^{186}W(^{11}B,7nγ) 2004Gu07,2001Gu29

History

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

2004Gu07, 2001Gu29: E=84, 86 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$, γ(lin pol), ce using Eurogam II array with 30 large volume Compton-suppressed Ge detectors and 24 composite Clover type Ge detectors. The electron spectrometer consisted of a magnetic lens coupled to a Si(Li) detector.

All data are from 2004Gu07, which supersedes 2001Gu29.

^{190}Au Levels

Quasiparticle labeling scheme (2004Gu07):
A: $\nu i_{13/2},\alpha=+1/2$.
B: $\nu i_{13/2},\alpha=-1/2$.
C: $\nu i_{13/2},\alpha=+1/2$.
D: $\nu i_{13/2},\alpha=-1/2$.
E: $\nu h_{9/2},\alpha=-1/2$.
F: $\nu h_{9/2},\alpha=+1/2$.
e: $\pi h_{11/2},\alpha=-1/2$.

E(level)†	J$^\pi$‡	T$_{1/2}$	Comments
0.0+x#	11$^-$	125 ms *20*	T$_{1/2}$: from the Adopted Levels. E(level): x=200 *150* (syst,2017Au03).
282.07+x@ *16*	12$^-$		
427.73+x# *16*	13$^-$		
743.55+x@ *23*	14$^-$		
1145.45+x# *23*	15$^-$		
1468.33+x@ *25*	16$^-$		
1598.4+xg *3*	15$^+$		
1830.7+xg *3*	17$^+$		
1929.8+x# *3*	17$^-$		
2093.0+x *4*	17$^-$		
2110.1+x *4*	18$^+$		
2148.9+x *4*	18$^+$		
2172.1+xc *4*	20$^+$	7.0 ns *3*	T$_{1/2}$: from γ(t) pulsed beam (2001Gu29). Configuration=$\pi h^{-1}_{11/2}\otimes\nu(i^{-2}_{13/2},h^{-1}_{9/2})$.
2265.4+x@ *3*	18$^-$		
2283.3+x *3*	19$^-$		
2365.8+xg *4*	19$^+$		
2436.3+x# *3*	19$^-$		
2496.7+x *5*	19$^+$		
2662.6+xd *4*	21$^+$		
2665.5+x *5*	20$^+$		
2727.5+xc *4*	22$^+$		
2728.9+x@ *4*	20$^-$		
2816.3+x *5*			
2899.2+x# *4*	21$^-$		
2978.4+x& *4*	22$^-$		
2995.4+xg *4*	21$^+$		
3002.3+xe *4*	22$^+$		
3067.1+x *4*	22$^-$		

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$^{186}W(^{11}B,7n\gamma)$ 2004Gu07,2001Gu29 (continued)

^{190}Au Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
3088.5+x *4*	21^+	4213.9+x[a] *5*	26^-	4938.3+x[f] *7*	29^+	6052.3+x[c] *6*	32^+
3213.8+x *5*		4268.2+x[&] *5*	26^-	5031.6+x[a] *5*	28^-	6069.5+x[a] *7*	31^-
3255.6+x[d] *4*	23^+	4288.2+x *6*		5120.0+x[&] *7*	28^-	6135.3+x *6*	32^+
3340.7+x *6*	22^+	4333.4+x[c] *5*	26^+	5151.1+x *6*	28	6220.3+x[e] *7*	32^+
3456.8+x[f] *4*	23^+	4373.2+x[f] *5*	27^+	5151.2+x[e] *6*	28^+	6330.9+x *8*	
3459.9+x[b] *4*	23^-	4400.1+x[b] *5*	26^-	5309.3+x[a] *5*	29^-	6344.2+x *6*	32^-
3490.5+x[&] *5*	24^-	4516.0+x[e] *6*	26^+	5331.8+x *6*	29^-	6386.5+x[b] *6*	32^-
3494.4+x[c] *4*	24^+	4546.9+x *5*	27^-	5378.8+x[c] *5*	30^+	6388.9+x[&] *8*	
3524.0+x *5*	23	4644.5+x[c] *5*	28^+	5437.5+x *8*	29^+	6759.9+x[a] *8*	33^-
3677.7+x[e] *5*	24^+	4674.5+x[a] *5*	27^-	5506.4+x[b] *5*	30^-	6769.9+x *7*	34^+
3741.9+x[g] *6*	23^+	4734.0+x *6*	27^+	5567.3+x *6*	29	7019.7+x[b] *6*	34^-
3792.1+x[b] *4*	25^-	4736.6+x *6*	27^-	5587.6+x[&] *7*	30^-	7033.7+x[c] *7*	34^+
3822.5+x[f] *5*	25^+	4746.0+x *6*	27^+	5587.8+x *5*	30^-	7066.1+x[e] *9*	
4104.9+x *7*	24^+	4794.6+x[b] *5*	28^-	5740.8+x[e] *6*	30^+	7268.1+x *7*	36^+
4105.3+x[d] *4*	25^+	4813.0+x *7*		5928.2+x *8*		7886.0+x[b] *7*	36^-

† From least-squares fit to Eγ values.

‡ As given by 2004Gu07 based on their γ(θ), γ(linear pol) and ce data, together with band associations.

Band(A): $\pi h^{-1}_{11/2}\otimes\nu i^{-1}_{13/2}$,α=1. Rotation-aligned band based on 11^+.

@ Band(a): $\pi h^{-1}_{11/2}\otimes\nu i^{-1}_{13/2}$,α=0. Rotation-aligned band based on 12^+.

& Band(B): $\pi h^{-1}_{11/2}\otimes\nu i^{-3}_{13/2}$. Band based on 22^-.

a Band(C): Multi-qp band based on 26^-. Configuration=$\pi h^{-1}_{11/2}\otimes\nu[(i^{-3}_{13/2}h^{-1}_{9/2})(p_{3/2},f_{5/2})^1]$.

b Band(D): Multi-qp band based on 23^-. Configuration=$\pi h^{-1}_{11/2}\otimes\nu[(i^{-3}_{13/2}h^{-1}_{9/2})(p_{3/2},f_{5/2})^1]$. Members of this band are not clearly labeled in either Fig. 1 or the text in 2004Gu07.

c Band(E): $\pi h^{-1}_{11/2}\otimes\nu(i^{-2}_{13/2}h^{-1}_{9/2})$,α=0. eFBC configuration; band based on 20^+ isomer.

d Band(e): $\pi h^{-1}_{11/2}\otimes\nu(i^{-2}_{13/2}h^{-1}_{9/2})$,α=1. eFAC configuration; band based on 20^+ isomer.

e Band(F): eFAB band based on 22^+.

f Band(G): Possible non-collective band based on 23^+.

g Band(H): Multi-qp band based on 15^+. Configuration=$\pi h^{-1}_{11/2}\otimes\nu[(i^{-2}_{13/2})(p_{3/2},f_{5/2})^1]$.

