Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 112,2497 (2011)	1-Jun-2011

Q(β^-)=−858.0 *22*; S(n)=6454.39 *8*; S(p)=7507.9 *13*; Q(α)=343.4 *13* 2012Wa38
Note: Current evaluation has used the following Q record $ −858.3 *22* 6454.39 *8* 7507.2 *13* 344.6 *12* 2009AuZZ,2003Au03.
S(n): From (n,γ) studies, 1986Sc16 measure S(n)=6454.47 *9*, based on a value of 45.9984 keV for the Kα_1 x ray energy.
Additional information 1.

^{161}Dy Levels

Additional information 2.
Rotational-band parameters are not given for the positive-parity bands. The intraband energy spacings have been sufficiently distorted by strong Coriolis-coupling effects that the usual parameterization does not provide a good representation of the band structure.

Cross Reference (XREF) Flags

A	^{162}Dy(d,t),^{162}Dy(^{3}He,α)	E	^{161}Dy(γ,γ')	I	^{161}Dy(^{3}He,^{3}He$'\gamma$)
B	^{160}Dy(d,p)	F	^{161}Ho ε decay	J	^{161}Dy(n,n$'\gamma$)
C	^{160}Dy(n,γ) E=th	G	Coulomb excitation	K	^{160}Gd(^{7}Li,t3nγ)
D	^{160}Gd(α,3nγ)	H	^{161}Tb β^- decay	L	^{160}Gd(^{37}Cl,Xγ)

E(level)[†‡]	J$^\pi$[#]	T$_{1/2}$	XREF	Comments
0[@]	5/2$^+$	stable	ABCDEFGHIJKL	μ=−0.4803 *25*; Q=+2.468 *29* J$^\pi$: J from 1956Co21 and 1958Pa11 by paramagnetic resonance and 1962Sp03 by atomic-beam, magnetic resonance. From the agreement of the calculated μ (1989Be04) with that for 5/2[642] but not with that of other possible K=5/2 states, it is concluded that this is the correct Nilsson-orbital assignment. Hence, π=+. From an evaluation of data on nuclear rms charge radii, 2004An14 report $<r^2>^{1/2}$=5.197 fm 6. μ: from the evaluation by 1989Ra17. In the compilation by 2005St24, values of −0.480 *3* and −0.481 *5* are listed. Q: from the evaluation by 1989Ra17. In the compilation by 2005St24, values of +2.51 *2* and +2.47 3 are listed.
25.65136[a] *3*	5/2$^-$	29.1 ns *3*	ABCDEF H JK	μ=+0.594 *3*; Q=2.506 *20* J$^\pi$: J from Mossbauer studies summarized in 1976St23. π from E1 γ to 5/2$^+$ ground state. T$_{1/2}$: weighted average of: 27.8 ns 15 (1969Ve05), 29.0 ns 14 (1975VaYX), and 28.6 ns 5 (1978AlZC), from ^{161}Ho ε decay; and 27 ns 2 (1957Ve17,1960Ve03), 28 ns 2 (1958Ha13), 29 ns 3 (1959Fa06), 29.4 ns 10 (1965Me08), 28.4 ns 12 (1969Be54), and 30.0 ns 5 (1977Pe20), from ^{161}Tb β^- decay. The 0.2 ns uncertainty shown by 1978AlZC has been increased to reduce the normalized weight of this value in the average from 78% to 36%, so that this (unpublished) value will not dominate the average to this extent. μ: from the evaluation by 1989Ra17. This value is also listed in the compilation by 2005St24. Q: from the evaluation by 1989Ra17. In the compilation by 2005St24, +2.51 *2* (the same value as for the g.s.) is listed.
43.8201[&] *7*	7/2$^+$	0.83 ns *6*	ABCDEFGHIJKL	μ=−0.141 *5*; Q=+0.53 *13* J$^\pi$: M1 component in γ to 5/2$^+$, Coulomb excited, and expected band structure.

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Adopted Levels, Gammas (continued)

^{161}Dy Levels (continued)

E(level)[†‡]	Jπ[#]	$T_{1/2}$	XREF	Comments
				$T_{1/2}$: weighted average of 0.78 ns 6 (1967As03), from Coul. ex., and 0.99 ns 13 (1975VaYX) and 1.0 ns 2 (1978AlZC), from ^{161}Ho ε decay. From B(E2), one computes $T_{1/2}$=0.78 ns 7. It should be noted that the values of 1975VaYX and 1978AlZC might be related and that the value of 1967As03 contributes 77% of the normalized weight. Other: 0.76 ns (1981GrZV), from ^{161}Ho ε decay. μ: from the evaluation by 1989Ra17. The same value is listed in the compilation by 2005St24. Q: from the evaluation by 1989Ra17. The same value is listed in the compilation by 2005St24.
74.56668[d] *5*	3/2⁻	3.14 ns *4*	ABCDEFGHIJK	μ=−0.403 *4*; Q=1.45 *6* Jπ: resonance-averaged n capture gives Jπ=1/2⁻,3/2⁻. E1 γ to 5/2⁺ rules out 1/2⁻. $T_{1/2}$: weighted average of: 2.3 ns 7 (1957Ve17,1960Ve03), 3.0 ns 3 (1958Ha13), 3.1 ns 6 (1959Fa06), 2.95 ns 15 (1965Ay02), 3.36 ns 10 (1965Me08), 3.34 ns 18 (1969Be49), 3.08 ns 5 (1969Be54), and 3.16 ns 5 (1977Pe20), from ^{161}Tb β⁻ decay. (in the average, the 0.05 ns uncertainty of 1965Me08 was increased, because the value is inconsistent with several other values as well as the average.). μ: from the evaluation by 1989Ra17. The same value is listed in the compilation by 2005St24. Q: from the evaluation by 1989Ra17. The compilation by 2005St24 lists this value, but with a positive sign.
100.4033[@] *2*	9/2⁺	0.22 ns *3*	ABCDEFGHIJKL	Jπ: from (E2) γ to 5/2⁺, M1 γ to 7/2⁺, Coulomb excited, and expected band structure. $T_{1/2}$: computed by the evaluator from B(E2)↑=0.79 *4* (from Coul. ex.) and the adopted properties of the deexciting γ's. Other: 0.1 ns (1981GrZV), from ^{161}Ho ε decay.
103.0623[b] *7*	7/2⁻	0.60 ns *4*	BCD F H JK	Jπ: E1 γ's to 5/2⁺ and 7/2⁺ levels and expected band structure. $T_{1/2}$: weighted average of 0.55 ns 3 (1975VaYX) and 0.64 ns 3 (1978AlZC), from ^{161}Ho ε decay. Other: 0.61 ns (1981GrZV) from ^{161}Ho ε decay.
131.7587[c] *3*	5/2⁻	0.145 ns *15*	ABCDEF HIJK	Jπ: (E1) γ to 7/2⁺ level and M1 γ to 3/2⁻. $T_{1/2}$: from (1969Be49), ^{161}Tb β⁻ decay. Others: ≤3 ns (1958Ha13), ≤0.3 ns (1965Me08), ≤0.3 ns (1989Be04) from ^{161}Tb β⁻ decay and 0.13 ns (1981GrZV), from ^{161}Ho ε decay.
184.23[&] *5*	11/2⁺	156 ps *14*	AB D FG JKL	Jπ: M1+E2 γ to 9/2⁺ and expected band structure (Coulomb excited). $T_{1/2}$: from 1988Os01, Coul. ex.
201.0872[a] *10*	9/2⁻	0.17 ns	ABCD F JK	Jπ: E1 γ to 7/2⁺, (E1) γ to 9/2⁺, and expected band structure. $T_{1/2}$: from 1981GrZV, ^{161}Ho ε decay. Other: ≤0.3 ns (1975VaYX,1978AlZC), ^{161}Ho ε decay.
212.9520[d] *8*	7/2⁻	0.066 ns	ABCDEF HIJK	Jπ: E1 γ's to 5/2⁺ and 9/2⁺ levels. $T_{1/2}$: from 1981GrZV, ^{161}Ho ε decay.
267.32[@] *11*	13/2⁺	100 ps *9*	AB D G JKL	Jπ: M1+E2 γ to 11/2⁺ and expected band structure (Coulomb excited). $T_{1/2}$: from 1988Os01, Coul. ex.
314.9397[c] *9*	9/2⁻		ABCD F JK	Jπ: γ's to 5/2⁻ and 7/2⁻, and expected band structure.
320.69[b] *5*	11/2⁻	0.125 ns	AB D F JK	Jπ: from expected band structure, γ's to 7/2⁻ and 9/2⁻ levels, and L=(5) in (d,t). $T_{1/2}$: from 1981GrZV, ^{161}Ho ε decay.

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Adopted Levels, Gammas (continued)

^{161}Dy Levels (continued)

E(level)[†‡]	Jπ[#]	$T_{1/2}$	XREF	Comments
366.9749[e] 9	1/2⁻		ABC F H J	Jπ: from L=1 in (d,t) and resonance-averaged n capture, Jπ=1/2⁻,3/2⁻. E2 γ to 5/2⁻ and expected band structure makes 3/2⁻ unlikely.
406.89[&] 13	15/2⁺	42 ps 5	D G JKL	Jπ: E2 γ to 11/2⁺ and expected band structure (Coulomb excited). $T_{1/2}$: from 1988Os01, Coul. ex.
418.2337[e] 13	3/2⁻		ABC H J	Jπ: M1 γ's to 3/2⁻ and 5/2⁻ levels, L=1 in (d,t).
443.3[d] 1	11/2⁻		AB JK	Jπ: L=(5) in (d,t) and expected band structure.
451.4320[e] 9	5/2⁻		ABC F H J	Jπ: M1 γ to 5/2⁻, L=(3) in (d,t), and expected band structure.
457.23[a] 22	13/2⁻		D JK	Jπ: γ to 9/2⁻ has mult=Q and expected band structure.
485.56[g] 16	11/2⁻		AB JK	Jπ: from interpretation of (d,t) reaction data and expected band structure.
507.72[@] 9	17/2⁺	33 ps 3	D G JKL	Jπ: E2 γ to 13/2⁺ and expected band structure (Coulomb excited). $T_{1/2}$: from 1988Os01, Coul. ex.
512			AB	
521			A	
534.2 3			B	
550.2535[h] 15	3/2⁺		ABC E GHIJK	Jπ: from resonance-averaged n capture, Jπ=1/2⁺,3/2⁺. M1 component in γ to 5/2⁺ eliminates 1/2⁺. $T_{1/2}$: the B(E2) value is available from Coul. ex., but δ for the g.s. transition is not known, so the level half-life cannot be computed.
567.9423[e] 17	7/2⁻		ABC J	Jπ: γ's to 3/2⁻ and 9/2⁻, L=(3) in (d,t), and expected band structure.
586.9[c] 1	13/2⁻		JK	
607.5814[i] 16	1/2⁺		ABC IJ	Jπ: L=0 in (d,t). Population in (^{3}He,^{3}He′) indicates the presence of an admixture of the K-2 γ vibration built on the ^{161}Dy g.s. (1987Ra16).
609.8315[h] 20	5/2⁺		ABC	Jπ: M1 γ to 7/2⁺, γ's to 3/2⁻, 5/2⁻, and 7/2⁻.
617.1[b] 1	15/2⁻		K	
628.234[e] 8	9/2⁻		ABC	Jπ: γ's to 5/2⁻ and 9/2⁻, L=(5) in (d,t), and expected band structure.
633.1673[i] 16	5/2⁺		ABC	Jπ: M1 γ to 7/2⁺, γ to 3/2⁻ and L=(2) in (d,t).
641.6?[f] 1	(13/2⁻)		K	
642			A	E(level): The evaluator has assumed that this level is not the same as the 641 level.
678.3226[j] 21	3/2⁺		ABC I	Jπ: from resonance-averaged n capture, Jπ=1/2⁺,3/2⁺. E1 γ to 5/2⁻ eliminates 1/2⁺.
688.3 3			AB	
696.078[h] 13	7/2⁺		BC	Jπ: γ's to 5/2⁺, 9/2⁺, 5/2⁻, and 7/2⁻, and expected band structure.
699.1395[l] 19	3/2⁺		A C I	Jπ: resonance-averaged n capture indicates Jπ=1/2⁺,3/2⁺. E1 γ to 5/2⁻ eliminates 1/2⁺. Its strong population in (^{3}He,^{3}He′γ) indicates that this state has a component of the K-2 γ vibration built on the ^{161}Dy g.s. 1987Ra16 assign this level as the Jπ=1/2⁺ member of this vibrational band.
717.05 22			AB	
717.9[&] 1	19/2⁺	11.2 ps 12	D G KL	Jπ: E2 γ to 15/2⁺ and expected band structure (Coulomb excited). $T_{1/2}$: from 1988Os01, Coul. ex.
730.913[j] 3	5/2⁺		ABC I	Jπ: M1,E2 γ to 7/2⁺ indicates π=+. γ's to 3/2⁻ and 7/2⁻ require J=5/2. From its population in (^{3}He,^{3}He′), 1987Ra16 assign this as the 5/2⁺ member of the K-2 γ vibration built on the 5/2[642] g.s. This level probably contains admixtures of all the proposed configurations.
761.3[d] 1	15/2⁻		K	

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Adopted Levels, Gammas (continued)

^{161}Dy Levels (continued)

E(level)[†‡]	Jπ[#]	$T_{1/2}$	XREF	Comments
772.18 *10*	5/2$^+$,7/2,9/2$^+$		F	Jπ: γ's to 5/2$^+$, 9/2$^+$, and 7/2$^-$ levels.
772.7285[l] *21*	1/2$^+$		ABC I	Jπ: L=0 in (d,t).
777.1272[m] *25*	1/2$^-$		BC	Jπ: from resonance-averaged n capture, M1 component in the γ to 3/2$^-$ and expected band structure.
788.0[a] *1*	17/2$^-$		K	
790.648[n] *12*	5/2$^-$		ABC F	Jπ: E1 γ to 5/2$^+$, γ's to 3/2$^-$ and 7/2$^-$, and expected band structure.
800.51 *9*	3/2$^+$		I	Jπ: from γ's to 5/2$^+$,7/2$^+$,and 5/2$^-$ levels, Jπ=3/2$^+$,5/2,7/2. From (^{3}He,^{3}He′γ), 1987Ra16 assign this as the 3/2$^+$ member of the K-2 γ-vibrational band built on the 5/2[642] g.s.
804.388[m] *3*	3/2$^-$		ABC	Jπ: resonance-averaged n capture indicates Jπ=1/2$^-$,3/2$^-$. M1 component in the γ to 5/2$^-$ eliminates 1/2$^-$.
808[e]	(11/2$^-$)		B	Jπ: from interpretation of (d,p) reaction data.
819.0?[g] *1*	(15/2$^-$)		K	
825.55[@] *14*	21/2$^+$	10.3 ps *10*	D G KL	Jπ: from (M1+E2) γ to 19/2$^+$ and expected band structure (Coulomb excited). $T_{1/2}$: from 1988Os01, Coul. ex.
825.7155[i] *24*	3/2$^+$		ABC	Jπ: resonance-averaged n capture indicates Jπ=1/2$^+$,3/2$^+$. L=2 in (d,t) eliminates 1/2$^+$.
849.260[l] *4*	5/2$^+$		ABC	Jπ: from M1,E2 γ to 7/2$^+$ level, γ to 3/2$^+$, and expected band structure.
857.502[j] *7*	(7/2)$^+$		ABC	Jπ: from E1 γ to 7/2$^-$ level, γ's to 5/2$^-$ and 5/2$^+$, and interpretation of (d,p) and (d,t) reaction data.
858.7919[o] *18*	3/2$^-$		ABC	Jπ: from resonance-averaged n capture and L=1 in (d,t). M1 component in γ to 5/2$^-$ eliminates 1/2$^-$.
867.869[m] *5*	5/2$^-$		BC	Jπ: from E2 γ's to 7/2$^-$ and 9/2$^-$ levels, γ's to 3/2$^-$ and 5/2$^-$, and interpretation of (d,p) reaction data.
873.091[o] *3*	1/2$^-$		A C	Jπ: from resonance-averaged n capture and expected band structure.
878.49[n] *4*	7/2$^-$		ABC	Jπ: from γ's to 5/2$^-$, 7/2$^+$, and 7/2$^-$ and interpretation of (d,p) and (d,t) reaction data.
899.01[k] *6*	9/2$^+$		AB I	Jπ: γ's to 5/2$^+$ and 9/2$^+$ indicate Jπ=5/2$^+$,7/2,9/2$^+$. From its strong population in (^{3}He,^{3}He′), 1987Ra16 assign this as the K+2 γ vibration built on the 5/2[642] g.s. Hence, Jπ=9/2$^+$.
922.326 *24*	5/2$^-$,7/2$^-$		ABC	Jπ: from γ's to 3/2$^-$, 5/2$^+$, and 9/2$^-$ and interpretation of (d,p) and (d,t) reaction data.
941.2[c] *1*	17/2$^-$		K	
941.6 *4*			A	
957.0[o] *13*	7/2$^-$		AB	Jπ: L=3 in (d,t). Assigned as the 7/2$^-$ member of 1/2$^-$[530] in (d,t).
970.2[o] *3*	5/2$^-$		A	Jπ: assigned as the 5/2$^-$ member of 1/2$^-$[530] in (d,t).
972.8 *9*			AB	
985.6[b] *1*	19/2$^-$		K	
988.0[n] *10*	9/2$^-$		AB	Jπ: from relative (d,p) cross section and expected band structure.
1004.7 *6*	1/2$^+$,3/2$^+$		ABC I	Jπ: from resonance-averaged n capture.
1017.0?[f] *1*	(17/2$^-$)		K	
1026			AB I	XREF: A(1024.8)B(1027.3).
1040			AB	XREF: A(1043)B(1038).
1061.7 *8*	1/2$^+$,3/2$^+$		ABC	Jπ: from resonance-averaged n capture.
1067.106 *9*	7/2		C	Jπ: γ's to 5/2$^-$, 5/2$^+$, 9/2$^+$, and 9/2$^-$ levels.
1071.263 *7*	3/2$^-$		C	Jπ: from resonance-averaged n capture, Jπ=1/2$^-$,3/2$^-$. γ to 5/2$^+$ eliminates 1/2$^-$.
1098.224 *9*	3/2$^+$		ABC	Jπ: from resonance-averaged n capture, Jπ=1/2$^+$,3/2$^+$. γ to 5/2$^-$

