Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia	NDS 110,999 (2009)	1-Nov-2008

Q(β^-)=−1.67×10^3 *3*; S(n)=6290.0 *6*; S(p)=6579.3 *11*; Q(α)=2721.3 *13* 2012Wa38
Note: Current evaluation has used the following Q record $ −1502 6 *6290.0 6* 6577.0 *10* 2723.9 *12* 2003Au03.

There are 122 neutron resonances for the ^{186}Os+n reaction in the 22 eV. to 3.35 keV energy range (2006MuZX).

^{187}Os Levels

Cross Reference (XREF) Flags

A	^{187}Re β^- decay	E	^{186}Os(d,p)	I	^{188}Os(d,t)
B	^{187}Re[+75] β^- decay (32.9 y)	F	^{187}Re(d,2nγ), ^{187}Re(p,nγ)	J	^{189}Os(p,t)
C	^{187}Ir ε decay	G	^{187}Os(d,d′)		
D	^{186}Os(n,γ)	H	Coulomb excitation		

E(level)[†]	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0[#]	1/2$^-$	stable	ABCD FGH J	μ=+0.06465189 *6* J$^\pi$: spin from optical spectroscopy (1976Fu06), parity from magnetic moment. μ: from 1974Sa25 (NMR). Same value in 1989Ra17 and 2005St24. <r^2>$^{1/2}$(^{187}Os)=5.3934 *17* fm (2004An14).
9.756[@] *19*	3/2$^-$	2.38 ns *18*	BCD F H J	J$^\pi$: 9.7γ M1(+E2) to 1/2$^-$ state, L=0(+2) from ^{189}Os(p,t), target(^{189}Os) J^π=3/2$^-$. T$_{1/2}$: from ^{187}Ir ε decay (γ-ce coincidence measurement-1971Ma24).
74.356[#] *21*	3/2$^-$	37 ps *28*	CDeFgHi	J$^\pi$: L=0 in ^{189}Os(p,t), target(^{189}Os) J^π=3/2$^-$; 74.3γ M1+E2 to 1/2$^-$ state, 64.6γ M1+E2 to 3/2$^-$ state. T$_{1/2}$: Using B(E2)↑=0.68 (1963Mc18), 74.3γ and adopted properties (Coulomb excitation).
75.016[@] *22*	5/2$^-$	2.16 ns *16*	CDeFgHiJ	J$^\pi$: 75γ E2 to 1/2$^-$ state, band assignment. T$_{1/2}$: from ^{187}Ir ε decay (γ-ce coincidence measurement-1971Ma24). Other: 1.7 ns *5* from B(E2)↑=0.90 (Coulomb Excitation − assuming 20% uncertainty).
100.45[&] *4*	7/2$^-$	112 ns *6*	CDE HIJ	J$^\pi$: 90.4γ E2 to 3/2$^-$ state, 25.6γ M1 to 5/2$^-$ state, band assignment. T$_{1/2}$: from ^{187}Ir ε decay (γ-ce coincidence measurement-1971Ma24); other value: 120 ns *20* (1964Kr02) from ^{188}Os(γ,n).
117 *2*			I	
187.42[#] *3*	5/2$^-$	107 ps *9*	CD FgH j	J$^\pi$: 187.4γ E2 to 1/2$^-$ state, band assignment. T$_{1/2}$: Using the reported B(E2)↓=0.446 *33* of 187γ (1997Br18) and the adopted γ-ray properties (Coulomb excitation).
190.57[@] *6*	7/2$^-$		CD Fg j	J$^\pi$: 180.8γ E2 to 3/2$^-$, 115.7γ M1+E2 to 5/2$^-$ state, band assignment.
257.10[b] *7*	11/2$^+$	231 μs *2*	C F j	J$^\pi$: 156.6γ M2+E3 to 7/2$^-$ state. T$_{1/2}$: from 156.6γ-t and the γ-ray associated x-ray-t (1967Co20)$^-$ (d,2nγ),(p,nγ); other value: 225 μs *10* (1964Br27) from ^{188}Os(γ,n).
263.07[&] *24*	(9/2$^-$)[‡]		F j	
333.35[#] *5*	(7/2$^-$)		CDEFg IJ	J$^\pi$: 258γ (E2) to 3/2$^-$ state, band assignment.
341.5[@] *3*	(9/2$^-$)[‡]		Fg	
350 *1*			G I	E(level): From (d,d′).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{187}Os Levels (continued)

