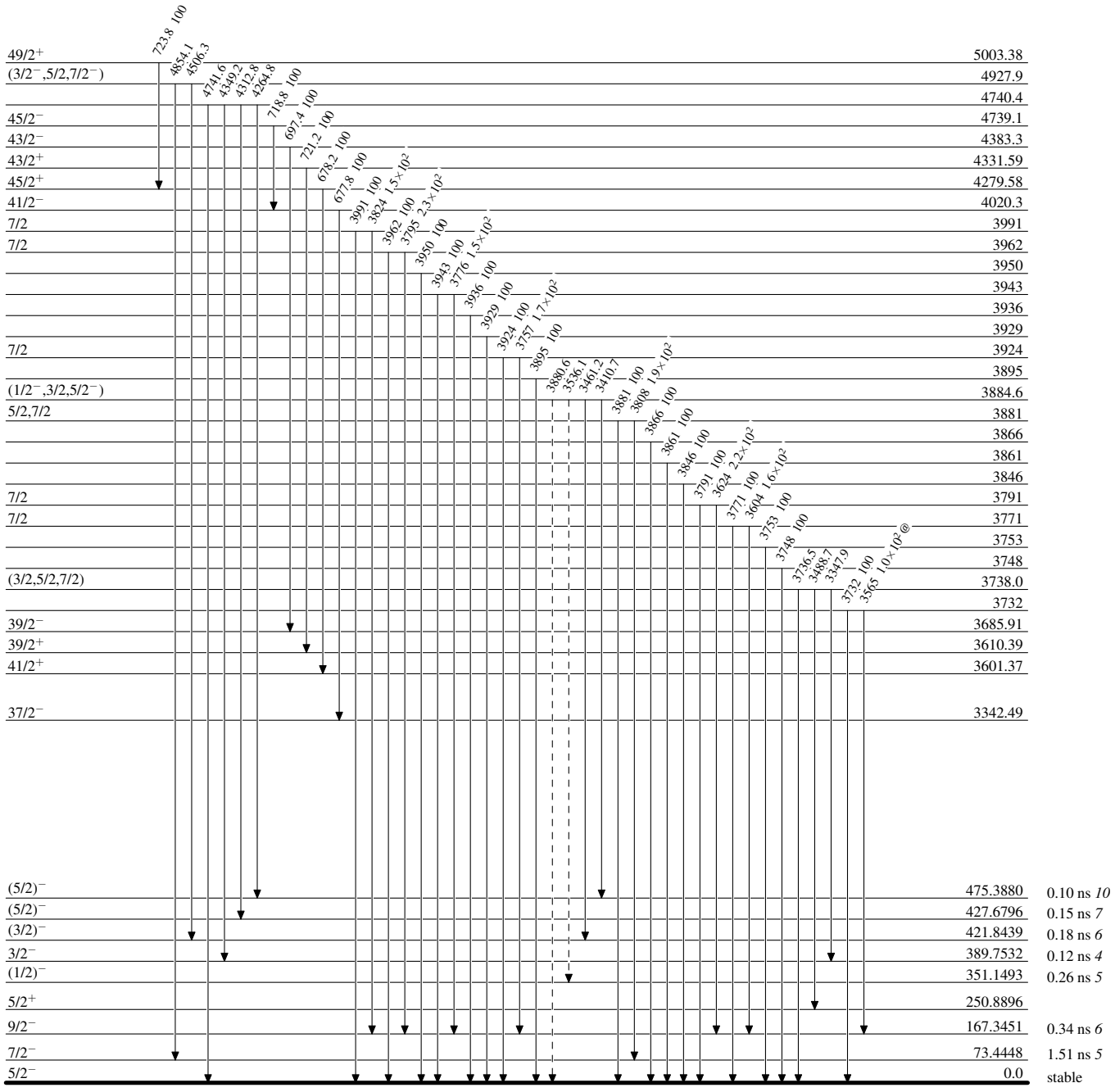
Adopted Levels, Gammas

Legend

Level Scheme

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

– – – – – – ► γ Decay (Uncertain)

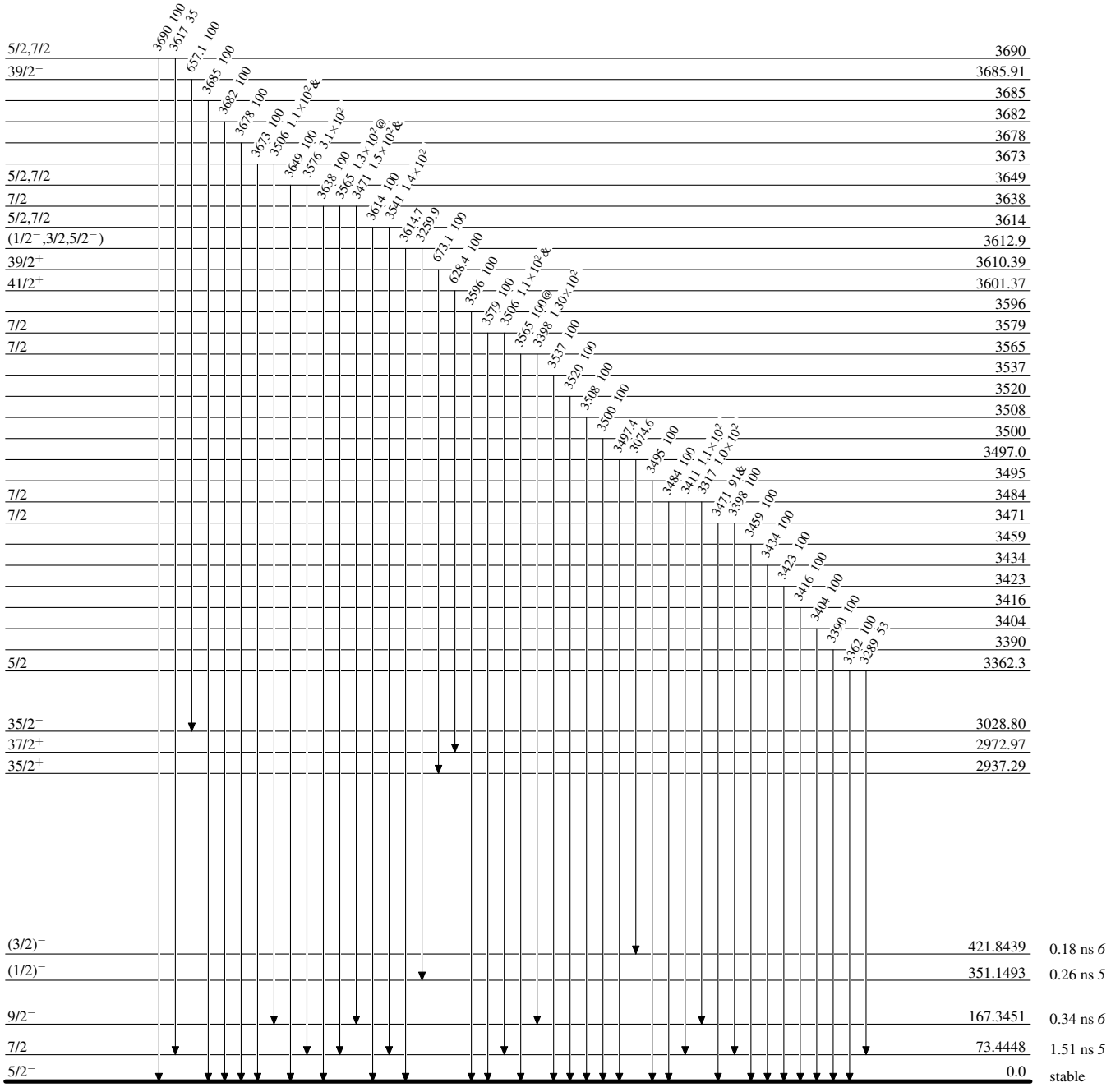


$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas

Level Scheme (continued)