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Adopted Levels, Gammas (continued)

^{161}Dy Levels (continued)

E(level)[†‡]	Jπ[#]	$T_{1/2}$	XREF	Comments
				eliminates 1/2$^+$.
1111.2 *4*			AB	
1117.34[&] *12*	23/2$^+$	3.5 ps *4*	D G KL	XREF: L(1119). Jπ: M1+E2 γ to 21/2$^+$ and expected band structure (Coulomb excited). $T_{1/2}$: from 1988Os01, Coul. ex.
1125.4 *3*			AB	
1136.1 *4*			A	
1141.9 *5*			BC	
1146.8 *7*			AB	
1154.2 *11*	(1/2$^-$,3/2$^-$)		A C	Jπ: from L=1 in (d,t). From resonance-averaged n capture, π is positive.
1160.0[d] *1*	19/2$^-$		K	
1163.0 *5*			AB	
1178.326 *20*	5/2,7/2$^-$		A C	Jπ: from γ's to 3/2$^-$, 5/2$^-$, 7/2$^+$, and 7/2$^-$ levels. Probable feeding from n-capture state suggests Jπ=5/2$^+$.
1186.683 *11*	5/2$^-$		C	Jπ: γ's to 1/2$^-$,7/2$^+$, and 7/2$^-$.
1186.7[a] *1*	21/2$^-$		K	
1198.0			I	
1204.6 *6*			A	
1206.933 *10*	5/2$^-$		C	Jπ: γ's to 1/2$^-$ and 9/2$^-$ levels.
1210.9 *5*			B	
1220.73[@] *15*	25/2$^+$	3.0 ps *6*	D G KL	XREF: L(1222). Jπ: E2 γ to 21/2$^+$ and expected band structure (Coulomb excited). $T_{1/2}$: from 1988Os01, Coul. ex.
1234.4[g] *1*	(19/2$^-$)		K	
1240 *2*			B	
1268.967[p] *4*	1/2$^-$		C	Jπ: from resonance-averaged n capture and expected band structure.
1279.1 *6*			AB	
1287.5 *6*			AB	
1302.920[p] *12*	3/2$^-$		ABC	Jπ: from resonance-averaged n capture, Jπ=1/2$^-$,3/2$^-$. γ to 5/2$^+$ eliminates 1/2$^-$.
1313			A	
1357.936 *16*	1/2$^-$,3/2$^-$		ABC	XREF: A(1359.7)B(1359.7). Jπ: from averaged-resonance n capture and interpretation of (d,p) reaction data.
1363[p]	5/2$^-$		B	Jπ: from interpretation of (d,p) reaction data.
1365.2[c] *1*	21/2$^-$		K	
1379.342 *21*	3/2$^-$		ABC	Jπ: from resonance-averaged n capture, Jπ=1/2$^-$,3/2$^-$. γ to 5/2$^+$ eliminates 1/2$^-$.
1401.112 *12*	5/2,7/2$^+$		A C	Jπ: from γ's to 3/2$^+$, 5/2$^+$, 5/2$^-$, 7/2$^+$, and 7/2$^-$ levels.
1416[r]	7/2$^+$		A	Jπ: from interpretation of (d,p) reaction data.
1416.5[b] *1*	23/2$^-$		K	
1436			A	
1446[p]	7/2$^-$		B	Jπ: from interpretation of (d,p) reaction data.
1460			A	
1470.3[f] *1*	(21/2$^-$)		K	
1477			B	Additional information 3.
1493			A	
1516			B	
1535			B	
1562			B	
1598			AB	XREF: A(1601)B(1594).
1599.94[&] *14*	27/2$^+$		D G KL	XREF: L(1602). Jπ: from γ's to 23/2$^+$ and 25/2$^+$, and expected band structure

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Adopted Levels, Gammas (continued)

^{161}Dy Levels (continued)

E(level)[†‡]	Jπ[#]	XREF	Comments
			(Coulomb excited).
1626.2[d] 1	23/2⁻	K	
1646.1[a] 1	25/2⁻	K	
1648		AB	XREF: A(1650)B(1645).
1690.81[@] 17	29/2⁺	D KL	XREF: L(1693). Jπ: from Q γ to 25/2⁺ and expected band structure.
1712		B	
1724.1[g] 1	(23/2⁻)	K	
1743		A	
1765		A	
1780		A	
1821		AB	XREF: A(1818)B(1825).
1838.4[c] 1	25/2⁻	K	
1859		A	
1871		A	
1892		A	
1897.3[b] 1	27/2⁻	K	
1921		AB	XREF: A(1920)B(1923).
1946		B	
1977[q]	3/2⁻	B	Jπ: from interpretation of (d,p) reaction data.
1994.1?[f] 1	(25/2⁻)	K	
1996		B	
2039[q]	5/2⁻	B	Jπ: from interpretation of (d,p) reaction data.
2113[q]	(7/2⁻)	B	Jπ: from interpretation of (d,p) reaction data.
2138.3[d] 2	27/2⁻	K	
2156.8[a] 1	29/2⁻	K	
2159.45[&] 17	31/2⁺	D KL	XREF: L(2161). Jπ: from D γ to 29/2⁺ level and expected band structure.
2215		A	
2230		A	
2233.34[@] 19	33/2⁺	D KL	XREF: L(2234). Jπ: from D γ to 31/2⁺ and expected band structure.
2237	3/2,5/2,7/2	E	Jπ: excitation in (γ,γ′) via dipole transition from 5/2⁺ g.s.
2250	3/2,5/2,7/2	E	Jπ: excitation in (γ,γ′) via dipole transition from 5/2⁺ g.s.
2280.2[g] 2	(27/2⁻)	K	
2332.9[c] 1	29/2⁻	K	
2346	3/2,5/2,7/2	E	Jπ: excitation in (γ,γ′) via dipole transition from 5/2⁺ g.s.
2413.3[b] 2	31/2⁻	K	
2576.1[f] 2	(29/2⁻)	K	
2665.7[d] 2	31/2⁻	K	
2704.2[a] 2	33/2⁻	K	
2740	3/2,5/2,7/2	E	Jπ: excitation in (γ,γ′) via dipole transition from 5/2⁺ g.s.
2748	3/2,5/2,7/2	E	Jπ: excitation in (γ,γ′) via dipole transition from 5/2⁺ g.s.
2753	3/2,5/2,7/2	E	Jπ: excitation in (γ,γ′) via dipole transition from 5/2⁺ g.s.
2775	3/2,5/2,7/2⁻	E	Jπ: excitation in (γ,γ′) via dipole transition from 5/2⁺ g.s. γ to 3/2⁻ eliminates Jπ=7/2⁺.
2788.3[&] 2	35/2⁺	KL	XREF: L(2790).
2812	3/2,5/2,7/2⁻	E	Jπ: excitation in (γ,γ′) via dipole transition from 5/2⁺ g.s. γ to 3/2⁻ eliminates Jπ=7/2⁺.
2820	3/2⁺,5/2,7/2	E	Jπ: excitation in (γ,γ′) via dipole transition from 5/2⁺ g.s. γ to 7/2⁺ eliminates 3/2⁻.
2838	3/2,5/2,7/2⁻	E	Jπ: excitation in (γ,γ′) via dipole transition from 5/2⁺ g.s. γ to 3/2⁻ eliminates

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Adopted Levels, Gammas (continued)

^{161}Dy Levels (continued)

E(level)[†‡]	J^{π}[#]	XREF	Comments
			7/2+.
2839.4[@] 2	37/2+	KL	XREF: L(2841).
2849	3/2,5/2,7/2	E	J^{π}: excitation in (γ,γ') via dipole transition from 5/2+ g.s.
2849.4[c] 2	33/2−	K	
2864	3/2,5/2,7/2−	E	J^{π}: excitation in (γ,γ') via dipole transition from 5/2+ g.s. γ to 3/2− eliminates 7/2+.
2905	5/2+,7/2+	E	J^{π}: excitation in (γ,γ') via dipole transition from 5/2+ g.s. Gammas to 9/2+ and 3/2− eliminate J=3/2, 5/2− and 7/2.
2955.1[b] 2	35/2−	K	
2994	3/2,5/2,7/2	E	J^{π}: excitation in (γ,γ') via dipole transition from 5/2+ g.s.
3113	3/2,5/2,7/2	E	J^{π}: excitation in (γ,γ') via dipole transition from 5/2+ g.s.
3155	3/2,5/2,7/2	E	J^{π}: excitation in (γ,γ') via dipole transition from 5/2+ g.s.
3272.1[a] 2	37/2−	K	
3479.7[&] 2	39/2+	K	
3504[@]	41/2+	KL	XREF: L(3506).
3529.0[b] 2	39/2−	K	
3644	3/2,5/2,7/2	E	J^{π}: excitation in (γ,γ') via dipole transition from 5/2+ g.s.
3867.0[a] 2	41/2−	K	
4223[@]	45/2+	KL	XREF: L(4225).
4226.6[&] 2	43/2+	K	
4505.4[a] 2	45/2−	K	
4989?[@]	49/2+	L	XREF: L(4991).
5026.2[&] 3	47/2+	K	
5190.9[a] 2	49/2−	K	
5799?[@]	53/2+	L	XREF: L(5801).

† From least-squares fit to the γ energies where they are available; otherwise from the particle reactions. For the high-spin states, see the comment in the ^{160}Gd(^{7}Li,t3nγ) data set.

‡ Levels observed only from primary γ's in thermal n capture have been omitted here; see the (n,γ) data set for details.

In addition to the usual arguments involving γ branching, γ multipolarities and the existence of rotational bands, etc, the assigning of J^{π} values has been aided by the availability of resonance-averaged neutron-capture data, Coul.-ex. data and single-nucleon transfer data. These latter data have been particularly useful in making Nilsson-orbital assignments. Both the relative intensities of the particle peaks, as well as their magnitudes, were used in these configuration assignments; it is to be understood that these considerations were used in this process, and generally no further mention is made in the J^{π} arguments in specific cases. For those levels seen only in the high-spin studies, the J^{π} values are based on the usual considerations in such work and are not discussed further here.

@ Band(A): 5/2[642] band, α=+1/2 branch.

& Band(a): 5/2[642] band, α=−1/2 branch.

a Band(B): 5/2[523] band, α=+1/2 branch. A=11.314 keV, B=−7.28 eV, A_5=+0.106 eV, from energies of the 5/2− through 11/2− levels.

b Band(b): 5/2[523] band, α=−1/2 branch. See the comment for the other branch.

c Band(C): 3/2[521] band, α=+1/2 branch. A=11.492 keV, A_3=−8.88 eV, from energies of the 3/2− through 7/2− members.

d Band(c): 3/2[521] band, α=−1/2 branch. See the comment for the other branch.

e Band(D): 1/2[521] band. A=12.04 keV, B=−22 eV, a=+0.43.

f Band(E): 11/2[505] band, α=+1/2 branch.

g Band(e): 11/2[505] band, α=−1/2 branch.

h Band(F): 3/2[402] band, with 3/2[651] admixture.

i Band(G): ΔN=2−mixed 1/2[660]+1/2[400] band. This band may also contain an admixture of the K−2 γ-vibrational band built

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Adopted Levels, Gammas (continued)

^{161}Dy Levels (continued)

on the ^{161}Dy g.s. (5/2[642]).

[j] Band(H): 3/2[651] band, with 3/2[402] admixture.

[k] Band(I): probable K+2 γ vibr built on 5/2[642].

[l] Band(J): ΔN=2−mixed 1/2[400] and 1/2[660] band. This band may also contain an admixture of the K-2 γ-vibrational band built on the ^{161}Dy g.s. (5/2[642]).

[m] Band(K): K^{π}=1/2$^-$, K-2 γ-vibr built on 3/2[521]. A=10.892 keV, a=−0.166.

[n] Band(L): 5/2[512] band. A=12.6 keV.

[o] Band(M): 1/2[530] band. A=8.76 keV, a=−1.54.

[p] Band(N): 1/2[510] band.

[q] Band(O): 3/2[512] band. A=12.4 keV.

[r] Band(P): 7/2[404] bandhead.

