^{160}Gd(^{34}S,4nγ) 1994Be27,2001Wi11

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, [1] and Jun Chen[2]	NDS 169, 1 (2020)	15-Oct-2020

Includes ^{178}Hf(^{16}O,4nγ) reaction for lifetime measurements.

1994Be27 (also 1993BeZJ): E=159, 162, 165 MeV. Measured Eγ, Iγ, $\gamma\gamma(\theta)$(DCO) using an array of 12 Compton suppressed Ge detectors surrounding 50 BGO scintillation detectors. Data are reported for normal-deformed bands.

2001Wi11: E=153 MeV. Measured Eγ, $\gamma\gamma$, $\gamma\gamma(\theta)$(DCO), γ(lin pol) using EUROGAM II array containing 24 *4*-element Clover detectors. Data also included from 2001WiZZ.

Additional information 1.

2018Es04: ^{178}Hf(^{16}O,4nγ),E(^{16}O)=87 MeV beam from the Cologne FN-Tandem accelerator incident on a 1.1 mg/cm^2 ^{178}Hf target with 99.2% enrichment with backing of 130 mg/cm^2 Bi and 140 mg/cm^2 Cu. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma$(t) using eight HPGe detectors and nine $LaBr_3$(Ce) scintillation detectors (six with BGO suppression shields). Deduced lifetimes of the first 4^+ and 2^+ levels using fast $\gamma\gamma$-coin technique and the generalized centroid difference (GCD) method. Comparison to interacting boson approximation model with configuration mixing model, with phenomenological and microscopic basis.

1990At01: ^{142}Nd(^{48}Ca,X) E=205 MeV, GDR decay studies.

^{190}Hg Levels

The band labels and crossings are given in terms of quasiparticle (neutron) trajectories (Routhians) (1994Be27) as follows:
A: ν5/2[642],α=+1/2.
B: ν5/2[642],α=−1/2.
C: ν7/2[633],α=+1/2.
D: ν7/2[633],α=−1/2.
E: ν5/2[503],α=−1/2.
F: ν5/2[503],α=+1/2.
F′: ν1/2[541],α=+1/2.

3962.7, (15$^-$) and 4672.1, (17$^-$) levels proposed by 1994Be27 are not confirmed in the most recent study by 2001Wi11, thus these have been deleted here. 413.2γ from 3962.7 level is not observed by 2001Wi11, and 709.4γ from 4672.1 level is placed above 683.2γ from 3549, 13$^-$ level.

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	Comments
0.0[f]	0$^+$		
416.6[f] *3*	2$^+$	14.6 ps *62*	$T_{1/2}$: $\gamma\gamma$(t) fast-timing technique combined with GCD method, with 625.4γ as the feeder and 416.3γ as the decay transition (2018Es04). A systematic uncertainty of 3 ps is included to account for contamination from the 419.9-keV transition from the yrast 14$^+$ level.
1042.2[f] *5*	4$^+$	<8.3 ps	$T_{1/2}$: $\gamma\gamma$(t) fast-timing technique combined with GCD method, with 731.1γ as the feeder transition and 625.4γ as the decaying transition (2018Es04).
1773.3[f] *5*	6$^+$		
1881.6[k] *5*	5$^-$		
2078.8[k] *5*	7$^-$		
2319.5[n] *6*	8$^-$		
2336.0[k] *6*	9$^-$		
2465.3[g] *6*	8$^+$		
2573.2[q] *6*	8$^+$		
2597.2[g] *6*	10$^+$		
2621.2[g] *7*	12$^+$		
2724.8[n] *6*	10$^-$		
2845.3 *6*	10$^-$		
2866.1[k] *6*	11$^-$		

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^{160}Gd(^{34}S,4nγ) 1994Be27,2001Wi11 (continued)

^{190}Hg Levels (continued)

E(level)[†]	Jπ[‡]
3007.7[p] 6	11⁻
3041.3[g] 7	14⁺
3213.3[q] 6	10⁺
3277.9[j] 6	12⁺
3282.7 6	(10⁻)
3329.9 6	12⁻
3350.5 7	(10⁺)
3358.8[n] 6	12⁻
3446.3[q] 6	11⁺
3494.3[p] 6	13⁻
3549.3[k] 6	13⁻
3704.0[g] 6	16⁺
3744.5[j] 6	14⁺
3951.4[q] 7	13⁺
3980.6[o] 6	14⁻
4088.3[l] 6	15⁻
4183.6[p] 7	15⁻
4244.0[o] 6	16⁻
4258.6[k] 7	15⁻
4328.4[l] 6	17⁻
4360.6[j] 7	16⁺
4417.1 7	16⁺
4493.2[g] 7	18⁺
4552.9[o] 7	18⁻
4578.2[q] 8	15⁺
4669.6 7	17⁻
4711.8[l] 7	19⁻
4916.3[j] 7	18⁺
4953.7[s] 7	17⁻
4992.3 7	18⁺
5103.7[s] 7	18⁻
5107.3[o] 7	20⁻
5221.2 9	16⁺
5229.6[h] 8	20⁺
5264.2 9	19⁻
5282.3[m] 7	20⁻[#]
5330.1 7	19⁻
5336.9[l] 7	21⁻
5352.6[g] 8	20⁺
5375.8[s] 7	19⁻
5405.9[q] 9	16⁺
5482.7[i] 8	20⁺
5557.1 8	20⁻
5639.9[t] 9	(17⁺)
5661.4[j] 7	20⁺
5673.1[s] 7	20⁻
5789.7[t] 9	(18⁺)
5795.8[h] 8	22⁺
5858.0[o] 7	22⁻
5944.2[i] 8	22⁺
5970.6 8	22⁺

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$^{160}Gd(^{34}S,4n\gamma)$ 1994Be27,2001Wi11 (continued)

^{190}Hg Levels (continued)

E(level)[†]	Jπ[‡]	Comments
6005.6[t] *10*	(19+)	
6050.0[s] *7*	21−	
6126.9[m] *7*	22−[@]	
6144.7[l] *7*	23−	
6220.5[g] *8*	22+	
6261.3[t] *10*	(20+)	
6486.0[s] *7*	22−	
6521.7[&i] *8*	24+	
6565.4[t] *11*	(21+)	
6684.9[o] *7*	24−	
6833.2[s] *7*	23−	
6894.3[t] *11*	(22+)	
6930.9[m] *7*	24−[a]	
6936.4[r] *12*	(22+)	
6972.0[s] *7*	24−	
7037.6[l] *7*	25−	
7201.7[s] *7*	25−	
7256.8[t] *12*	(23+)	
7282.8[i] *8*	26+	
7298.4[h] *8*	26+	
7307.4[r] *13*	(23+)	
7497.2[s] *7*	26−	
7532.9[o] *8*	(26−)	
7621.6[r] *13*	(24+)	
7640.0[t] *12*	(24+)	
7656.7 *7*	(26−)	
7809.6[m] *8*	26−[b]	
7811.2[s] *8*	27−	
7827.5 *8*	25	Jπ: 26 in 1994Be27 decreased by one unit according to J^{π} assignments for lower levels in 2001Wi11.
7893.3[r] *14*	(25+)	
7957.3 *8*	27−	
7996.4 *7*	27−	
8052.5[t] *12*	(25+)	
8091.2[ci] *9*	28+	
8125.2[s] *8*	28−	
8228.0[dh] *9*	28+	
8411.9[o] *9*	(28−)	
8440.1[s] *8*	29−	
8481.7[t] *13*	(26+)	
8735.8[s] *8*	30−	
8876.7[t] *14*	(27+)	
9147.2[s] *8*	31−	
9584.0[s] *9*	32−	
10031.4[s] *9*	33−	
x[e]		
202.2+x *3*		
366.2+x[u] *5*	J1≈(20)	
653.0+x[u] *6*	J1+1	
945.4+x[u] *6*	J1+2	
1248.3+x[u] *8*	J1+3	