γ(^{190}Au)

Eγ†	Iγ†	Ei(level)	Jiπ	Ef	Jfπ	Mult.#	α@	I(γ+ce)†	Comments
(23.1‡ *5*)		2172.1+x	20^+	2148.9+x	18^+				
(62.0‡ *5*)		2172.1+x	20^+	2110.1+x	18^+				
(65.1‡ *5*)		2727.5+x	22^+	2662.6+x	21^+			6‡	
79.2 *4*		2978.4+x	22^-	2899.2+x	21^-	M1	2.57 *6*	34‡	α(M)exp=0.30 *14* α(L)=1.97 *4*; α(M)=0.458 *10* α(N)=0.1140 *24*; α(O)=0.0210 *5*; α(P)=0.00141 *3*
111.1 *2*	11 *1*	2283.3+x	19^-	2172.1+x	20^+	E1	0.318	15	A_2=−0.68 *4*; A_4=+0.3 *1*; α(L)exp=0.042 *10* α(K)=0.256 *4*; α(L)=0.0476 *7*; α(M)=0.01110 *17* α(N)=0.00272 *4*; α(O)=0.000469 *7*; α(P)=2.14×10^{-5} *4* Magnitude of A_4 is inconsistent with

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^{186}W(^{11}B,7nγ) 2004Gu07,2001Gu29 (continued)

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

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	α@	$I_{(\gamma+ce)}$ †	Comments
									ΔJ=1, E1; suggests a large quadrupole admixture.
134.2 *3*	0.8 *3*	2283.3+x	19$^-$	2148.9+x	18$^+$	[E1]	0.197	1	A_2=−0.3 *2*; A_4=+0.1 *1*
145.5 *2*	19 *2*	427.73+x	13$^-$	282.07+x	12$^-$	M1	2.49	69	A_2=−0.42 *6*; A_4=+0.07 *8*; α(K)exp=1.4 *3* α(K)=2.04 *3*; α(L)=0.342 *5*; α(M)=0.0793 *12* α(N)=0.0198 *3*; α(O)=0.00363 *6*; α(P)=0.000245 *4*
152.8 *3*	0.7 *2*	2436.3+x	19$^-$	2283.3+x	19$^-$	[M1]	2.17	2.5	A_2=+0.2 *2*; A_4=+0.2 *1* ΔJ=0 transition. Magnitude of A_4 suggests quadrupole admixture.
158.2 *3*	0.2 *1*	5309.3+x	29$^-$	5151.1+x	28				
167.8 *4*	2.7 *5*	3067.1+x	22$^-$	2899.2+x	21$^-$	M1	1.66 *3*	7	A_2=−0.5 *1*; A_4=+0.1 *2*; α(K)exp=1.5 *6* α(K)=1.366 *22*; α(L)=0.228 *4*; α(M)=0.0529 *9* α(N)=0.01317 *21*; α(O)=0.00242 *4*; α(P)=0.000164 *3*
170.2 *3*	9 *2*	2899.2+x	21$^-$	2728.9+x	20$^-$	M1	1.597	24	A_2=−0.31 *4*; A_4=+0.05 *8*; α(K)exp=1.4 *3* α(K)=1.313 *20*; α(L)=0.219 *4*; α(M)=0.0508 *8* α(N)=0.01265 *19*; α(O)=0.00233 *4*; α(P)=0.0001571 *24* A_2 and A_4 for 170.2+170.4.
170.4 *4*	10 *2*	2436.3+x	19$^-$	2265.4+x	18$^-$	M1	1.592 *25*	26	A_2=−0.31 *4*; A_4=+0.05 *8*; α(K)exp=1.5 *2* α(K)=1.308 *21*; α(L)=0.218 *4*; α(M)=0.0506 *8* α(N)=0.01261 *20*; α(O)=0.00232 *4*; α(P)=0.0001566 *25* A_2 and A_4 for 170.2+170.4.
173.5 *4*	1.1 *3*	5740.8+x	30$^+$	5567.3+x	29			2.8	
179.0 *4*	0.2 *1*	2995.4+x	21$^+$	2816.3+x				0.4	
190.2 *3*	0.3 *1*	2283.3+x	19$^-$	2093.0+x	17$^-$	E2	0.445		A_2=+0.2 *1*; A_4=+0.09 *8*; α(K)exp=0.37 *11* α(K)=0.192 *3*; α(L)=0.190 *3*; α(M)=0.0489 *8* α(N)=0.01206 *19*; α(O)=0.00197 *3*; α(P)=1.96×10^{-5} *3* $I_{(\gamma+ce)}$: 3.5 quoted by 2004Gu07 seems incorrect, if Iγ=0.3.
201.3 *4*	0.3 *1*	3456.8+x	23$^+$	3255.6+x	23$^+$	[M1]	0.998	0.6	A_2=+0.4 *1*; A_4=+0.03 *8* ΔJ=0 transition.
228.0 *3*	2.3 *3*	4333.4+x	26$^+$	4105.3+x	25$^+$	M1	0.706	4	A_2=−0.27 *8*; A_4=+0.02 *8*; α(K)exp=0.57 *14* α(K)=0.580 *9*; α(L)=0.0963 *14*; α(M)=0.0223 *4* α(N)=0.00556 *8*; α(O)=0.001023 *15*; α(P)=6.92×10^{-5} *10*
232.3 *2*	81	1830.7+x	17$^+$	1598.4+x	15$^+$	E2	0.227	100	A_2=+0.21 *4*; A_4=−0.08 *8*; α(K)exp=0.14 *1*; pol=+0.106 *22* α(K)=0.1171 *17*; α(L)=0.0828 *12*; α(M)=0.0211 *3*

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$^{186}W(^{11}B,7n\gamma)$ 2004Gu07,2001Gu29 (continued)