E(level)[†]	Jπ	XREF	Comments
419.00[b] *22*	(13/2⁺)[‡]	EF I	Jπ: L=6 in (t,α), band assignment.
442 *3*		E	L=1±1 (d,p).
445.09 *7*	(7/2⁻,9/2⁻)	C F	Jπ: 344γ M1 to 7/2⁻, populated in cascade from the 934.8 (15/2⁻) level.
459.33[&] *24*	(11/2⁻)[‡]	F	
464 *1*		E	L=(0,1)±1 in (d,p).
501.44[c] *3*	3/2⁻	CDE Ij	Jπ: 501.5γ M1 to 1/2⁻ state, 314γ to 5/2⁻ state.
508.25[#] *18*	(9/2⁻)[‡]	EFG j	
511.6?[@] *3*	(11/2⁻)[‡]	F	
536.6 *7*		D	
556.90[a] *8*	(9/2⁺)[‡]	C F I	Jπ: 299.7γ M1 to 9/2⁺ state, 456.7γ to 7/2⁻ state.
586.31[c] *4*	5/2⁻	CD	Jπ: 576.6γ M1 to 3/2⁻ state, 485.9γ to 7/2⁻ state.
596.36 *6*	1/2⁻,3/2⁻	CDE I	Jπ: or 5/2⁻; 586.4γ M1 to 3/2⁻ state. L(d,t)=1±1.
611 *3*		I	
617.91[b] *24*	(15/2⁺)[‡]	F	
641.9 *7*		D	
664.03 *5*	(3/2⁻,5/2⁻)	CDE G J	Jπ: 654.3γ M1(+E2) to 3/2⁻ state, 589.5γ M1 to 5/2⁻ state. L=1±1 in (d,p).
670 *5*		E	
684.1?[&] *3*	(13/2⁻)[‡]	F	
684.3? *3*	(11/2⁻,13/2⁻)	F	Jπ: fed by γ from (15/2⁻) state, deexcites to (7/2⁻,9/2⁻) state.
711.30 *6*	5/2⁻	CDE I	Jπ: 610.9γ M1 to 7/2⁻ state, γ to 1/2⁻. 5/2[503]+... Collective state.
725.75 *4*	3/2⁻	CD G J	Jπ: L=0 in ^{189}Os(p,t), target(^{189}Os) J^{π}=3/2⁻; 725.7γ M1+E2 to 1/2⁻ state, 651.4γ to 3/2⁻ state.
727.10?[a] *25*	(11/2⁺)[‡]	F	
745 *6*		J	
756 *4*		IJ	E(level): From (d,t),(t,α).
817.5[b] *3*	(17/2⁺)[‡]	F I	
838 *4*		I	
885.5[a] *4*	(13/2⁺)	F I	Jπ: L=6 in (t,α), band assignment.
934.8[&] *4*	(15/2⁻)[‡]	eF I	
935.03 *5*	5/2⁻,7/2⁻	CDe	Jπ: 348.7γ M1 to 5/2⁻ state, 747.6γ M1(+E2) to 7/2⁻ state. L=3±1 in (d,p).
941.83 *7*	(5/2⁺,7/2⁻)	C	Jπ: γ's to 3/2⁻ and 9/2⁺.
964 *5*		IJ	
987.29 *4*	3/2⁻	C E	Jπ: 912.9γ M1 to 5/2⁻ state, 987.3γ M1(+E2) to 1/2⁻ state.
1005 *6*		I	
1053 *6*		I	
1069 *6*		J	
1084.1[b] *4*	(19/2⁺)[‡]	F I	
1090.32 *5*	(5/2⁻)	C	Jπ: 756.6γ M1 to (7/2⁻), γ to 1/2⁻ state.
1112.13 *5*	1/2⁻,3/2⁻	CDE I	Jπ: 1112γ M1+E2 to 1/2⁻ state, 1102γ to 5/2⁻ state. L=1±1 in (d,p).
1193 *6*		J	
1210.4[&] *5*	(17/2⁻)[‡]	EF	
1227 *6*	(5/2⁻,7/2⁻)	J	Jπ: L=(3) (p,t).
1248 *4*		E I	E(level): Weighted average of 1249 *5* (d,p) and 1246 *5* (d,t),(^{3}He,α).
1278 *5*		E	
1354 *3*		I	
1369 *6*		J	
1563 *5*		I	
1613 *2*		E I	
1647 *12*		I	
1657 *6*	(3/2⁻)	J	Jπ: L=0 in ^{189}Os(p,t), target(^{189}Os) J^{π}=3/2⁻.
1784 *1*		E	
1843 *2*		E	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{187}Os Levels (continued)

E(level)[†]	XREF
1881 *2*	E
2097 *2*	E
2266 *2*	E

† From a least-squares adjustment to the γ-ray energies, except otherwise noted.
‡ Band assignment.
# Band(A): $1/2^-[501]$ band.
@ Band(B): $3/2^-[512]$ band.
& Band(C): $7/2^-[503]$ band.
a Band(D): $9/2^+[624]$ band.
b Band(E): $11/2^+[615]$ band.
c Band(F): K=3/2 band.

Adopted Levels, Gammas (continued)

$\gamma(^{187}Os)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[†]	δ[†]	α[&]	Comments
9.756	3/2$^-$	9.75 *3*	100	0.0	1/2$^-$	M1(+E2)	<0.04	2.8×10^2 *7*	α(M)=2.2×10^2 *5*; α(N+..)=62 *14* α(N)=53 *12*; α(O)=8.8 *18*; α(P)=0.524 *9* B(M1)(W.u.)>0.026; B(E2)(W.u.)<3.0×10^2
74.356	3/2$^-$	64.59 *3*	36 *7*	9.756	3/2$^-$	M1+E2	0.13 *2*	3.91 *15*	α(L)=3.01 *11*; α(M)=0.70 *3*; α(N+..)=0.201 *8* α(N)=0.170 *7*; α(O)=0.0288 *10*; α(P)=0.00191 *3* B(M1)(W.u.)=0.06 *5*; B(E2)(W.u.)=1.0×10^2 *9*
		74.30 *3*	100 *23*	0.0	1/2$^-$	M1+E2	0.08 *3*	≈9.97	B(M1)(W.u.)=0.11 *10*; B(E2)(W.u.)=5.E+1 *+6−5* α: From ^{187}Ir ε decay. Deduced by the evaluator from N_γ+ N_{cc}=10,700 and N_γ=1000, calculated intensities in 1962Ha24. Eγ close to ^{187}Os K-shell binding energy; total α from sub-shells except K using Bricc (2008Ki07) yields 2.4.
75.016	5/2$^-$	65.31 *3*	100 *20*	9.756	3/2$^-$	E2+M1	2.9 *3*	24.4 *7*	α(L)=18.4 *5*; α(M)=4.70 *13*; α(N+..)=1.29 *4* α(N)=1.12 *3*; α(O)=0.165 *5*; α(P)=0.00043 *4* B(M1)(W.u.)=0.00010 *4*; B(E2)(W.u.)=81 *22*
		75.03 *3*	84 *16*	0.0	1/2$^-$	E2		14.62	α(K)=0.804 *12*; α(L)=10.42 *15*; α(M)=2.67 *4*; α(N+..)=0.732 *11* α(N)=0.638 *9*; α(O)=0.0937 *14*; α(P)=0.0001714 *24* B(E2)(W.u.)=38 *10*
100.45	7/2$^-$	25.62 *5*	100 *50*	75.016	5/2$^-$	M1+E2	0.021 *8*	54.5 *14*	α(L)=42.0 *11*; α(M)=9.68 *25*; α(N+..)=2.80 *7* α(N)=2.36 *6*; α(O)=0.406 *10*; α(P)=0.0295 *5* B(M1)(W.u.)=0.00021 *15*; B(E2)(W.u.)=0.06 *6*
		90.37 *10*	4.7 *17*	9.756	3/2$^-$	E2		6.61	α(K)=0.892 *13*; α(L)=4.31 *7*; α(M)=1.103 *17*; α(N+..)=0.303 *5* α(N)=0.264 *4*; α(O)=0.0389 *6*; α(P)=0.0001072 *16* B(E2)(W.u.)=0.011 *7*
187.42	5/2$^-$	87.62 *10*	1.8 *12*	100.45	7/2$^-$	(M1+E2)	0.4 *1*	8.12 *13*	α(K)=6.0 *4*; α(L)=1.64 *25*; α(M)=0.40 *7*; α(N+..)=0.112 *18* α(N)=0.096 *16*; α(O)=0.0155 *22*; α(P)=0.00070 *5* B(M1)(W.u.)=(0.0014 *10*); B(E2)(W.u.)=(12 *10*)
		112.35 *10*	1.53 *15*	75.016	5/2$^-$	E2		2.73	α(K)=0.660 *10*; α(L)=1.565 *23*; α(M)=0.400 *6*; α(N+..)=0.1101 *16* α(N)=0.0958 *14*; α(O)=0.01418 *21*; α(P)=6.37×10^{-5} *9* B(E2)(W.u.)=20 *3*
		113.20 *10*	8.1 *5*	74.356	3/2$^-$	M1+E2	1.5 *2*	3.05 *10*	α(K)=1.45 *17*; α(L)=1.21 *7*; α(M)=0.305 *18*; α(N+..)=0.084 *5* α(N)=0.073 *5*; α(O)=0.0111 *6*; α(P)=0.000160 *21* B(M1)(W.u.)=0.00102 *23*; B(E2)(W.u.)=72 *11*
		177.68 *7*	100 *4*	9.756	3/2$^-$	M1+E2	0.53 *6*	0.97 *3*	α(K)=0.76 *3*; α(L)=0.159 *4*; α(M)=0.0375 *9*; α(N+..)=0.01071 *23* α(N)=0.00911 *21*; α(O)=0.00151 *3*; α(P)=8.7×10^{-5} *4* B(M1)(W.u.)=0.0082 *10*; B(E2)(W.u.)=30 *6*
		187.37 *7*	67.4 *23*	0.0	1/2$^-$	E2		0.415	α(K)=0.201 *3*; α(L)=0.1617 *23*; α(M)=0.0408 *6*; α(N+..)=0.01131 *16* α(N)=0.00982 *14*; α(O)=0.001480 *21*; α(P)=1.86×10^{-5} *3* B(E2)(W.u.)=70 *7*