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$^{160}Gd(^{34}S,4n\gamma)$ 1994Be27,2001Wi11 (continued)

^{190}Hg Levels (continued)

E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]
1556.1+x[u] 9	J1+4	2506.7+x[u] 13	J1+7	3510.6+x[u] 14	J1+10
1863.6+x[u] 10	J1+5	2820.8+x[u] 13	J1+8	3891.9+x[u] 14	J1+11
2184.7+x[u] 12	J1+6	3156.6+x[u] 13	J1+9	4302.6+x[u] 15	J1+12
				4740.6+x[u] 15	J1+13

[†] From least-squares fit to Eγ data.
[‡] As given in 1994Be27 and 2001Wi11 based on $\gamma\gamma(\theta)$(DCO) data and band assignments.
[#] From 2001Wi11. 1994Be27 proposed 21^-.
[@] From 2001Wi11. 1994Be27 proposed 23^-.
[&] Possible configuration=$[\pi h^{-1}_{11/2}\otimes\pi s^{-1}_{1/2}]_{6-} \otimes [\nu(i^{9}_{13/2})_{27/2}\otimes\nu(h^{-1}_{9/2})]_{18-}$ (1994Be27).
[a] 25^- in 1994Be27.
[b] 27^- in 1994Be27.
[c] Possible terminating state with configuration= $\nu(i_{13/2})^{10}\otimes\nu h^{-2}_{9/2}\otimes\nu f^{-2}_{7/2}$ (1994Be27).
[d] Possible terminating state with configuration= $\nu(i_{13/2})^{10}\otimes\nu h^{-2}_{9/2}\otimes\nu f^{-2}_{7/2}$ (1994Be27).
[e] x ≈5600. This level decays to 3951, 13^+ through an unknown cascade of two transitions.
[f] Band(A): g.s. band. Oblate-collective shape (β_2=0.13, γ=−60°).
[g] Band(B): AB band,α=0. Oblate-collective shape (β_2=0.14, γ=−54°). First band crossing due to alignment of a pair of $i_{13/2}$ neutrons.
[h] Band(C): ABCD band,α=0.
[i] Band(D): Band based on (20^+),α=0. Non-collective structure.
[j] Band(E): Band based on (12^+),α=0. Non-collective structure.
[k] Band(F): AF band,α=1. Oblate-collective shape (β_2=0.14, γ=−54°).
[l] Band(G): ABCF band,α=1.
[m] Band(H): ABCF′ band,α=0. Tentative assignment. Note that J^π values are based on 20^+ for 5282 level and 22^+ for 6127 level in 2001Wi11. Values in 1994Be27 are higher by one unit.
[n] Band(I): AE band,α=0. Oblate-collective shape (β_2=0.14, γ=−54°).
[o] Band(J): ABCE band,α=0.
[p] Band(K): AF′ band,α=1 Tentative assignment.
[q] Seq.(P): γ sequence based on (8^+).
[r] Band(L): Dipole band based on (22^+).
[s] Band(M): Magnetic-dipole rotational (MR-1) band.
[t] Band(N): Magnetic-dipole rotational (MR-2) band.
[u] Band(O): Magnetic-dipole rotational (MR-3) band.

$\gamma(^{190}Hg)$

DCO ratios are from 1994Be27 or from 2001WiZZ when γ not reported by 1994Be27. Polarization coefficients are from 2001WiZZ.

Eγ	Iγ[†]	Ei(level)	Jπi	Ef	Jπf	Comments
23.9 5	0.0049 5	2621.2	12^+	2597.2	10^+	Eγ: γ from ce data (1983Gu05). Uncertainty assigned by evaluators. Iγ: from I(γ+ce)(420.0)=I(γ+ce)(23.9), assumed E2 and α=5300.
(69.4[a] 10)		3282.7	(10^-)	3213.3	10^+	
84.4[b]		4328.4	17^-	4244.0	16^-	
95.8[a] 10		3446.3	11^+	3350.5	(10^+)	
[x]125.8[@] 3	0.4 2					

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^{160}Gd(^{34}S,4nγ) 1994Be27,2001Wi11 (continued)

γ(^{190}Hg) (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
128.8[a] *3*		8125.2	28⁻	7996.4	27⁻		
131.9 *3*	12.0 *4*	2597.2	10⁺	2465.3	8⁺	(E2)[‡]	DCO=1.41 *16*
138.9[a] *3*		6972.0	24⁻	6833.2	23⁻		
149.8[a] *3*		5789.7	(18⁺)	5639.9	(17⁺)	D[#]	DCO=0.92 *6*
150.0[a] *3*		5103.7	18⁻	4953.7	17⁻		
155.7 *3*	1.0 *3*	4244.0	16⁻	4088.3	15⁻	D[#]	DCO=0.77 *10*
158.9 *3*	0.5 *2*	4711.8	19⁻	4552.9	18⁻	D[#]	DCO=0.68 *15*
162.5 *3*	2.2 *3*	3007.7	11⁻	2845.3	10⁻	D[#]	DCO=0.64 *6*
163.6[a] *3*		3446.3	11⁺	3282.7	(10⁻)	D[#]	DCO=0.94 8.
164.0[a] *3*		366.2+x	J1≈(20)	202.2+x			DCO=1.7 *3*
175[a]		5282.3	20⁻	5107.3	20⁻		
197.2 *3*	9.8 *3*	2078.8	7⁻	1881.6	5⁻	(E2)[‡]	DCO=1.08 *5*
202.2[a] *3*		202.2+x		x			DCO=0.95 *16*
215.9[a] *3*		6005.6	(19⁺)	5789.7	(18⁺)		pol=−0.28 *45*
229.8[a] *3*		7201.7	25⁻	6972.0	24⁻		
233.0[a] *4*		3446.3	11⁺	3213.3	10⁺		
234.0[a] *3*		5639.9	(17⁺)	5405.9	16⁺	D[#]	DCO=1.09 *8*; pol=−0.12 *36*
240.1 *3*	11.8 *10*	4328.4	17⁻	4088.3	15⁻	(E2)[‡]	DCO=1.25 *3*
240.8 *3*	9.5 *10*	2319.5	8⁻	2078.8	7⁻	D[#]	DCO=0.70 *7*
255.7[a] *3*		6261.3	(20⁺)	6005.6	(19⁺)	(D)[#]	DCO=1.02 *6*; pol=−0.27 *36*
257.3 *3*	23.7 *5*	2336.0	9⁻	2078.8	7⁻	(E2)[‡]	DCO=1.14 *4*
263.4 *3*	10.5 *4*	4244.0	16⁻	3980.6	14⁻	(E2)[‡]	DCO=1.22 *7*
271.7[a] *4*		7893.3	(25⁺)	7621.6	(24⁺)		
272.2[a] *3*		5375.8	19⁻	5103.7	18⁻		
275[a]		5557.1	20⁻	5282.3	20⁻		
286.8[a] *3*		653.0+x	J1+1	366.2+x	J1≈(20)	(D)[#]	DCO=0.9 *3*
292.4[a] *3*		945.4+x	J1+2	653.0+x	J1+1	(D)[#]	DCO=1.01 *17*
293[a]		5557.1	20⁻	5264.2	19⁻		
295.7[a] *3*		7497.2	26⁻	7201.7	25⁻		
295.7[a] *3*		8735.8	30⁻	8440.1	29⁻		
297.3[a] *3*		5673.1	20⁻	5375.8	19⁻		
302.9[a] *4*		1248.3+x	J1+3	945.4+x	J1+2	(D)[#]	DCO=0.94 *18*
304.1[a] *3*		6565.4	(21⁺)	6261.3	(20⁺)	(M1+E2)	DCO=1.00 *6*; pol=−0.58 *39* Mult.: (M1+E2) from DCO and POL.
305.5 *3*	28.9 *6*	2078.8	7⁻	1773.3	6⁺	D[#]	DCO=0.73 *2*
307.5[a] *5*		1863.6+x	J1+5	1556.1+x	J1+4		
307.8[a] *5*		1556.1+x	J1+4	1248.3+x	J1+3		
308.8 *3*	10.4 *5*	4552.9	18⁻	4244.0	16⁻	(E2)[‡]	DCO=1.29 *10*
314.0[a] *4*		7811.2	27⁻	7497.2	26⁻		
314.0[a] *4*		8125.2	28⁻	7811.2	27⁻		
314.1[a] *3*		2820.8+x	J1+8	2506.7+x	J1+7		
314.2[a] *3*		7621.6	(24⁺)	7307.4	(23⁺)		
315.0[a] *4*		8440.1	29⁻	8125.2	28⁻		
321.1[a] *5*		2184.7+x	J1+6	1863.6+x	J1+5	(D)[#]	DCO=1.07 *12*
322.0[a] *5*		2506.7+x	J1+7	2184.7+x	J1+6		
328.9[a] *3*		6894.3	(22⁺)	6565.4	(21⁺)	(M1+E2)	DCO=0.98 *8*; pol=−0.47 *38* Mult.: from DCO and POL.
335.8[a] *3*		3156.6+x	J1+9	2820.8+x	J1+8		