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

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[@]	$I_{(\gamma+ce)}$[†]	Comments
									α(N)=0.00521 *8*; α(O)=0.000858 *13*; α(P)=1.213×10^{-5} *18*
238.9 *2*	6 *1*	3494.4+x	24$^+$	3255.6+x	23$^+$	M1	0.620	10	A_2=−0.3 *2*; A_4=−0.01 *8*; α(K)exp=0.67 *8* α(K)=0.510 *8*; α(L)=0.0846 *12*; α(M)=0.0196 *3* α(N)=0.00488 *7*; α(O)=0.000898 *13*; α(P)=6.08×10^{-5} *9*
247.6 *3*	5 *1*	4794.6+x	28$^-$	4546.9+x	27$^-$	(M1)	0.562	7	A_2=−0.21 *6*; A_4=−0.09 *8*
249.6 *4*	3 *1*	2978.4+x	22$^-$	2728.9+x	20$^-$	[E2]	0.180	3.6	A_2=+0.3 *1*; A_4=+0.10 *8* Sign of A_4 is inconsistent with ΔJ=2, quadrupole transition.
255.7 *4*	4 *1*	2365.8+x	19$^+$	2110.1+x	18$^+$	M1	0.514	5.5	A_2=−0.24 *6*; A_4=−0.06 *8*; α(K)exp=0.60 *10* α(K)=0.423 *7*; α(L)=0.0700 *11*; α(M)=0.01623 *24* α(N)=0.00404 *6*; α(O)=0.000744 *11*; α(P)=5.04×10^{-5} *8*
256.0 *3*	1.8 *4*	5587.8+x	30$^-$	5331.8+x	29$^-$	(M1)	0.513	2.8	A_2=−0.3 *1*; A_4=−0.09 *8*
277.7 *3*	1.0 *4*	5309.3+x	29$^-$	5031.6+x	28$^-$	M1	0.410	1.4	A_2=−0.1 *1*; A_4=−0.15 *8*; α(K)exp=0.53 *19* α(K)=0.337 *5*; α(L)=0.0558 *8*; α(M)=0.01292 *19* α(N)=0.00322 *5*; α(O)=0.000592 *9*; α(P)=4.01×10^{-5} *6* Sign of A_4 is inconsistent with ΔJ=1 transition.
279.3 *3*	15 *2*	2110.1+x	18$^+$	1830.7+x	17$^+$	M1	0.404	22	A_2=−0.07 *8*; A_4=+0.08 *8*; α(K)exp=0.36 *4* α(K)=0.332 *5*; α(L)=0.0549 *8*; α(M)=0.01272 *19* α(N)=0.00317 *5*; α(O)=0.000583 *9*; α(P)=3.95×10^{-5} *6*
282.0 *2*	68 *8*	282.07+x	12$^-$	0.0+x	11$^-$	M1	0.393	96	A_2=−0.11 *4*; A_4=−0.09 *8*; α(K)exp=0.39 *3*; pol=−0.079 *14* α(K)=0.324 *5*; α(L)=0.0534 *8*; α(M)=0.01239 *18* α(N)=0.00309 *5*; α(O)=0.000568 *8*; α(P)=3.84×10^{-5} *6*
292.6 *2*	27 *3*	2728.9+x	20$^-$	2436.3+x	19$^-$	M1	0.355	37	A_2=−0.09 *4*; A_4=−0.07 *8*; α(K)exp=0.36 *3*; pol=−0.076 *16* α(K)=0.293 *5*; α(L)=0.0483 *7*; α(M)=0.01119 *16* α(N)=0.00279 *4*; α(O)=0.000513 *8*; α(P)=3.47×10^{-5} *5*
299.6 *4*	4 *1*	2665.5+x	20$^+$	2365.8+x	19$^+$	[M1]	0.333	5	A_2=−0.02 *8*; A_4=+0.01 *8*
311.1 *2*	15 *3*	4644.5+x	28$^+$	4333.4+x	26$^+$	E2	0.0919	15	A_2=+0.23 *4*; A_4=−0.07 *8*; α(K)exp=0.097 *50*; pol=+0.100 *7* α(K)=0.0568 *8*; α(L)=0.0265 *4*; α(M)=0.00667 *10* α(N)=0.001648 *24*; α(O)=0.000276 *4*; α(P)=6.08×10^{-6} *9*
315.7 *3*	138 *12*	743.55+x	14$^-$	427.73+x	13$^-$	M1	0.289	179	A_2=−0.05 *4*; A_4=−0.06 *8*; α(K)exp=0.26 *2*; pol=−0.071 *8* α(K)=0.238 *4*; α(L)=0.0392 *6*;

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^{186}W(^{11}B,7nγ) 2004Gu07,2001Gu29 (continued)

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

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	α@	$I_{(\gamma+ce)}$ †	Comments
									α(M)=0.00908 *13* α(N)=0.00226 *4*; α(O)=0.000416 *6*; α(P)=2.82×10^{-5} *4* POL for 315.7+318.2.
318.2 *2*	85 *10*	2148.9+x	18$^+$	1830.7+x	17$^+$	M1	0.283	111	A_2=−0.10 *4*; A_4=−0.08 *8*; α(K)exp=0.23 *2*; pol=−0.071 *8* α(K)=0.233 *4*; α(L)=0.0384 *6*; α(M)=0.00889 *13* α(N)=0.00221 *4*; α(O)=0.000408 *6*; α(P)=2.76×10^{-5} *4* POL for 315.7+318.2.
319.5 *3*	0.9 *3*	2816.3+x		2496.7+x	19$^+$			1.2	A_2=+0.3 *1*; A_4=+0.16 *8*
322.8 *2*	32 *3*	1468.33+x	16$^-$	1145.45+x	15$^-$	M1	0.272	41	A_2=−0.04 *4*; A_4=−0.05 *8*; α(K)exp=0.20 *5*; pol=−0.040 *18* α(K)=0.224 *4*; α(L)=0.0369 *6*; α(M)=0.00855 *12* α(N)=0.00213 *3*; α(O)=0.000392 *6*; α(P)=2.66×10^{-5} *4*
329.8 *3*	1.3 *4*	2995.4+x	21$^+$	2665.5+x	20$^+$	[M1]	0.257	1.7	A_2=−0.1 *1*; A_4=0.00 *8*
332.2 *2*	41 *3*	3792.1+x	25$^-$	3459.9+x	23$^-$	E2	0.0760	44	A_2=+0.25 *4*; A_4=−0.14 *8*; α(K)exp=0.035 *6*; pol=+0.113 *12* α(K)=0.0484 *7*; α(L)=0.0208 *3*; α(M)=0.00522 *8* α(N)=0.001290 *19*; α(O)=0.000217 *3*; α(P)=5.22×10^{-6} *8*
335.6 *2*	9 *1*	2265.4+x	18$^-$	1929.8+x	17$^-$	M1	0.245	11	A_2=+0.01 *4*; A_4=−0.03 *8*; α(K)exp=0.18 *3*; pol=−0.064 *24* α(K)=0.202 *3*; α(L)=0.0332 *5*; α(M)=0.00769 *11* α(N)=0.00192 *3*; α(O)=0.000352 *5*; α(P)=2.39×10^{-5} *4*
339.7 *2*	7 *1*	3002.3+x	22$^+$	2662.6+x	21$^+$	M1	0.237	9	A_2=−0.14 *4*; A_4=−0.16 *8*; α(K)exp=0.11 *3*; pol=−0.76 *9* α(K)=0.195 *3*; α(L)=0.0321 *5*; α(M)=0.00744 *11* α(N)=0.00185 *3*; α(O)=0.000341 *5*; α(P)=2.31×10^{-5} *4* Sign of A_4 is inconsistent with ΔJ=1, M1.
343.6 *5*	1.9 *4*	2436.3+x	19$^-$	2093.0+x	17$^-$	[E2]	0.0691	2	A_2=+0.47 *8*; A_4=−0.20 *8*
345.4 *5*	1.4 *5*	3340.7+x	22$^+$	2995.4+x	21$^+$	[M1]		1.7	A_2=−0.1 *1*; A_4=−0.17 *8* Sign of A_4 is inconsistent with ΔJ=1, dipole transition.
353.6 *4*	6 *2*	2283.3+x	19$^-$	1929.8+x	17$^-$	E2	0.0637	6	A_2=+0.2 *1*; A_4=+0.05 *8*; α(K)exp=0.066 *18* α(K)=0.0417 *6*; α(L)=0.01665 *25*; α(M)=0.00416 *6* α(N)=0.001027 *15*; α(O)=0.000174 *3*; α(P)=4.52×10^{-6} *7*
357.0 *4*	0.8 *4*	5031.6+x	28$^-$	4674.5+x	27$^-$	[M1]	0.207	1	
361.1 *3*	0.6 *2*	3088.5+x	21$^+$	2727.5+x	22$^+$	[M1]	0.201	0.7	A_2=−0.2 *1*; A_4=−0.39 *8* Sign and magnitude of A_4 is inconsistent with ΔJ=1, dipole transition.
362.0 *3*	1.1 *4*	5740.8+x	30$^+$	5378.8+x	30$^+$	[M1]	0.200	1.3	A_2=+0.4 *2*; A_4=−0.02 *8* ΔJ=0 transition.
362.3 *2*	36 *3*	1830.7+x	17$^+$	1468.33+x	16$^-$	E1	0.01739	37	A_2=−0.29 *4*; A_4=−0.04 *8*;

