Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin, E. A. Mccutchan	NDS 151, 334 (2018)	30-Jun-2018

Q(β^-)=−7890 *40*; S(n)=8447 *20*; S(p)=2678 *29*; Q(α)=5371 *4* 2017Wa10
S(2n)=19720 *30*; S(2p)=3962 *24*; Q(εp)=5698 *22* (2017Wa10).
Identification: excitation functions for ^{156}Dy(^{20}Ne,xn) and known positions for α's from ^{172}Os, ^{173}Os, ^{174}Os; Q(α) consistent with α-decay systematics (1972To06).
Decay α observed following ^{20}Ne+^{156}Dy and ^{136}Xe+^{136}Xe studies (2009Og03).
α: Additional information 1.

^{171}Os Levels

The band structure is adopted from 1999Ba13.

Cross Reference (XREF) Flags

A ^{175}Pt α decay
B ^{144}Sm(^{30}Si,3nγ)
C ^{116}Sn(^{58}Ni,2pnγ)

E(level)†	J$^\pi$‡	$T_{1/2}$	XREF	Comments
0.0#	(5/2$^-$)	8.3 s *2*	ABC	%ε+%β^+=98.20 *21*; %α=1.80 *21* %α: weighted average of 1.7 *3* (1979Ha10) (deduced from intensity ratio of ^{171}Os daughter α's and ^{175}Pt parent α's in same spectrum) and 1.9 *3* (1995Hi02) (assuming mult=E2 for the 190γ(^{171}Re) produced in ^{171}Os ε decay). $T_{1/2}$: from 5241α(t) (1995Hi02). Others: 7.8 s *10* (1978Sc26), 8.2 s *8* (1972To06), 10.0 s *10* (1995Hi02, 190γ(t)), 8.0 s *24* (1995Hi02, 705γ(t)) and 8 s *2* (1995Hi02, 5166α(t)). Weighted average of all data is also 8.3 s *2*.
76.70@ *7*	(7/2$^-$)		ABC	
186.32b *13*	(13/2$^+$)		BC	
207.57# *7*	(9/2$^-$)		ABC	
211.0 *4*	(7/2$^-$,9/2$^-$)		A	J$^\pi$: M1 134.1γ to (7/2$^-$).
440.12b *13*	(17/2$^+$)		BC	
445.20@ *8*	(11/2$^-$)		BC	
601.16# *8*	(13/2$^-$)		BC	
626.00c *15*	(15/2$^+$)		C	
887.26b *12*	(21/2$^+$)		BC	
894.97@ *9*	(15/2$^-$)		BC	
1067.99c *15*	(19/2$^+$)		C	
1110.10# *9*	(17/2$^-$)		BC	
1138.2g *3*	(17/2$^+$)		C	
1285.89f *22*	(19/2$^+$)		C	
1400.39@ *10*	(19/2$^-$)		BC	
1454.04b *12*	(25/2$^+$)		BC	
1538.7g *3*	(21/2$^+$)		C	
1547.3 *3*			C	
1619.61c *15*	(23/2$^+$)		C	
1642.95# *10*	(21/2$^-$)		BC	
1752.95h *13*	(23/2$^+$)		BC	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{171}Os Levels (continued)

E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF
1801.52[f] *22*	(23/2+)	C	2720.3 *7*		C	3968.73[@] *19*	(39/2−)	BC
1878.2 *8*		C	2725.77[b] *13*	(33/2+)	BC	4054.72[&] *16*	(41/2−)	BC
1910.98[@] *10*	(23/2−)	BC	2793.55[c] *18*	(31/2+)	C	4082.29[c] *25*	(39/2+)	C
2017.5[g] *3*	(25/2+)	C	2840.48[@] *12*	(31/2−)	BC	4159.60[e] *20*	(41/2+)	C
2081.73[b] *13*	(29/2+)	BC	2893.80[&] *12*	(33/2−)	BC	4299.0[#] *5*	(41/2−)	C
2141.07[#] *10*	(25/2−)	BC	3078.1[f] *4*	(31/2+)	C	4459.14[a] *22*	(43/2−)	C
2161.88[h] *12*	(27/2+)	BC	3115.31[a] *13*	(35/2−)	BC	4538.94[d] *19*	(45/2+)	BC
2201.88[c] *16*	(27/2+)	C	3117.8[#] *4*	(33/2−)	C	4635.5[@] *5*	(43/2−)	C
2247.2 *5*		C	3174.7[g] *5*	(33/2+)	C	4766.75[&] *24*	(45/2−)	BC
2337.15[&] *19*	(25/2−)	C	3333.39[d] *14*	(37/2+)	BC	4791.9[c] *4*	(43/2+)	C
2359.36[@] *11*	(27/2−)	BC	3372.74[@] *15*	(35/2−)	BC	4883.7[e] *3*	(45/2+)	C
2413.56[a] *12*	(27/2−)	BC	3415.76[&] *13*	(37/2−)	BC	5219.0[a] *5*	(47/2−)	C
2423.27[f] *25*	(27/2+)	C	3415.79[c] *22*	(35/2+)	C	5277.81[d] *24*	(49/2+)	BC
2520.94[&] *12*	(29/2−)	BC	3505.79[b] *16*	(37/2+)	BC	5503.2[&] *4*	(49/2−)	C
2559.5[g] *4*	(29/2+)	C	3666.8[#] *4*	(37/2−)	C	5644.5[e] *4*	(49/2+)	C
2629.55[#] *25*	(29/2−)	BC	3725.93[a] *15*	(39/2−)	BC	6109.5[d] *11*	(53/2+)	C
2675.99[a] *12*	(31/2−)	BC	3897.10[d] *15*	(41/2+)	BC	6260.2[&] *21*	(53/2−)	C