$\gamma(^{161}Dy)$

E_i(level)	J^π_i	E_γ [†‡]	I_γ [#]	E_f	J^π_f	Mult. [@]	δ [@]	α [&]	$I_{(\gamma+ce)}$	Comments
25.65136	5/2⁻	25.65135 *3*	100	0	5/2⁺	E1		2.29		B(E1)(W.u.)=0.0001414 *20* L1/L2=1.39 *2*; L1/L3=1.00 *2*; B(E1)(W.u.)=1.39×10^{-4} *4* E_γ: from the evaluation by 2000He14 (^{161}Tb β^- decay). δ: from ^{161}Tb β- decay: δ <0.032 (1971St38); δ < 0.010 (1966Gi02). L1/L2,L1/L3: L subshell ratios from 1961Gr01 as quoted by 1974Tu05. From Compton polarimetry in ^{161}Tb β^- decay, 1999Ts02 measure -(3.8 *8*)×10^{-3} for the parity-odd circular polarization of this γ.
43.8201	7/2⁺	18.15 *5*		25.65136	5/2⁻	E1		5.93 *10*	2.3×10^2 *8*	B(E1)(W.u.)=0.0014 *6* Mult.: from 1984Vy01, ^{161}Ho ε decay. $I_{(\gamma+ce)}$: computed from data from ^{161}Ho ε decay. I_γ: from I(γ+ce)(18) and α, Iγ=34.
		43.821 *1*	100	0	5/2⁺	M1+E2	0.216 *8*	7.6 *3*		B(M1)(W.u.)=0.028 *4*; B(E2)(W.u.)=3.3×10^2 *5* δ: computed by the evaluator using the following data: δ^2=0.046 *4*, from ^{161}Ho ε decay (1984Vy01); δ^2=0.048 *19*, from ^{161}Ho ε decay (1965Ab04); and %E2=4.7 *9*, from ^{160}Dy(n,γ) (1986Sc16). Other: 1961Gr01 report %E2=4, from ^{161}Tb β^- decay.
74.56668	3/2⁻	48.91533 *5*	100.0 *24*	25.65136	5/2⁻	M1+E2	−0.056 *1*	3.19		B(M1)(W.u.)=0.0115 *5*; B(E2)(W.u.)=7.4 *4* E_γ: from the evaluation by 2000He14 (^{161}Tb β^- decay). Mult.: penetration parameter λ=+2.5 *23* (1982Bh07,1985Bh08). These authors derived δ^2=0.0036 *2* in their analysis. δ: adopted by the evaluator from %E2=0.310 *5*, from L- and M-subshell data in ^{161}Tb β^- decay (1966Gi02). The uncertainty given by these authors was doubled by the evaluator in computing the uncertainty in this δ value. The sign is from $\gamma(\theta)$ (1983Ri15). Others: %E2=0.4 *2* (1958Ha13), ≈0.4 (1961Gr01), δ^2=0.0036 *2* (1982Bh07,1985Bh08), and δ=−0.067 *42*, all from ^{161}Tb β^- decay; %E2=0.30 *15* (1984Vy01), from ^{161}Ho ε decay; and %E2=0.50 *24* (1986Sc16), from ^{160}Dy(n,γ). Also, %E2=5.0 *2* (1971Be24).
		74.56669 *6*	59.9 *12*	0	5/2⁺	E1		0.672		B(E1)(W.u.)=2.03×10^{-5} *7* E_γ: from the evaluation by 2000He14 (^{161}Tb β^- decay). δ: 0.00 *3*, computed by the evaluator from −0.006 *20* (1983Ri15), 0.06 +*3*−*6* (1966Su03), and +0.08 *10*

(1971Kr19), all from ^{161}Tb β^- decay.

Adopted Levels, Gammas (continued)

$\gamma(^{161}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡]	I_γ[#]	E_f	J^π_f	Mult.[@]	δ[@]	α[&]	Comments
									B(E1)(W.u.)=2.03×10^{-5} 7 E_γ: from the evaluation by 2000He14 (^{161}Tb β^- decay). δ: 0.00 3, computed by the evaluator from −0.006 20 (1983Ri15), 0.06 +3−6 (1966Su03), and +0.08 10 (1971Kr19), all from ^{161}Tb β^- decay.
100.4033	9/2$^+$	56.64 3	100	43.8201	7/2$^+$	M1+E2	0.22 3	12.91 25	B(M1)(W.u.)=0.035 5; B(E2)(W.u.)=2.6×10^2 8 Mult.: from 1984Vy01, ^{161}Ho ε decay. δ: computed by the evaluator from the L-subshell ratios reported by 1984Vy01, ^{161}Ho ε decay. These authors report %E2=4.5 +25−12, which implies a δ value somewhat different from that chosen here.
		100.413 9	29 4	0	5/2$^+$	(E2)		2.67	B(E2)(W.u.)=94 19 Mult.,δ: from 1984Vy01, ^{161}Ho ε decay.
103.0623	7/2$^-$	59.235 2	17 3	43.8201	7/2$^+$	E1		1.220	B(E1)(W.u.)=5.5×10^{-5} 11 Additional information 4. δ: from $\gamma(\theta)$ in ^{161}Tb β^- decay, 1983Ri15 give δ=−0.1 +5−3.
		77.414 1	56 5	25.65136	5/2$^-$	M1+E2	−1.050 8	6.16	B(M1)(W.u.)=0.0037 5; B(E2)(W.u.)=3.4×10^2 5 δ: computed from the weighted average of the following δ^2 values, both from the ^{161}Ho ε decay: 1.106 21 (1984Vy01); and 1.094 36 (1987BaZB). The sign is from $\gamma(\theta)$ from the ^{161}Tb β^- decay. Other related data: from Tb β^- decay, %E2=47 (1961Gr01) and δ=−1.1 +3−16 (1983Ri15); from ^{161}Ho ε decay: δ^2=1.1 7 (1965Ab04). From Compton polarimetry in ^{161}Tb β^- decay, 1999Ts02 measure -(7.0 15)×10^{-5} for the parity-odd circular polarization of this γ.
		103.062 1	100	0	5/2$^+$	E1		0.285	B(E1)(W.u.)=6.1×10^{-5} 6 Mult.: from: 1965Ab04 and 1984Vy01, ^{161}Ho ε decay; and 1986Sc16, ^{160}Dy(n,γ).
131.7587	5/2$^-$	28.701 12	2.0 1	103.0623	7/2$^-$	M1+E2	0.036 +8−10	15.5 5	B(M1)(W.u.)=0.0091 16; B(E2)(W.u.)=7 4 I_γ: from ^{161}Tb decay; the value from (n,γ) is 0.06 6. Mult.: from α data from ^{161}Tb β^- decay (1961Gr01) and ^{161}Ho ε decay (1984Vy01). δ: computed by the evaluator from the L-subshell ratios reported by 1984Vy01 from ^{161}Ho ε decay. These authors report %E2=0.25 +15−11, which implies a δ value somewhat different from that chosen here.
		57.1917 3	100 12	74.56668	3/2$^-$	M1+E2	−0.187 16	12.39 19	B(M1)(W.u.)=0.056 11; B(E2)(W.u.)=3.0×10^2 8 E_γ: from the evaluation by 1999He10 (^{161}Tb β^- decay).

$\gamma(^{161}Dy)$ (continued)

E_i(level)	J^π_i	E_γ †‡	I_γ #	E_f	J^π_f	Mult. @	δ @	α &	Comments
									Mult.: penetration parameter $\lambda=-5$ *5* (1965Su04, 1966Su03, and 1983Hn01) from $\lambda=-7$ +*6*−*8* (1965Su04,1966Su03) and $\lambda=-4.0$ *42* (1983Hn01). Values of $\delta=-0.22$ and $\delta=-0.20$, respectively, were used in these authors′ analyses. δ: computed by the evaluator from a weighted average of δ^2 values deduced from the following: δ^2=0.038 *11*, from ^{161}Ho ε decay (1984Vy01); δ^2=0.048 *06*, from ^{161}Tb β^- decay (1965Su04); and %E2=2.8 *4*, from ^{160}Dy(n,γ) (1986Sc16). The sign is from $\gamma\gamma(\theta)$ (1965Su04) and $\gamma(\theta)$ (1983Ri15), both from ^{161}Tb β^- decay.
131.7587	5/2⁻	87.942 *1*	10.2 *2*	43.8201	7/2⁺	(E1)		0.435	B(E1)(W.u.)=1.7×10^{-5} *3* I_γ: from ^{161}Tb decay; other values are 12.4 *29*, from ^{160}Dy(n,γ), and 22 *11*, from ^{161}Ho ε decay. Mult.: from ^{161}Ho decay (1984Vy01).
		106.108 *1*	4.36 *14*	25.65136	5/2⁻	M1+E2	−0.85 *35*	2.09 *5*	B(M1)(W.u.)=0.00023 *9*; B(E2)(W.u.)=7 *4* Mult.: from ^{161}Tb β^- decay (1961Gr01). From ^{161}Ho ε decay, 1984Vy01 give mult=(M1). δ: from $\gamma(\theta)$ in ^{161}Tb β^- decay (1983Ri15). 1961Gr01 quote %E2≈40, from ^{161}Tb β^- decay.
		131.8 *1*	2 *2*	0	5/2⁺	[E1]		0.1475	B(E1)(W.u.)=1.0×10^{-6} *10* I_γ: values are 2.14 from ^{161}Ho decay and 0.01 from ^{161}Tb decay.
184.23	11/2⁺	83.83 *5*	100	100.4033	9/2⁺	M1+E2	−0.25 *7*	4.05 *8*	B(M1)(W.u.)=0.036 *4*; B(E2)(W.u.)=1.6×10^2 *9* Mult.: from ^{161}Ho ε decay, 1984Vy01 report mult=(M1). δ: from 1988Os01, Coul. ex.
		140.40 *10*	66 *10*	43.8201	7/2⁺	[E2]		0.795	B(E2)(W.u.)=135 *25*
201.0872	9/2⁻	69.29 *5*		131.7587	5/2⁻	(E2)		11.19	
		98.028 *3*	31 *2*	103.0623	7/2⁻	M1+E2	0.9 *2*	2.71 *6*	δ: from 1984Vy01, ^{161}Ho ε decay. From ^{160}Dy(n,γ), 1986Sc16 report %E2=11 *4*, which yields a significantly different δ value.
		100.707 *10*	15 *10*	100.4033	9/2⁺	(E1)		0.303	Mult.: from 1984Vy01, ^{161}Ho ε decay.
		157.267 *1*	100 *10*	43.8201	7/2⁺	E1		0.0919	Mult.: from 1965Ab04 and 1984Vy01, ^{161}Ho ε decay. δ: <0.18, 1965Ab04, ^{161}Ho ε decay.
		175.433 *2*	84.6 *16*	25.65136	5/2⁻	E2		0.368	Mult.: from 1965Ab04 and 1984Vy01, ^{161}Ho ε decay.
212.9520	7/2⁻	81.196 *1*	100 *12*	131.7587	5/2⁻	M1+E2	0.18 *3*	4.41	Mult.,δ: from 1984Vy01, ^{161}Ho ε decay. From ^{160}Dy(n,γ), 1986Sc16 report mult=M1.
		109.83 *4*		103.0623	7/2⁻	(M1)		1.83	Mult.: from 1984Vy01, ^{161}Ho ε decay.
		112.549 *2*	6.6 *12*	100.4033	9/2⁺	E1		0.225	Mult.: from 1984Vy01, ^{161}Ho ε decay.
		138.385 *2*	32 *3*	74.56668	3/2⁻	E2		0.836	Mult.: from: 1984Vy01, ^{161}Ho ε decay; 1986Sc16 ^{160}Dy(n,γ).

$^{161}_{66}Dy_{95}$-12

$\gamma(^{161}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡]	I_γ[#]	E_f	J^π_f	Mult.[@]	δ[@]	α[&]	Comments
212.9520	7/2⁻	187.3 *2*	3.0 *4*	25.65136	5/2⁻	M1,E2		0.35 *6*	Mult.: from 1984Vy01, ^{161}Ho ε decay.
		212.80 *15*		0	5/2⁺	E1		0.0413	Mult.: from 1984Vy01, ^{161}Ho ε decay.
267.32	13/2⁺	83.2 *3*	75 *10*	184.23	11/2⁺	M1+E2	−0.14 *2*	4.09 *8*	B(M1)(W.u.)=0.054 *11*; B(E2)(W.u.)=7.E+1 *3* Mult.: mult=(M1) from 1984Vy01, ^{161}Ho ε decay. δ value of 1988Os01 (Coulomb excitation) implies a mixture. M2 possibility eliminated by RUL. δ: from 1988Os01 (Coul. ex.).
		167.0 *3*	100	100.4033	9/2⁺	E2		0.435 *7*	B(E2)(W.u.)=159 *22* Mult.: mult=Q from ^{160}Gd(α,3nγ) (1972Hj01). M2 eliminated by RUL.
314.9397	9/2⁻	101.990 *1*	100 *20*	212.9520	7/2⁻				
		183.179 *1*	58 *4*	131.7587	5/2⁻	E2			Mult.: from ^{160}Dy(n,γ), 1986Sc16 list E1,(E2). J^π values imply E2.
320.69	11/2⁻	107.74[b] *5*	40	212.9520	7/2⁻				Mult.: assigned as D by 1972Hj01, ^{160}Gd(α,3nγ), but the placement requires ΔJ=2.
		119.61 *5*	100 *30*	201.0872	9/2⁻	M1,E2			Additional information 5. δ: from ^{161}Ho ε decay, 1981GrZV list δ=1.04, but 1984Vy01 (presumed by the evaluator to supersede this work) do not show this value.
		217.60 *10*	12	103.0623	7/2⁻	E2			I_γ: from ^{161}Ho ε decay. In ^{160}Gd(α,3nγ), Iγ(217)/Iγ(119)=6.8, compared to the value of 0.12 given here. Mult.: 1984Vy01, in ^{161}Ho ε decay, list M1,E2. J^π assignments require E2.
366.9749	1/2⁻	292.409 *1*	100 *5*	74.56668	3/2⁻	M1			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
		341.320 *2*	5.6 *5*	25.65136	5/2⁻	E2			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
406.89	15/2⁺	139.5 *3*	71 *10*	267.32	13/2⁺	[M1+E2]	−0.27 *3*	0.920 *15*	B(M1)(W.u.)=0.051 *11*; B(E2)(W.u.)=9.E+1 *3* δ: from 1988Os01, Coul. ex.
		222.8 *3*	100	184.23	11/2⁺	E2		0.1655	B(E2)(W.u.)=1.9×10^2 *3* Mult.: mult=Q, from ^{160}Gd(α,3nγ) (1972Hj01). M2 eliminated by RUL.
418.2337	3/2⁻	286.476 *2*	100	131.7587	5/2⁻	M1+E2	−0.096 *20*		Mult.: from 1986Sc16, ^{160}Dy(n,γ). δ: from $\gamma(\theta)$ in ^{161}Tb β^- decay (1983Ri15).
		315.175 *3*	3.2 *2*	103.0623	7/2⁻				
		343.664 *2*	95 *8*	74.56668	3/2⁻	M1			Mult.: from ^{160}Dy(n,γ),(1986Sc16). δ: −0.073 *84*, from $\gamma(\theta)$ in ^{161}Tb β^- decay (1983Ri15).
		392.63 *4*	15 *2*	25.65136	5/2⁻				
443.3	11/2⁻	128.3 *1*	88 *10*	314.9397	9/2⁻				
		230.3 *1*	100 *11*	212.9520	7/2⁻				
451.4320	5/2⁻	84.86[b] *5*	13 *5*	366.9749	1/2⁻				Additional information 6.