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^{186}W(^{11}B,7nγ) 2004Gu07,2001Gu29 (continued)

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

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	α@	$I_{(\gamma+ce)}$ †	Comments
									α(K)exp=0.011 *2*; pol=+0.003 *16* α(K)=0.01439 *21*; α(L)=0.00231 *4*; α(M)=0.000532 *8* α(N)=0.0001315 *19*; α(O)=2.36×10^{-5} *4*; α(P)=1.394×10^{-6} *20*
365.7 *2*	11 *1*	3822.5+x	25$^+$	3456.8+x	23$^+$	E2	0.0580	12	A_2=+0.31 *4*; A_4=−0.25 *8*; α(K)exp=0.031 *9*; pol=+0.124 *7* α(K)=0.0385 *6*; α(L)=0.01478 *21*; α(M)=0.00368 *6* α(N)=0.000911 *13*; α(O)=0.0001541 *22*; α(P)=4.19×10^{-6} *6*
368.4 *3*	2.3 *5*	3456.8+x	23$^+$	3088.5+x	21$^+$	E2	0.0569	2.4	A_2=+0.14 *6*; A_4=−0.33 *8*; pol=+0.153 *15* α(K)=0.0378 *6*; α(L)=0.01441 *21*; α(M)=0.00359 *6* α(N)=0.000887 *13*; α(O)=0.0001502 *22*; α(P)=4.12×10^{-6} *6*
386.5 *3*	3.5 *6*	2496.7+x	19$^+$	2110.1+x	18$^+$	M1	0.1675	3.7	A_2=+0.03 *8*; A_4=−0.07 *8*; α(K)exp=0.20 *6* α(K)=0.1381 *20*; α(L)=0.0226 *4*; α(M)=0.00524 *8* α(N)=0.001305 *19*; α(O)=0.000240 *4*; α(P)=1.631×10^{-5} *23*
392.7 *3*	7 *1*	3459.9+x	23$^-$	3067.1+x	22$^-$	M1	0.1605	8	A_2=−0.07 *8*; A_4=−0.04 *8*; α(K)exp=0.23 *5*; pol=−0.024 *18* α(K)=0.1323 *19*; α(L)=0.0217 *3*; α(M)=0.00502 *8* α(N)=0.001250 *18*; α(O)=0.000230 *4*; α(P)=1.562×10^{-5} *23*
394.5 *4*	2.4 *8*	4794.6+x	28$^-$	4400.1+x	26$^-$	E2	0.0472	2.5	A_2=+0.4 *1*; A_4=−0.24 *8*; pol=+0.093 *16*
402.0 *2*	23 *2*	1145.45+x	15$^-$	743.55+x	14$^-$	M1	0.1508	27	A_2=−0.21 *4*; A_4=−0.07 *8*; α(K)exp=0.13 *2*; pol=−0.039 *17* α(K)=0.1243 *18*; α(L)=0.0204 *3*; α(M)=0.00471 *7* α(N)=0.001174 *17*; α(O)=0.000216 *3*; α(P)=1.467×10^{-5} *21*
416.1 *4*	1.9 *4*	5567.3+x	29	5151.2+x	28$^+$	D		2.2	A_2=−0.2 *1*; A_4=−0.2 *1* Sign of A_4 is inconsistent with ΔJ=1 transition.
421.8 *2*	15 *2*	4213.9+x	26$^-$	3792.1+x	25$^-$	M1	0.1326	17.6	A_2=+0.03 *4*; A_4=0.00 *8*; α(K)exp=0.19 *3*; pol=−0.100 *49* α(K)=0.1094 *16*; α(L)=0.0179 *3*; α(M)=0.00414 *6* α(N)=0.001031 *15*; α(O)=0.000190 *3*; α(P)=1.290×10^{-5} *19*
427.8 *2*	128 *10*	427.73+x	13$^-$	0.0+x	11$^-$	E2	0.0382	146	A_2=+0.25 *4*; A_4=−0.09 *8*; α(K)exp=0.026 *2*; pol=+0.053 *8* α(K)=0.0267 *4*; α(L)=0.00867 *13*; α(M)=0.00214 *3* α(N)=0.000530 *8*; α(O)=9.06×10^{-5} *13*; α(P)=2.94×10^{-6} *5* $I_{(\gamma+ce)}$: evaluators obtain 133 from Iγ and α(theory), instead of 146 listed by 2004Gu07.
445.7 *2*	4 *1*	2728.9+x	20$^-$	2283.3+x	19$^-$	[M1]	0.1146	4.5	A_2=−0.2 *1*; A_4=+0.05 *8*
454.6 *3*	3.6 *7*	3456.8+x	23$^+$	3002.3+x	22$^+$	M1	0.1087	4	A_2=0.00 *4*; A_4=−0.03 *8*; α(K)exp=0.11

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^{186}W(^{11}B,7nγ) 2004Gu07,2001Gu29 (continued)