† From least-squares adjustment of adopted Eγ.

‡ Tentative values based on inferred γ-ray multipolarities, coincidence data, and rotational structure in (HI,xnγ) (1999Ba13), except where noted. Particle-rotor calculations place Fermi surface close to 5/2[523] orbital; energy difference between 441.1 and 186.9 levels matches expectations for $17/2^+$ to $13/2^+$ transition in decoupled band (1990Ba29).

[#] Band(A): 5/2[523], α=+1/2 band. E band; becomes EBC band as J increases.

[@] Band(a): 5/2[523], α=−1/2 band. F band; becomes FBC band as J increases.

[&] Band(B): (ν 5/2[523])$(i_{13/2})^2$ α=+1/2 band. EAB band; becomes EABCD band as J increases.

[a] Band(b): (ν 5/2[523])$(i_{13/2})^2$ α=−1/2 band. FAB band; becomes FABCD band as J increases.

[b] Band(C): $i_{13/2}$, α=+1/2 band. A band.

[c] Band(D): $i_{13/2}$, α=−1/2 band. B band; becomes BAD band as J increases.

[d] Band(E): ABC, α=+1/2 band. Yrast for J≥37/2.

[e] Band(F): ACD, α=+1/2 band.

[f] Band(G): A⊗(γ vibration), α=−1/2 band.

[g] Band(H): A⊗(β vibration), α=+1/2 band.

[h] Band(I): B⊗(octupole vibration), α=−1/2 band. $i_{13/2}$, α=−1/2 band tentatively suggested in (1990Ba29) but assignment revised in (1999Ba13) (first author for both publications is the same).

Adopted Levels, Gammas (continued)