$^{161}_{66}Dy_{95}$-13

$\gamma(^{161}Dy)$ (continued)

E_i(level)	J^π_i	E_γ †‡	I_γ #	E_f	J^π_f	Mult. @	δ @	α &	Comments
451.4320	5/2−	238.481 *2*	67 *3*	212.9520	7/2−				
		319.673 *1*	100 *6*	131.7587	5/2−	M1			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
		348.371 *3*	17.2 *20*	103.0623	7/2−				
		376.869 *5*	19.6 *15*	74.56668	3/2−	M1,E2			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
		425.784 *4*	8.9 *12*	25.65136	5/2−				
457.23	13/2−	136.37 *30*	<30	320.69	11/2−				
		256.3 *3*	100	201.0872	9/2−	Q			Mult.: from 1972Hj01, ^{160}Gd(α,3nγ).
507.72	17/2+	101.1 *3*	21.4 *8*	406.89	15/2+	M1+E2	−0.05 *2*	2.32	B(M1)(W.u.)=0.075 *8*; B(E2)(W.u.)=9 *8* δ: from 1988Os01, Coul. ex.
		240.7 *3*	100	267.32	13/2+	E2		0.1288	B(E2)(W.u.)=222 *21* Mult.: mult=Q, from ^{160}Gd(α,3nγ) (1972Hj01). M2 is eliminated by RUL.
550.2535	3/2+	418.494 *3*	22.0 *15*	131.7587	5/2−	[E1]			δ: −0.007 *45*, from ^{161}Tb β^- decay (1983Ri15).
		475.687 *2*	50 *4*	74.56668	3/2−	[E1]			δ: −0.004 *17*, from ^{161}Tb β^- decay (1983Ri15).
		506.68 *16*	2.3 *2*	43.8201	7/2+	E2			Mult.: from ^{160}Dy(n,γ), 1986Sc16 list M1,E2. J^π assignments require E2.
		550.251 *3*	100 *5*	0	5/2+	M1+E2			δ: reported values: %E2=43 *19*, from ^{160}Dy(n,γ) (1986Sc16); δ=−0.040 *35* or −3.8 *+4−7*, from ^{161}Tb β^- decay (1983Ri15).
567.9423	7/2−	149.723 *8*	6.3 *14*	418.2337	3/2−				
		253.004 *3*	46 *3*	314.9397	9/2−	M1,E2			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
		354.989 *2*	100 *8*	212.9520	7/2−				
		366.845 *8*	29 *5*	201.0872	9/2−				
		464.879 *19*	36 *5*	103.0623	7/2−				
		541.6 *4*	45 *38*	25.65136	5/2−				
586.9	13/2−	143.5 *1*	57 *8*	443.3	11/2−				
		272.0 *1*	100 *10*	314.9397	9/2−				
607.5814	1/2+	533.012 *6*	16.5 *14*	74.56668	3/2−	E1			Mult.: assigned as E1,E2 by 1986Sc16, ^{160}Dy(n,γ). From J^π values, mult=E1.
		607.579 *2*	100 *6*	0	5/2+	E2			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
609.8315	5/2+	396.881 *4*	20.0 *11*	212.9520	7/2−				
		478.083 *6*	21 *3*	131.7587	5/2−				
		535.260 *4*	38.4 *18*	74.56668	3/2−				
		566.011 *4*	100 *6*	43.8201	7/2+	M1+E2	1.2 *+7−4*		Mult.,δ: from 1986Sc16, ^{160}Dy(n,γ).
		609.828 *6*	40 *3*	0	5/2+	E2			Mult.: assigned as E2,(E1) by 1986Sc16, ^{160}Dy(n,γ). J^π values imply $\Delta\pi$=no.
617.1	15/2−	159.8 *1*		457.23	13/2−				
		296.5 *1*	100 *12*	320.69	11/2−				
		349.8 *1*	58 *8*	267.32	13/2+				
628.234	9/2−	176.800 *8*	100 *29*	451.4320	5/2−				
		313.306 *20*	50 *18*	314.9397	9/2−				

$^{161}_{66}Dy_{95}$-14

$\gamma(^{161}Dy)$ (continued)

E_i(level)	J^π_i	E_γ[†‡]	I_γ[#]	E_f	J^π_f	Mult.[@]	δ[@]	α[&]	Comments
633.1673	5/2+	420.27 *3*	2.0 *4*	212.9520	7/2−				
		532.750 *10*	16.3 *17*	100.4033	9/2+				
		558.601 *9*	11.2 *10*	74.56668	3/2−				
		589.343 *2*	100 *6*	43.8201	7/2+	M1+E2	1.4 +*8*−*4*		Mult.,δ: from 1986Sc16, ^{160}Dy(n,γ).
641.6?	(13/2−)	156.0 *1*	100	485.56	11/2−				
678.3226	3/2+	546.564 *3*	51 *3*	131.7587	5/2−	E1			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
		603.76 *3*	100 *7*	74.56668	3/2−	E1			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
		678.324 *3*	99 *6*	0	5/2+	M1			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
696.078	7/2+	244.62 *4*	20 *5*	451.4320	5/2−				
		483.14 *4*	11 *3*	212.9520	7/2−				
		595.64 *4*	24 *5*	100.4033	9/2+				
		696.080 *16*	100 *9*	0	5/2+				
699.1395	3/2+	247.55[a] *6*	≤5	451.4320	5/2−				
		567.382 *3*	63 *3*	131.7587	5/2−	E1			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
		624.571 *3*	100 *7*	74.56668	3/2−	E1			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
		699.135 *5*	90 *9*	0	5/2+	M1			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
717.9	19/2+	210.3 *3*	63	507.72	17/2+	(M1+E2)	−0.27 *4*	0.289 *5*	B(M1)(W.u.)=(0.066 *8*); B(E2)(W.u.)=(54 *16*) I_γ: from ^{160}Gd(α,3nγ). From Coul. ex., Iγ=25.8 *14*. Mult.: from 1972Hj01, ^{160}Gd(α,3nγ), mult=D. M1,E2 implied by level scheme. The δ value of 1988Os01 requires an admixture. δ: from 1988Os01, Coul. ex.
		311.6 *3*	100	406.89	15/2+	E2		0.0575	B(E2)(W.u.)=177 *19* Mult.: from 1972Hj01, ^{160}Gd(α,3nγ), mult=Q. From RUL, M2 is eliminated.
730.913	5/2+	517.962 *4*	56 *7*	212.9520	7/2−				
		599.144 *9*	60 *5*	131.7587	5/2−				
		627.78 *5*	13 *3*	103.0623	7/2−				
		656.360 *10*	100 *7*	74.56668	3/2−				
		687.085 *7*	90 *4*	43.8201	7/2+	M1,E2			Mult.: from: 1973BuZR,1984Vy01, ^{161}Ho ε decay; 1986Sc16 report mult=M1 (from ^{160}Dy(n,γ)).
		730.91 *3*	33 *7*	0	5/2+				
761.3	15/2−	174.5 *1*	27 *4*	586.9	13/2−				
		318.2 *1*	100 *10*	443.3	11/2−				
772.18	5/2+,7/2,9/2+	669.0[b] *3*	18 *8*	103.0623	7/2−				
		672.5 *3*	26 *9*	100.4033	9/2+				
		772.10 *10*	100 *6*	0	5/2+				
772.7285	1/2+	354.488 *15*	17 *4*	418.2337	3/2−				
		405.753 *2*	13.6 *13*	366.9749	1/2−				

$^{161}_{66}Dy_{95}$-15

Adopted Levels, Gammas (continued)

γ(^{161}Dy) (continued)

E_i(level)	J^π_i	E_γ[†‡]	I_γ[#]	E_f	J^π_f	Mult.[@]	δ[@]	α[&]	Comments
772.7285	1/2+	772.726 6	100 8	0	5/2+	E2			Mult.: mult=E2,(E1), from 1986Sc16, ^{160}Dy(n,γ). The J^π values imply E2.
777.1272	1/2−	169.546 5	1.03 25	607.5814	1/2+				
		325.741 16	0.64 15	451.4320	5/2−				
		645.30 6	5.4 15	131.7587	5/2−				
		702.561 3	100 9	74.56668	3/2−	M1+E2	0.9 5		Mult.,δ: from 1986Sc16, ^{160}Dy(n,γ).
788.0	17/2−	330.8 1	100 10	457.23	13/2−				
		381.0 1	38 6	406.89	15/2+				
790.648	5/2−	577.9 2	3.0 11	212.9520	7/2−				
		658.95 10	14.0 16	131.7587	5/2−				
		687.614 24	32 5	103.0623	7/2−				
		716.09 8	22 2	74.56668	3/2−				
		746.89[a] 6	≤35	43.8201	7/2+				
		764.984 16	100 7	25.65136	5/2−	E2+M1			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
		790.61 3	81 7	0	5/2+	E1			Additional information 7.
800.51	3/2+	669.1 2		131.7587	5/2−				
		756.6 1		43.8201	7/2+				
		800.4 5		0	5/2+				
804.388	3/2−	171.221 6	2.5 4	633.1673	5/2+				
		196.815 6	2.5 4	607.5814	1/2+				
		672.625 4	100 6	131.7587	5/2−	M1+E2	1.0 4		Mult.,δ: from 1986Sc16, ^{160}Dy(n,γ).
		729.815 6	88 5	74.56668	3/2−	M1+E2	1.2 +8−4		Mult.,δ: from 1986Sc16, ^{160}Dy(n,γ).
		778.70 4	21.6 24	25.65136	5/2−				
819.0?	(15/2−)	177.3 1	100 12	641.6?	(13/2−)				
		333.5 1	27 5	485.56	11/2−				
825.55	21/2+	107.6 3	6.1 14	717.9	19/2+	(M1+E2)	−0.05 2	1.94 4	B(M1)(W.u.)=(0.085 22); B(E2)(W.u.)=(9 8) Mult.: D from 1972Hj01, ^{160}Gd(α,3nγ), and M1,E2 from level scheme. M1+E2 implied by the δ value. δ: from 1988Os01, Coul. ex.
		318.1 3	100	507.72	17/2+	[E2]		0.0548	B(E2)(W.u.)=2.6×10^2 3
825.7155	3/2+	192.548 3	7.7 6	633.1673	5/2+	M1			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
		215.899 11	3.3 4	609.8315	5/2+				
		374.276 6	10 3	451.4320	5/2−				
		458.737 5	20.8 27	366.9749	1/2−				
		751.18 3	42 4	74.56668	3/2−	E1			Mult.: from 1986Sc16, ^{160}Dy(n,γ), mult=E2,E1. The J^π values imply E1.
		781.926 12	78 7	43.8201	7/2+	E2			Mult.: from 1986Sc16, ^{160}Dy(n,γ), mult=E2,(E1). The J^π values imply E2.
		825.705 10	100 5	0	5/2+	E2			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
849.260	5/2+	150.121 6	4.8 11	699.1395	3/2+				
		239.428 11	4.5 8	609.8315	5/2+				

$^{161}_{66}Dy_{95}$-16

$\gamma(^{161}Dy)$ (continued)

E_i(level)	J_i^π	E_γ[†‡]	I_γ[#]	E_f	J_f^π	Mult.[@]	δ[@]	Comments
849.260	5/2+	299.006 5	7.2 8	550.2535	3/2+			
		805.437 15	100 6	43.8201	7/2+	M1,E2		Mult.: from 1986Sc16, $^{160}Dy(n,\gamma)$.
857.502	(7/2)+	247.55[a] 6	≤12	609.8315	5/2+			
		406.071 7	11 3	451.4320	5/2−			
		644.66 8	100 20	212.9520	7/2−	E1		Mult.: from 1986Sc16, $^{160}Dy(n,\gamma)$.
		831.83 3	96 6	25.65136	5/2−			
858.7919	3/2−	180.527 22	2.2 4	678.3226	3/2+			
		225.621 2	23.5 13	633.1673	5/2+			
		251.197 7	14.6 14	607.5814	1/2+			
		407.365 3	17.6 20	451.4320	5/2−			
		727.035 6	100 4	131.7587	5/2−	M1+E2	1.5 +12−5	Mult.,δ: from 1986Sc16, $^{160}Dy(n,\gamma)$.
		784.24 3	41 4	74.56668	3/2−	M1,E2		Mult.: from 1986Sc16, $^{160}Dy(n,\gamma)$.
867.869	5/2−	416.442 13	13.7 15	451.4320	5/2−			
		449.635 11	13.9 15	418.2337	3/2−			
		654.924 9	93 7	212.9520	7/2−	E2		Mult.: from 1986Sc16, $^{160}Dy(n,\gamma)$.
		736.097 8	100 10	131.7587	5/2−	E2		Additional information 8. Mult.: from 1986Sc16, $^{160}Dy(n,\gamma)$.
		793.346 17	90 15	74.56668	3/2−			
873.091	1/2−	194.784 7	2.0 3	678.3226	3/2+			
		265.504 4	5.9 5	607.5814	1/2+			
		454.857 5	8.4 6	418.2337	3/2−	M1,(E2)		Mult.: from 1986Sc16, $^{160}Dy(n,\gamma)$.
		506.131 8	10.8 14	366.9749	1/2−	M1,E2		Mult.: from 1986Sc16, $^{160}Dy(n,\gamma)$.
		798.508 7	100 9	74.56668	3/2−	M1,(E2)		Mult.: from 1986Sc16, $^{160}Dy(n,\gamma)$.
		847.59[a] 17	≤9.2	25.65136	5/2−			
878.49	7/2−	665.39 5	30 5	212.9520	7/2−			
		746.89[a] 6	≤90	131.7587	5/2−			
		834.86 8	64 9	43.8201	7/2+			
		852.73 8	100 14	25.65136	5/2−			
899.01	9/2+	798.6 1		100.4033	9/2+			
		855.2 1		43.8201	7/2+			
		899.0 1		0	5/2+			
922.326	5/2−,7/2−	721.34 8	40 8	201.0872	9/2−			
		847.59[a] 17	≤53	74.56668	3/2−			
		922.03 11	100 14	0	5/2+			
941.2	17/2−	179.6 1	28 5	761.3	15/2−			
		354.2 1	100 10	586.9	13/2−			
985.6	19/2−	368.5 1	100 11	617.1	15/2−			
		477.7 1	58 8	507.72	17/2+			
1017.0?	(17/2−)	197.8 1	100 12	819.0?	(15/2−)			
		375.5 1	40 8	641.6?	(13/2−)			

$^{161}_{66}Dy_{95}$-17

Adopted Levels, Gammas (continued)

γ(^{161}Dy) (continued)

E_i(level)	J^{π}_i	E_{γ}[†‡]	I_{γ}[#]	E_f	J^{π}_f	Mult.[@]	δ[@]	α[&]	Comments
1067.106	7/2	199.242 *9*	41 *3*	867.869	5/2⁻				
		371.00 *4*	5.9 *24*	696.078	7/2⁺				
		854.11 *4*	62 *10*	212.9520	7/2⁻				
		866.32 *18*	48 *17*	201.0872	9/2⁻				
		935.29 *8*	100 *14*	131.7587	5/2⁻				
		966.4[a] *3*	≤55	100.4033	9/2⁺				
		1066.94 *10*	59 *10*	0	5/2⁺				
1071.263	3/2⁻	340.354 *13*	10.9 *18*	730.913	5/2⁺				
		438.053 *22*	14 *3*	633.1673	5/2⁺				
		461.437 *8*	55 *5*	609.8315	5/2⁺				
		520.87 *7*	100 *23*	550.2535	3/2⁺				
		704.30 *10*	59 *14*	366.9749	1/2⁻				
1098.224	3/2⁺	230.39 *3*	7.5 *25*	867.869	5/2⁻				
		465.00 *3*	46 *8*	633.1673	5/2⁺				
		646.791 *11*	63 *4*	451.4320	5/2⁻				
		680.00 *3*	26 *4*	418.2337	3/2⁻				
		731.251 *20*	48 *6*	366.9749	1/2⁻				
		966.4[a] *3*	≤31	131.7587	5/2⁻				
		1098.13 *14*	100 *15*	0	5/2⁺				
1117.34	23/2⁺	292.1 *3*	20 *5*	825.55	21/2⁺	M1+E2	−0.23 *7*	0.1187 *24*	B(M1)(W.u.)=0.038 *11*; B(E2)(W.u.)=12 *8* Mult.: D from 1972Hj01, ^{160}Gd(α,3nγ). D+Q required by δ value. M2 eliminated by RUL. δ: from 1988Os01, Coul. ex.
		399.6 *3*	100	717.9	19/2⁺	E2		0.0278	B(E2)(W.u.)=2.4×10^{2} *3* Mult.: mult=Q from 1972Hj01, ^{160}Gd(α,3nγ). M2 eliminated by RUL.
1160.0	19/2⁻	218.7 *1*	19 *4*	941.2	17/2⁻				
		398.4 *1*	100 *9*	761.3	15/2⁻				
1178.326	5/2,7/2⁻	373.930 *20*	5.4 *7*	804.388	3/2⁻				
		965.52 *12*	57 *14*	212.9520	7/2⁻				
		1134.66 *22*	100 *18*	43.8201	7/2⁺				
		1153.3 *3*	82 *25*	25.65136	5/2⁻				
1186.683	5/2⁻	313.602 *20*	10.8 *27*	873.091	1/2⁻				
		360.966 *15*	11.2 *15*	825.7155	3/2⁺				
		553.535[a] *23*	≤17.3	633.1673	5/2⁺				
		618.64 *4*	29 *4*	567.9423	7/2⁻				
		1142.92 *21*	100 *15*	43.8201	7/2⁺				
		1161.33 *22*	77 *15*	25.65136	5/2⁻				
1186.7	21/2⁻	398.7 *1*	100 *8*	788.0	17/2⁻				
		468.8 *1*	32 *4*	717.9	19/2⁺				
1206.933	5/2⁻	135.669 *7*	3.5 *8*	1071.263	3/2⁻	(E2,M1)			

$^{161}_{66}Dy_{95}$-18

Adopted Levels, Gammas (continued)

γ(^{161}Dy) (continued)