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$^{160}Gd(^{34}S,4n\gamma)$ 1994Be27,2001Wi11 (continued)

$\gamma(^{190}Hg)$ (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
339.7[a] 3		7996.4	27⁻	7656.7	(26⁻)		
343.8 3	0.8 2	4088.3	15⁻	3744.5	14⁺	D[#]	DCO=0.63 12
347.2[a] 3		6833.2	23⁻	6486.0	22⁻		
354.0[a] 3		3510.6+x	J1+10	3156.6+x	J1+9		
362.5[a] 3		7256.8	(23⁺)	6894.3	(22⁺)	(D)[#]	DCO=1.09 9; pol=−0.17 34
371.0[a] 5		6936.4	(22⁺)	6565.4	(21⁺)		
371.0[a] 5		7307.4	(23⁺)	6936.4	(22⁺)		
376.9[a] 3		6050.0	21⁻	5673.1	20⁻		
381.3[a] 3		3891.9+x	J1+11	3510.6+x	J1+10	(D)[#]	DCO=0.97 15
383.2[a] 3		7640.0	(24⁺)	7256.8	(23⁺)	(M1+E2)	DCO=0.85 14; pol=−0.65 42 Mult.: (M1+E2) from DCO and POL.
383.3 3	16.7 5	4711.8	19⁻	4328.4	17⁻	(E2)[‡]	DCO=1.41 5
388.8 3	3.7 5	2724.8	10⁻	2336.0	9⁻	D[#]	DCO=0.76 12
395.0[a] 5		8876.7	(27⁺)	8481.7	(26⁺)		
405.3 3	7.3 8	2724.8	10⁻	2319.5	8⁻	(E2)[‡]	DCO=1.31 5
410.7[a] 4		4302.6+x	J1+12	3891.9+x	J1+11		
411.3[a] 3		9147.2	31⁻	8735.8	30⁻		
412.5[a] 3		8052.5	(25⁺)	7640.0	(24⁺)	(D)[#]	DCO=1.08 13
[x]413.2[@] 3	1.7 3					[‡]	DCO=0.92 14
416.6 3	100.0 10	416.6	2⁺	0.0	0⁺	(E2)[‡]	DCO=1.01 2
416.6[a] 5		3282.7	(10⁻)	2866.1	11⁻		
418.7[a] 3		5639.9	(17⁺)	5221.2	16⁺		
420.0 3	26.2 5	3041.3	14⁺	2621.2	12⁺	(E2)[‡]	DCO=1.24 4
422.2 3		5375.8	19⁻	4953.7	17⁻		
429.2[a] 3		8481.7	(26⁺)	8052.5	(25⁺)	(D)[#]	DCO=1.2 2
436.2[a] 3		6486.0	22⁻	6050.0	21⁻		
436.8[a] 3		9584.0	32⁻	9147.2	31⁻		
438.0[a] 4		4740.6+x	J1+13	4302.6+x	J1+12		
447.4[a] 3		10031.4	33⁻	9584.0	32⁻		
450[a]		5557.1	20⁻	5107.3	20⁻		
455.1[a] 3		7656.7	(26⁻)	7201.7	25⁻		
461.5 3	1.4 5	5944.2	22⁺	5482.7	20⁺	(E2)[‡]	DCO=1.23 11
466.6 3	6.4 7	3744.5	14⁺	3277.9	12⁺	(E2)[‡]	DCO=1.21 8
484.6 3	2.7 8	3329.9	12⁻	2845.3	10⁻	Q[‡]	DCO=1.42 15
486.0 3	1.4 4	4669.6	17⁻	4183.6	15⁻		
486.1[a] 3		6972.0	24⁻	6486.0	22⁻		
486.6 3	6.8 10	3494.3	13⁻	3007.7	11⁻	(E2)[‡]	DCO=1.34 16
492.7 3	1.0 3	3358.8	12⁻	2866.1	11⁻	(D)[#]	DCO=1.16 20
499.2 3		7996.4	27⁻	7497.2	26⁻		
505.1[a] 3		3951.4	13⁺	3446.3	11⁺	E2	DCO=1.66 11; pol=+0.48 22 Mult.: E2 from DCO and POL.
525.7 3	7.3 5	2845.3	10⁻	2319.5	8⁻	Q[‡]	DCO=1.36 11
530.1 3	20.0 7	2866.1	11⁻	2336.0	9⁻	Q[‡]	DCO=1.32 3
539.0 3	14.1 10	4088.3	15⁻	3549.3	13⁻	Q[‡]	DCO=1.17 3
540.0 3	3.8 10	4244.0	16⁻	3704.0	16⁺		DCO=0.88 10 DCO is consistent with ΔJ=(0), (dipole) transition.
554.2 3	5.9 8	5107.3	20⁻	4552.9	18⁻	Q[‡]	DCO=1.24 4
555.7 3	1.4 8	4916.3	18⁺	4360.6	16⁺	Q[‡]	DCO=1.36 10

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^{160}Gd(^{34}S,4nγ) 1994Be27,2001Wi11 (continued)

γ(^{190}Hg) (continued)