γ(^{171}Os)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α	Comments
76.70	(7/2$^-$)	76.60 *10*	100	0.0	(5/2$^-$)	M1	12.02	α(K)=9.89 *15*; α(L)=1.639 *24*; α(M)=0.376 *6*; α(N)=0.0919 *14*; α(O)=0.01586 *23* α(P)=0.001179 *18* E_γ: other: 76.7 *3* from α decay. Mult.: from α(K)exp in α decay.
207.57	(9/2$^-$)	130.78 *4*	100 *13*	76.70	(7/2$^-$)	M1	2.61	α(K)=2.16 *3*; α(L)=0.350 *5*; α(M)=0.0803 *12*; α(N)=0.0196 *3*; α(O)=0.00338 *5* α(P)=0.000252 *4* I_γ: weighted average from (^{30}Si,3nγ) and (^{58}Ni,2pnγ). E_γ: other: 130.8 *4* from α decay. Mult.: from α(K)exp in α decay.
		207.64 *9*	24 *7*	0.0	(5/2$^-$)	[E2]	0.293	α(K)=0.1538 *22*; α(L)=0.1051 *15*; α(M)=0.0264 *4*; α(N)=0.00636 *9*; α(O)=0.000964 *14* α(P)=1.451×10^{-5} *21* I_γ: weighted average from (^{30}Si,3nγ) and (^{58}Ni,2pnγ). E_γ: other: 207.9 *5* from α decay.
211.0	(7/2$^-$,9/2$^-$)	134.1 *4*		76.70	(7/2$^-$)	M1	2.43	α(K)=2.01 *4*; α(L)=0.326 *6*; α(M)=0.0747 *13*; α(N)=0.0182 *3*; α(O)=0.00315 *6* α(P)=0.000234 *4* E_γ: from α decay. Mult.: from α(K)exp in α decay.
		211.2 *5*		0.0	(5/2$^-$)			E_γ: from α decay.
440.12	(17/2$^+$)	253.80 *3*	100	186.32	(13/2$^+$)			
445.20	(11/2$^-$)	237.49 *5*	31.4 *27*	207.57	(9/2$^-$)			
		368.58 *4*	100 *10*	76.70	(7/2$^-$)			
601.16	(13/2$^-$)	155.76 *12*	4.3 *3*	445.20	(11/2$^-$)			
		393.61 *4*	100 *5*	207.57	(9/2$^-$)			
626.00	(15/2$^+$)	185.84 *12*	30 *4*	440.12	(17/2$^+$)			
		439.64 *12*	100 *19*	186.32	(13/2$^+$)			
887.26	(21/2$^+$)	447.16 *3*	100	440.12	(17/2$^+$)	Q		E_γ: other: 447.7 *2* in (^{30}Si,3nγ).
894.97	(15/2$^-$)	449.78 *5*	100	445.20	(11/2$^-$)			
1067.99	(19/2$^+$)	441.94 *9*	78 *6*	626.00	(15/2$^+$)			
		627.82 *13*	100 *10*	440.12	(17/2$^+$)			
1110.10	(17/2$^-$)	508.93 *4*	100	601.16	(13/2$^-$)			E_γ: other: 509.8 *2* in (^{30}Si,3nγ).
1138.2	(17/2$^+$)	951.9 *3*	100	186.32	(13/2$^+$)			
1285.89	(19/2$^+$)	845.50 *22*	100	440.12	(17/2$^+$)			
1400.39	(19/2$^-$)	505.42 *4*	100	894.97	(15/2$^-$)			E_γ: other: 506.1 *2* in (^{30}Si,3nγ).
1454.04	(25/2$^+$)	566.79 *3*	100	887.26	(21/2$^+$)	Q		E_γ: other: 567.6 *2* in (^{30}Si,3nγ).
1538.7	(21/2$^+$)	400.56 *17*	47 *5*	1138.2	(17/2$^+$)			
		1098.5 *3*	100 *11*	440.12	(17/2$^+$)			
1547.3		659.99 *27*	100	887.26	(21/2$^+$)			
1619.61	(23/2$^+$)	551.57 *7*	100 *5*	1067.99	(19/2$^+$)			
		732.42 *18*	39 *3*	887.26	(21/2$^+$)			

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Adopted Levels, Gammas (continued)