E_i(level)	J^π_i	E_γ[†‡]	I_γ[#]	E_f	J^π_f	Mult.[@]	δ[@]	α[&]	Comments
1206.933	5/2⁻	840.02 *17*	18 *6*	366.9749	1/2⁻				
		1006.1 *3*	23 *9*	201.0872	9/2⁻				
		1132.8 *4*	100 *12*	74.56668	3/2⁻				Mult.: assigned as E2,E1 by 1986Sc16, ^{160}Dy(n,γ). J^π values imply $\Delta\pi$=no.
		1181.44 *22*	78 *14*	25.65136	5/2⁻				
1220.73	25/2⁺	103.6 *3*	1.7	1117.34	23/2⁺	[M1+E2]	−0.03 *3*	2.16 *4*	B(M1)(W.u.)=0.104 *21*; B(E2)(W.u.)=4 *+9−4*
		395.9 *3*	100	825.55	21/2⁺	E2		0.0285	B(E2)(W.u.)=3.4×10^2 *7* Mult.: mult=Q from 1972Hj01, ^{160}Gd(α,3nγ). M2 is eliminated by RUL.
1234.4	(19/2⁻)	217.4 *1*	100 *15*	1017.0?	(17/2⁻)				
		415.3 *1*	68 *11*	819.0?	(15/2⁻)				
1268.967	1/2⁻	410.171 *3*	75 *8*	858.7919	3/2⁻				
		443.28 *3*	10.2 *17*	825.7155	3/2⁺				
		491.856 *7*	100 *6*	777.1272	1/2⁻	M1			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
		901.85 *19*	94 *34*	366.9749	1/2⁻				
1302.920	3/2⁻	235.81 *3*	3.0 *16*	1067.106	7/2				
		444.168 *23*	5.1 *13*	858.7919	3/2⁻				
		530.176 *15*	20 *5*	772.7285	1/2⁺				
		1227.94 *21*	100 *15*	74.56668	3/2⁻				
		1302.7 *6*	61 *15*	0	5/2⁺				
1357.936	1/2⁻,3/2⁻	553.535[a] *23*	≤3.3	804.388	3/2⁻				
		580.83 *3*	3.8 *5*	777.1272	1/2⁻				
		939.66 *3*	24.6 *22*	418.2337	3/2⁻				
		1225.9 *3*	25 *7*	131.7587	5/2⁻				
		1283.48 *6*	100 *16*	74.56668	3/2⁻				
		1332.85 *24*	46 *11*	25.65136	5/2⁻				
1365.2	21/2⁻	205.2 *1*	16 *3*	1160.0	19/2⁻				
		424.1 *1*	100 *10*	941.2	17/2⁻				
1379.342	3/2⁻	602.235 *22*	16.4 *24*	777.1272	1/2⁻				
		811.44 *13*	19 *3*	567.9423	7/2⁻				
		927.58 *12*	32 *6*	451.4320	5/2⁻				
		1011.8 *3*	48 *12*	366.9749	1/2⁻				
		1165.8 *3*	52 *14*	212.9520	7/2⁻				
		1247.46 *10*	100 *12*	131.7587	5/2⁻	M1,(E2)			Mult.: from 1986Sc16, ^{160}Dy(n,γ).
		1379.5 *4*	82 *20*	0	5/2⁺				
1401.112	5/2,7/2⁺	478.778 *23*	14.4 *24*	922.326	5/2⁻,7/2⁻				
		551.848 *23*	6.3 *7*	849.260	5/2⁺				
		850.863 *14*	100 *9*	550.2535	3/2⁺				
		949.9 *3*	12 *4*	451.4320	5/2⁻				
		1268.5 *6*	69 *26*	131.7587	5/2⁻				
		1297.6 *3*	51 *13*	103.0623	7/2⁻				

$^{161}_{66}$Dy$_{95}$-19

Adopted Levels, Gammas (continued)

$\gamma(^{161}Dy)$ (continued)

E_i(level)	J^π_i	E_γ †‡	I_γ #	E_f	J^π_f	Mult. @	Comments
1401.112	5/2,7/2+	1356.4 4	57 13	43.8201	7/2+		
		1375.3 5	56 16	25.65136	5/2−		
		1401.5 4	61 14	0	5/2+		
1416.5	23/2−	230.0 1		1186.7	21/2−		
		430.9 1	100 13	985.6	19/2−		
		590.9 1	62 9	825.55	21/2+		
1470.3	(21/2−)	235.9 1	100 14	1234.4	(19/2−)		
		453.4 1	86 17	1017.0?	(17/2−)		
1599.94	27/2+	380.0 3	42	1220.73	25/2+		Mult.: the A_2 value from 1972Hj01, $^{160}Gd(\alpha,3n\gamma)$, suggests a stretched E2, but the placement requires ΔJ=1.
		482.9 3	100	1117.34	23/2+		
1626.2	23/2−	260.7 1		1365.2	21/2−		
		466.2 1		1160.0	19/2−		
1646.1	25/2−	459.4 1	100 10	1186.7	21/2−		
		528.7 1	40 6	1117.34	23/2+		
1690.81	29/2+	91.9 3	2.8	1599.94	27/2+		
		470.7 3	100	1220.73	25/2+	Q	Mult.: from 1972Hj01, $^{160}Gd(\alpha,3n\gamma)$.
1724.1	(23/2−)	253.7 1	73 15	1470.3	(21/2−)		
		489.7 1	100 18	1234.4	(19/2−)		
1838.4	25/2−	211.9 1		1626.2	23/2−		
		473.3 1		1365.2	21/2−		
		721.1 1		1117.34	23/2+		
1897.3	27/2−	480.8 1	100 12	1416.5	23/2−		
		676.5 1	69 10	1220.73	25/2+		
1994.1?	(25/2−)	270.4 1	83 21	1724.1	(23/2−)		
		523.8 1	100 21	1470.3	(21/2−)		
2138.3	27/2−	512.1 1	100	1626.2	23/2−		
2156.8	29/2−	510.5 1		1646.1	25/2−		
		556.8 1		1599.94	27/2+		
2159.45	31/2+	468.9 3	42	1690.81	29/2+	D	Mult.: from 1972Hj01, $^{160}Gd(\alpha,3n\gamma)$.
		559.4 3	100	1599.94	27/2+	Q	Mult.: from 1972Hj01, $^{160}Gd(\alpha,3n\gamma)$.
2233.34	33/2+	72.7 3	17	2159.45	31/2+	D	Mult.: from 1972Hj01, $^{160}Gd(\alpha,3n\gamma)$.
		541.2 3	100	1690.81	29/2+	Q	Mult.: from 1972Hj01, $^{160}Gd(\alpha,3n\gamma)$.
2237	3/2,5/2,7/2	2237	100	0	5/2+		
2250	3/2,5/2,7/2	2224	51 13	25.65136	5/2−		
		2250	100	0	5/2+		
2280.2	(27/2−)	285.5 1	65 20	1994.1?	(25/2−)		
		555.8 1	100 25	1724.1	(23/2−)		
2332.9	29/2−	494.5 1		1838.4	25/2−		
		733.0 1		1599.94	27/2+		
2346	3/2,5/2,7/2	2346	100	0	5/2+		

Adopted Levels, Gammas (continued)

$\gamma(^{161}Dy)$ (continued)

E_i(level)	J^π_i	E_γ †‡	I_γ #	E_f	J^π_f	Comments
2413.3	$31/2^-$	516.0 *1*		1897.3	$27/2^-$	
		722.8 *1*		1690.81	$29/2^+$	
2576.1	$(29/2^-)$	294.9 *1*	71 *21*	2280.2	$(27/2^-)$	E_γ: poor energy fit.
		583.0 *1*	100 *28*	1994.1?	$(25/2^-)$	E_γ: poor energy fit.
2665.7	$31/2^-$	527.4 *1*	100	2138.3	$27/2^-$	
2704.2	$33/2^-$	544.9 *1*		2159.45	$31/2^+$	
		547.3 *1*		2156.8	$29/2^-$	
2740	3/2,5/2,7/2	2740	100	0	$5/2^+$	
2748	3/2,5/2,7/2	2748	100	0	$5/2^+$	
2753	3/2,5/2,7/2	2753	100	0	$5/2^+$	
2775	$3/2,5/2,7/2^-$	2700	32 *9*	74.56668	$3/2^-$	
		2775	100	0	$5/2^+$	
2788.3	$35/2^+$	628.8 *1*	100	2159.45	$31/2^+$	
2812	$3/2,5/2,7/2^-$	2737	100	74.56668	$3/2^-$	
		2812	80 *20*	0	$5/2^+$	
2820	$3/2^+$,5/2,7/2	2776	39 *7*	43.8201	$7/2^+$	
		2820	100	0	$5/2^+$	
2838	$3/2,5/2,7/2^-$	2763	100	74.56668	$3/2^-$	
		2838	53 *11*	0	$5/2^+$	
2839.4	$37/2^+$	606.1 *1*	100	2233.34	$33/2^+$	
2849	3/2,5/2,7/2	2849	100	0	$5/2^+$	
2849.4	$33/2^-$	516.5 *1*	100	2332.9	$29/2^-$	
2864	$3/2,5/2,7/2^-$	2789	29 *7*	74.56668	$3/2^-$	
		2864	100	0	$5/2^+$	
2905	$5/2^+,7/2^+$	1950	100	957.0	$7/2^-$	
		2805	74 *21*	100.4033	$9/2^+$	
		2830	58 *16*	74.56668	$3/2^-$	
2955.1	$35/2^-$	542.1 *1*		2413.3	$31/2^-$	
		721.5 *1*		2233.34	$33/2^+$	
2994	3/2,5/2,7/2	2994	100	0	$5/2^+$	
3113	3/2,5/2,7/2	2981	100	131.7587	$5/2^-$	
		3113	84 *20*	0	$5/2^+$	
3155	3/2,5/2,7/2	3155	100	0	$5/2^+$	
3272.1	$37/2^-$	567.9 *1*	100	2704.2	$33/2^-$	
3479.7	$39/2^+$	691.4 *1*	100	2788.3	$35/2^+$	
3504	$41/2^+$	665	100	2839.4	$37/2^+$	
3529.0	$39/2^-$	573.9 *1*		2955.1	$35/2^-$	
		689.6 *1*		2839.4	$37/2^+$	
3644	3/2,5/2,7/2	3644	100	0	$5/2^+$	
3867.0	$41/2^-$	594.9 *1*	100	3272.1	$37/2^-$	
4223	$45/2^+$	718.4	100	3504	$41/2^+$	
4226.6	$43/2^+$	746.9 *1*	100	3479.7	$39/2^+$	

$^{161}_{66}Dy_{95}$-21

$\gamma(^{161}Dy)$ (continued)

E_i(level)	J^π_i	E_γ [†‡]	I_γ [#]	E_f	J^π_f
4505.4	45/2⁻	638.4 *1*	100	3867.0	41/2⁻
4989?	49/2⁺	766[b]	100	4223	45/2⁺
5026.2	47/2⁺	799.6 *1*	100	4226.6	43/2⁺
5190.9	49/2⁻	685.3 *1*	100	4505.4	45/2⁻
5799?	53/2⁺	810[b]	100	4989?	49/2⁺

† Values are taken from the decay mode or reaction type giving the most precise value. Most of the values are from the (n,γ) reaction. For these latter values, a systematic uncertainty of 10 ppm must be added to the listed uncertainty to obtain the total uncertainty.

‡ The primary γ's from thermal neutron capture are not included here. See that data set for this information. For the primary γ's from the averaged-resonance n capture, see the original papers.

Values are normalized to 100 for one γ from each level and take into account the results from all decay modes.

@ Assignments are based on all available data including ce data, especially L subshell ratios, following ^{161}Ho ε decay and ^{161}Tb β^- decay, α(K)exp or α(L)exp data from these decays as well as (n,γ) and Coul. ex., x/γ ratio following ^{161}Tb β^- decay, $\gamma(\theta)$ from oriented nuclei for ^{161}Tb β^- decay and following the in-beam studies, $\gamma\gamma(\theta$,H) for ^{161}Tb β^- decay, and $\gamma\gamma(\theta)$ from ^{161}Tb β^- decay.

& Given only for cases where values are needed to compute reduced transition probabilities.

a Multiply placed.

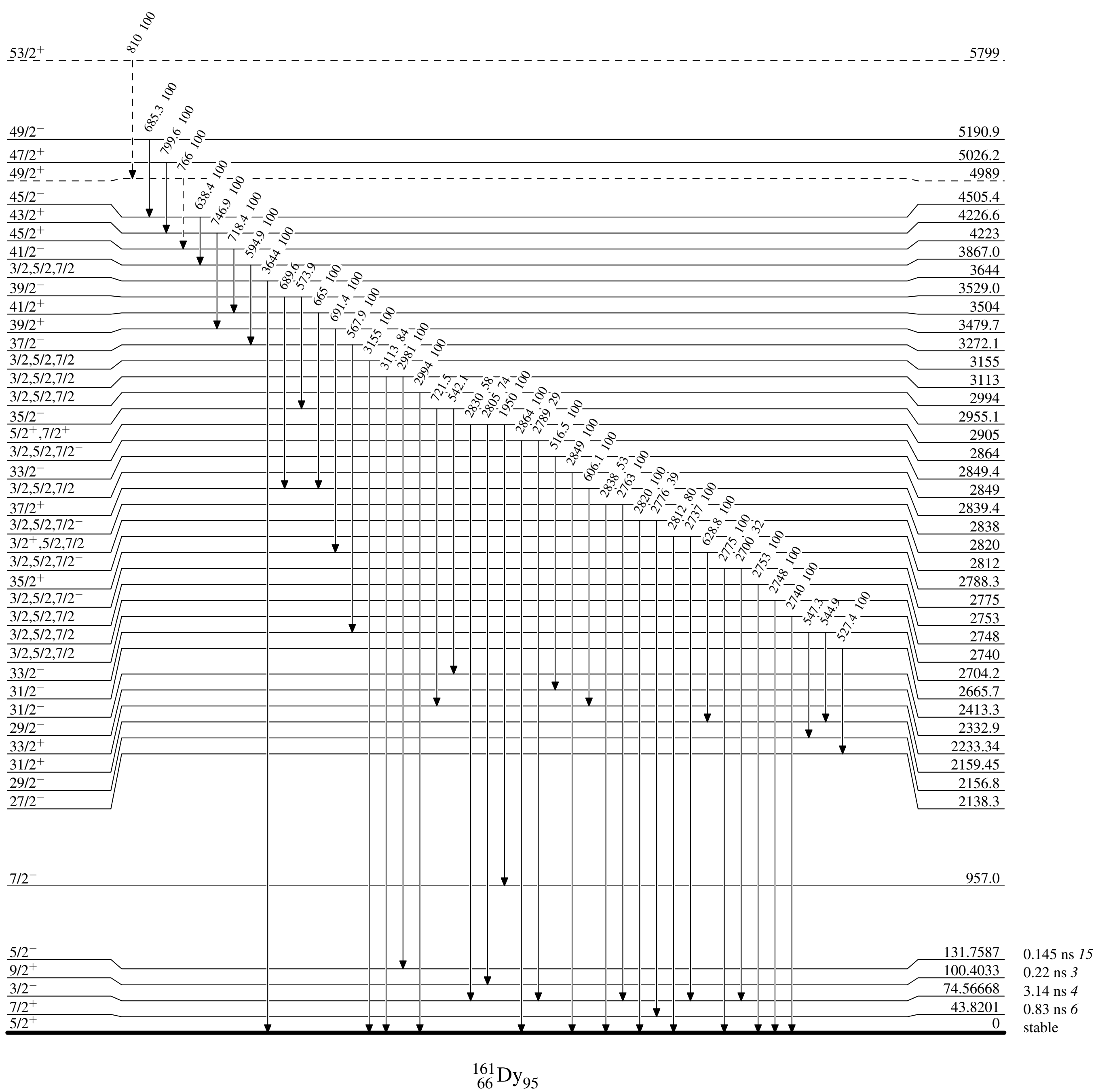
b Placement of transition in the level scheme is uncertain.