Eγ	Iγ[†]	Ei(level)	J^{π}_i	E_f	J^{π}_f	Mult.	Comments
566.3 3	5.8 7	5795.8	22+	5229.6	20+	Q[‡]	DCO=1.33 8
569.4[a] 3		5673.1	20−	5103.7	18−		
570[a]		6126.9	22−	5557.1	20−		
570.5 3	4.5 5	5282.3	20−	4711.8	19−	Q[‡]	DCO=1.58 11
575.2 3	1.2 5	4992.3	18+	4417.1	16+	(Q)[‡]	DCO=1.03 23
577.5 3	1.2 2	6521.7	24+	5944.2	22+	Q[‡]	DCO=1.13 12
591.6 3	0.8 3	5944.2	22+	5352.6	20+	Q[‡]	DCO=1.30 10
594.0 3	3.5 4	4088.3	15−	3494.3	13−	Q[‡]	DCO=1.31 8
610.6[a] 3		8735.8	30−	8125.2	28−		
616.1[a] 3		3213.3	10+	2597.2	10+		
616.1 3	2.0 3	4360.6	16+	3744.5	14+	Q[‡]	DCO=1.16 9
621.8 3	11.8 6	3980.6	14−	3358.8	12−	(Q)[‡]	DCO=1.05 10
624.4[b] 3	1.7 3	4328.4	17−	3704.0	16+	D[#]	DCO=0.99 10
625.0 3	7.1 4	5336.9	21−	4711.8	19−		
625.6 3	95.5 22	1042.2	4+	416.6	2+		
626.8[a] 4		4578.2	15+	3951.4	13+		
634.0 3	10.1 5	3358.8	12−	2724.8	10−	Q[‡]	DCO=1.16 5
640.1[a] 3		3213.3	10+	2573.2	8+		
643.0[a] 3		5221.2	16+	4578.2	15+	Q	DCO=1.9 3
650.6 3	2.7 5	3980.6	14−	3329.9	12−	Q[‡]	DCO=1.52 21
662.7[&] 2	22.7 5	3704.0	16+	3041.3	14+	Q[‡]	DCO=1.30 6
669.1 3	1.0 3	5661.4	20+	4992.3	18+	Q[‡]	DCO=1.54 41
672.6 3	2.1 4	4417.1	16+	3744.5	14+	Q[‡]	DCO=1.24 11
674.2[a] 3		6050.0	21−	5375.8	19−		
680.7 3	6.3 4	3277.9	12+	2597.2	10+	Q[‡]	DCO=1.45 6
683.2 3	17.7 5	3549.3	13−	2866.1	11−	Q[‡]	DCO=1.29 5
685.5[a] 3		3282.7	(10−)	2597.2	10+		
689.4 3	2.9 9	4183.6	15−	3494.3	13−	Q[‡]	DCO=1.40 20
692.0 3	43.5 9	2465.3	8+	1773.3	6+	Q[‡]	DCO=1.15 6
695.1[a] 3		4953.7	17−	4258.6	15−		
707.1[a] 3		9147.2	31−	8440.1	29−		
709.4 3	2.1 2	4258.6	15−	3549.3	13−	Q[‡]	DCO=1.42 17 Placement is from 2001Wi11. 1994Be27 placed this γ from a 4672.1, (17−) level.
709.5[a] 3		3282.7	(10−)	2573.2	8+		
711[a]		5264.2	19−	4552.9	18−		
720.0[a] 3		6050.0	21−	5330.1	19−		
725.9 3	1.8 2	6521.7	24+	5795.8	22+	(Q)[‡]	DCO=0.91 10
731.1[&] 2	76.1 13	1773.3	6+	1042.2	4+	Q[‡]	DCO=1.14 4
736.4 3	8.3 6	5229.6	20+	4493.2	18+	Q[‡]	DCO=1.27 4
741.0 3	2.3 3	5970.6	22+	5229.6	20+	Q[‡]	DCO=1.27 9
745.1 3	0.9 3	5661.4	20+	4916.3	18+	Q[‡]	DCO=1.19 10
748.0[a] 3		3213.3	10+	2465.3	8+		
750.5 3	3.3 3	5858.0	22−	5107.3	20−	Q[‡]	DCO=1.27 7
761.1 3	2.2 4	7282.8	26+	6521.7	24+	Q[‡]	DCO=1.27 14
770.2[&] 3	0.8 3	4953.7	17−	4183.6	15−	Q[‡]	DCO=1.33 16
776.7 3	1.4 2	7298.4	26+	6521.7	24+	Q[‡]	DCO=1.32 15

Continued on next page (footnotes at end of table)

$^{160}Gd(^{34}S,4n\gamma)$ 1994Be27,2001Wi11 (continued)

$\gamma(^{190}Hg)$ (continued)

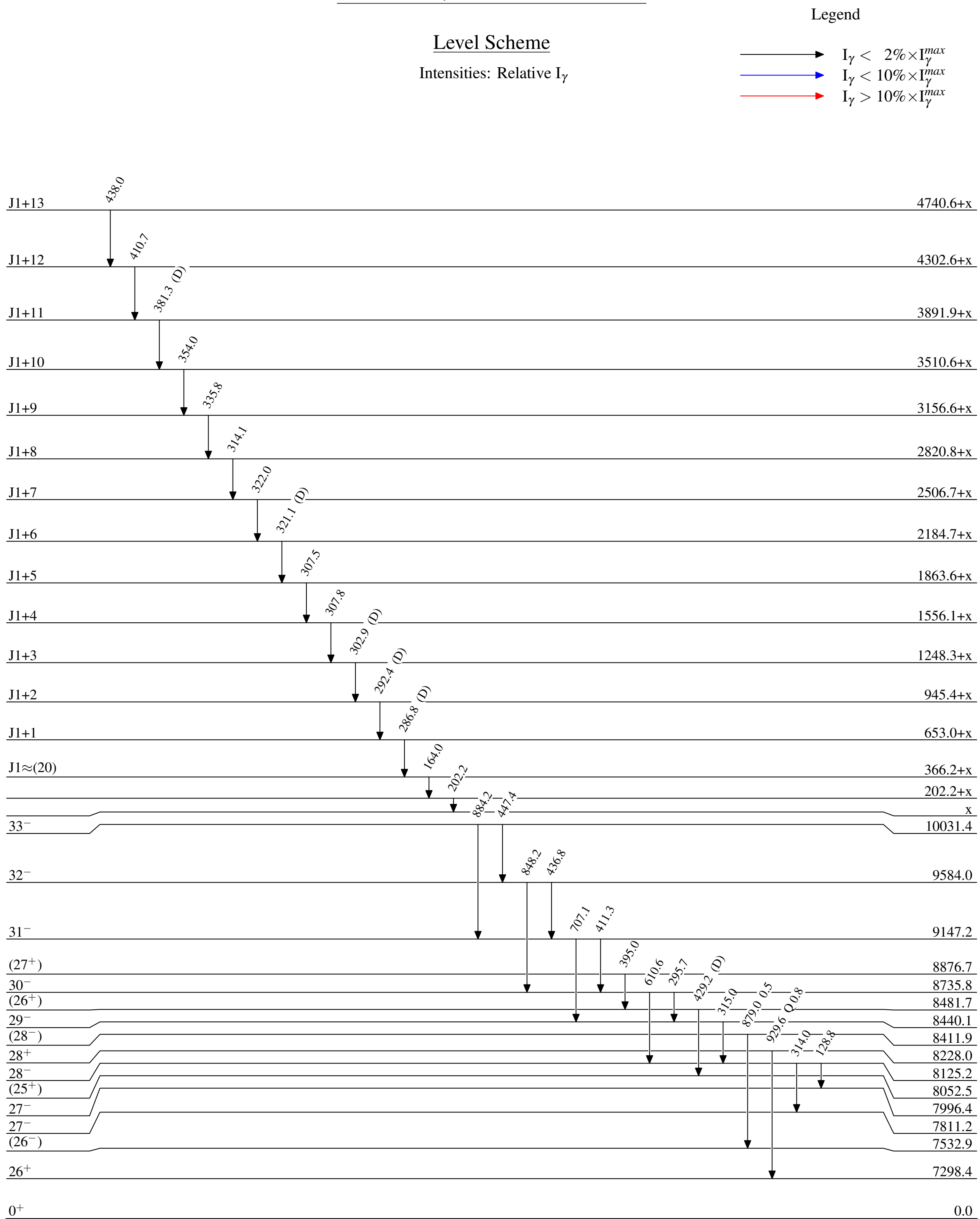
E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
777.3[a] 3		3350.5	(10+)	2573.2	8+		
783.3[a] 3		6833.2	23−	6050.0	21−		
789.2 3	15.1 7	4493.2	18+	3704.0	16+	Q[‡]	DCO=1.29 4
790.1 3	1.4 5	6126.9	22−	5336.9	21−	Q[‡]	DCO=1.46 15
800[a]		2573.2	8+	1773.3	6+		
804.0 3	4.0 8	6930.9	24−	6126.9	22−	Q[‡]	DCO=1.47 17
807.7 3	4.5 8	6144.7	23−	5336.9	21−	Q[‡]	DCO=1.25 10
808.4 3	1.4 3	8091.2	28+	7282.8	26+	Q[‡]	DCO=1.35 10
813.0[a] 3		6486.0	22−	5673.1	20−		
826.9 3	1.1 3	6684.9	24−	5858.0	22−	Q[‡]	DCO=1.25 23
827.7[a] 3		5405.9	16+	4578.2	15+		pol=−0.42 30 Mult.: (M1+E2) from POL.
839.5 3	14.7 7	1881.6	5−	1042.2	4+	D[#]	DCO=0.77 6
844.6 3	4.0 5	6126.9	22−	5282.3	20−	Q[‡]	DCO=1.25 9
845.3[a] 3		6972.0	24−	6126.9	22−		
848.0 3	1.3 3	7532.9	(26−)	6684.9	24−		
848.2[a] 3		9584.0	32−	8735.8	30−		
859.4 3	2.8 3	5352.6	20+	4493.2	18+	Q[‡]	DCO=1.34 13
867.9 3	1.0 3	6220.5	22+	5352.6	20+	Q[‡]	DCO=1.61 35
878.7 3	1.6 4	7809.6	26−	6930.9	24−	Q[‡]	DCO=1.53 31
879.0 3	0.5 2	8411.9	(28−)	7532.9	(26−)		
884.2[a] 3		10031.4	33−	9147.2	31−		
892.7 3	1.9 4	7037.6	25−	6144.7	23−	Q[‡]	DCO=1.32 16
896.6 3	2.1 5	7827.5	25	6930.9	24−	D[#]	DCO=0.78 9
919.7 3	0.5 2	7957.3	27−	7037.6	25−	Q[‡]	DCO=1.37 30
929.6 3	0.8 2	8228.0	28+	7298.4	26+	Q[‡]	DCO=1.25 15
936		5264.2	19−	4328.4	17−		
958.6 3	0.5 2	7996.4	27−	7037.6	25−	Q[‡]	DCO=1.23 20
975.1[a] 3		6833.2	23−	5858.0	22−		
989.6 3	1.8 3	5482.7	20+	4493.2	18+	Q[‡]	DCO=1.34 15
1001.8[a] 3		5330.1	19−	4328.4	17−		
1114.0[a] 3		6972.0	24−	5858.0	22−		