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

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[@]	$I_{(\gamma+ce)}$[†]	Comments
									2 α(K)=0.0897 *13*; α(L)=0.01463 *21*; α(M)=0.00339 *5* α(N)=0.000843 *12*; α(O)=0.0001552 *22*; α(P)=1.056×10^{-5} *15*
460.2 *5*	4.5 *9*	4674.5+x	27$^-$	4213.9+x	26$^-$	(M1)	0.1053	5	A_2=−0.12 *4*; A_4=−0.04 *8* A_2 and A_4 for 461.4+460.2.
461.4 *5*	10 *3*	1929.8+x	17$^-$	1468.33+x	16$^-$	M1	0.1045	11	A_2=−0.12 *4*; A_4=−0.04 *8*; α(K)exp=0.043 *2* α(K)=0.0862 *13*; α(L)=0.01407 *21*; α(M)=0.00325 *5* α(N)=0.000811 *12*; α(O)=0.0001492 *22*; α(P)=1.015×10^{-5} *15* A_2 and A_4 for 461.4+460.2. α(K)exp for 461.4+461.8.
461.8 *4*	20 *2*	743.55+x	14$^-$	282.07+x	12$^-$	E2	0.0314	21	A_2=+0.24 *6*; A_4=−0.36 *8*; α(K)exp=0.043 *2*; pol=+0.038 *10* α(K)=0.0225 *4*; α(L)=0.00677 *10*; α(M)=0.001663 *24* α(N)=0.000412 *6*; α(O)=7.08×10^{-5} *11*; α(P)=2.48×10^{-6} *4* α(K)exp for 461.4+461.8.
462.7 *5*	16 *4*	2899.2+x	21$^-$	2436.3+x	19$^-$	(E2)	0.0313	16.5	pol=+0.022 *9*
467.6 *3*	0.7 *2*	5587.6+x	30$^-$	5120.0+x	28$^-$	Q		0.7	A_2=+0.7 *1*; A_4=−0.2 *1*
476.5 *4*	1.1 *4*	5151.1+x	28	4674.5+x	27$^-$	D		1.2	A_2=−0.1 *1*; A_4=−0.08 *8*
479.5 *4*	3.1 *8*	6220.3+x	32$^+$	5740.8+x	30$^+$	(E2)	0.0286	3.2	A_2=+0.2 *1*; A_4=−0.21 *8*
481.5 *3*	19 *2*	3459.9+x	23$^-$	2978.4+x	22$^-$	M1	0.0934	21	A_2=−0.22 *4*; A_4=−0.08 *8*; α(K)exp=0.058 *4*; pol=−0.045 *10* α(K)=0.0771 *11*; α(L)=0.01255 *18*; α(M)=0.00290 *4* α(N)=0.000723 *11*; α(O)=0.0001331 *19*; α(P)=9.06×10^{-6} *13*
484.8 *4*	2.7 *5*	5031.6+x	28$^-$	4546.9+x	27$^-$	M1	0.0917	3	A_2=0.0 *1*; A_4=−0.12 *8*; pol=−0.077 *14*
490.5 *2*	22 *2*	2662.6+x	21$^+$	2172.1+x	20$^+$	M1	0.0889	24	A_2=+0.08 *4*; A_4=−0.04 *8*; α(K)exp=0.048 *2*; pol=−0.067 *8* α(K)=0.0734 *11*; α(L)=0.01195 *17*; α(M)=0.00276 *4* α(N)=0.000688 *10*; α(O)=0.0001267 *18*; α(P)=8.63×10^{-6} *13*
492.0 *5*	2.5 *7*	3494.4+x	24$^+$	3002.3+x	22$^+$	[E2]	0.0269	2.6	A_2=+0.1 *1*; A_4=−0.09 *8* A_2 and A_4 for doublet.
498.2 *2*	2.7 *4*	7268.1+x	36$^+$	6769.9+x	34$^+$	(E2)	0.0260	2.8	A_2=+0.2 *1*; A_4=−0.13 *8*
506.6 *2*	20 *2*	2436.3+x	19$^-$	1929.8+x	17$^-$	E2	0.0250	21	A_2=+0.22 *4*; A_4=−0.16 *8*; pol=+0.102 *14*
512.1 *2*	15 *2*	3490.5+x	24$^-$	2978.4+x	22$^-$	E2	0.0244	15	A_2=+0.32 *4*; A_4=−0.17 *8*; pol=+0.074 *8*
514.8 *3*	1.9 *5*	5309.3+x	29$^-$	4794.6+x	28$^-$	(M1)	0.0783	2	A_2=−0.3 *1*; A_4=+0.06 *8*
524.8 *4*	1.3 *4*	4813.0+x		4288.2+x				1.3	
528.1 *2*	15 *2*	3255.6+x	23$^+$	2727.5+x	22$^+$	M1	0.0732	16	A_2=+0.02 *4*; A_4=−0.08 *8*; pol=−0.070 *10*
535.2 *3*	3.5 *8*	2365.8+x	19$^+$	1830.7+x	17$^+$	E2	0.0219	3.6	A_2=+0.31 *6*; A_4=−0.2 *1*; pol=+0.254 *13*
545.6 *3*	2.0 *5*	3524.0+x	23	2978.4+x	22$^-$	D		2.1	A_2=−0.4 *1*; A_4=+0.08 *8*
548.3 *3*	1.3 *4*	3213.8+x		2665.5+x	20$^+$			1.3	
550.6 *2*	5 *1*	4373.2+x	27$^+$	3822.5+x	25$^+$			5.3	A_2=+0.21 *6*; A_4=+0.04 *8*
555.3 *4*	6 *2*	2665.5+x	20$^+$	2110.1+x	18$^+$	[E2]		6	
555.6 *2*	63 *5*	2727.5+x	22$^+$	2172.1+x	20$^+$	E2	0.0201	64	A_2=+0.23 *4*; A_4=−0.08 *8*; pol=+0.076 *9*
560.6 *2*	12 *2*	3459.9+x	23$^-$	2899.2+x	21$^-$	E2	0.0197	12	A_2=+0.4 *1*; A_4=−0.2 *1*; pol=+0.065 *12*
565.1 *4*	2.0 *5*	4938.3+x	29$^+$	4373.2+x	27$^+$	Q		2	A_2=+0.56 *8*; A_4=−0.33 *8*
580.8 *2*	5 *1*	4794.6+x	28$^-$	4213.9+x	26$^-$	E2	0.0181	5	A_2=+0.38 *6*; A_4=−0.2 *1*; pol=+0.126 *10*

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^{186}W(^{11}B,7nγ) 2004Gu07,2001Gu29 (continued)