$^{161}_{66}Dy_{95}$-22

Adopted Levels, Gammas

Level Scheme

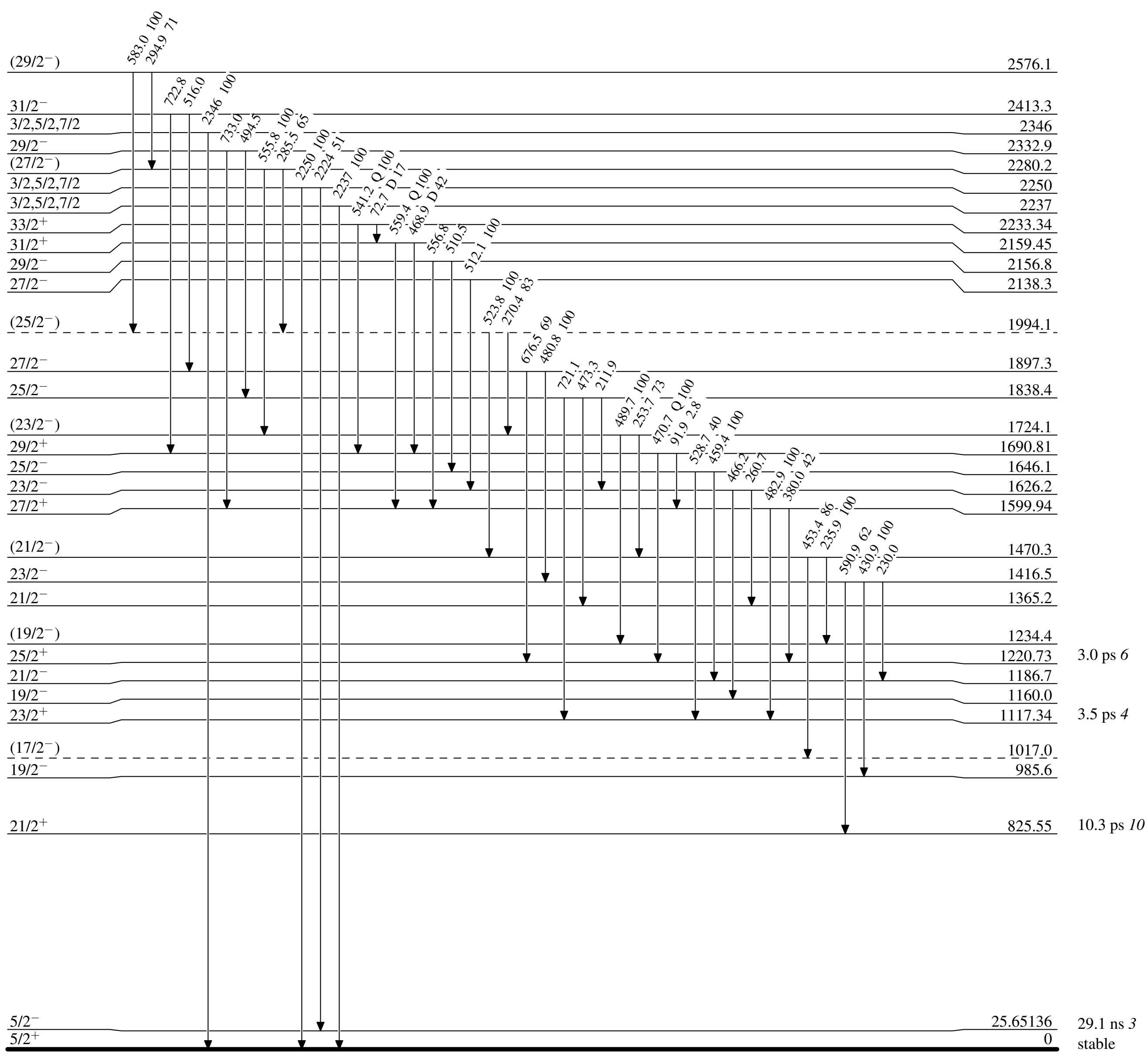
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