[†] From 1994Be27.
[‡] DCO ratio indicates ΔJ=2, quadrupole (likely E2) transition. Evaluators assign (E2) for γ rays below 500 keV based on RUL for E2 and M2, assuming that the level half-lives are <20 ns, comparable to the resolving time in $\gamma\gamma$-coin arrangement.
[#] DCO ratio indicates ΔJ=1, dipole transition.
[@] γ placed from/to a 3962.7, (15−) level by 1994Be27 not confirmed in the higher-statistics experiment of 2001Wi11.
[&] From 2001Wi11 and 2001WiZZ. Value from 1994Be27 is in agreement but somewhat less precise.
[a] New γ from 2001Wi11 and 2001WiZZ.
[b] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

$^{160}Gd(^{34}S,4n\gamma)$ 1994Be27,2001Wi11

Level Scheme

Intensities: Relative I_γ



$^{190}_{80}Hg_{110}$

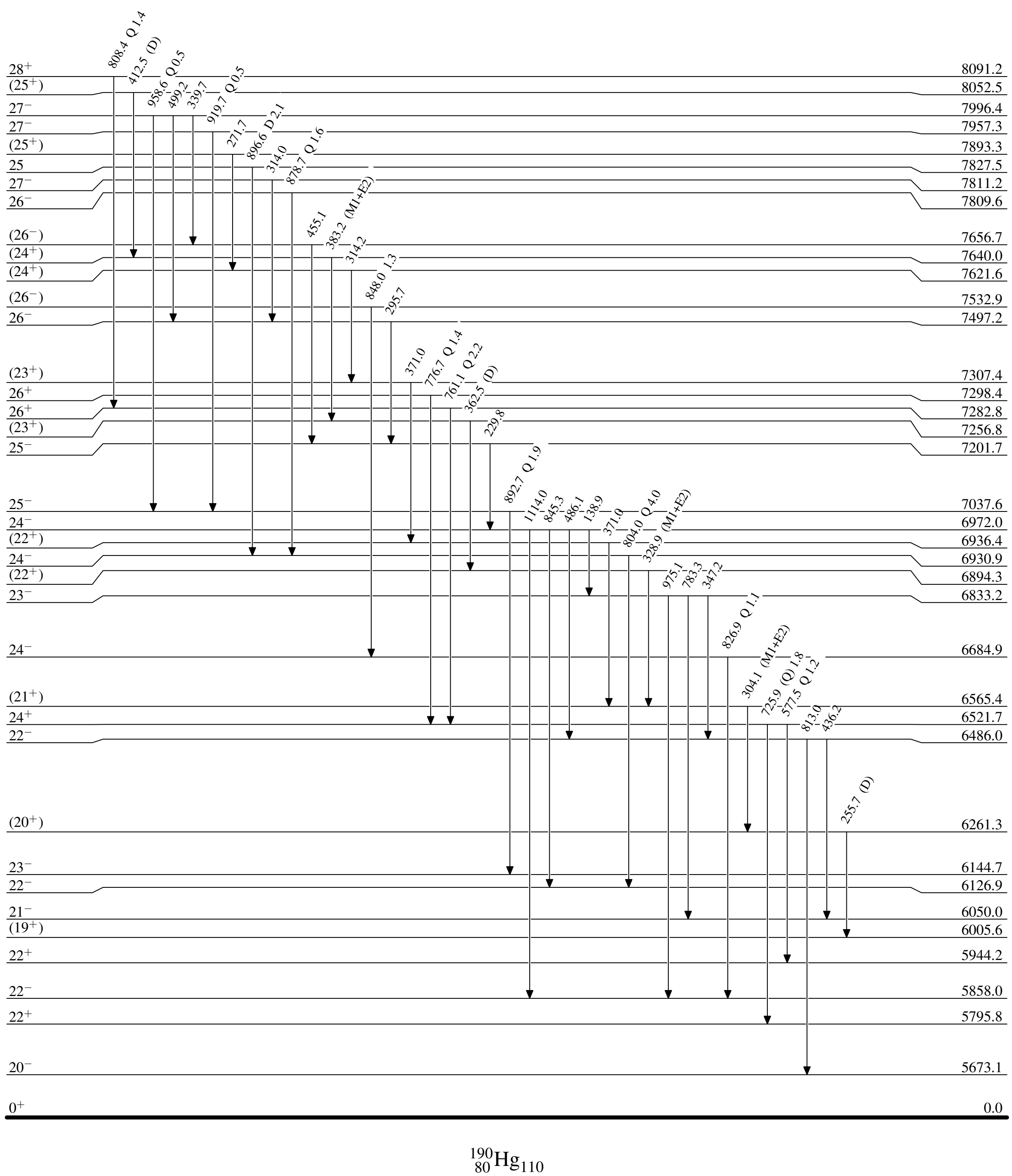
$^{160}Gd(^{34}S,4n\gamma)$ 1994Be27,2001Wi11

Level Scheme (continued)

Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



$^{190}_{80}Hg_{110}$

$^{160}Gd(^{34}S,4n\gamma)$ 1994Be27,2001Wi11

Level Scheme (continued)