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



$^{163}_{66}Dy_{97}$

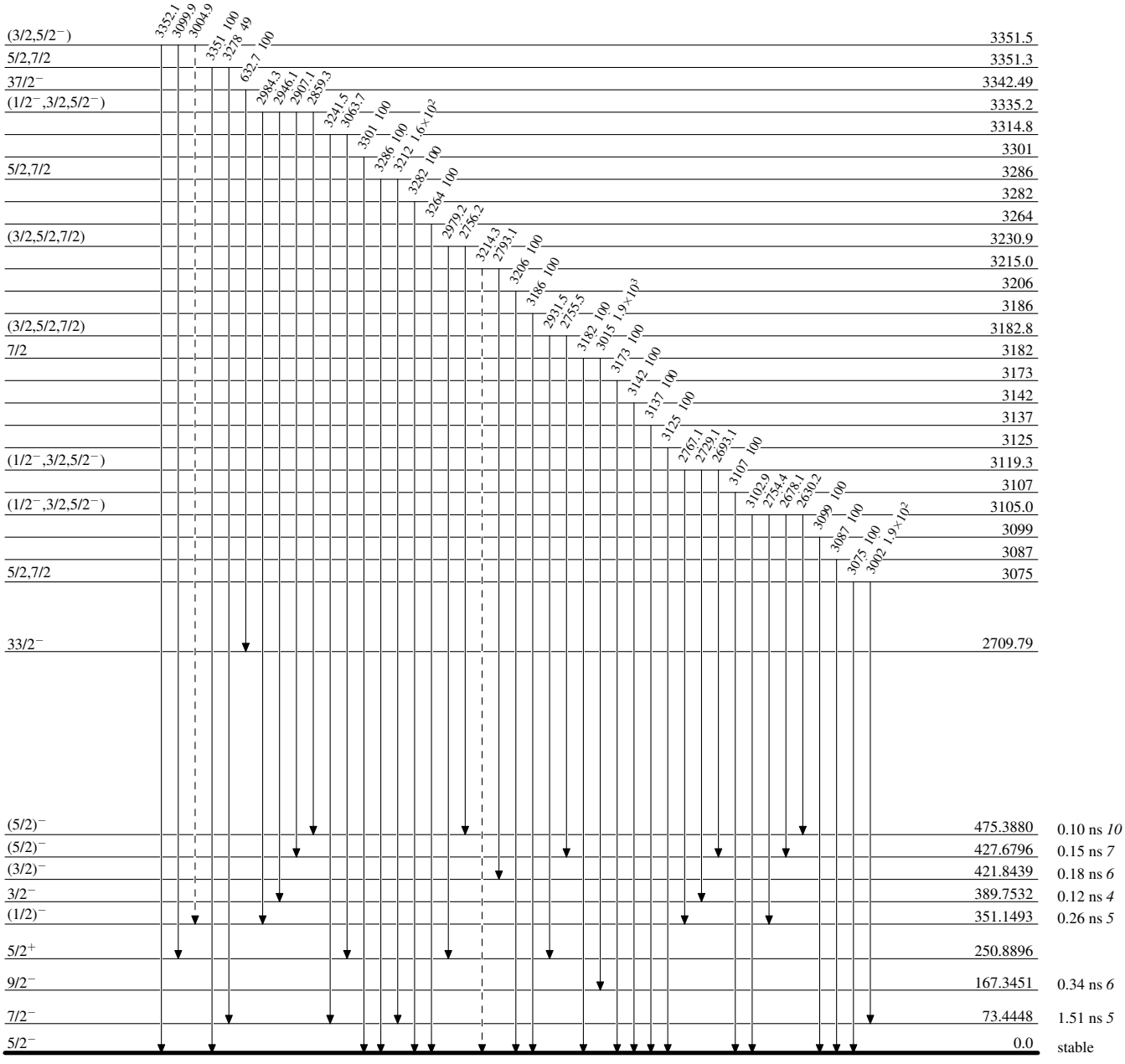
Adopted Levels, Gammas

Level Scheme (continued)

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

Legend

– – – – – – ► γ Decay (Uncertain)



$^{163}_{66}Dy_{97}$

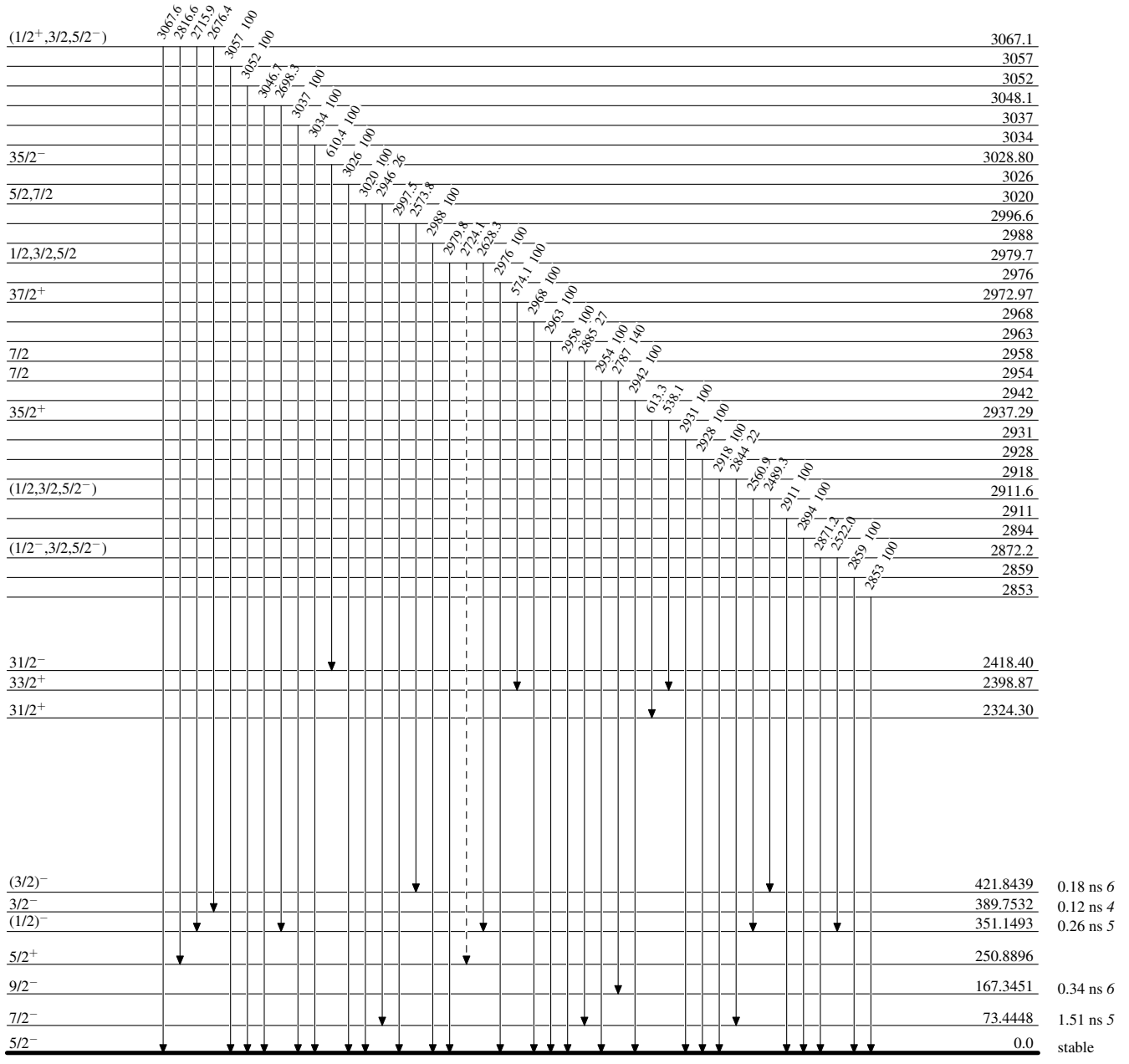
Adopted Levels, Gammas

Level Scheme (continued)

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

Legend

- - - - - - ► γ Decay (Uncertain)

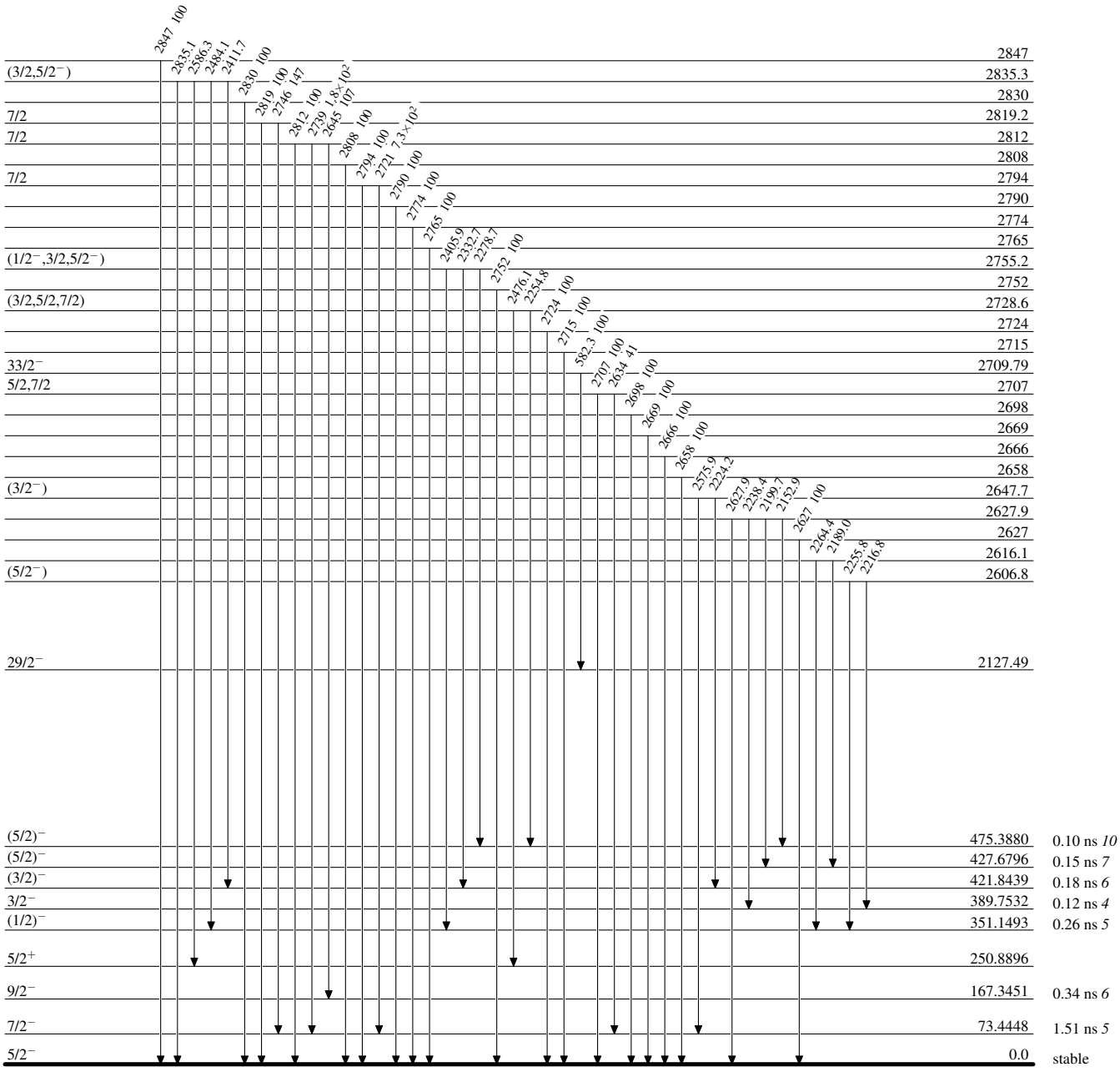


$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas

Level Scheme (continued)