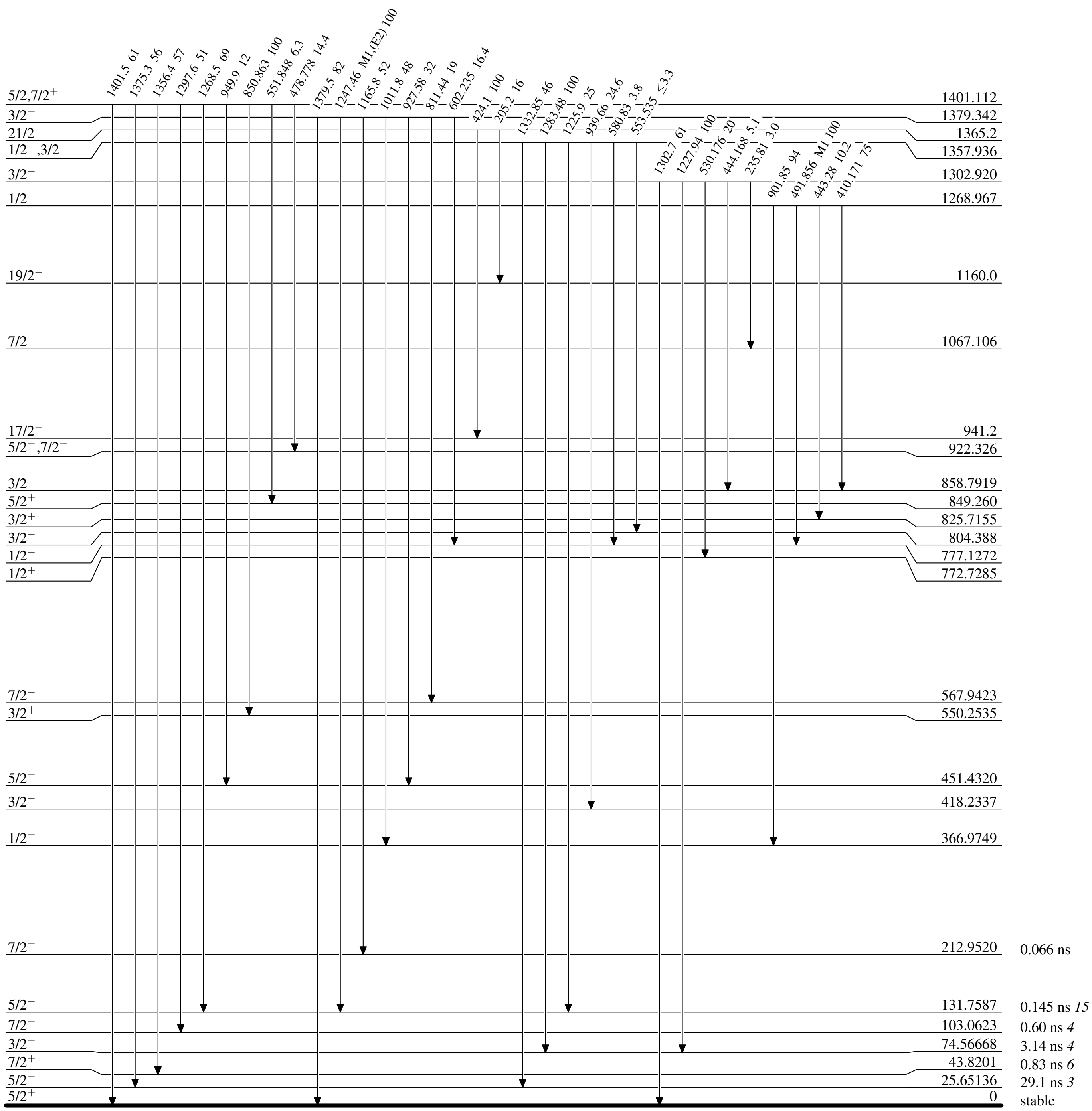


$^{161}_{66}Dy_{95}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

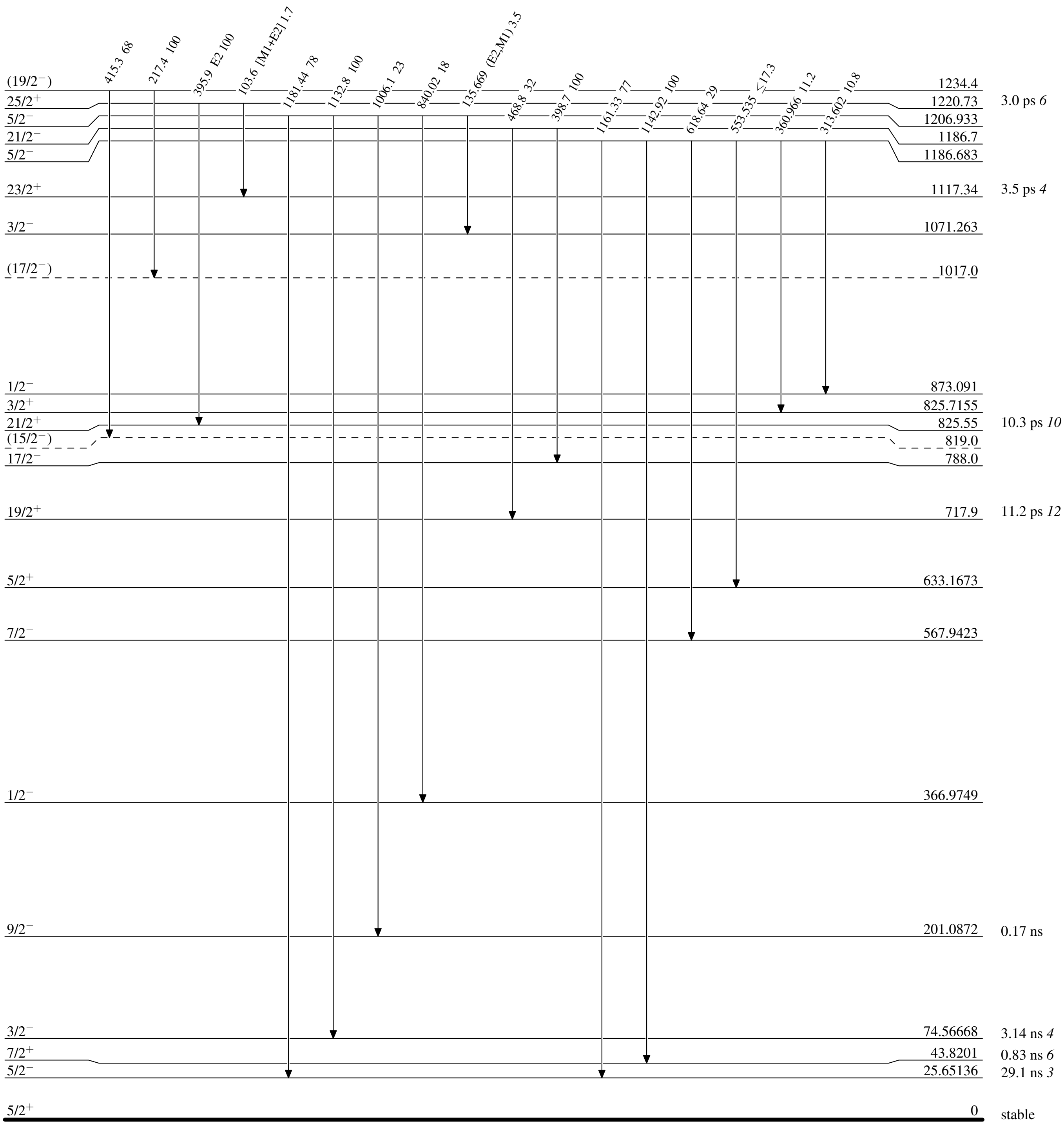


$^{161}_{66}Dy_{95}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

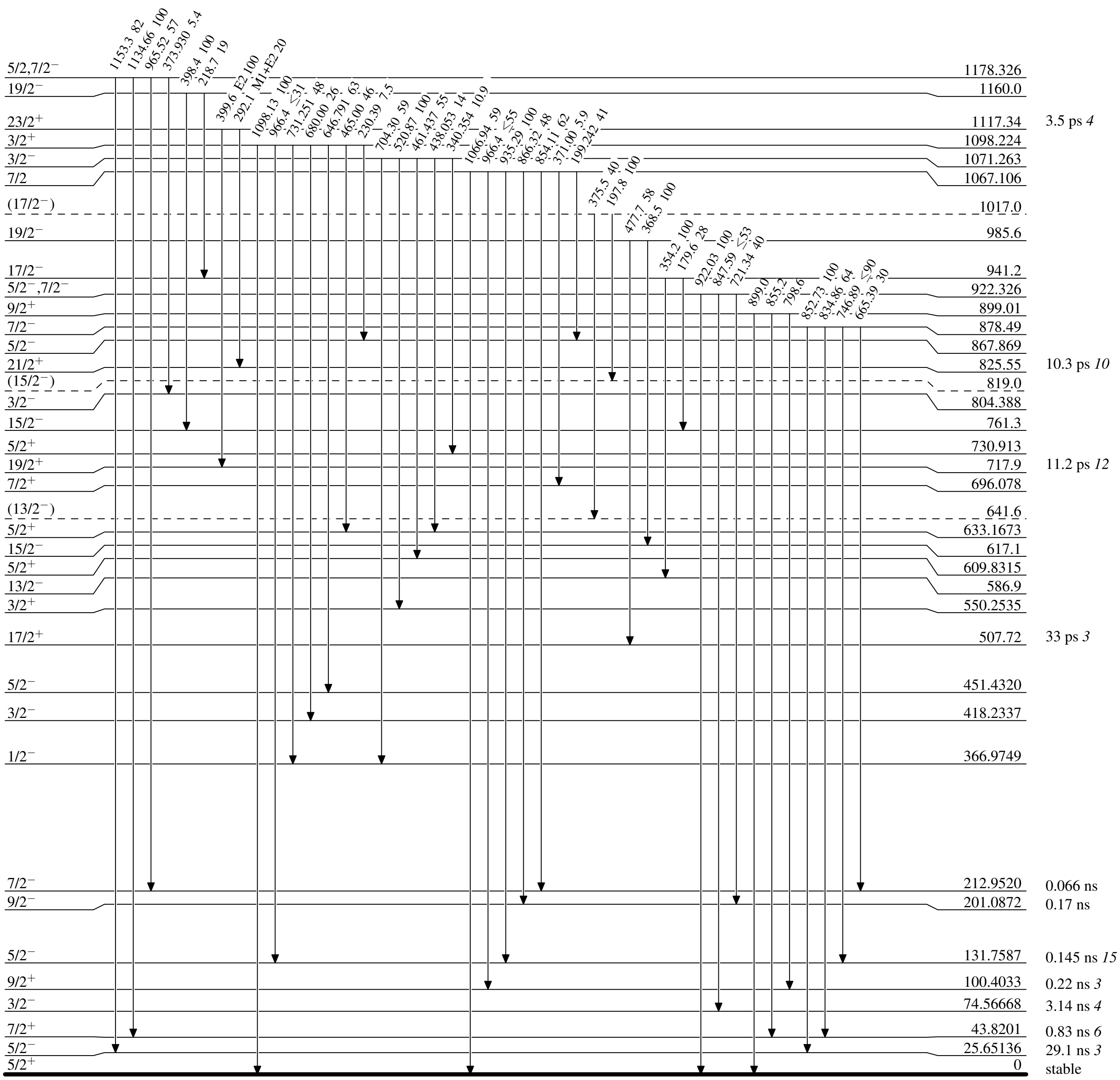


$^{161}_{66}Dy_{95}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

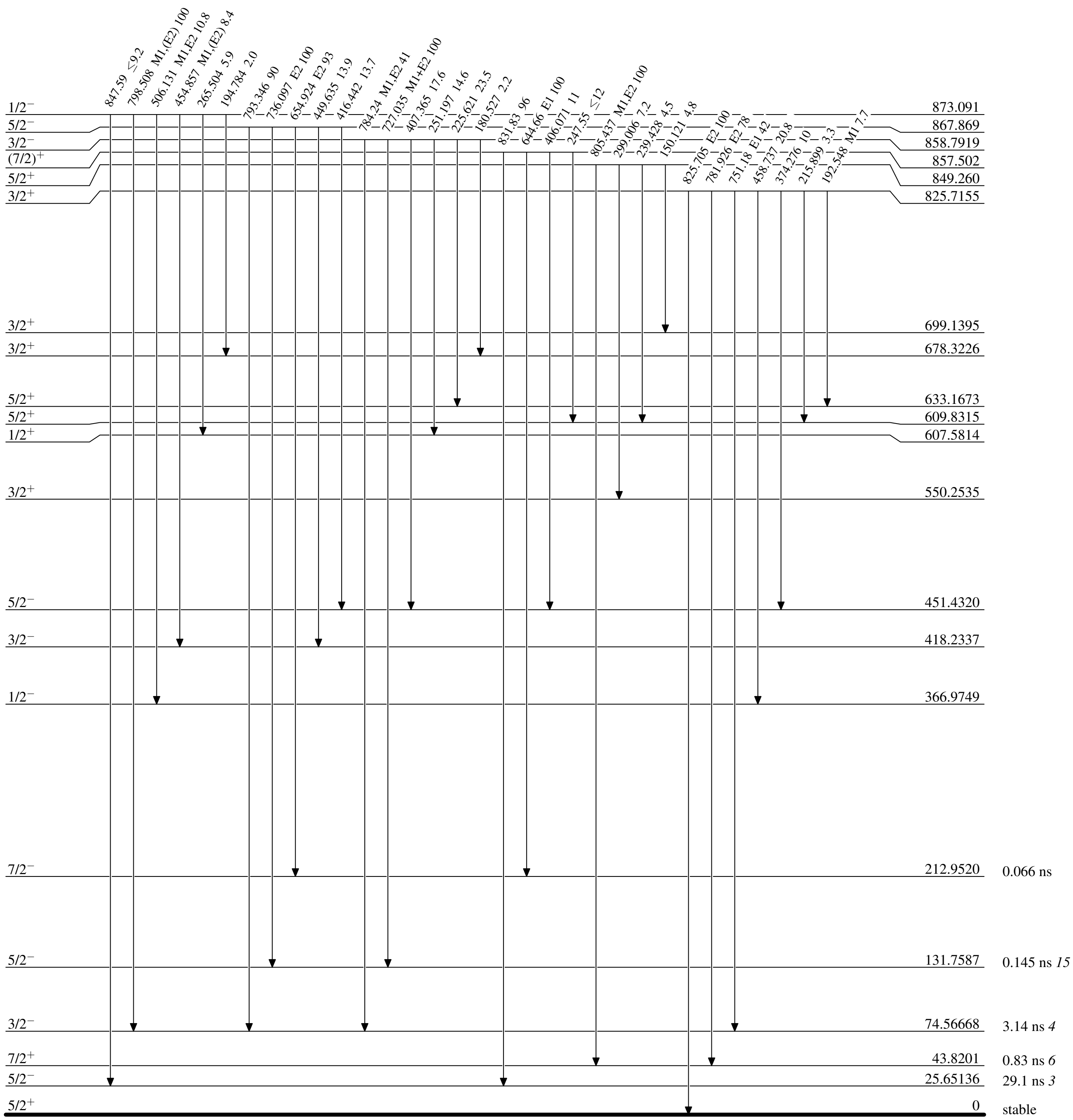


$^{161}_{66}Dy_{95}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

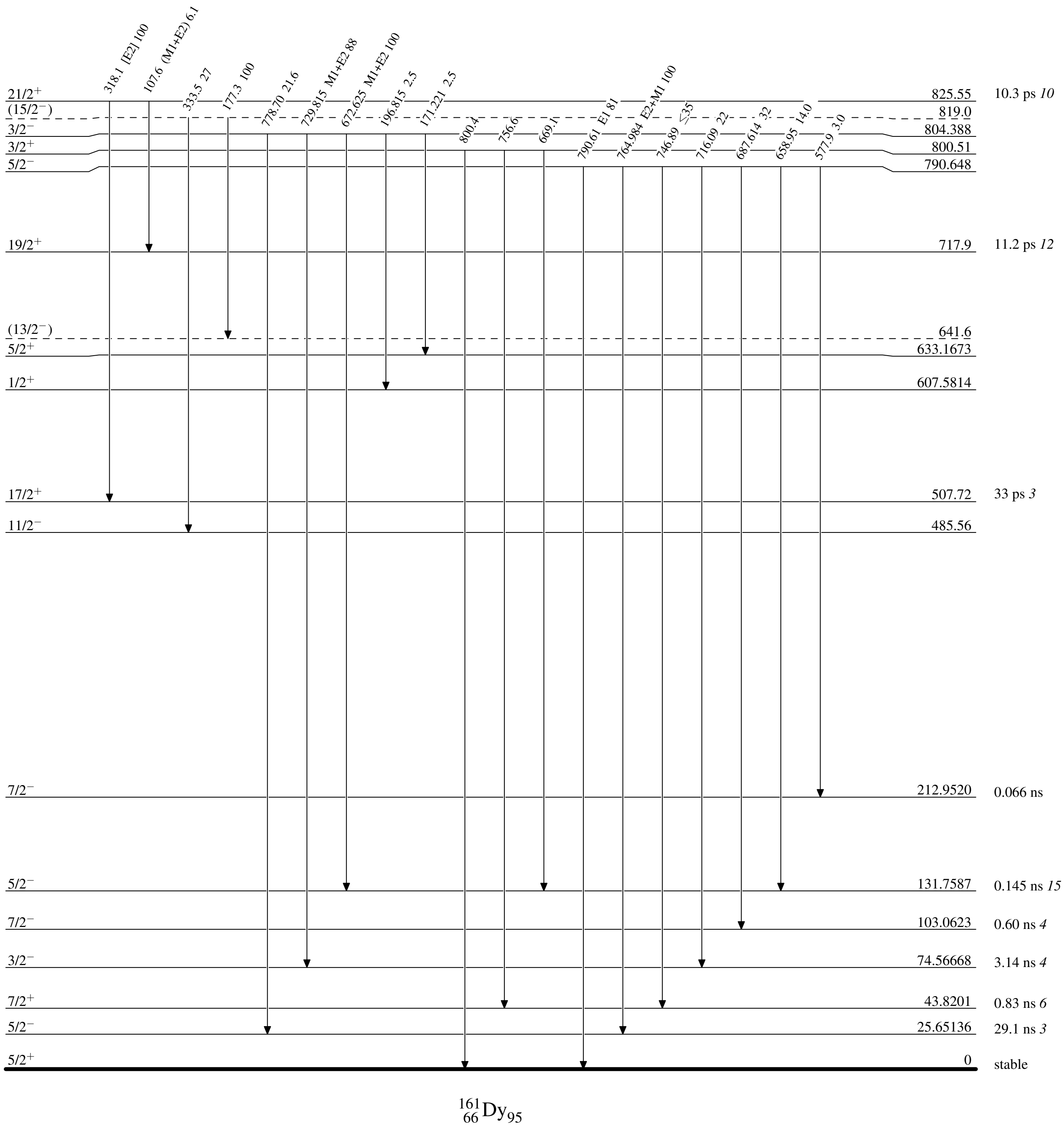


$^{161}_{66}Dy_{95}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

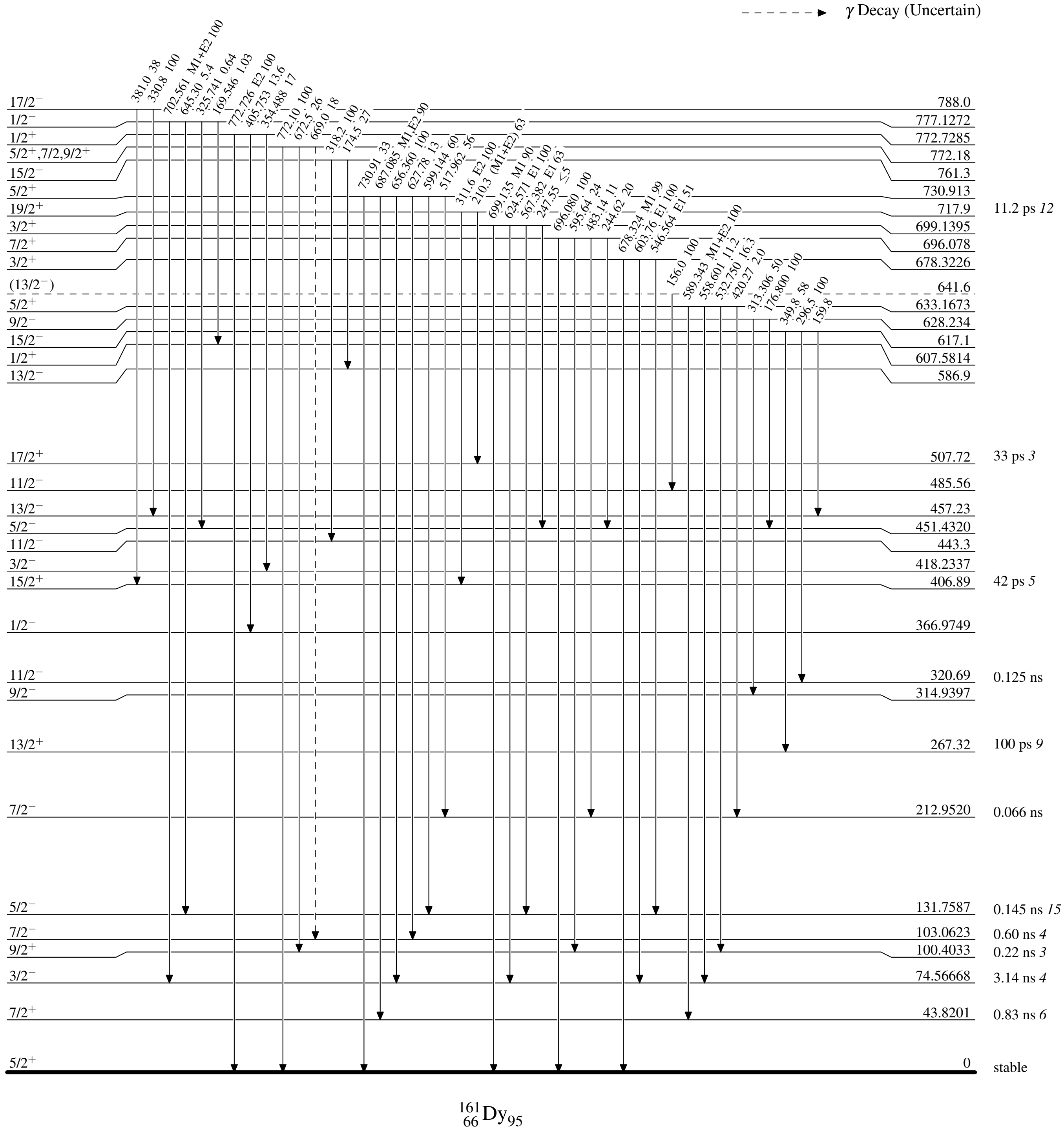


Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

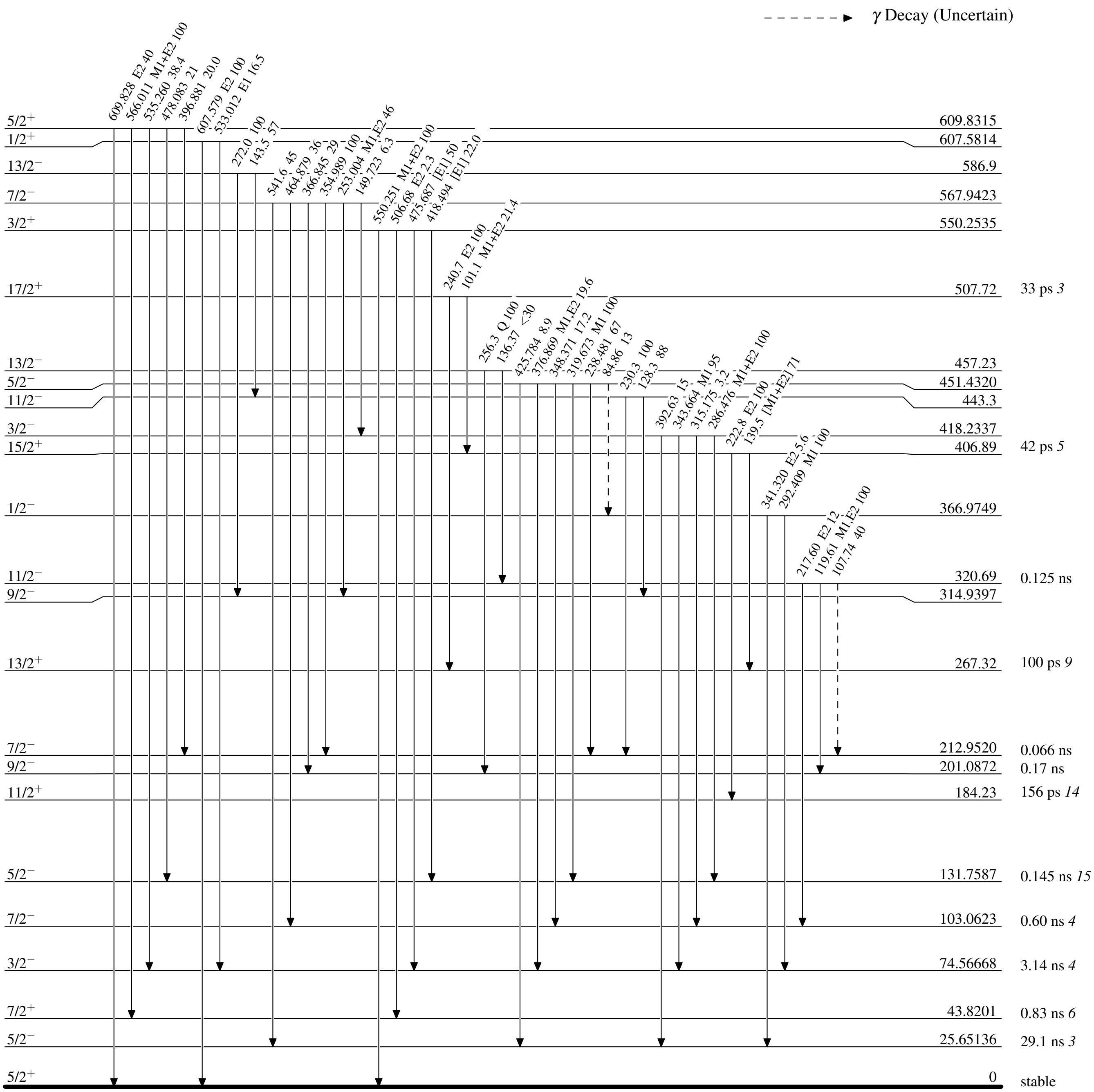


Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

Legend

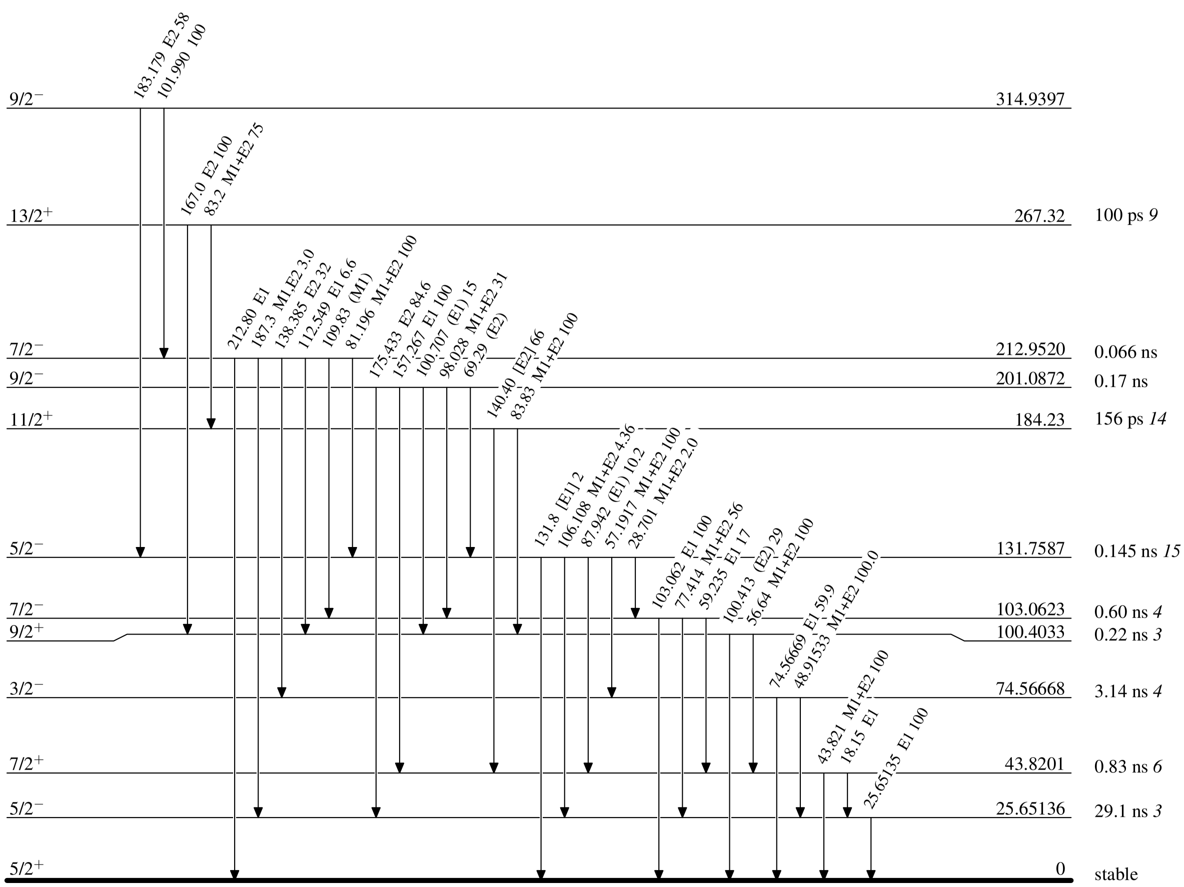


$^{161}_{66}Dy_{95}$

Adopted Levels, Gammas

Level Scheme (continued)