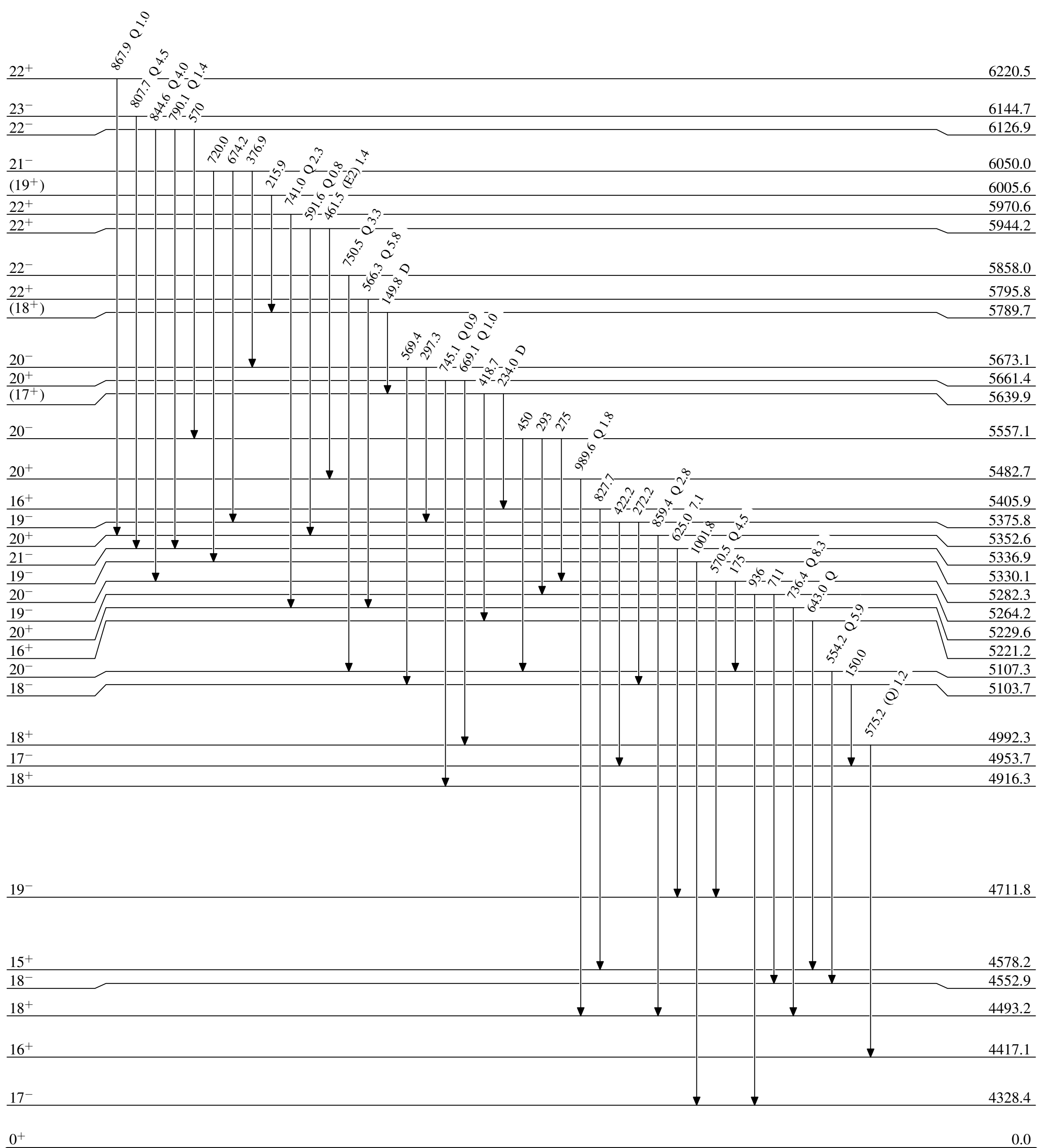
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$

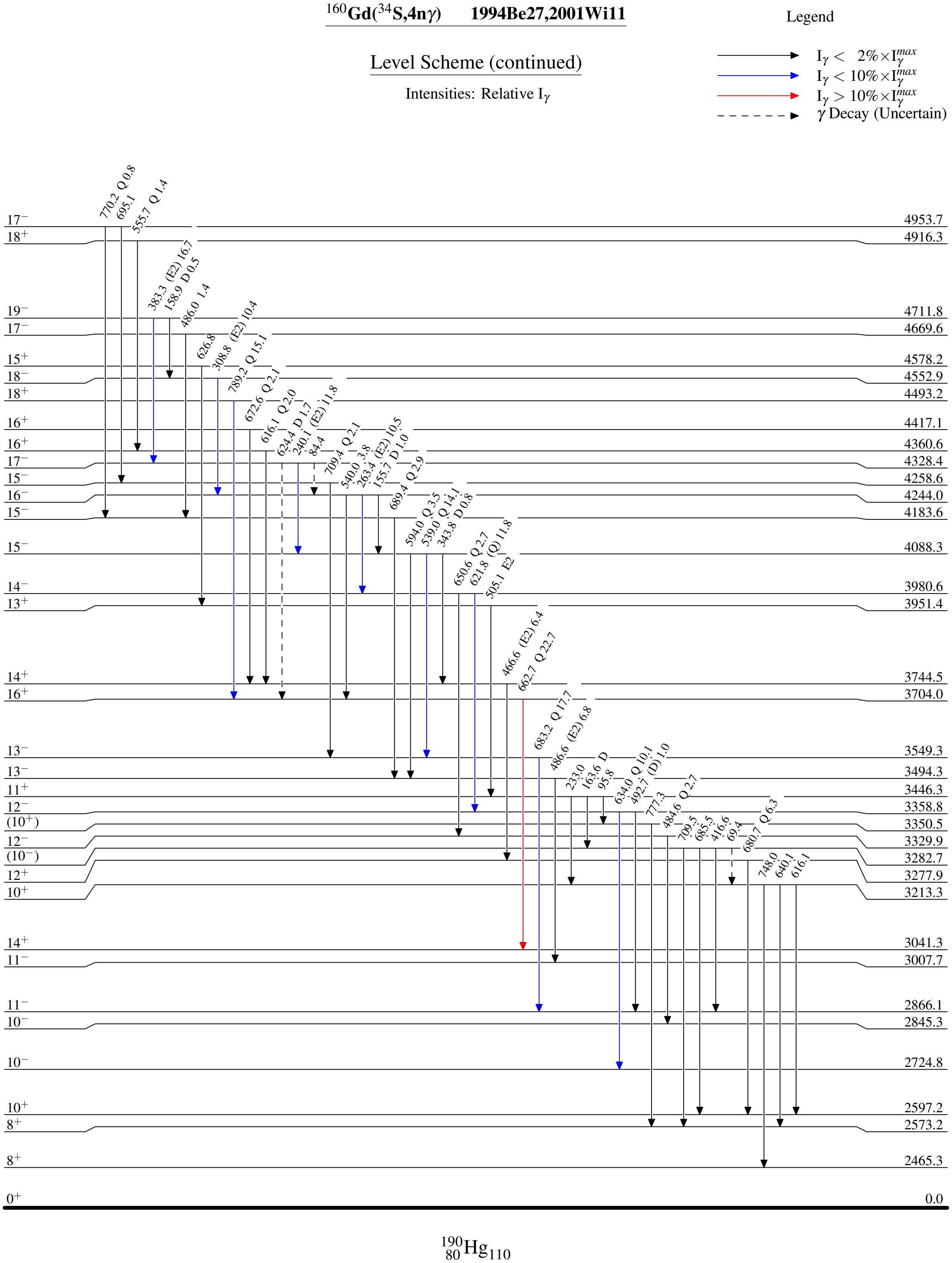


$^{190}_{80}Hg_{110}$

$^{160}Gd(^{34}S,4n\gamma)$ 1994Be27,2001Wi11

Level Scheme (continued)