$^{187}_{76}Os_{111}$-4

Adopted Levels, Gammas (continued)

γ(^{187}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[†]	δ[†]	α[&]	Comments
190.57	7/2⁻	115.67 *8*	26 *4*	75.016	5/2⁻	M1+E2	1.3 *+8−4*	2.91 *24*	α(K)=1.5 *5*; α(L)=1.04 *17*; α(M)=0.26 *5*; α(N+..)=0.073 *12* α(N)=0.063 *11*; α(O)=0.0096 *15*; α(P)=0.00017 *6*
		180.83 *11*	100 *8*	9.756	3/2⁻	E2		0.469	α(K)=0.220 *4*; α(L)=0.188 *3*; α(M)=0.0476 *7*; α(N+..)=0.01317 *19* α(N)=0.01143 *17*; α(O)=0.001721 *25*; α(P)=2.03×10^{-5} *3*
257.10	11/2⁺	156.63 *7*	100	100.45	7/2⁻	M2+E3	0.31 *4*	9.53	α(K)=6.47 *16*; α(L)=2.31 *10*; α(M)=0.58 *3*; α(N+..)=0.166 *7* α(N)=0.142 *7*; α(O)=0.0233 *9*; α(P)=0.00121 *3* B(M2)(W.u.)=0.00377 *11*; B(E3)(W.u.)=9.1 *22*
263.07	(9/2⁻)	162.4‡ *3*	100‡	100.45	7/2⁻				
333.35	(7/2⁻)	146.19 *9*	12.1 *12*	187.42	5/2⁻				
		258.65 *7*	100 *19*	74.356	3/2⁻	(E2)		0.1437	α(K)=0.0866 *13*; α(L)=0.0433 *6*; α(M)=0.01079 *16*; α(N+..)=0.00301 *5* α(N)=0.00260 *4*; α(O)=0.000400 *6*; α(P)=8.48×10^{-6} *12*
		323.11[a] *9*		9.756	3/2⁻	(E2)		0.0734	α(K)=0.0489 *7*; α(L)=0.0187 *3*; α(M)=0.00460 *7*; α(N+..)=0.001287 *18* α(N)=0.001109 *16*; α(O)=0.0001733 *25*; α(P)=4.96×10^{-6} *7*
341.5	(9/2⁻)	150.9‡[a] *3*	100‡	190.57	7/2⁻				
419.00	(13/2⁺)	161.9‡ *3*	100‡	257.10	11/2⁺				
445.09	(7/2⁻,9/2⁻)	344.34 *9*	100	100.45	7/2⁻	M1		0.1782	α(K)=0.1477 *21*; α(L)=0.0235 *4*; α(M)=0.00538 *8*; α(N+..)=0.001558 *22* α(N)=0.001314 *19*; α(O)=0.000227 *4*; α(P)=1.700×10^{-5} *24*
459.33	(11/2⁻)	196.3‡ *3*	100‡ *28*	263.07	(9/2⁻)				
		359.1‡ *3*	65‡ *13*	100.45	7/2⁻				
501.44	3/2⁻	314.13 *8*	20.3 *7*	187.42	5/2⁻	M1		0.228	α(K)=0.189 *3*; α(L)=0.0302 *5*; α(M)=0.00691 *10*; α(N+..)=0.00200 *3* α(N)=0.001687 *24*; α(O)=0.000292 *4*; α(P)=2.18×10^{-5} *3*
		400.81 *9*	96[@] *3*	100.45	7/2⁻	E2		0.0402	α(K)=0.0287 *4*; α(L)=0.00878 *13*; α(M)=0.00214 *3*; α(N+..)=0.000601 *9* α(N)=0.000516 *8*; α(O)=8.20×10^{-5} *12*; α(P)=2.99×10^{-6} *5*
		426.4 *8*	6.0[@] *11*	75.016	5/2⁻				
		427.02 *8*	100 *3*	74.356	3/2⁻	M1		0.1004	α(K)=0.0833 *12*; α(L)=0.01317 *19*; α(M)=0.00301 *5*; α(N+..)=0.000873 *13* α(N)=0.000736 *11*; α(O)=0.0001273 *18*; α(P)=9.55×10^{-6} *14*
		491.74 *7*	30.8 *11*	9.756	3/2⁻	M1		0.0692	α(K)=0.0575 *8*; α(L)=0.00905 *13*; α(M)=0.00207 *3*; α(N+..)=0.000600 *9* α(N)=0.000506 *7*; α(O)=8.74×10^{-5} *13*; α(P)=6.57×10^{-6} *10*
		501.51 *7*	35.5[@] *23*	0.0	1/2⁻	M1		0.0658	α(K)=0.0546 *8*; α(L)=0.00859 *12*; α(M)=0.00197 *3*; α(N+..)=0.000569 *8* α(N)=0.000480 *7*; α(O)=8.30×10^{-5} *12*; α(P)=6.24×10^{-6} *9*

$^{187}_{76}Os_{111}$-5

Adopted Levels, Gammas (continued)