$\gamma(^{171}Os)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
1642.95	(21/2$^-$)	532.84 *4*	100	1110.10	(17/2$^-$)			
1752.95	(23/2$^+$)	865.65 *8*	100	887.26	(21/2$^+$)	D+Q	+4.3 *+24−14*	E_γ: other: 866.3 *2* in (^{30}Si,3nγ).
1801.52	(23/2$^+$)	515.26 *26*	43 *6*	1285.89	(19/2$^+$)			
		914.60 *24*	100 *9*	887.26	(21/2$^+$)			
1878.2		990.9 *7*	100	887.26	(21/2$^+$)			
1910.98	(23/2$^-$)	510.60 *4*	100 *4*	1400.39	(19/2$^-$)			E_γ: other: 511.3 *2* in (^{30}Si,3nγ).
		1022.9 *4*	13.1 *13*	887.26	(21/2$^+$)			
2017.5	(25/2$^+$)	478.86 *13*	100	1538.7	(21/2$^+$)			
2081.73	(29/2$^+$)	627.66 *4*	100	1454.04	(25/2$^+$)	Q		E_γ: other: 628.6 *2* in (^{30}Si,3nγ).
2141.07	(25/2$^-$)	498.13 *4*	100	1642.95	(21/2$^-$)			E_γ: other: 498.7 *2* in (^{30}Si,3nγ).
2161.88	(27/2$^+$)	408.96 *5*	74 *3*	1752.95	(23/2$^+$)	Q		E_γ: other: 409.8 *3* in (^{30}Si,3nγ).
		518.32 *24*	23.6 *21*	1642.95	(21/2$^-$)			
		708.05 *9*	100 *5*	1454.04	(25/2$^+$)			E_γ: other: 708.7 *2* in (^{30}Si,3nγ).
2201.88	(27/2$^+$)	582.23 *7*	100 *5*	1619.61	(23/2$^+$)			
		748.24 *23*	27.0 *26*	1454.04	(25/2$^+$)			
2247.2		793.2 *4*	100	1454.04	(25/2$^+$)			
2337.15	(25/2$^-$)	582.9 *3*	100	1752.95	(23/2$^+$)			E_γ: fits placement very poorly (deviates from expected value by≈4σ).
2359.36	(27/2$^-$)	448.45 *5*	100	1910.98	(23/2$^-$)			
2413.56	(27/2$^-$)	502.13 *12*	57 *4*	1910.98	(23/2$^-$)			E_γ: other: 503.5 *3* in (^{30}Si,3nγ).
		959.54 *12*	100 *6*	1454.04	(25/2$^+$)			E_γ: other: 960.5 *3* in (^{30}Si,3nγ). Mult.: ΔJ=1 transition from $\gamma(\theta)$ in (HI,xnγ).
2423.27	(27/2$^+$)	621.77 *25*	96 *11*	1801.52	(23/2$^+$)			
		969.2 *3*	100 *11*	1454.04	(25/2$^+$)			
2520.94	(29/2$^-$)	183.37 *17*	6.8 *8*	2337.15	(25/2$^-$)			
		359.10 *4*	100 *4*	2161.88	(27/2$^+$)	D		E_γ: other: 359.7 *2* in (^{30}Si,3nγ).
		379.92 *8*	36.1 *19*	2141.07	(25/2$^-$)			I_γ: other: 26 *5* in (^{30}Si,3nγ).
		439.04 *10*	33.8 *19*	2081.73	(29/2$^+$)			
2559.5	(29/2$^+$)	541.94 *19*	100	2017.5	(25/2$^+$)			
2629.55	(29/2$^-$)	488.48 *22*	100	2141.07	(25/2$^-$)			E_γ: other: 489.2 *3* in (^{30}Si,3nγ).
2675.99	(31/2$^-$)	262.36 *5*	100 *5*	2413.56	(27/2$^-$)	Q		
		316.74 *6*	65 *3*	2359.36	(27/2$^-$)			I_γ: other: 39 *10* in (^{30}Si,3nγ).
2720.3		1266.3 *6*	100	1454.04	(25/2$^+$)			
2725.77	(33/2$^+$)	644.04 *4*	100	2081.73	(29/2$^+$)	Q		E_γ: other: 644.8 *2* in (^{30}Si,3nγ).
2793.55	(31/2$^+$)	591.67 *7*	100	2201.88	(27/2$^+$)			
2840.48	(31/2$^-$)	481.12 *5*	100	2359.36	(27/2$^-$)			
2893.80	(33/2$^-$)	372.86 *4*	100	2520.94	(29/2$^-$)	Q		E_γ: other: 373.5 *2* in (^{30}Si,3nγ).
3078.1	(31/2$^+$)	654.86 *21*	100	2423.27	(27/2$^+$)			
3115.31	(35/2$^-$)	439.31 *5*	100	2675.99	(31/2$^-$)			
3117.8	(33/2$^-$)	488.3 *3*	100	2629.55	(29/2$^-$)			
3174.7	(33/2$^+$)	615.24 *24*	100	2559.5	(29/2$^+$)			
3333.39	(37/2$^+$)	607.62 *4*	100	2725.77	(33/2$^+$)	Q		E_γ: other: 608.4 *2* in (^{30}Si,3nγ).
3372.74	(35/2$^-$)	532.26 *8*	100	2840.48	(31/2$^-$)			
3415.76	(37/2$^-$)	521.96 *5*	100	2893.80	(33/2$^-$)	Q		

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Adopted Levels, Gammas (continued)