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



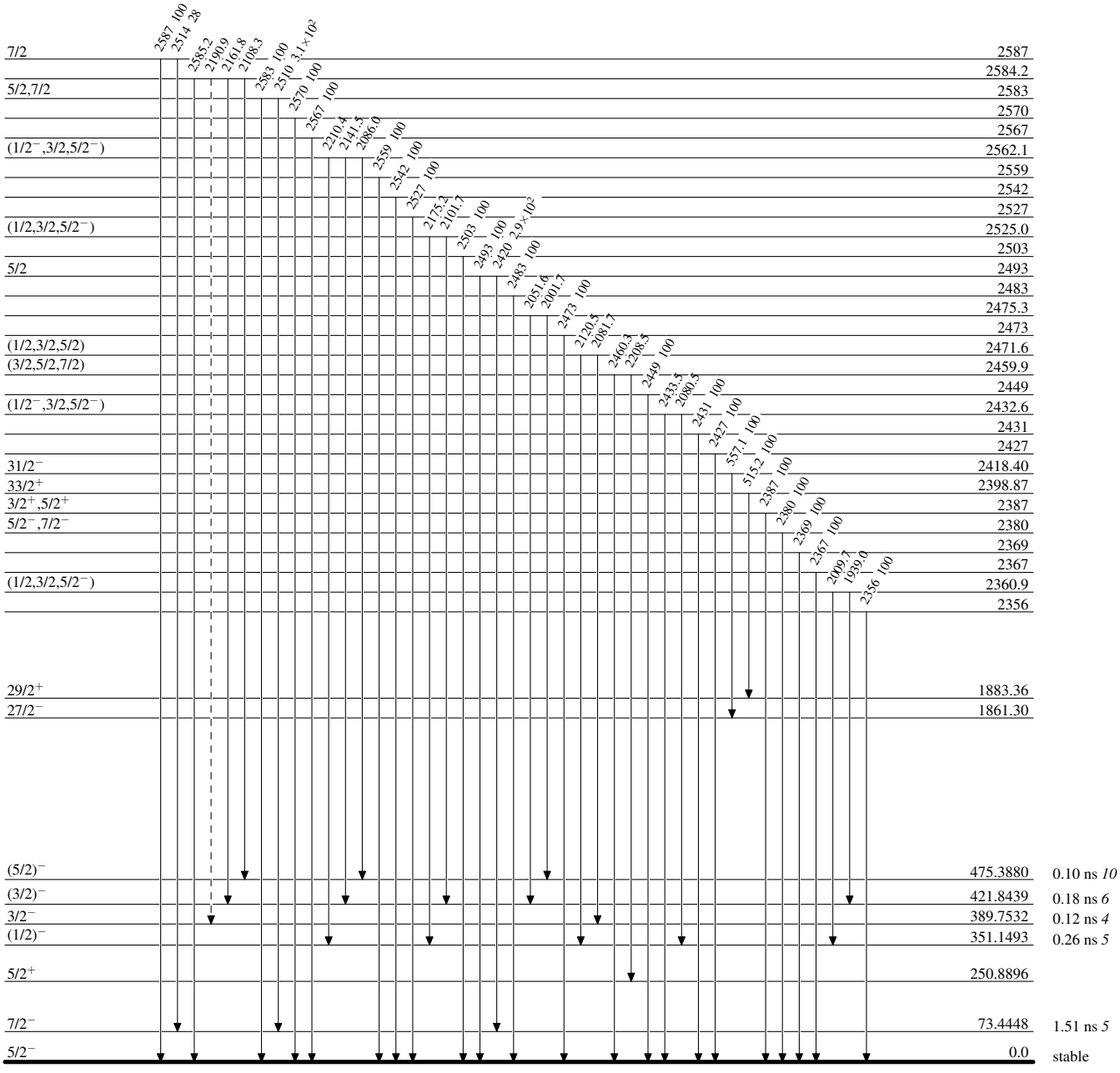
$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas

Level Scheme (continued)

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

Legend
- - - - - - ► γ Decay (Uncertain)



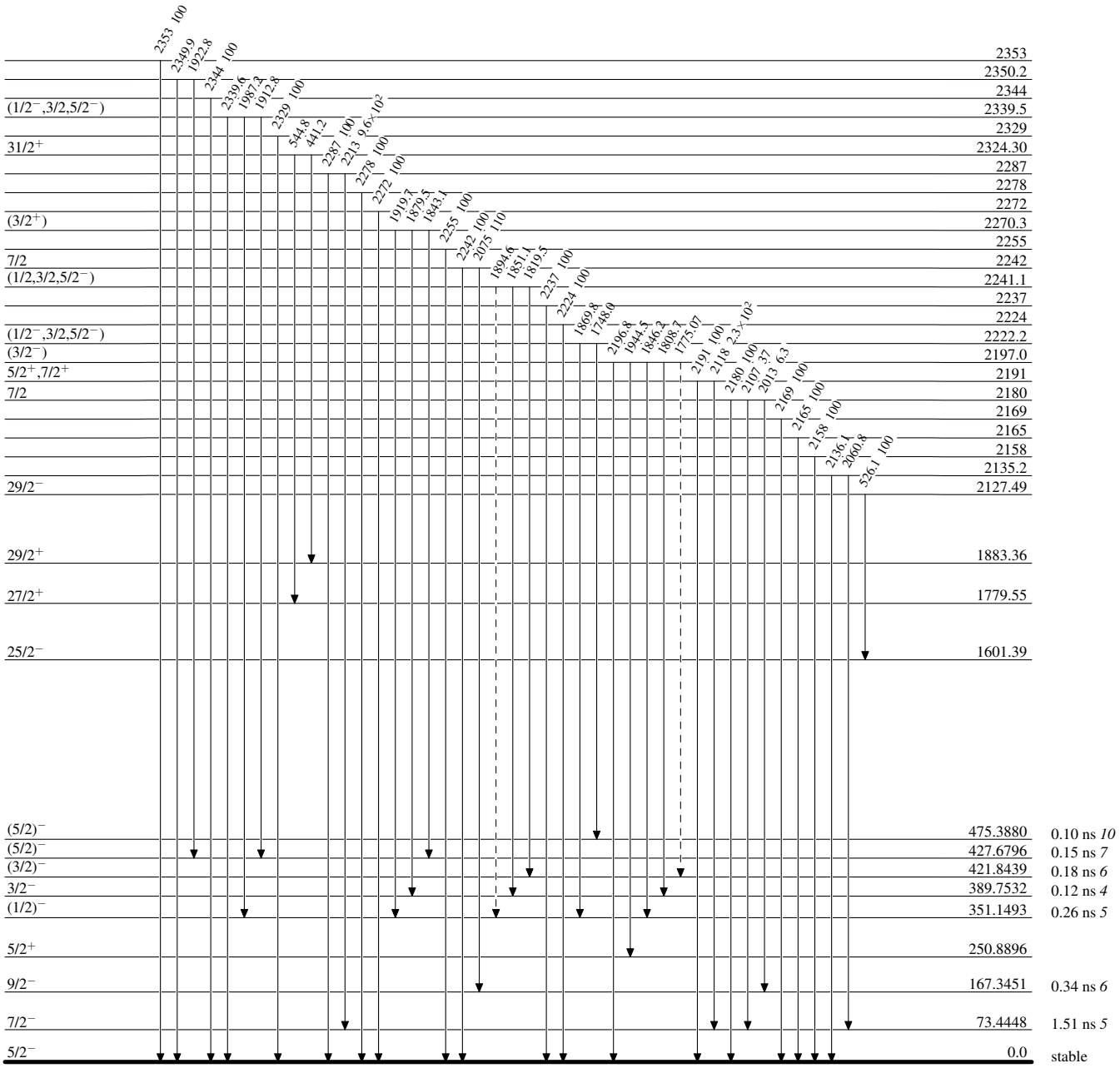
$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas

Level Scheme (continued)

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

Legend
- - - - - - ► γ Decay (Uncertain)



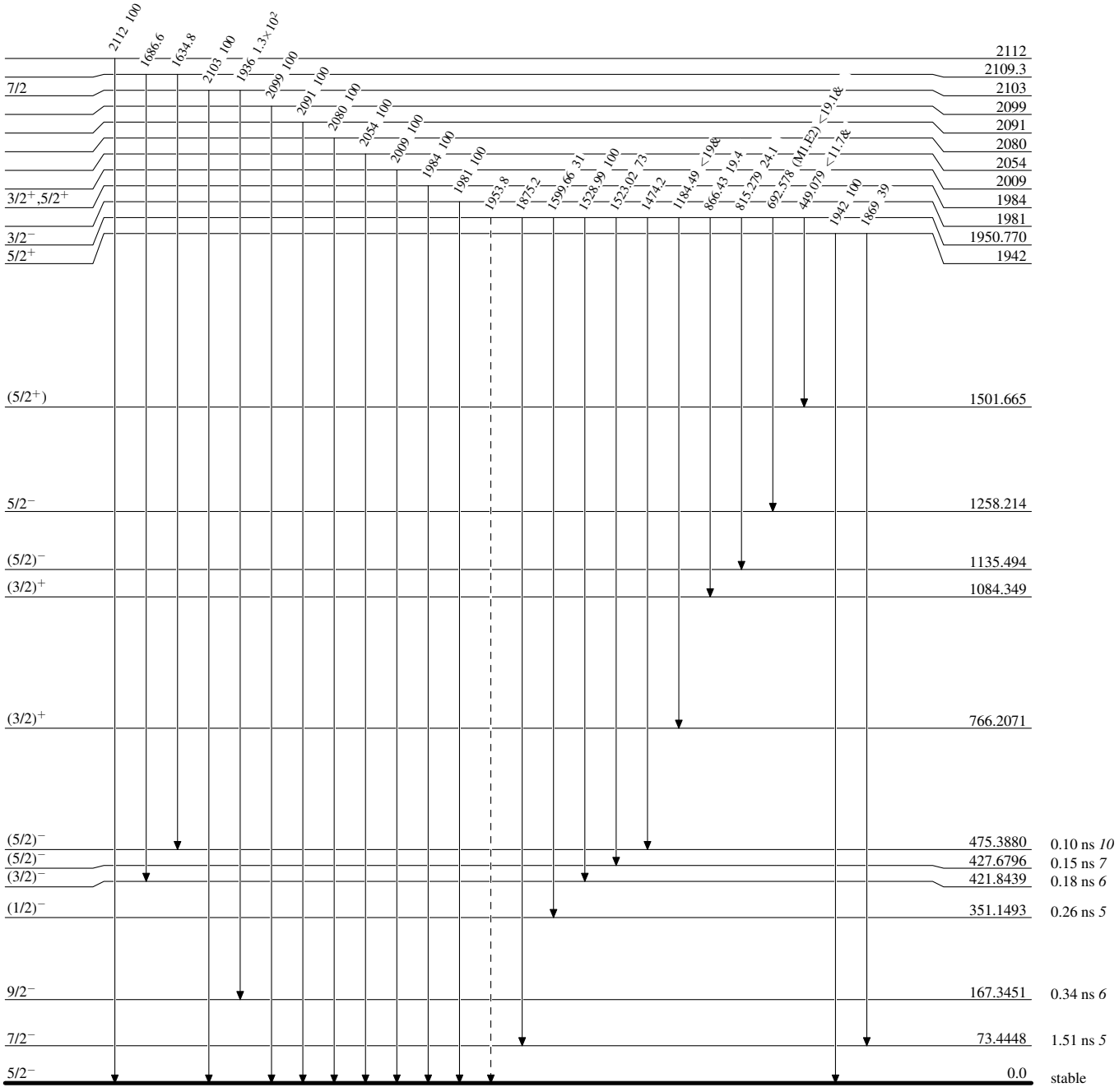
$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas