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

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	α@	$I_{(\gamma+ce)}$ †	Comments
589.7 *5*	0.9 *4*	5740.8+x	30^+	5151.2+x	28^+			0.9	
592.7 *5*	2.0 *5*	3255.6+x	23^+	2662.6+x	21^+			2	
595.3 *5*	3 *1*	5331.8+x	29^-	4736.6+x	27^-			3	
608.0 *3*	6 *2*	4400.1+x	26^-	3792.1+x	25^-	D		6	A_2=−0.26 *4*; A_4=+0.1 *1*
610.8 *2*	3 *1*	4105.3+x	25^+	3494.4+x	24^+	D+Q		3	A_2=−0.16 *8*; A_4=+0.17 *8*
615.9 *2*	12 *2*	2899.2+x	21^-	2283.3+x	19^-	E2	0.01586	12	A_2=+0.20 *4*; A_4=−0.09 *8*; α(K)exp=0.012 *2*; pol=+0.118 *16* α(K)=0.01209 *17*; α(L)=0.00287 *4*; α(M)=0.000692 *10* α(N)=0.0001716 *24*; α(O)=3.01×10^{-5} *5*; α(P)=1.343×10^{-6} *19*
624.7 *3*	10 *2*	2093.0+x	17^-	1468.33+x	16^-	[M1+E2]		10	A_2=−0.06 *8*; A_4=+0.4 *1* Magnitude of A_4 suggests large E2 admixture.
629.8 *3*	3 *1*	2995.4+x	21^+	2365.8+x	19^+	[E2]		3	A_2=+0.3 *1*; A_4=+0.12 *8* Sign of A_4 is inconsistent with ΔJ=2, quadrupole transition.
633.4 *3*	1.8 *6*	7019.7+x	34^-	6386.5+x	32^-	E2	0.01489	1.8	A_2=+0.4 *1*; A_4=−0.05 *8*; pol=+0.048 *10* POL for 633.4+634.8.
634.6 *3*	3.5 *5*	6769.9+x	34^+	6135.3+x	32^+	(Q)		3.6	A_2=+0.4 *1*; A_4=−0.01 *8*
634.8 *3*	2.2 *3*	5309.3+x	29^-	4674.5+x	27^-	E2	0.01482	2.2	A_2=+0.28 *8*; A_4=−0.06 *8*; pol=+0.048 *10* POL for 633.4+634.8.
635.1 *4*	2.0 *6*	5151.2+x	28^+	4516.0+x	26^+	Q			A_2=+0.39 *8*; A_4=−0.34 *8* $I_{(\gamma+ce)}$: 1 quoted by 2004Gu07 seems incorrect, if Iγ=2.0.
673.5 *3*	7 *1*	6052.3+x	32^+	5378.8+x	30^+	E2	0.01301	7	A_2=+0.23 *8*; A_4=+0.14 *8*; pol=+0.081 *6* Sign of A_4 is inconsistent with ΔJ=2, quadrupole transition. POL for 675.6+675.2+673.5.
675.2 *5*	2.6 *5*	3340.7+x	22^+	2665.5+x	20^+	E2	0.01293	2.6	A_2=+0.3 *1*; A_4=−0.14 *8*; pol=+0.081 *6* POL for 675.6+675.2+673.5.
675.3 *3*	1.7 *3*	7019.7+x	34^-	6344.2+x	32^-	Q		1.7	A_2=+0.3 *1*; A_4=−0.23 *8*
675.6 *4*	2.5 *8*	3677.7+x	24^+	3002.3+x	22^+	E2	0.01292	2.5	A_2=+0.41 *8*; A_4=−0.38 *8*; pol=+0.081 *6* POL for 675.6+675.2+673.5.
690.4 *4*	1.3 *4*	6759.9+x	33^-	6069.5+x	31^-	(Q)		1.3	A_2=+0.3 *1*; A_4=−0.5 *12*
691.5 *5*	2.8 *7*	5437.5+x	29^+	4746.0+x	27^+	(Q)		2.8	A_2=+0.22 *6*; A_4=−0.04 *8*
711.8 *2*	10 *2*	5506.4+x	30^-	4794.6+x	28^-	E2	0.01154	10	A_2=+0.38 *6*; A_4=−0.03 *8*; pol=+0.092 *7*
717.7 *2*	51 *5*	1145.45+x	15^-	427.73+x	13^-	E2	0.01134	52	A_2=+0.17 *4*; A_4=−0.12 *8*; pol=+0.068 *10*
724.7 *2*	44 *4*	1468.33+x	16^-	743.55+x	14^-	E2	0.01110	44	A_2=+0.27 *4*; A_4=−0.14 *8*; pol=+0.061 *11*
729.5 *4*	1.1 *3*	3456.8+x	23^+	2727.5+x	22^+			1.1	
732.5 *2*	27 *2*	3459.9+x	23^-	2727.5+x	22^+	E1	0.00396	27	A_2=−0.28 *4*; A_4=+0.5 *1*; pol=+0.043 *8* Magnitude of A_4 suggests large quadrupole admixture.
734.3 *2*	13 *3*	5378.8+x	30^+	4644.5+x	28^+	E2	0.01080		A_2=+0.29 *4*; A_4=−0.18 *8*; pol=+0.056 *7* $I_{(\gamma+ce)}$: 3 quoted by 2004Gu07 seems incorrect, if Iγ=13.
746.5 *4*	1.2 *4*	3741.9+x	23^+	2995.4+x	21^+	Q		1.2	A_2=+0.3 *2*; A_4=−0.20 *8*

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^{186}W(^{11}B,7nγ) 2004Gu07,2001Gu29 (continued)

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

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[@]	$I_{(\gamma+ce)}$[†]	Comments
754.8 *3*	14 *1*	4546.9+x	27^-	3792.1+x	25^-	E2	0.01018	14	A_2=+0.24 *4*; A_4=−0.19 *8*; pol=+0.096 *5*
756.3 *4*	1.7 *5*	6344.2+x	32^-	5587.8+x	30^-			1.7	
756.5 *3*	4 *1*	6135.3+x	32^+	5378.8+x	30^+	(Q)		4	A_2=+0.49 *6*; A_4=−0.04 *8*
760.2 *4*	5 *1*	6069.5+x	31^-	5309.3+x	29^-	E2	0.01003	5	A_2=+0.25 *8*; A_4=−0.26 *8*; pol=+0.077 *10*
764.2 *4*	1.4 *3*	4104.9+x	24^+	3340.7+x	22^+	Q		1.4	A_2=+0.5 *1*; A_4=−0.25 *8*
764.2 *3*	1.2 *3*	4288.2+x		3524.0+x	23			1.2	
767.0 *2*	15 *2*	3494.4+x	24^+	2727.5+x	22^+	E2	0.00985	15	A_2=+0.25 *4*; A_4=−0.11 *8*; pol=+0.069 *11*
777.7 *2*	6 *2*	4268.2+x	26^-	3490.5+x	24^-	E2	0.00957	6	A_2=+0.53 *6*; A_4=−0.1 *1*; pol=+0.161 *14*
784.5 *2*	29 *2*	1929.8+x	17^-	1145.45+x	15^-	E2	0.00939	29	A_2=+0.18 *4*; A_4=−0.16 *8*; pol=+0.064 *12*
793.0 *4*	1.3 *4*	5587.8+x	30^-	4794.6+x	28^-			1.3	
794.1 *3*	3.1 *4*	3456.8+x	23^+	2662.6+x	21^+	(E2)		3.1	A_2=+0.28 *4*; A_4=−0.11 *8*
797.0 *2*	22 *2*	2265.4+x	18^-	1468.33+x	16^-	E2	0.00909	22	A_2=+0.21 *4*; A_4=−0.2 *1*; pol=+0.066 *14*
798.8 *3*	1.1 *3*	6386.5+x	32^-	5587.8+x	30^-	Q		1.1	A_2=+0.6 *1*; A_4=−0.2 *1*
801.3 *4*	0.2 *1*	6388.9+x		5587.6+x	30^-			0.2	
808.2 *4*	0.4 *1*	5928.2+x		5120.0+x	28^-			0.4	
817.8 *4*	1.8 *8*	5031.6+x	28^-	4213.9+x	26^-	Q		1.8	A_2=+0.10 *4*; A_4=−0.67 *8*
837.5 *4*	4 *1*	6344.2+x	32^-	5506.4+x	30^-			4	A_2=+0.32 *6*; A_4=+0.13 *8* Sign of A_4 is inconsistent with ΔJ=2, quadrupole transition.
838.3 *4*	6 *2*	4516.0+x	26^+	3677.7+x	24^+	Q		6	A_2=+0.28 *6*; A_4=−0.26 *8*
839.1 *3*	15 *2*	4333.4+x	26^+	3494.4+x	24^+	E2	0.00817	15	A_2=+0.23 *4*; A_4=−0.09 *8*; pol=+0.108 *10*
845.8 *5*	2.0 *5*	7066.1+x		6220.3+x	32^+			2	
849.6 *5*	6 *3*	4105.3+x	25^+	3255.6+x	23^+	[E2]		6	
851.8 *4*	3 *1*	5120.0+x	28^-	4268.2+x	26^-	Q		3	A_2=+0.4 *1*; A_4=−0.2 *1*
854.9 *3*	115 *10*	1598.4+x	15^+	743.55+x	14^-	E1	0.00295	115	A_2=−0.11 *4*; A_4=−0.07 *8*; pol=+0.018 *3*
866.3 *3*	2.0 *4*	7886.0+x	36^-	7019.7+x	34^-	E2	0.00766	2	A_2=+0.27 *8*; A_4=−0.02 *8*; pol=+0.122 *11*
880.3 *3*	2.1 *4*	6386.5+x	32^-	5506.4+x	30^-	(Q)		2.1	A_2=+0.4 *1*; A_4=+0.05 *8*
893.4 *3*	2.1 *5*	6330.9+x		5437.5+x	29^+			2.1	
911.4 *3*	3 *1*	4734.0+x	27^+	3822.5+x	25^+	Q		3	A_2=+0.23 *8*; A_4=−0.34 *8*
916.2 *4*	2.0 *6*	3088.5+x	21^+	2172.1+x	20^+	[M1]		2	A_2=−0.42 *8*; A_4=+0.02 *8*
923.4 *3*	5 *1*	4746.0+x	27^+	3822.5+x	25^+	(Q)		5	A_2=+0.30 *6*; A_4=−0.07 *8*
944.6 *4*	3 *1*	4736.6+x	27^-	3792.1+x	25^-	(Q)		3	A_2=+0.24 *8*; A_4=−0.08 *8*
950.1 *4*	8 *3*	3677.7+x	24^+	2727.5+x	22^+	Q		8	A_2=+0.27 *6*; A_4=−0.14 *8*
981.4 *4*	3 *1*	7033.7+x	34^+	6052.3+x	32^+	(Q)		3	A_2=+0.5 *1*; A_4=−0.06 *8*