$\gamma(^{171}Os)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
3415.79	$(35/2^+)$	622.24 *12*	100	2793.55	$(31/2^+)$		
3505.79	$(37/2^+)$	780.03 *10*	100	2725.77	$(33/2^+)$		
3666.8	$(37/2^-)$	548.92 *9*	100	3117.8	$(33/2^-)$		
3725.93	$(39/2^-)$	610.62 *8*	100	3115.31	$(35/2^-)$		
3897.10	$(41/2^+)$	563.71 *6*	100	3333.39	$(37/2^+)$		E_γ: other: 564.4 *2* in (^{30}Si,3nγ).
3968.73	$(39/2^-)$	595.99 *12*	100	3372.74	$(35/2^-)$		E_γ: other: 597.1 *3* in (^{30}Si,3nγ).
4054.72	$(41/2^-)$	638.96 *8*	100	3415.76	$(37/2^-)$	Q	E_γ: other: 640.1 *2* in (^{30}Si,3nγ).
4082.29	$(39/2^+)$	666.50 *12*	100	3415.79	$(35/2^+)$		
4159.60	$(41/2^+)$	653.83 *15*	100 *8*	3505.79	$(37/2^+)$		
		826.15 *23*	60 *6*	3333.39	$(37/2^+)$		
4299.0	$(41/2^-)$	632.20 *16*	100	3666.8	$(37/2^-)$		
4459.14	$(43/2^-)$	733.21 *16*	100	3725.93	$(39/2^-)$		
4538.94	$(45/2^+)$	641.84 *11*	100	3897.10	$(41/2^+)$		E_γ: other: 642.7 *2* in (^{30}Si,3nγ).
4635.5	$(43/2^-)$	666.8 *4*	100	3968.73	$(39/2^-)$		
4766.75	$(45/2^-)$	712.02 *18*	100	4054.72	$(41/2^-)$		
4791.9	$(43/2^+)$	709.6 *3*	100	4082.29	$(39/2^+)$		
4883.7	$(45/2^+)$	724.06 *17*	100	4159.60	$(41/2^+)$		
5219.0	$(47/2^-)$	759.9 *4*	100	4459.14	$(43/2^-)$		
5277.81	$(49/2^+)$	738.86 *15*	100	4538.94	$(45/2^+)$		E_γ: other: 740.1 *3* in (^{30}Si,3nγ).
5503.2	$(49/2^-)$	736.5 *3*	100	4766.75	$(45/2^-)$		
5644.5	$(49/2^+)$	760.8 *3*	100	4883.7	$(45/2^+)$		
6109.5	$(53/2^+)$	831.7 *10*	100	5277.81	$(49/2^+)$		
6260.2	$(53/2^-)$	757.0 *20*	100	5503.2	$(49/2^-)$		

[†] From ^{116}Sn(^{58}Ni,2pnγ), except where noted.
[‡] Relative photon branching from each level; values are from ^{116}Sn(^{58}Ni,2pnγ), except as noted.
[#] From $\gamma(\theta)$ in (^{30}Si,3nγ).

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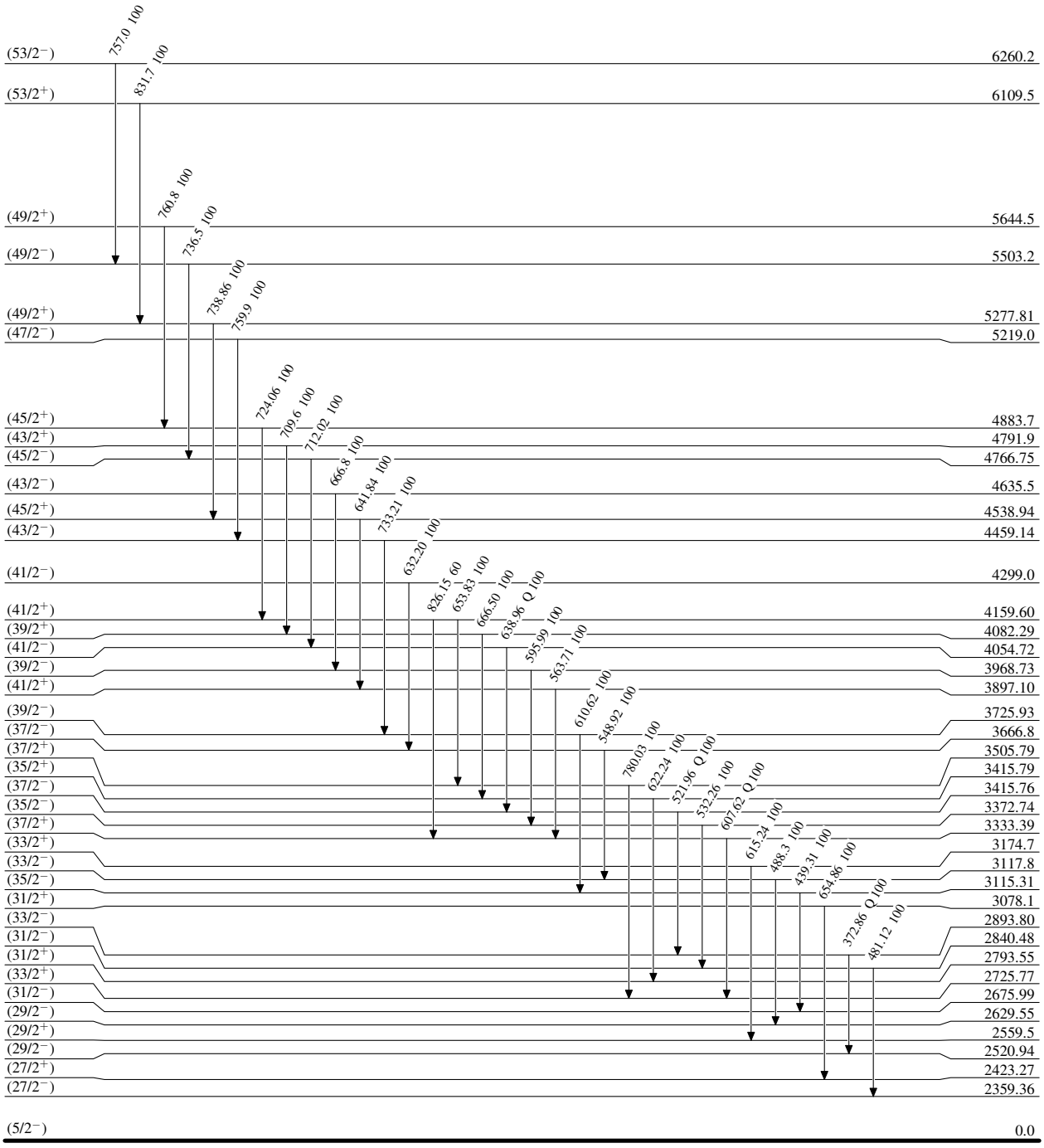
Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