Level Scheme (continued)

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

Legend
- - - - - - ► γ Decay (Uncertain)



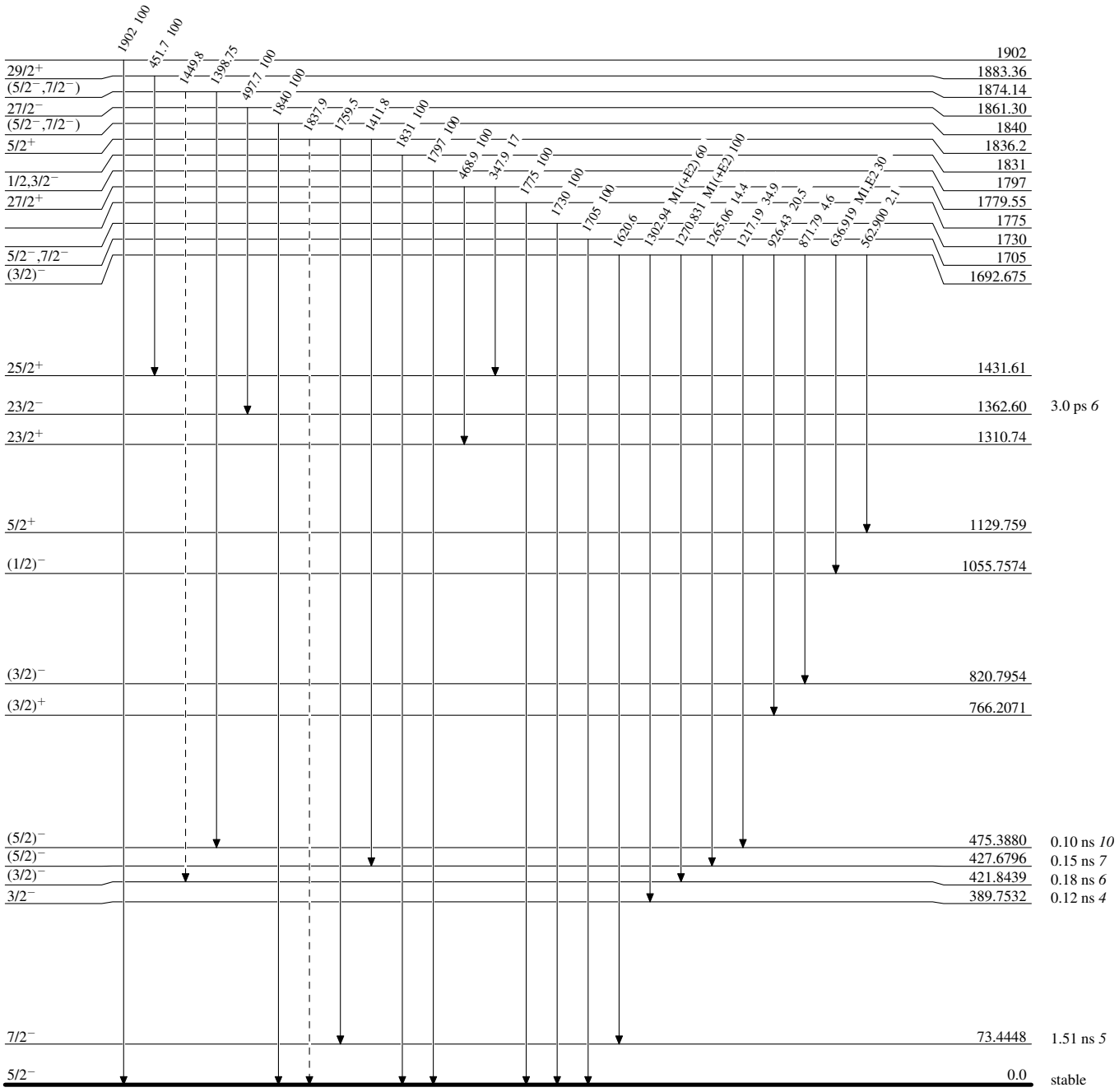
$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas

Level Scheme (continued)

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

Legend
- - - - - - ► γ Decay (Uncertain)

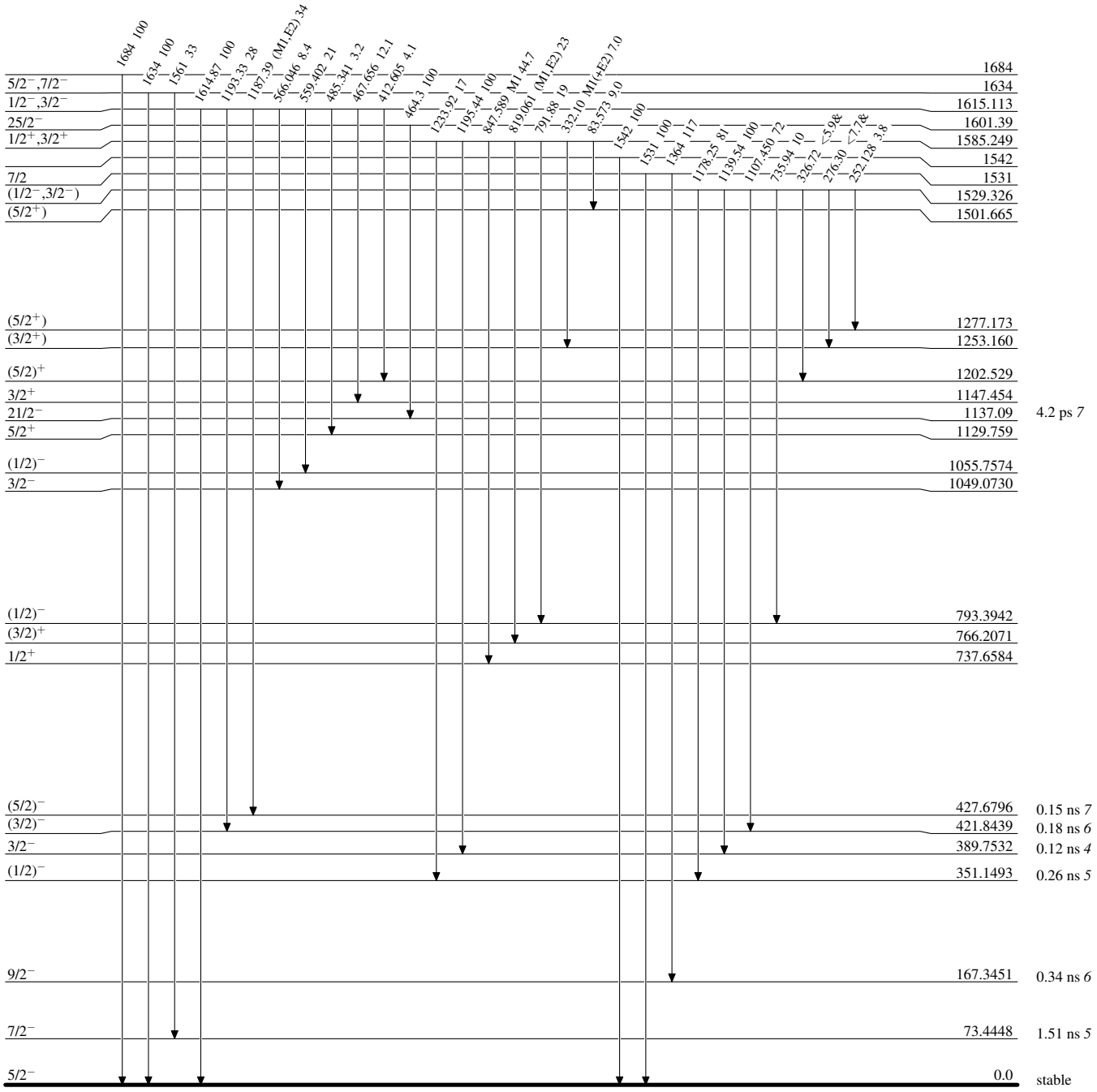


$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas

Level Scheme (continued)