γ(^{187}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[†]	α[&]	Comments
508.25	(9/2⁻)	174.8[‡] *3*	38[‡] *6*	333.35	(7/2⁻)			
		317.6[‡] *3*	100[‡] *28*	190.57	7/2⁻			
		321.0[‡] *3*	≤125[‡]	187.42	5/2⁻			
511.6?	(11/2⁻)	321.0[‡a] *3*	100[‡]	190.57	7/2⁻			
536.6		462.5[#]	66[#] *13*	74.356	3/2⁻			
		536.3[#]	100[#] *20*	0.0	1/2⁻			
556.90	(9/2⁺)	299.69 *12*	100 *5*	257.10	11/2⁺	M1	0.259	α(K)=0.215 *3*; α(L)=0.0343 *5*; α(M)=0.00786 *11*; α(N+..)=0.00228 *4* α(N)=0.00192 *3*; α(O)=0.000332 *5*; α(P)=2.48×10^{-5} *4*
		456.74 *19*	20 *4*	100.45	7/2⁻			
586.31	5/2⁻	84.88 *5*	12.4 *14*	501.44	3/2⁻	M1	8.99	α(K)=7.42 *11*; α(L)=1.216 *18*; α(M)=0.279 *4*; α(N+..)=0.0808 *12* α(N)=0.0681 *10*; α(O)=0.01176 *17*; α(P)=0.000874 *13*
		252.99 *9*	15 *5*	333.35	(7/2⁻)	M1	0.412	α(K)=0.341 *5*; α(L)=0.0546 *8*; α(M)=0.01252 *18*; α(N+..)=0.00363 *5* α(N)=0.00306 *5*; α(O)=0.000528 *8*; α(P)=3.94×10^{-5} *6*
		395.89 *11*	15.7 *3*	190.57	7/2⁻	M1	0.1227	α(K)=0.1018 *15*; α(L)=0.01613 *23*; α(M)=0.00369 *6*; α(N+..)=0.001069 *15* α(N)=0.000902 *13*; α(O)=0.0001559 *22*; α(P)=1.169×10^{-5} *17*
		398.72 *23*	42 *4*	187.42	5/2⁻	M1	0.1204	α(K)=0.0999 *14*; α(L)=0.01583 *23*; α(M)=0.00362 *6*; α(N+..)=0.001049 *15* α(N)=0.000885 *13*; α(O)=0.0001529 *22*; α(P)=1.147×10^{-5} *17*
		485.96 *7*	84 *3*	100.45	7/2⁻	E2	0.0244	α(K)=0.0183 *3*; α(L)=0.00472 *7*; α(M)=0.001135 *16*; α(N+..)=0.000321 *5* α(N)=0.000275 *4*; α(O)=4.43×10^{-5} *7*; α(P)=1.94×10^{-6} *3*
		511.11 *9*	13.3 *22*	75.016	5/2⁻			
		576.60 *7*	100 *4*	9.756	3/2⁻	M1	0.0457	α(K)=0.0380 *6*; α(L)=0.00595 *9*; α(M)=0.001361 *19*; α(N+..)=0.000394 *6* α(N)=0.000332 *5*; α(O)=5.75×10^{-5} *8*; α(P)=4.33×10^{-6} *6*
596.36	1/2⁻,3/2⁻	522.13 *8*	85 *4*	74.356	3/2⁻	M1	0.0592	α(K)=0.0492 *7*; α(L)=0.00773 *11*; α(M)=0.001767 *25*; α(N+..)=0.000512 *8* α(N)=0.000431 *6*; α(O)=7.46×10^{-5} *11*; α(P)=5.61×10^{-6} *8*
		586.39 *8*	100 *5*	9.756	3/2⁻	M1	0.0438	α(K)=0.0364 *5*; α(L)=0.00570 *8*; α(M)=0.001302 *19*; α(N+..)=0.000377 *6* α(N)=0.000318 *5*; α(O)=5.50×10^{-5} *8*; α(P)=4.14×10^{-6} *6*
617.91	(15/2⁺)	198.9 *3*	91 *18*	419.00	(13/2⁺)			
		361.1 *3*	100 *20*	257.10	11/2⁺			
641.9		454.8[#]	100[@#]	187.42	5/2⁻			
		566.5[#]	100[#]	75.016	5/2⁻			
664.03	(3/2⁻,5/2⁻)	162.80 *15*	32 *3*	501.44	3/2⁻	M1	1.403	α(K)=1.160 *17*; α(L)=0.188 *3*; α(M)=0.0430 *7*; α(N+..)=0.01245 *18* α(N)=0.01051 *15*; α(O)=0.00181 *3*; α(P)=0.0001351 *20*
		589.47 *8*	83 *5*	74.356	3/2⁻	M1	0.0432	α(K)=0.0359 *5*; α(L)=0.00562 *8*; α(M)=0.001284 *18*; α(N+..)=0.000372 *6* α(N)=0.000314 *5*; α(O)=5.42×10^{-5} *8*; α(P)=4.09×10^{-6} *6*

$^{187}_{76}Os_{111}$-6

Adopted Levels, Gammas (continued)