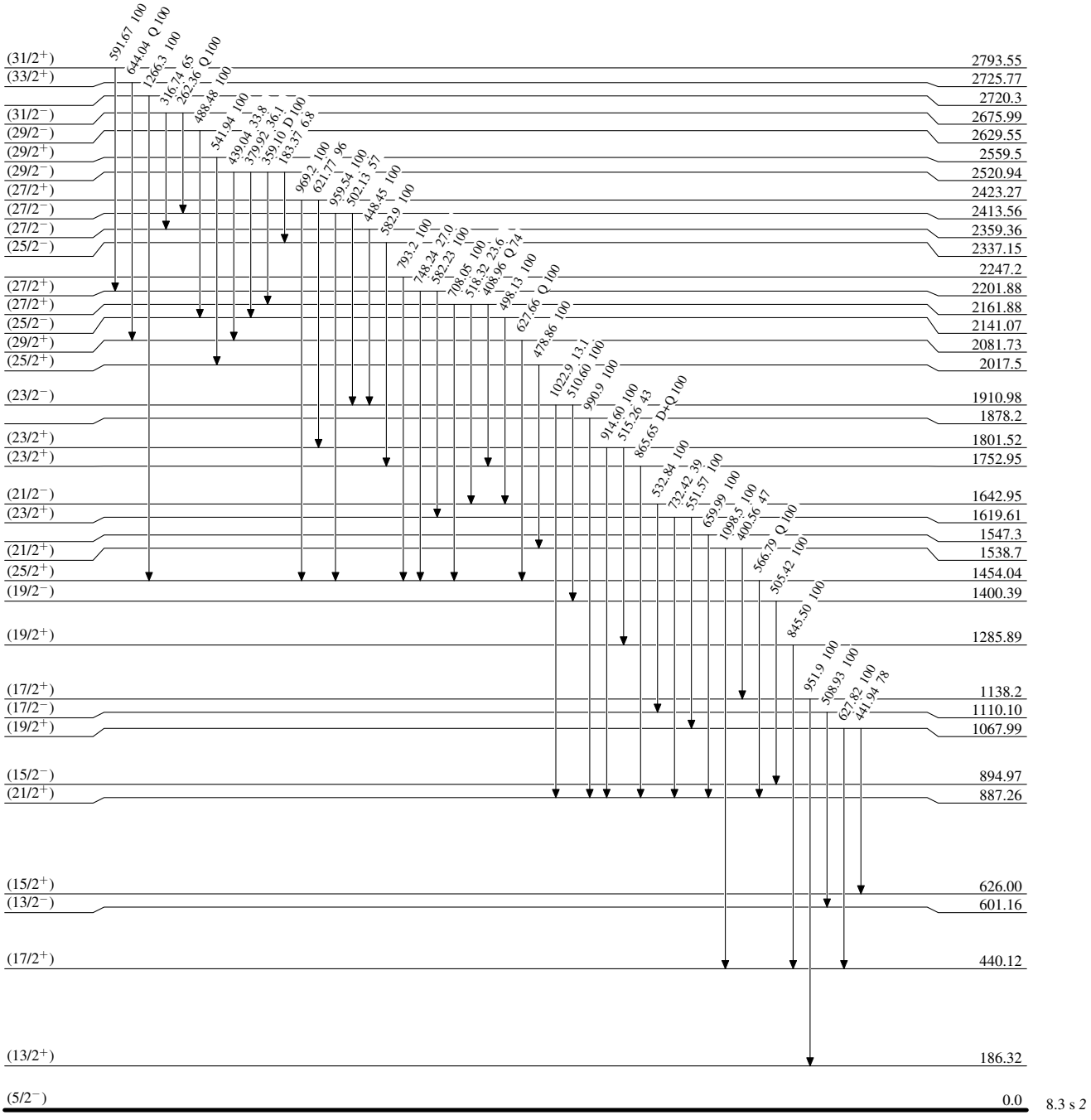


$^{171}_{76}Os_{95}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