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



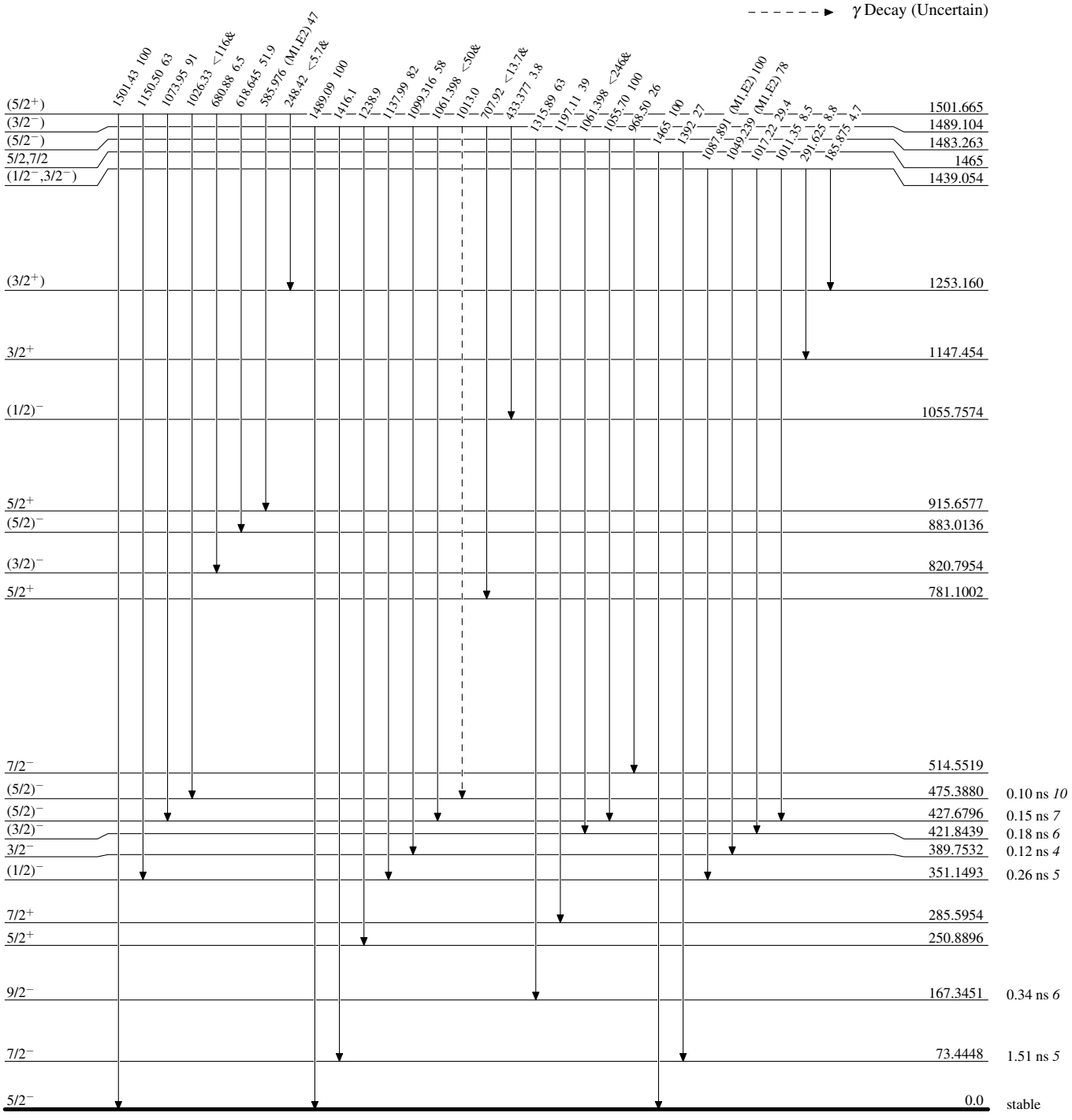
$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas

Level Scheme (continued)

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

Legend: ------► γ Decay (Uncertain)

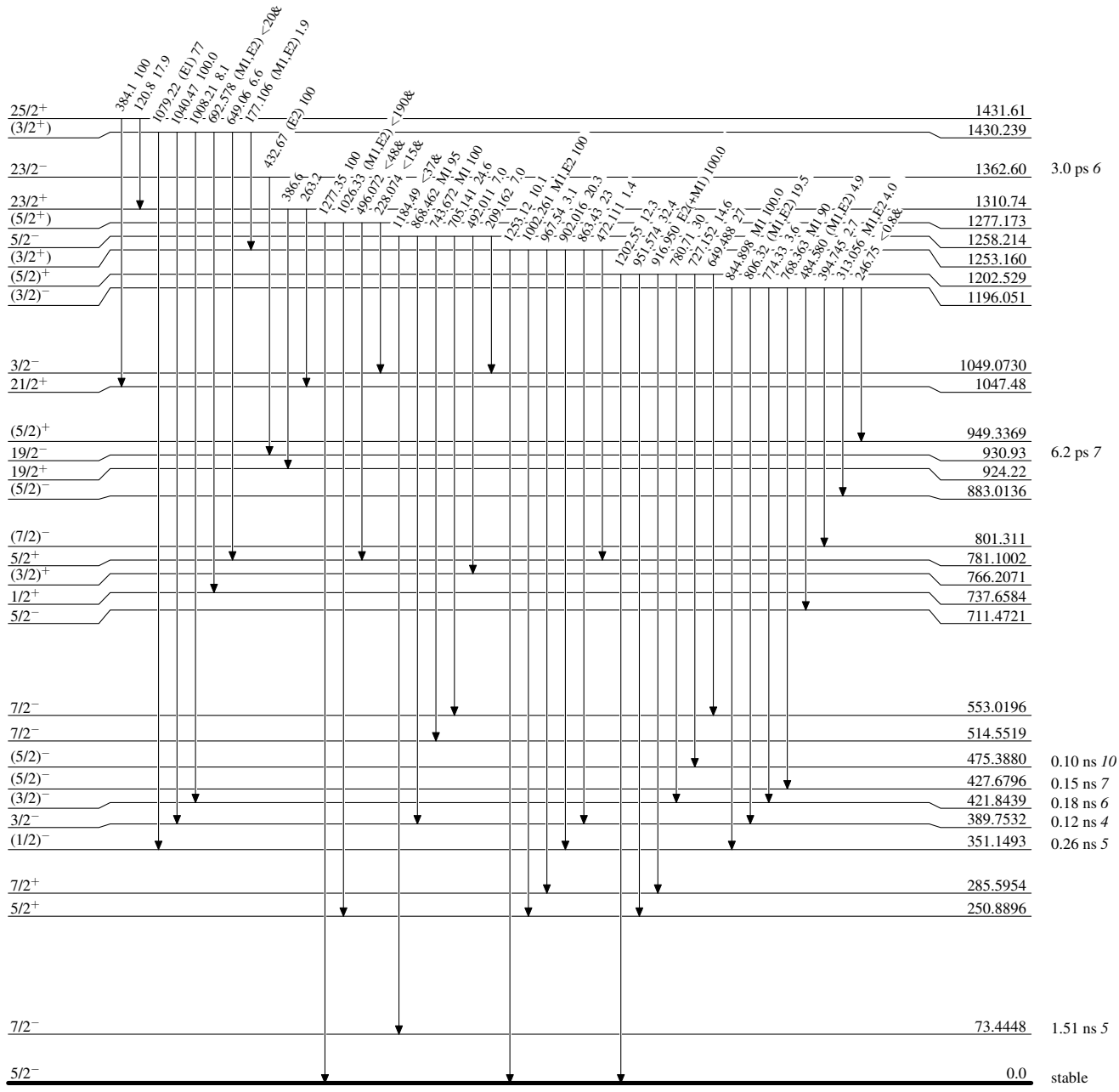


$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas

Level Scheme (continued)

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



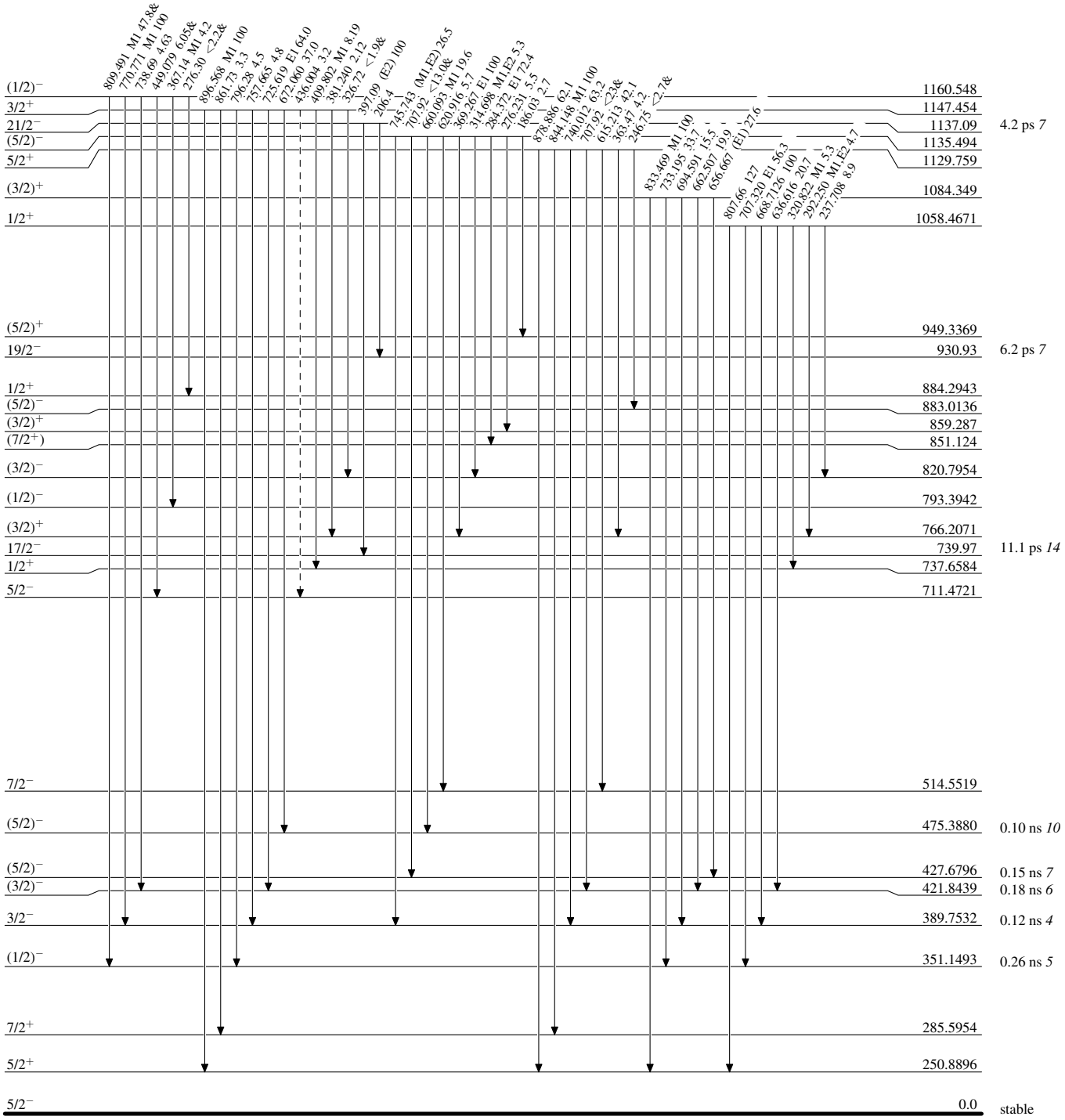
$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas

Level Scheme (continued)

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

Legend
- - - - - - ► γ Decay (Uncertain)



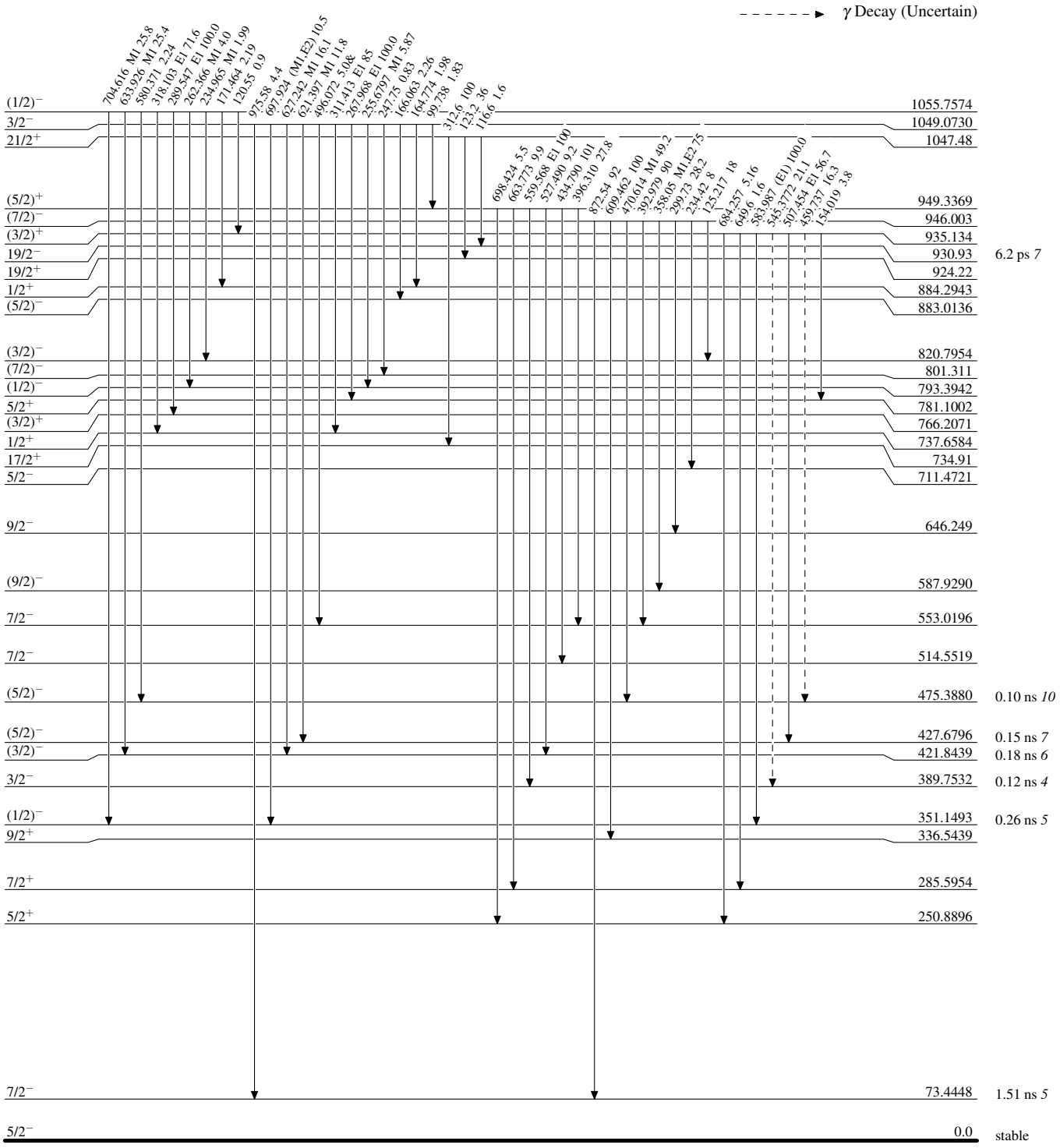
$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas

Level Scheme (continued)

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

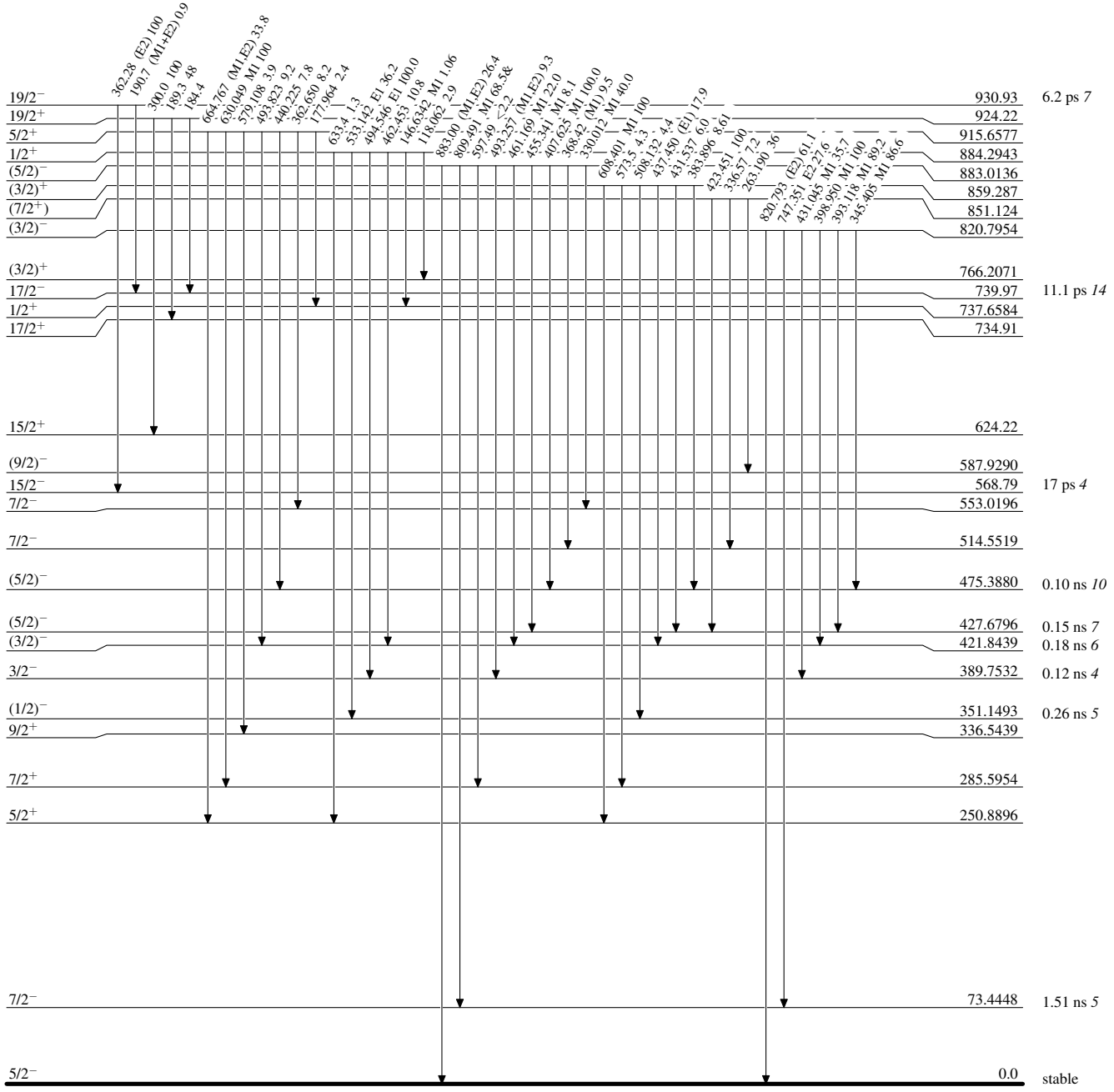
Legend



Adopted Levels, Gammas

Level Scheme (continued)