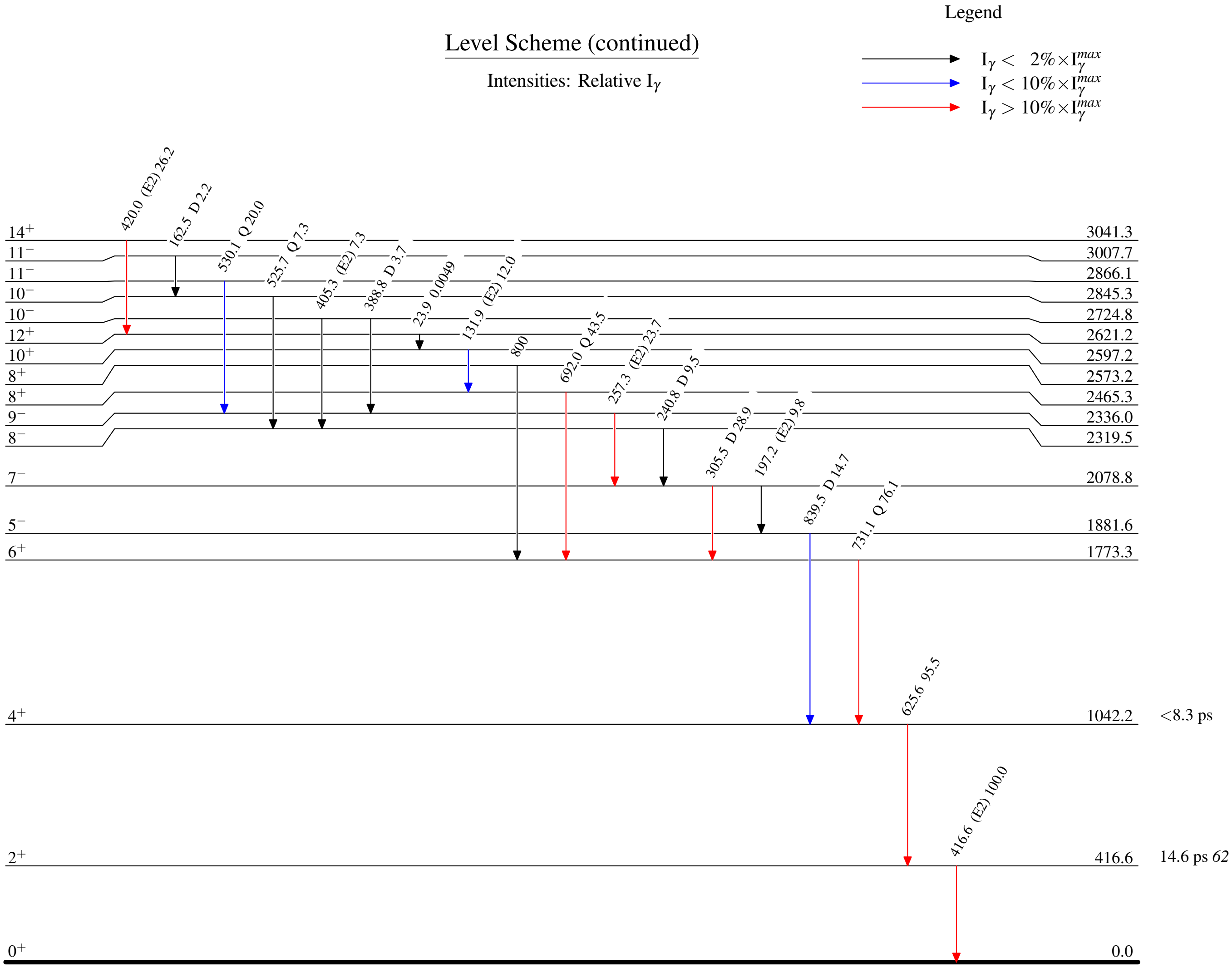
Intensities: Relative I_γ



$^{160}Gd(^{34}S,4n\gamma)$ 1994Be27,2001Wi11

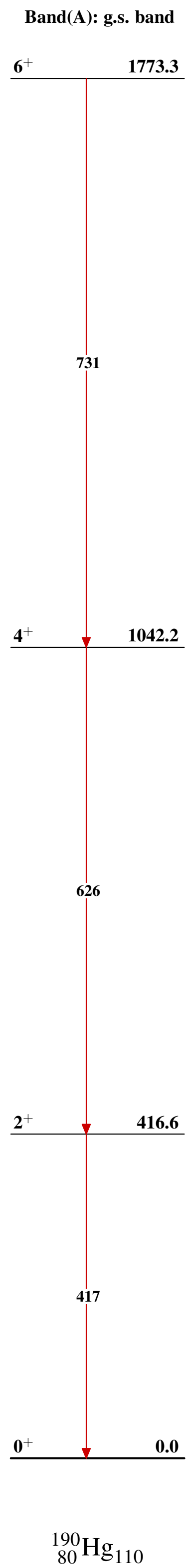
Level Scheme (continued)