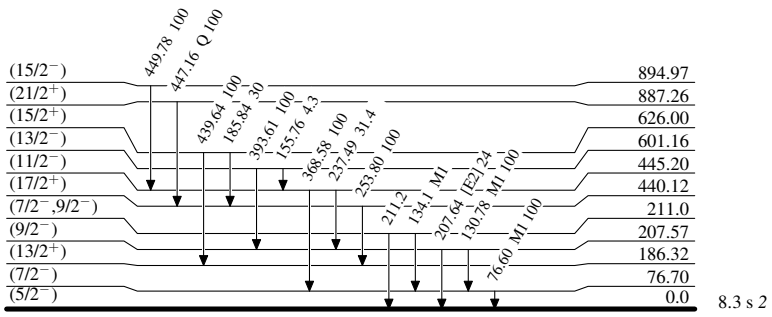


$^{171}_{76}Os_{95}$

Adopted Levels, Gammas

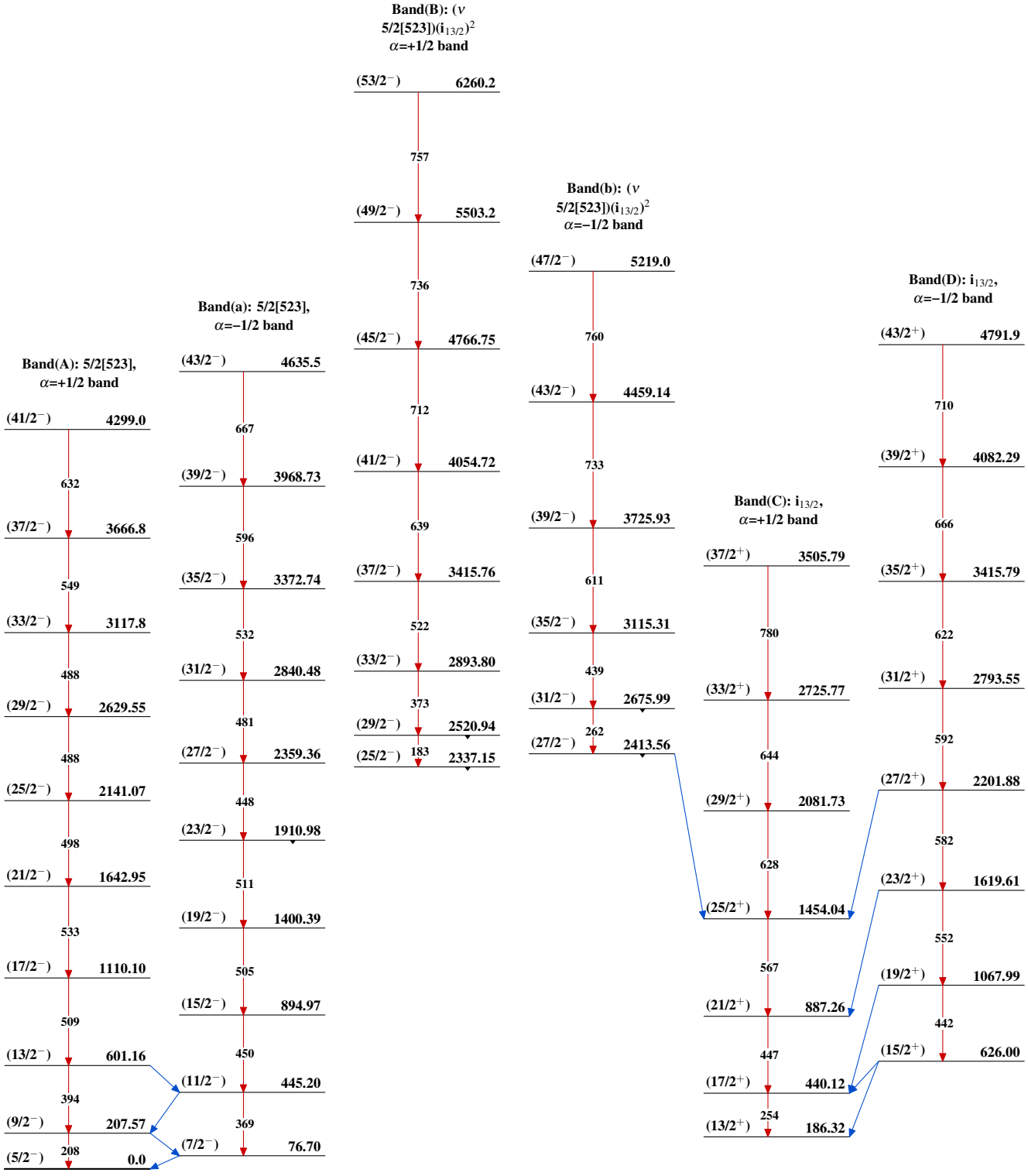
Level Scheme (continued)