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

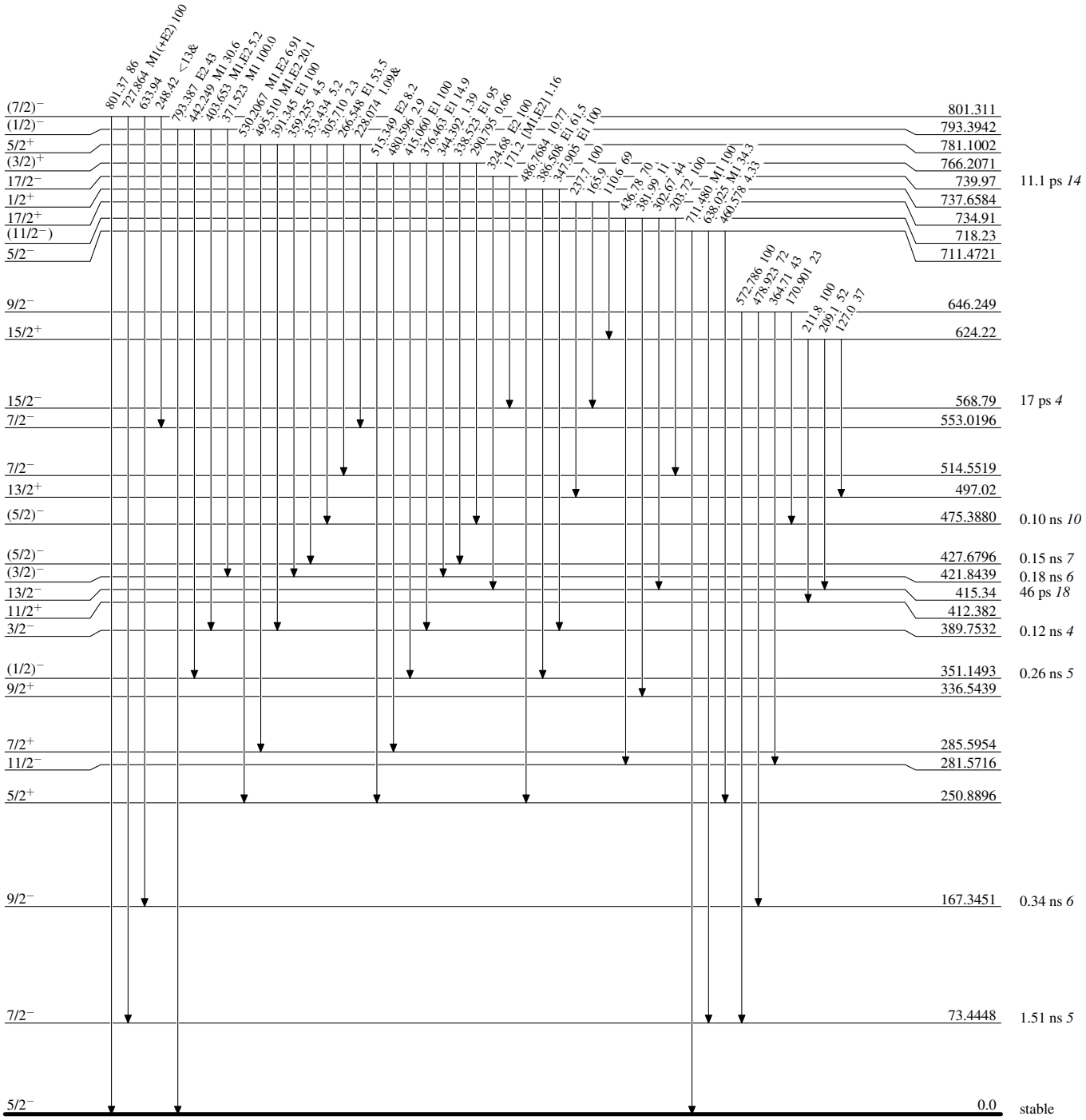


$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas

Level Scheme (continued)

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



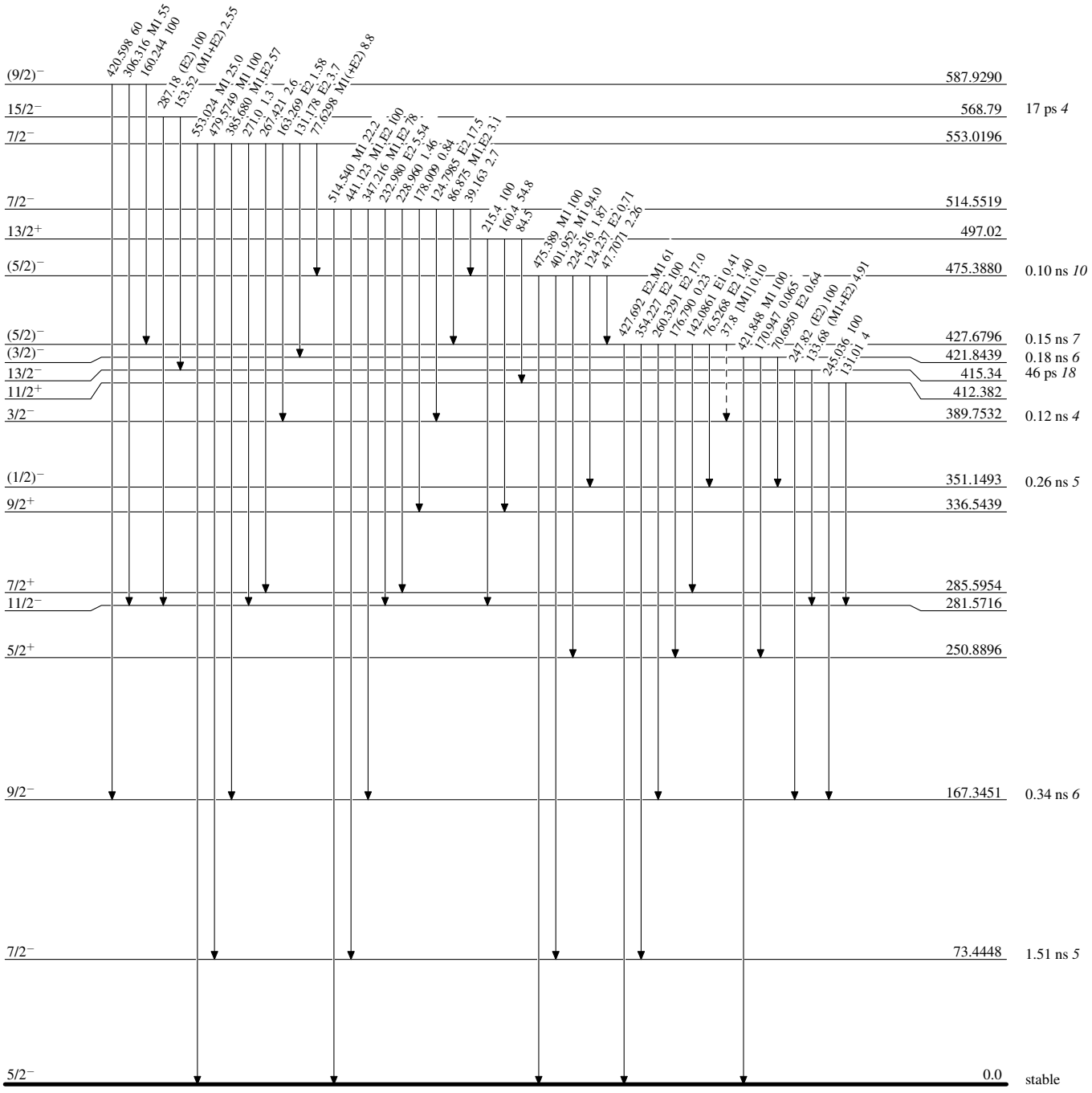
$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas

Level Scheme (continued)

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

Legend
- - - - - - ► γ Decay (Uncertain)