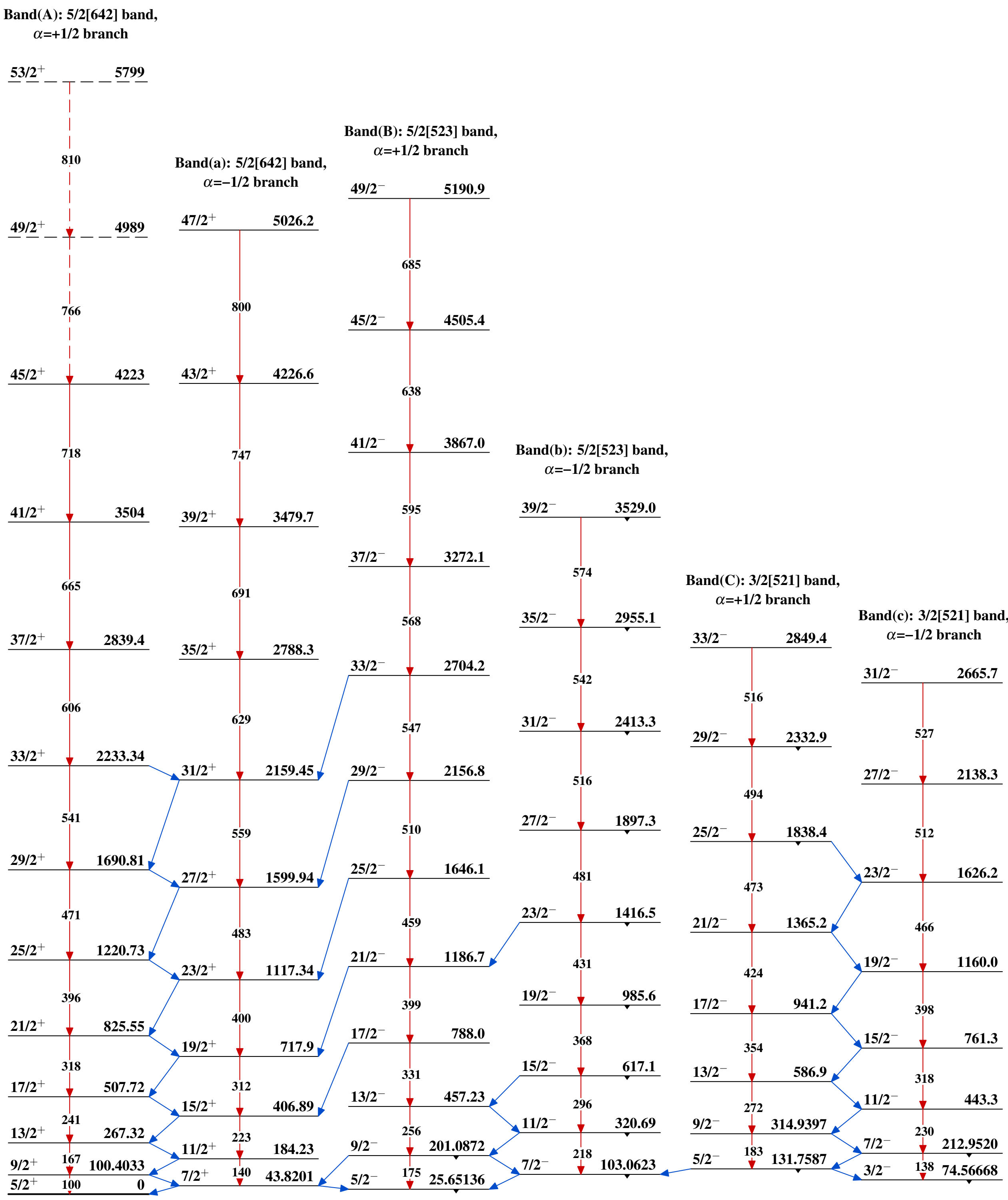
Intensities: Relative photon branching from each level



$^{161}_{66}Dy_{95}$

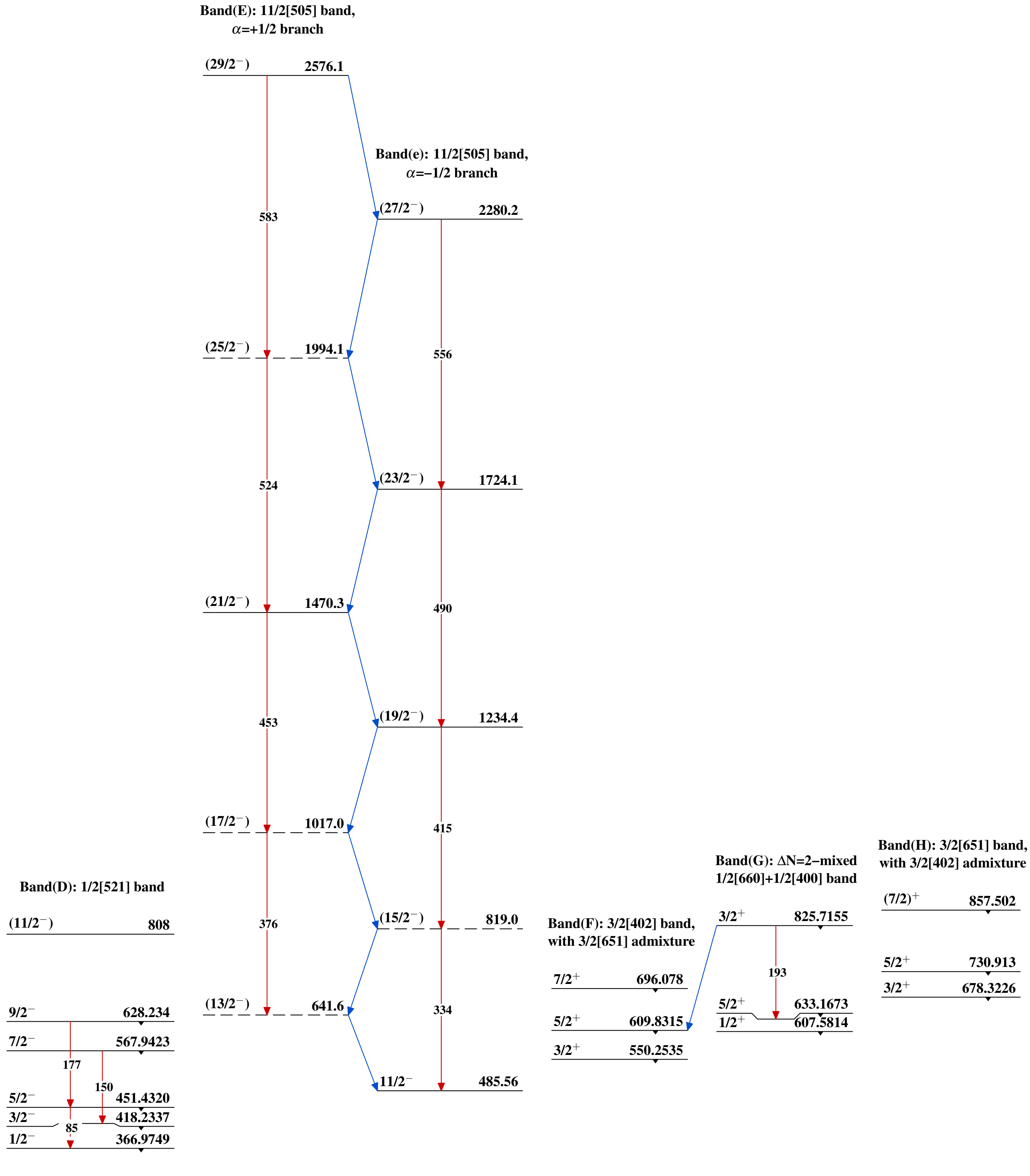
 $^{161}_{66}Dy_{95}$-33

Adopted Levels, Gammas



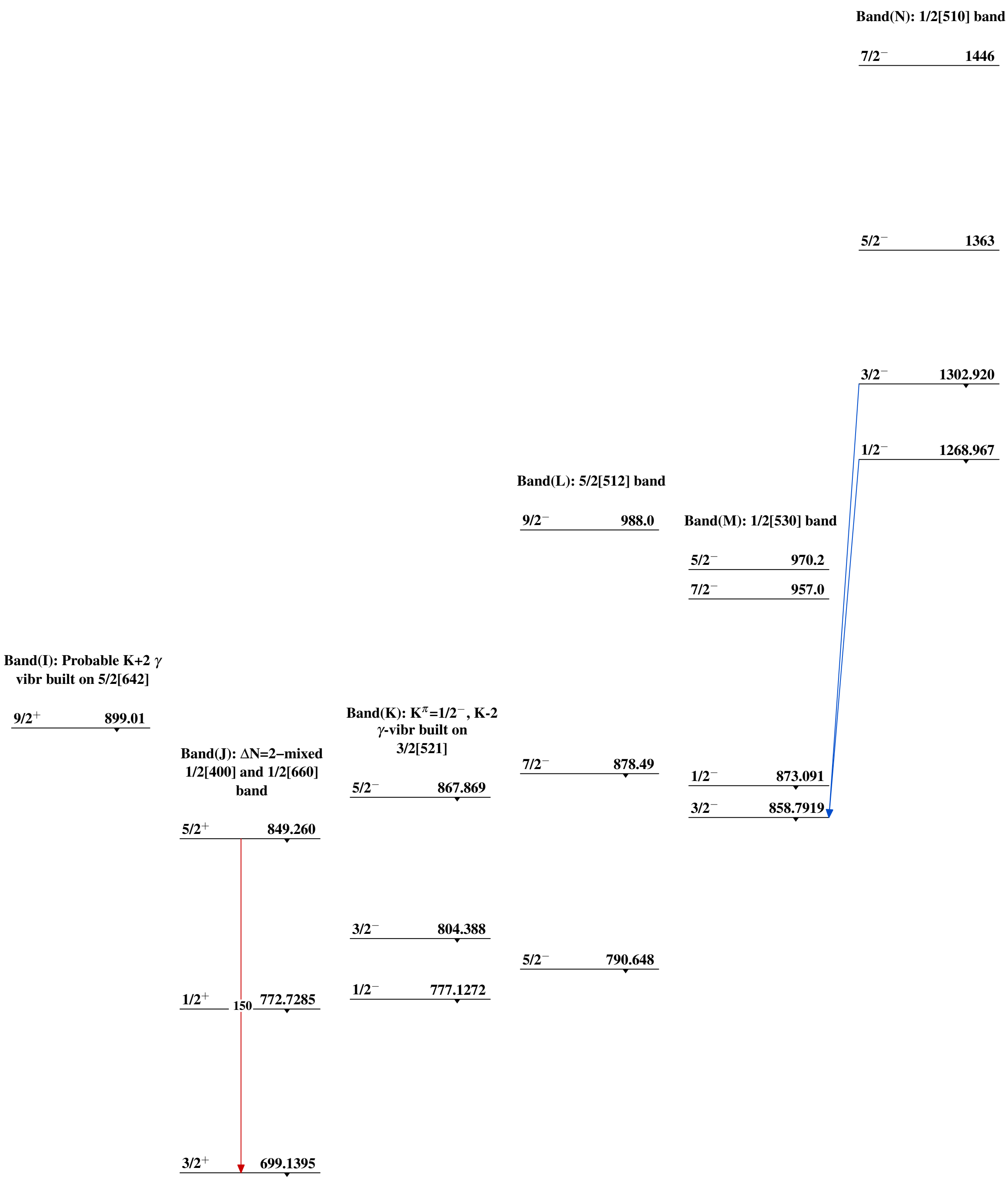
$^{161}_{66}Dy_{95}$

Adopted Levels, Gammas (continued)



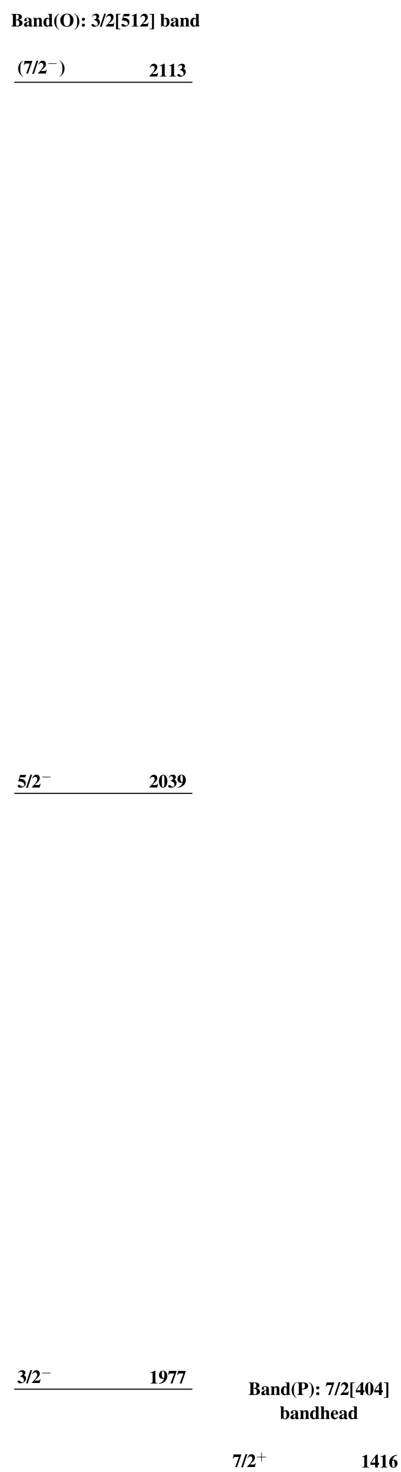
$^{161}_{66}Dy_{95}$

Adopted Levels, Gammas (continued)



$^{161}_{66}Dy_{95}$

Adopted Levels, Gammas (continued)



$^{161}_{66}Dy_{95}$