[†] From 2004Gu07.
[‡] Deduced from $\gamma\gamma$ coin relationships.
[#] Generally from 2004Gu07. In some cases, evaluators assign multipolarities based on $\gamma(\theta)$ data, where no explicit assignment is given by 2004Gu07. Mult=Q indicates ΔJ=2, quadrupole (most likely E2) and mult=D indicates ΔJ=1, dipole.
[@] 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.

$^{186}W(^{11}B,7n\gamma)$ 2004Gu07,2001Gu29

Level Scheme

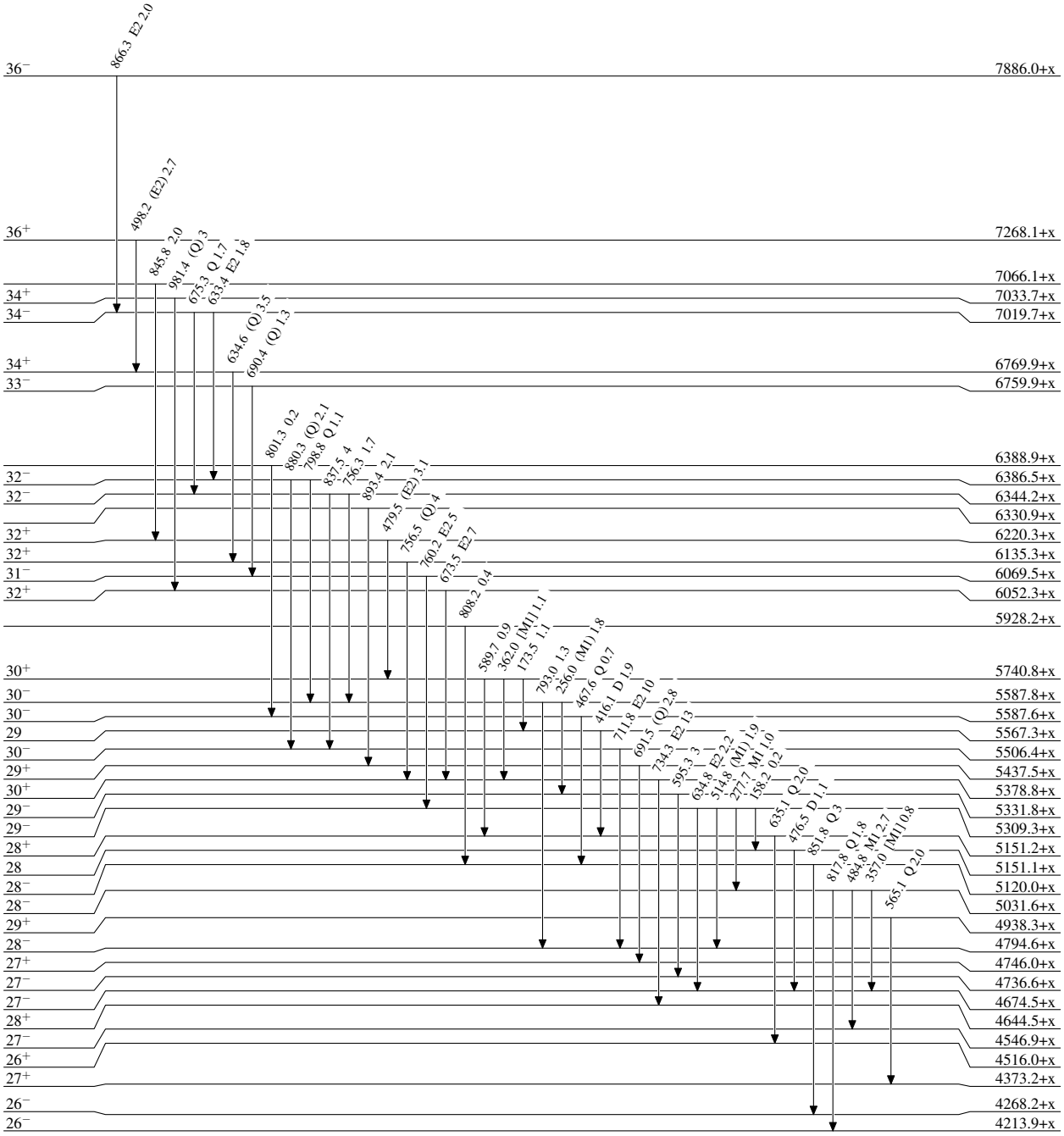
Intensities: Relative I_γ

Legend

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

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

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



$^{190}_{79}Au_{111}$

$^{186}W(^{11}B,7n\gamma)$ 2004Gu07,2001Gu29

Level Scheme (continued)