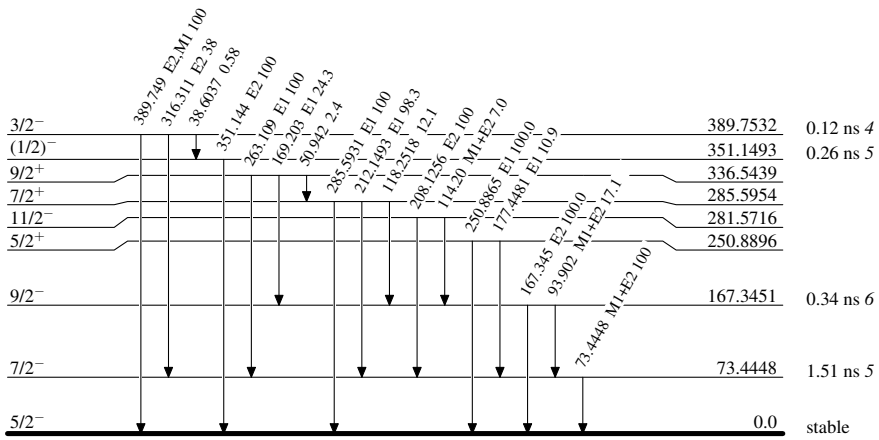


$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas

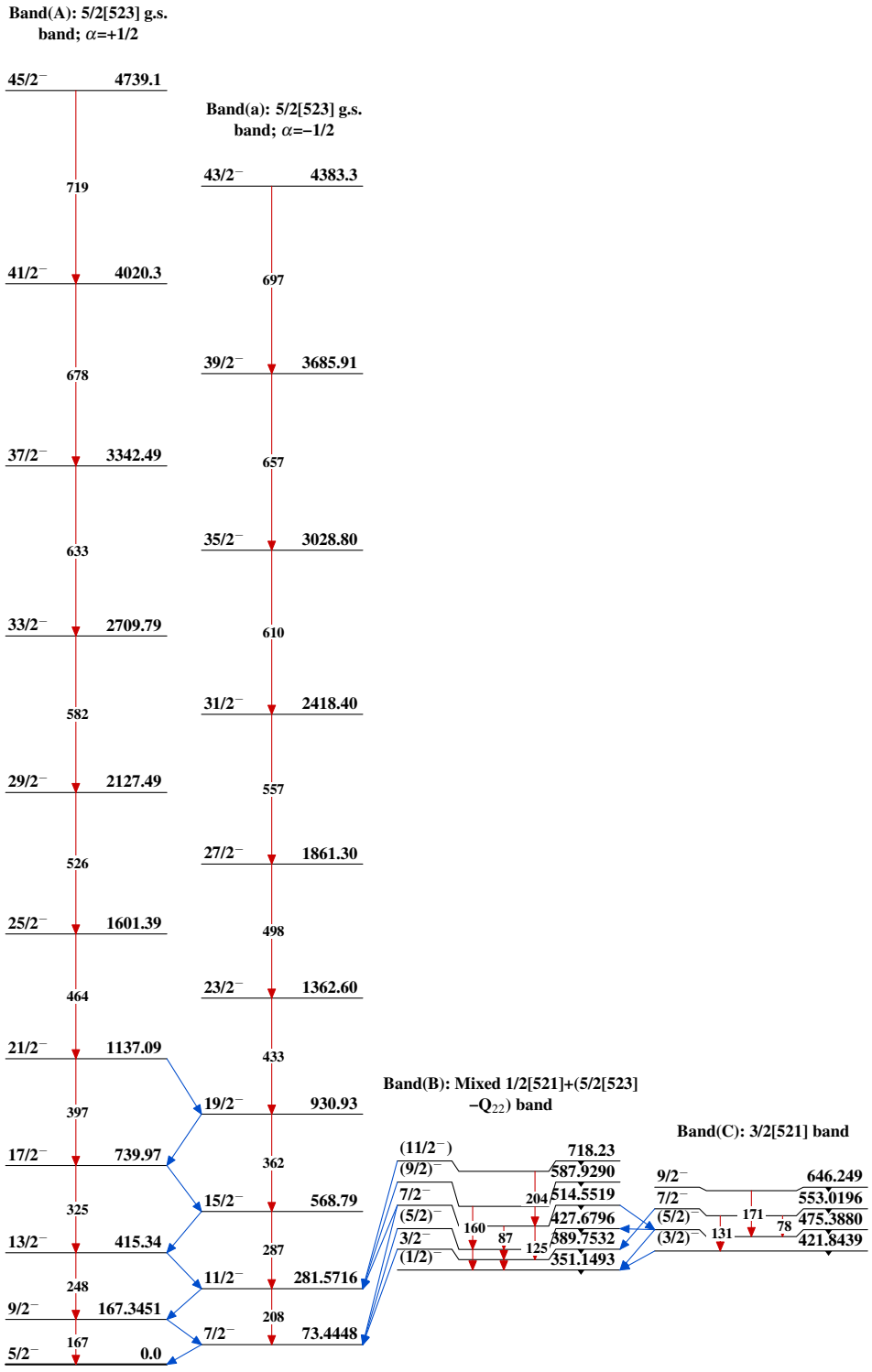
Level Scheme (continued)

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



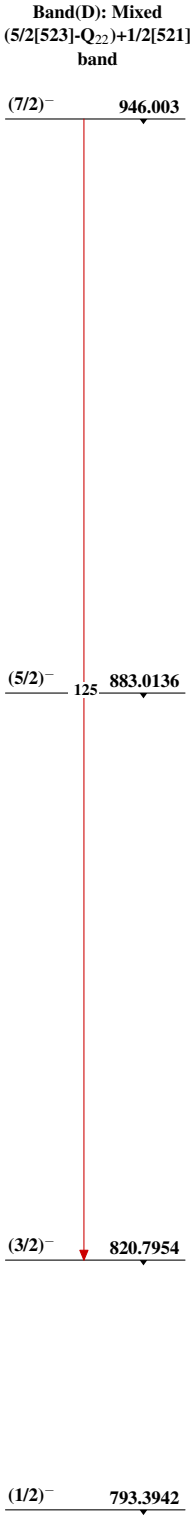
$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas



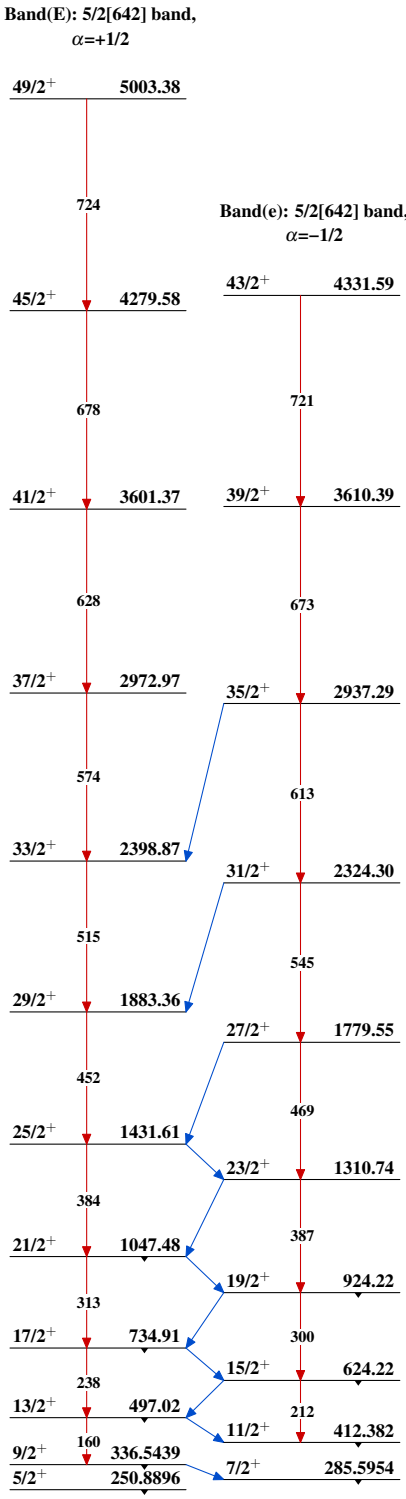
$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas (continued)



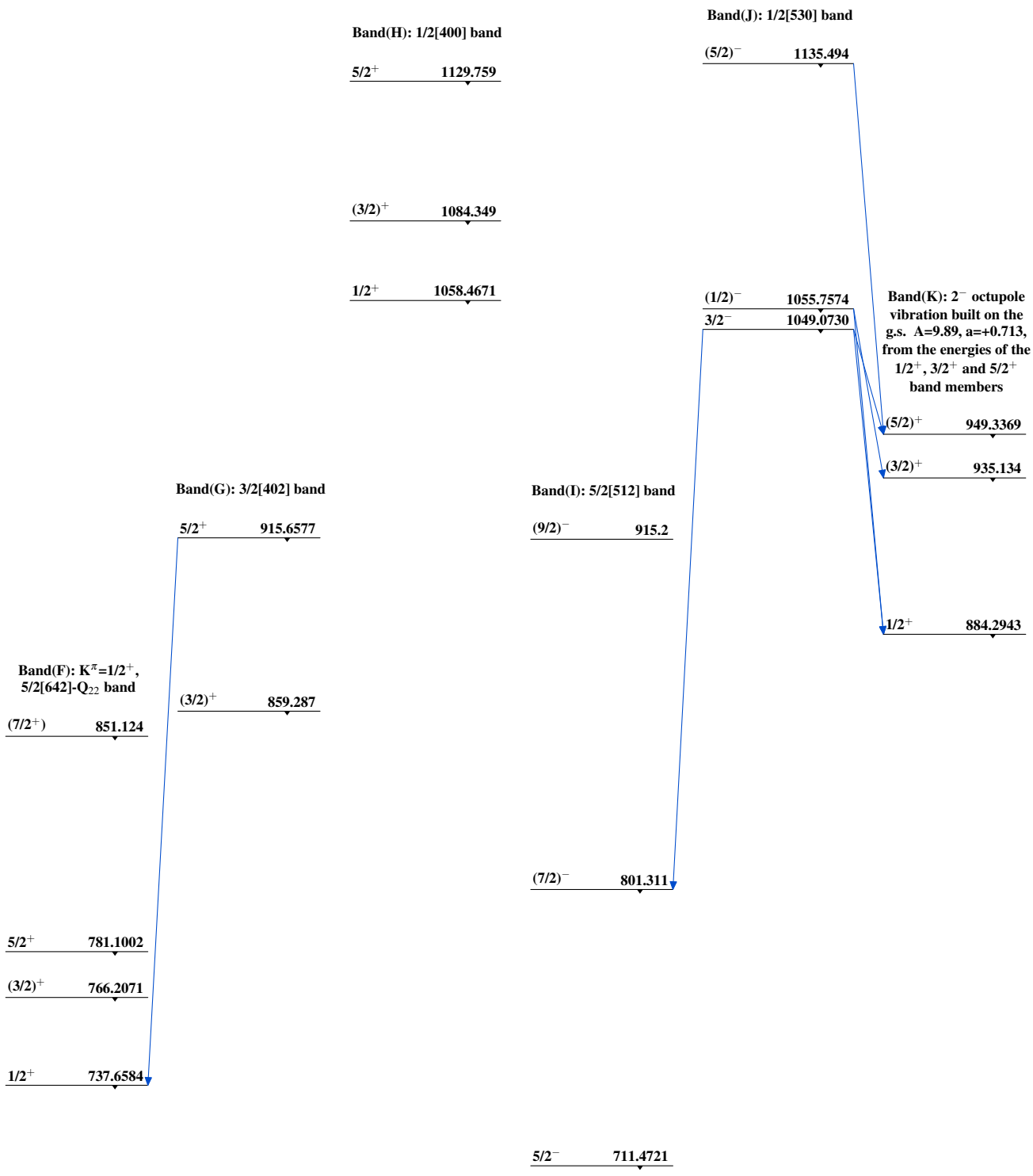
$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas (continued)



$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas (continued)



$^{163}_{66}Dy_{97}$

Adopted Levels, Gammas (continued)

Band(L): 1/2[510] band

5/2⁻ 1258.214

Band(M): 3/2[651] band

(5/2)⁺ 1202.529

(3/2)⁻ 1196.051

(1/2)⁻ 1160.548

3/2⁺ 1147.454

Band(N): 11/2[505] bandhead

11/2⁻ 851.5

$^{163}_{66}Dy_{97}$