Intensities: Relative I_γ

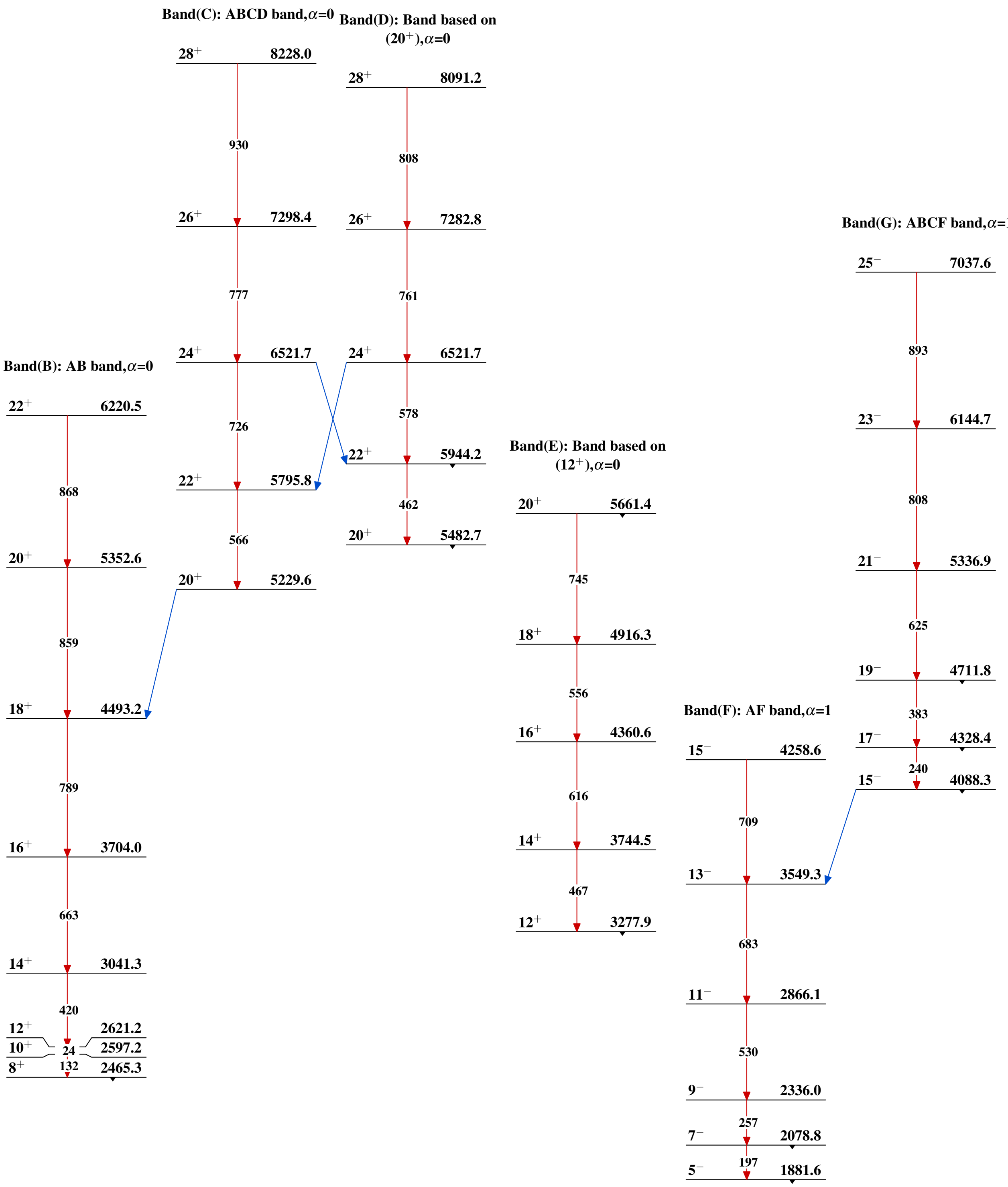


$^{190}_{80}Hg_{110}$

^{160}Gd(^{34}S,4nγ) 1994Be27,2001Wi11

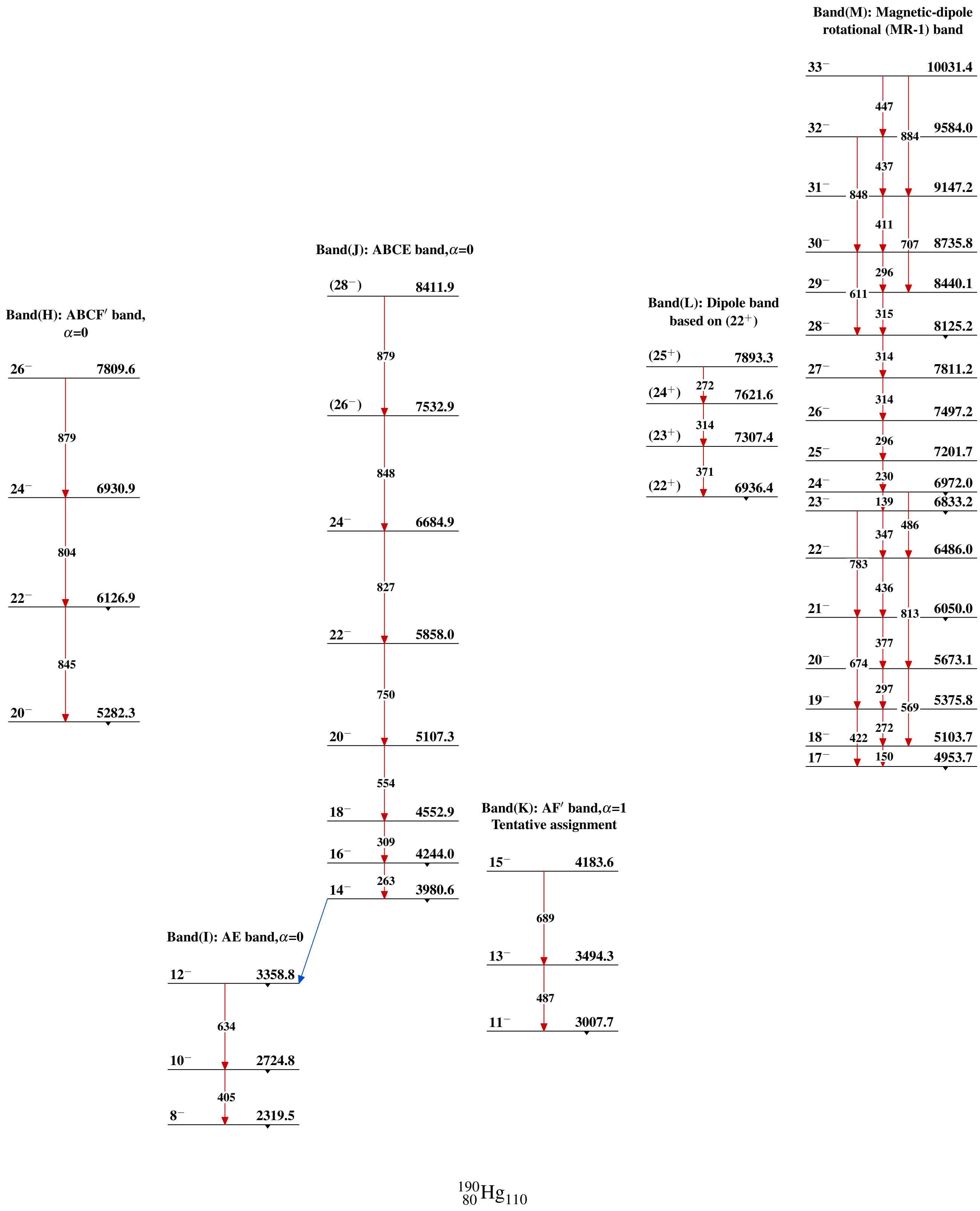


^{160}Gd(^{34}S,4nγ) 1994Be27,2001Wi11 (continued)

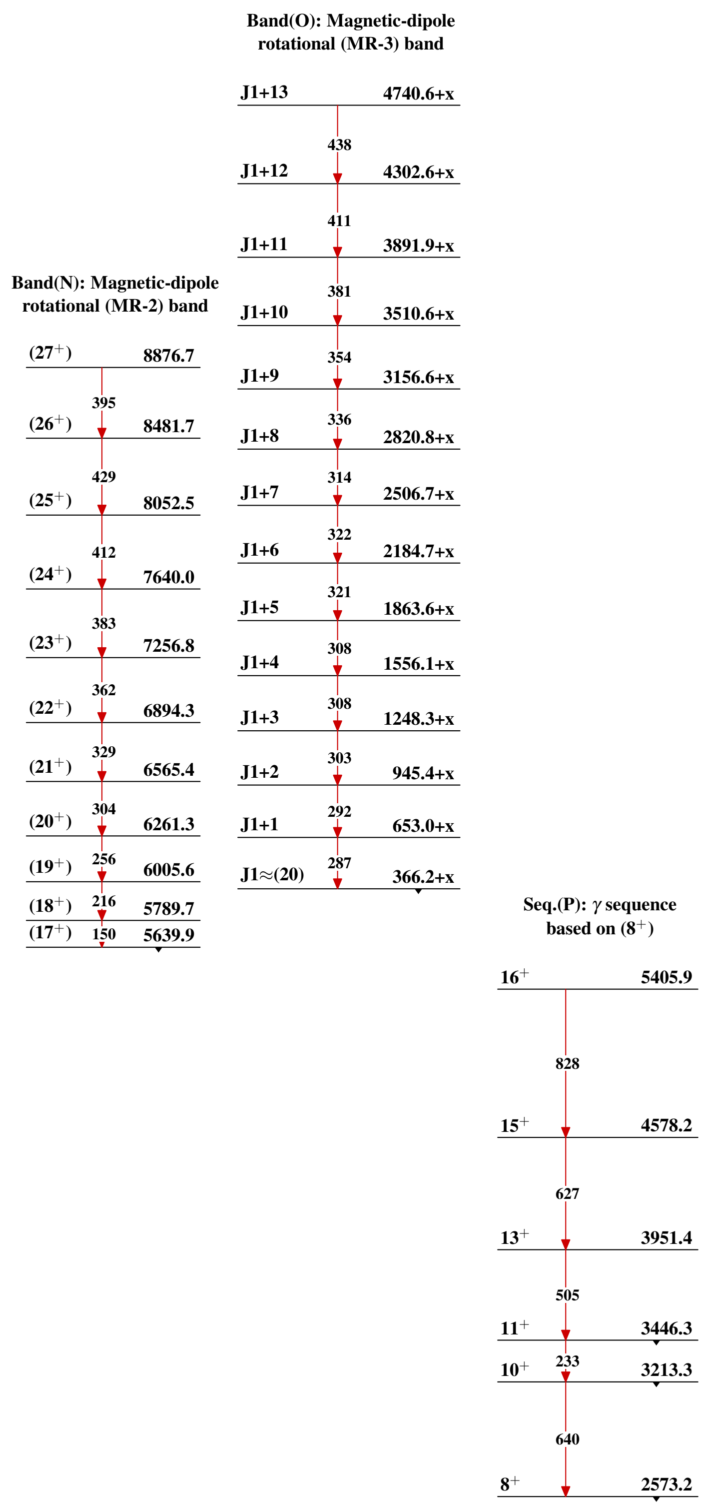


$^{190}_{80}Hg_{110}$

$^{160}Gd(^{34}S,4n\gamma)$ 1994Be27,2001Wi11 (continued)



$^{160}Gd(^{34}S,4n\gamma)$ 1994Be27,2001Wi11 (continued)



$^{190}_{80}Hg_{110}$