γ(^{187}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[†]	δ[†]	α[&]	Comments
664.03	(3/2⁻,5/2⁻)	654.30 *8*	100 *26*	9.756	3/2⁻	M1(+E2)	<0.9	0.028 *5*	α(K)=0.023 *4*; α(L)=0.0038 *6*; α(M)=0.00087 *12*; α(N+..)=0.00025 *4* α(N)=0.00021 *3*; α(O)=3.6×10^{-5} *5*; α(P)=2.6×10^{-6} *5*
		664.25 *11*	38.3 *22*	0.0	1/2⁻				
684.1?	(13/2⁻)	225.4[‡a] *3*	100[‡] *29*	459.33	(11/2⁻)				
		420.8[‡a] *3*	41[‡] *8*	263.07	(9/2⁻)				
684.3?	(11/2⁻,13/2⁻)	239.2[‡a] *3*	100[‡]	445.09	(7/2⁻,9/2⁻)				
711.30	5/2⁻	265.97 *8*	1.90 *11*	445.09	(7/2⁻,9/2⁻)	E2		0.1318	α(K)=0.0806 *12*; α(L)=0.0388 *6*; α(M)=0.00967 *14*; α(N+..)=0.00270 *4* α(N)=0.00233 *4*; α(O)=0.000359 *5*; α(P)=7.93×10^{-6} *12*
		610.88 *7*	100[@] *4*	100.45	7/2⁻	M1		0.0394	α(K)=0.0328 *5*; α(L)=0.00512 *8*; α(M)=0.001170 *17*; α(N+..)=0.000339 *5* α(N)=0.000286 *4*; α(O)=4.94×10^{-5} *7*; α(P)=3.73×10^{-6} *6*
		636.49 *12*	7.8 *11*	75.016	5/2⁻				
		701.2 *10*	1.6 *3*	9.756	3/2⁻				
		711.47 *12*	2.45 *22*	0.0	1/2⁻				
725.75	3/2⁻	224.44 *9*	8.8 *4*	501.44	3/2⁻	M1		0.572	α(K)=0.474 *7*; α(L)=0.0761 *11*; α(M)=0.01746 *25*; α(N+..)=0.00505 *7* α(N)=0.00426 *6*; α(O)=0.000736 *11*; α(P)=5.49×10^{-5} *8*
		651.40 *8*	86[@] *6*	74.356	3/2⁻	M1+E2	0.9 *+7−4*	0.024 *6*	α(K)=0.020 *5*; α(L)=0.0033 *7*; α(M)=0.00076 *14*; α(N+..)=0.00022 *4* α(N)=0.00019 *4*; α(O)=3.2×10^{-5} *7*; α(P)=2.2×10^{-6} *6*
		716.00 *11*	52 *3*	9.756	3/2⁻				
		725.70 *8*	100 *6*	0.0	1/2⁻	M1+E2	1.8 *+54−7*	0.013 *4*	α(K)=0.011 *3*; α(L)=0.0019 *4*; α(M)=0.00045 *9*; α(N+..)=0.000129 *25* α(N)=0.000110 *21*; α(O)=1.8×10^{-5} *4*; α(P)=1.2×10^{-6} *4*
727.10?	(11/2⁺)	169.9[‡] *3*	100[‡] *27*	556.90	(9/2⁺)				
		308.4[‡] *3*	39[‡] *12*	419.00	(13/2⁺)				
817.5	(17/2⁺)	199.4[‡] *3*	91[‡] *18*	617.91	(15/2⁺)				
		398.2[‡] *3*	100[‡] *20*	419.00	(13/2⁺)				
885.5	(13/2⁺)	158.4[‡a] *3*	100[‡]	727.10?	(11/2⁺)				
934.8	(15/2⁻)	251.0[‡] *3*	96[‡] *19*	684.1?	(13/2⁻)				

$^{187}_{76}Os_{111}$-7

Adopted Levels, Gammas (continued)

γ(^{187}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[†]	δ[†]	α[&]	Comments
934.8	(15/2$^-$)	475.1[‡] *3*	100[‡] *21*	459.33	(11/2$^-$)				
935.03	5/2$^-$,7/2$^-$	348.74 *9*	11.7 *13*	586.31	5/2$^-$	M1		0.1722	α(K)=0.1428 *20*; α(L)=0.0227 *4*; α(M)=0.00520 *8*; α(N+..)=0.001506 *22* α(N)=0.001270 *18*; α(O)=0.000219 *3*; α(P)=1.643×10^{-5} *23*
		747.62 *8*	85 *5*	187.42	5/2$^-$	M1(+E2)	<1.2	0.019 *5*	α(K)=0.016 *4*; α(L)=0.0026 *5*; α(M)=0.00059 *11*; α(N+..)=0.00017 *4* α(N)=0.00014 *3*; α(O)=2.5×10^{-5} *5*; α(P)=1.8×10^{-6} *5*
		859.98 *7*	100 *21*	75.016	5/2$^-$				
		860.63 *12*	23.4 *16*	74.356	3/2$^-$				
		935.14 *20*	20 *8*	0.0	1/2$^-$				
941.83	(5/2$^+$,7/2$^-$)	355.69 *10*	10.8 *10*	586.31	5/2$^-$				
		384.96 *8*	91 *11*	556.90	(9/2$^+$)				
		440.27 *9*	19.1 *24*	501.44	3/2$^-$				
		841.09 *20*	100 *5*	100.45	7/2$^-$				
987.29	3/2$^-$	261.58 *7*	3.72 *21*	725.75	3/2$^-$	M1		0.376	α(K)=0.311 *5*; α(L)=0.0498 *7*; α(M)=0.01142 *16*; α(N+..)=0.00331 *5* α(N)=0.00279 *4*; α(O)=0.000482 *7*; α(P)=3.60×10^{-5} *5*
		275.91 *16*	0.76 *18*	711.30	5/2$^-$	M1		0.325	α(K)=0.269 *4*; α(L)=0.0430 *6*; α(M)=0.00986 *14*; α(N+..)=0.00285 *4* α(N)=0.00241 *4*; α(O)=0.000416 *6*; α(P)=3.11×10^{-5} *5*
		323.11 *9*	5.21 *18*	664.03	(3/2$^-$,5/2$^-$)				
		400.81[a] *9*		586.31	5/2$^-$				
		654.30[a] *8*	1.8 *18*	333.35	(7/2$^-$)				
		796.8 *10*	0.29 *6*	190.57	7/2$^-$				
		799.90 *8*	18.6 *8*	187.42	5/2$^-$	M1		0.0197	α(K)=0.01645 *23*; α(L)=0.00255 *4*; α(M)=0.000582 *9*; α(N+..)=0.0001684 *24* α(N)=0.0001420 *20*; α(O)=2.46×10^{-5} *4*; α(P)=1.86×10^{-6} *3*
		886.91 *9*	2.68 *15*	100.45	7/2$^-$				
		912.86 *7*	100 *4*	74.356	3/2$^-$	M1		0.01413	α(K)=0.01178 *17*; α(L)=0.00182 *3*; α(M)=0.000415 *6*; α(N+..)=0.0001201 *17* α(N)=0.0001012 *15*; α(O)=1.753×10^{-5} *25*; α(P)=1.330×10^{-6} *19*
		977.54 *8*	65.5 *21*	9.756	3/2$^-$	M1+E2	0.9 *+4–3*	0.0089 *13*	α(K)=0.0074 *11*; α(L)=0.00118 *15*; α(M)=0.00027 *4*; α(N+..)=7.8×10^{-5} *10* α(N)=6.6×10^{-5} *8*; α(O)=1.13×10^{-5} *15*; α(P)=8.2×10^{-7} *13*
		987.35 *8*	58.5 *21*	0.0	1/2$^-$	M1(+E2)	<1	0.0100 *17*	α(K)=0.0083 *14*; α(L)=0.00130 *20*; α(M)=0.00030 *5*; α(N+..)=8.6×10^{-5} *13* α(N)=7.2×10^{-5} *11*; α(O)=1.25×10^{-5} *19*; α(P)=9.3×10^{-7} *17*

$^{187}_{76}Os_{111}$-8

Adopted Levels, Gammas (continued)