Intensities: Relative photon branching from each level

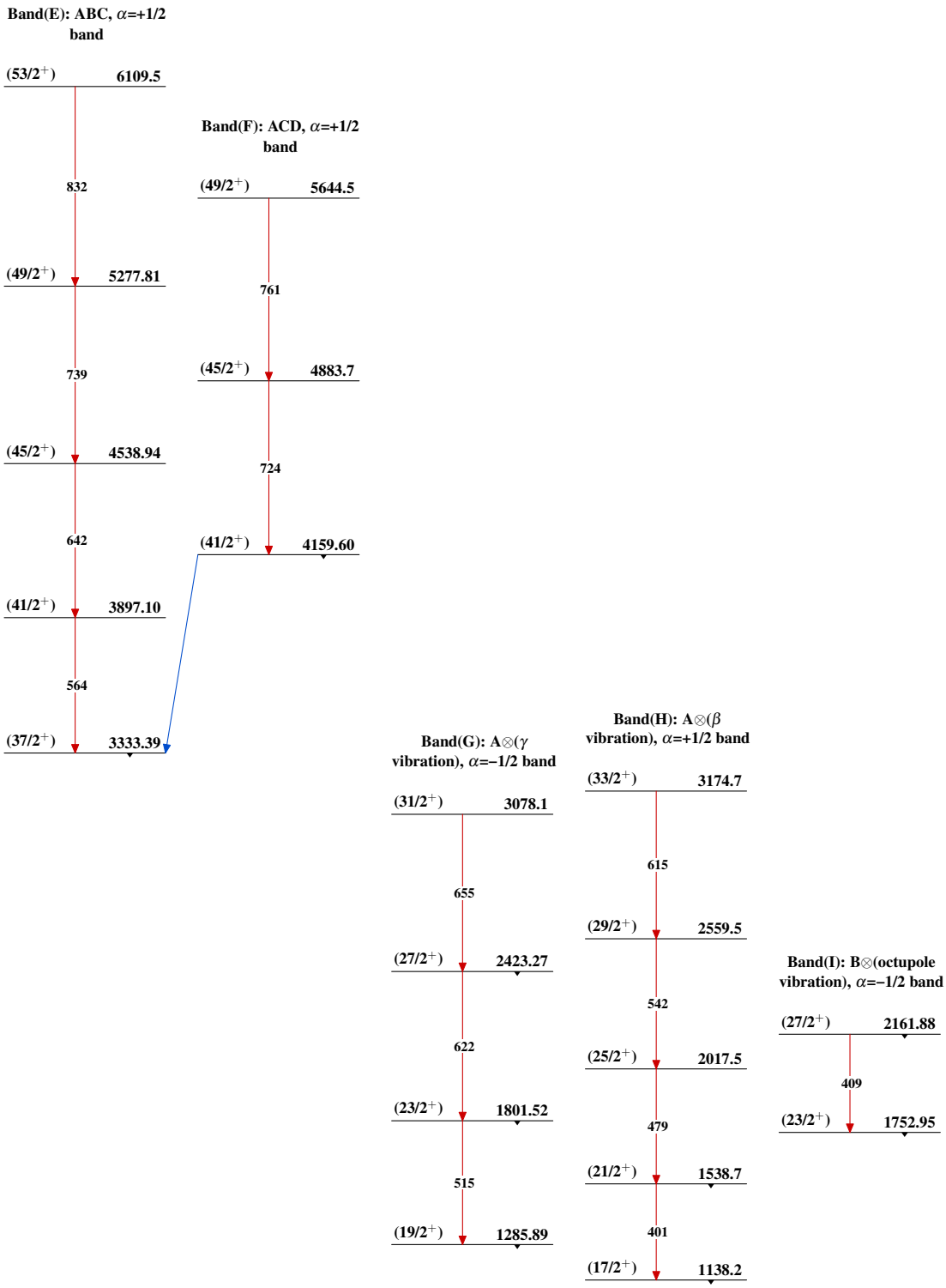


$^{171}_{76}Os_{95}$

Adopted Levels, Gammas



Adopted Levels, Gammas (continued)



$^{171}_{76}Os_{95}$