γ(^{187}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[†]	δ[†]	α[&]	Comments
1084.1	(19/2$^+$)	266.2 *3*	100 *20*	817.5	(17/2$^+$)				
		466.7 *3*	100 *20*	617.91	(15/2$^+$)				
1090.32	(5/2$^-$)	756.64 *9*	68 *5*	333.35	(7/2$^-$)	M1		0.0227	α(K)=0.0189 *3*; α(L)=0.00294 *5*; α(M)=0.000671 *10*; α(N+..)=0.000194 *3* α(N)=0.0001638 *23*; α(O)=2.84×10^{-5} *4*; α(P)=2.15×10^{-6} *3*
		899.85 *13*	45 *5*	190.57	7/2$^-$				
		902.94 *8*	100 *5*	187.42	5/2$^-$	M1		0.01453	α(K)=0.01211 *17*; α(L)=0.00187 *3*; α(M)=0.000426 *6*; α(N+..)=0.0001235 *18* α(N)=0.0001041 *15*; α(O)=1.80×10^{-5} *3*; α(P)=1.367×10^{-6} *20*
		1016.05 *20*	30 *3*	74.356	3/2$^-$				
		1080.60 *9*	42 *3*	9.756	3/2$^-$				
		1090.5 *1*	6.7 *7*	0.0	1/2$^-$				
1112.13	1/2$^-$,3/2$^-$	448.20 *8*	24.7 *12*	664.03	(3/2$^-$,5/2$^-$)	M1		0.0883	α(K)=0.0733 *11*; α(L)=0.01158 *17*; α(M)=0.00265 *4*; α(N+..)=0.000767 *11* α(N)=0.000647 *9*; α(O)=0.0001118 *16*; α(P)=8.40×10^{-6} *12*
		515.68 *8*	71 *3*	596.36	1/2$^-$,3/2$^-$	M1		0.0611	α(K)=0.0508 *8*; α(L)=0.00798 *12*; α(M)=0.00183 *3*; α(N+..)=0.000529 *8* α(N)=0.000446 *7*; α(O)=7.71×10^{-5} *11*; α(P)=5.80×10^{-6} *9*
		1037.96 *10*	76 *4*	74.356	3/2$^-$				
		1102.22 *9*	33.3 *17*	9.756	3/2$^-$				
		1111.99 *19*	100 *5*	0.0	1/2$^-$	M1+E2	0.7 *6*	0.0071 *15*	α(K)=0.0059 *13*; α(L)=0.00092 *18*; α(M)=0.00021 *4*; α(N+..)=6.1×10^{-5} *12* α(N)=5.1×10^{-5} *10*; α(O)=8.9×10^{-6} *17*; α(P)=6.6×10^{-7} *15*; α(IPF)=4.1×10^{-7} *6*
1210.4	(17/2$^-$)	275.7[‡a] *3*	100[‡] *19*	934.8	(15/2$^-$)				
		526[a] *1*		684.1?	(13/2$^-$)				E_γ: From (d,2nγ),(p,nγ).

[†] From ^{187}Ir ε decay, except otherwise noted.
[‡] From (d,2nγ), (p,nγ).
[#] From (n,γ).
[@] Identified as multiplet in (n,γ).
[&] 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.
[a] Placement of transition in the level scheme is uncertain.

$^{187}_{76}Os_{111}$-9

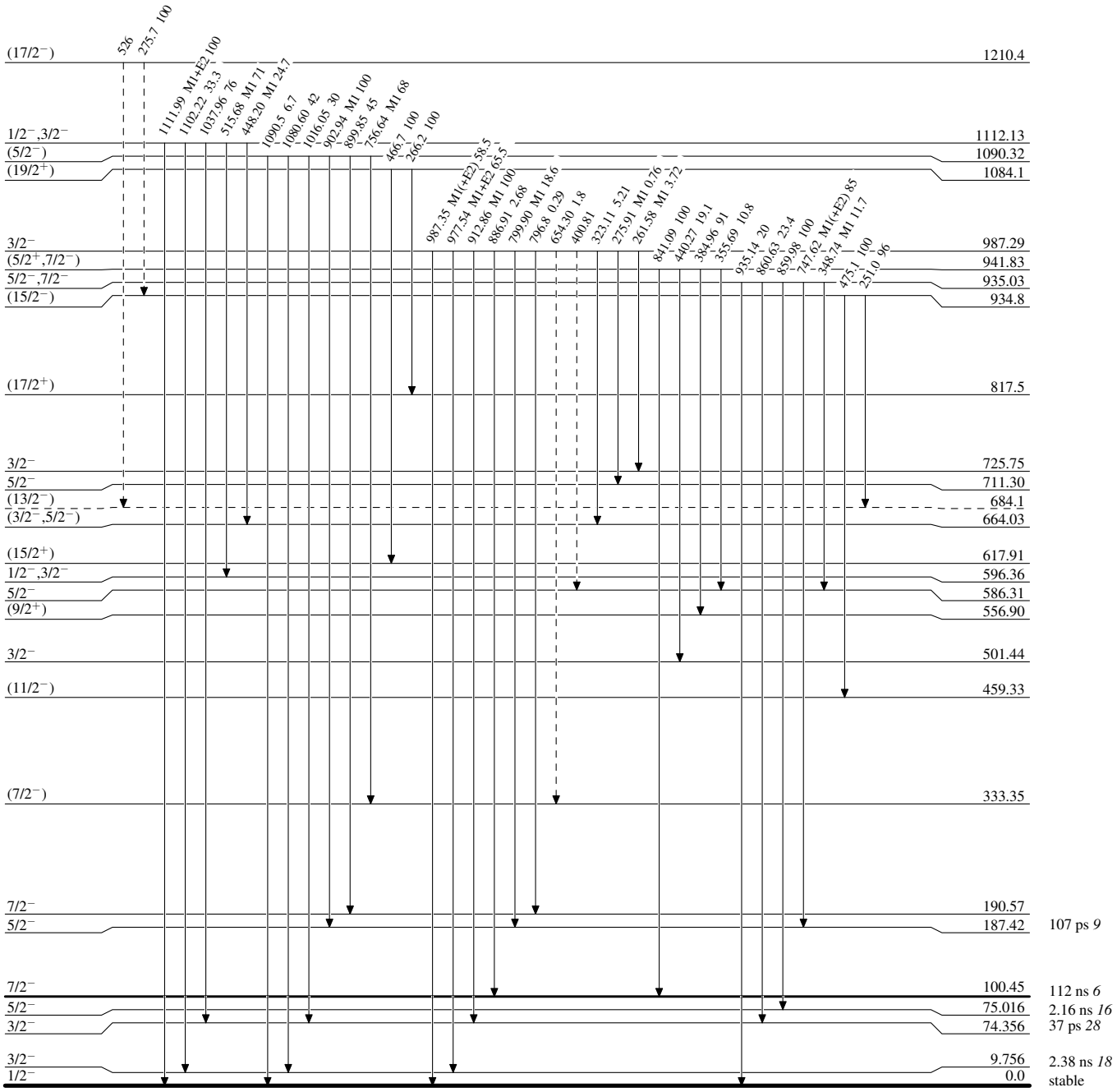
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{187}_{76}Os_{111}$

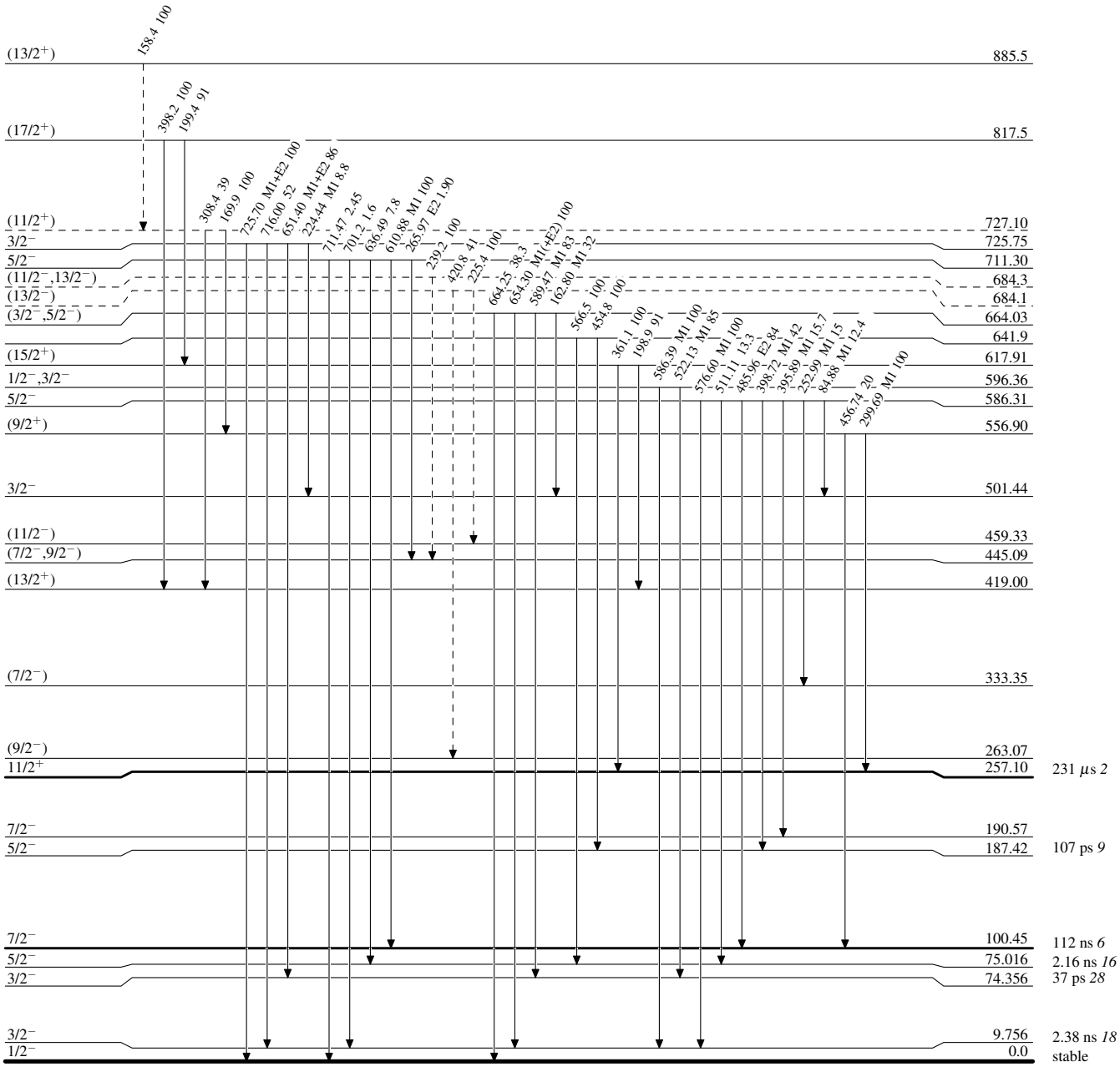
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{187}_{76}Os_{111}$

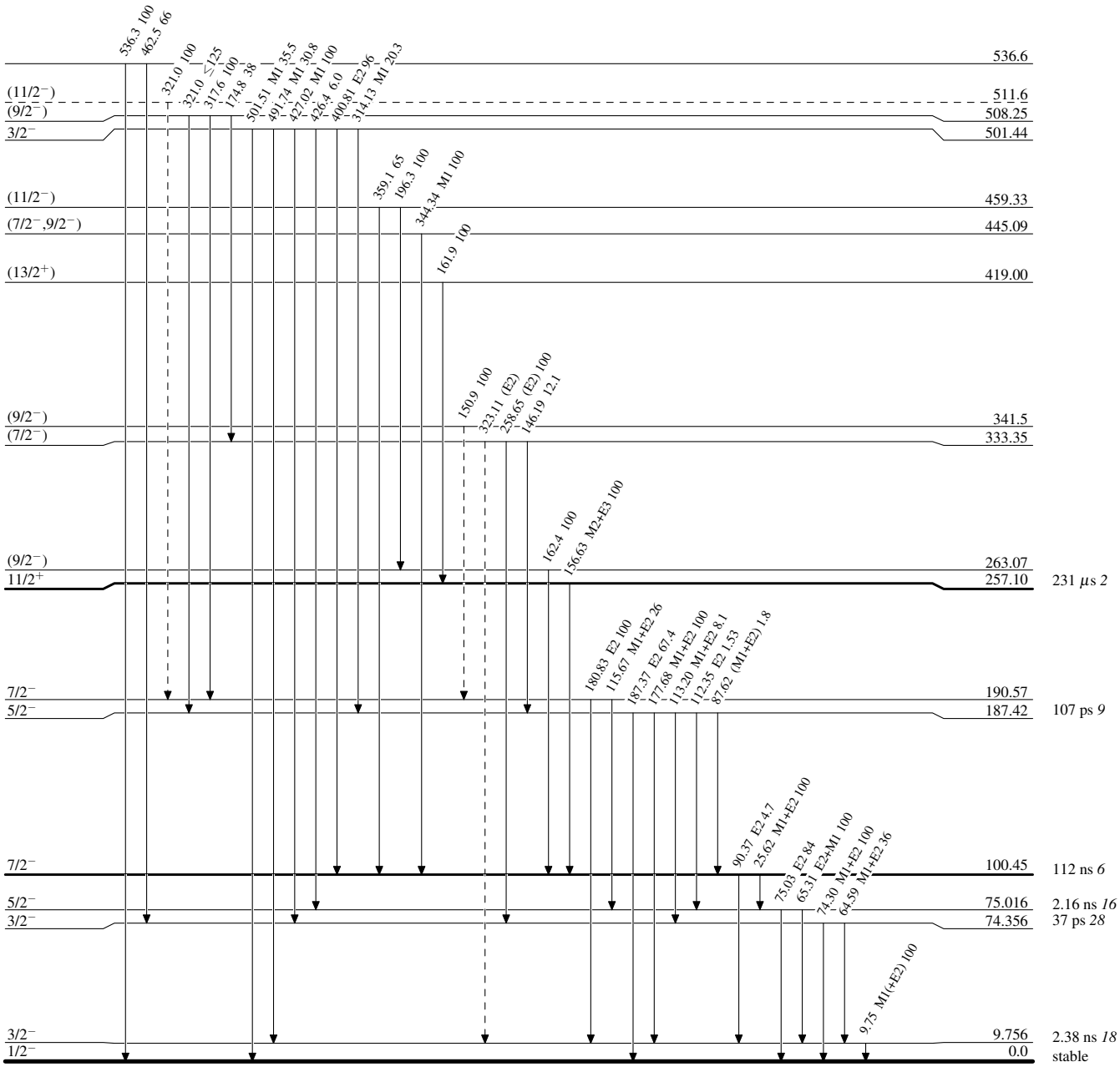
Adopted Levels, Gammas

Legend

Level Scheme (continued)

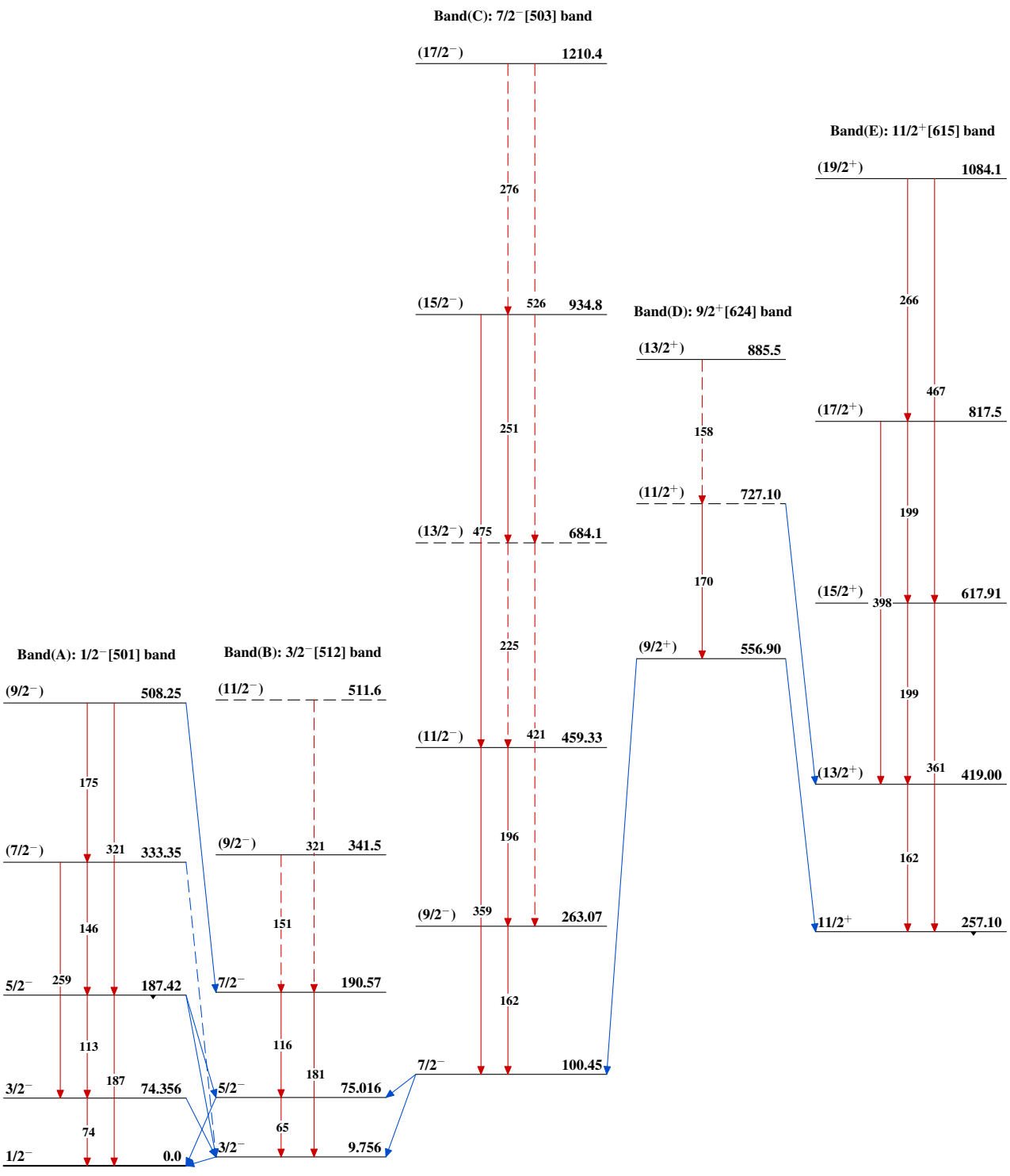
Intensities: Relative photon branching from each level

γ Decay (Uncertain)



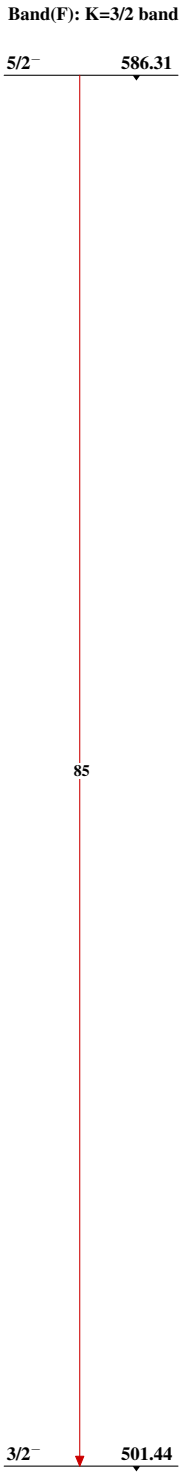
$^{187}_{76}Os_{111}$

Adopted Levels, Gammas



$^{187}_{76}Os_{111}$

Adopted Levels, Gammas (continued)



$^{187}_{76}Os_{111}$