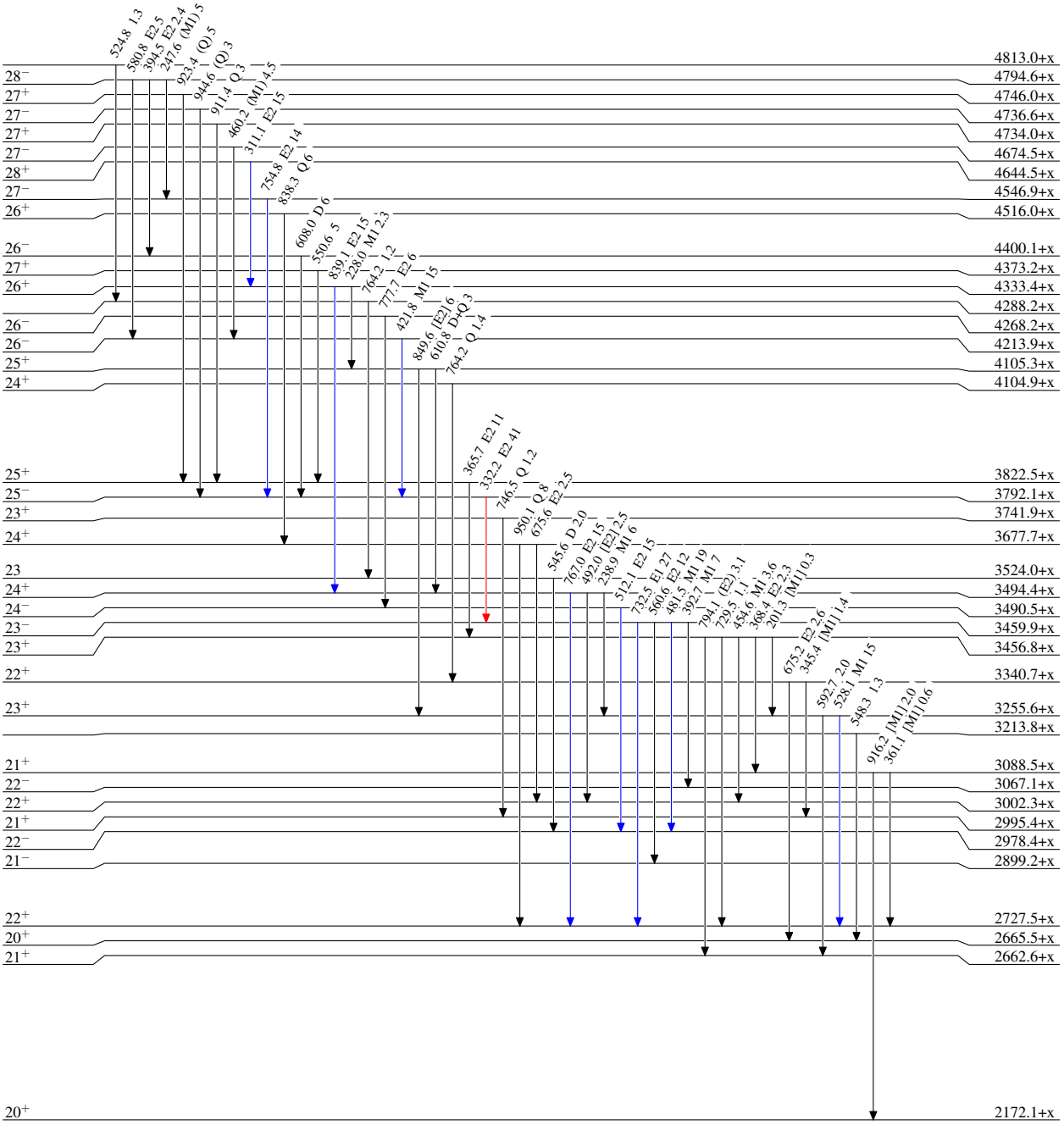
Intensities: Relative I_γ

Legend

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

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

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



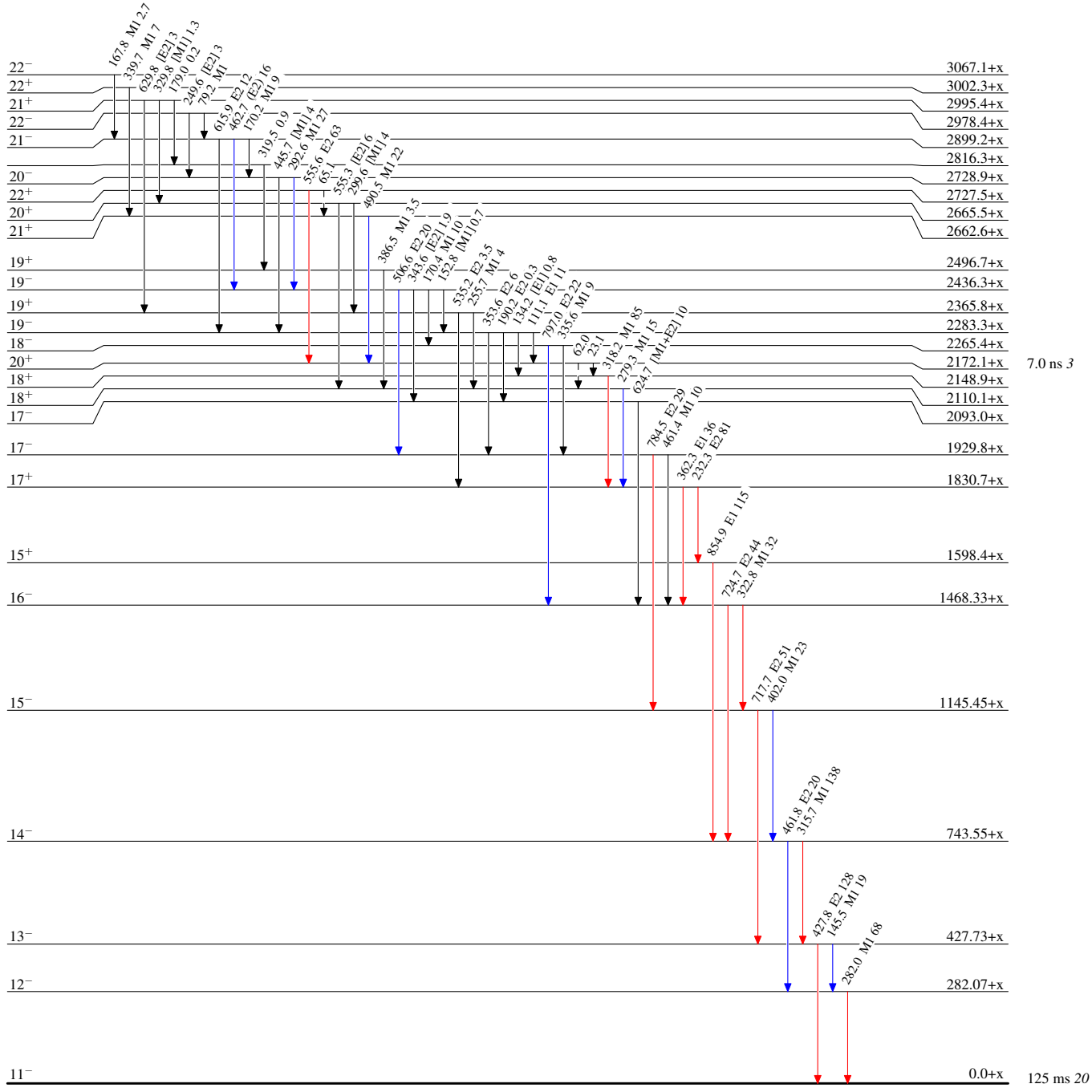
$^{190}_{79}Au_{111}$

$^{186}W(^{11}B,7n\gamma)$ 2004Gu07,2001Gu29

Level Scheme (continued)

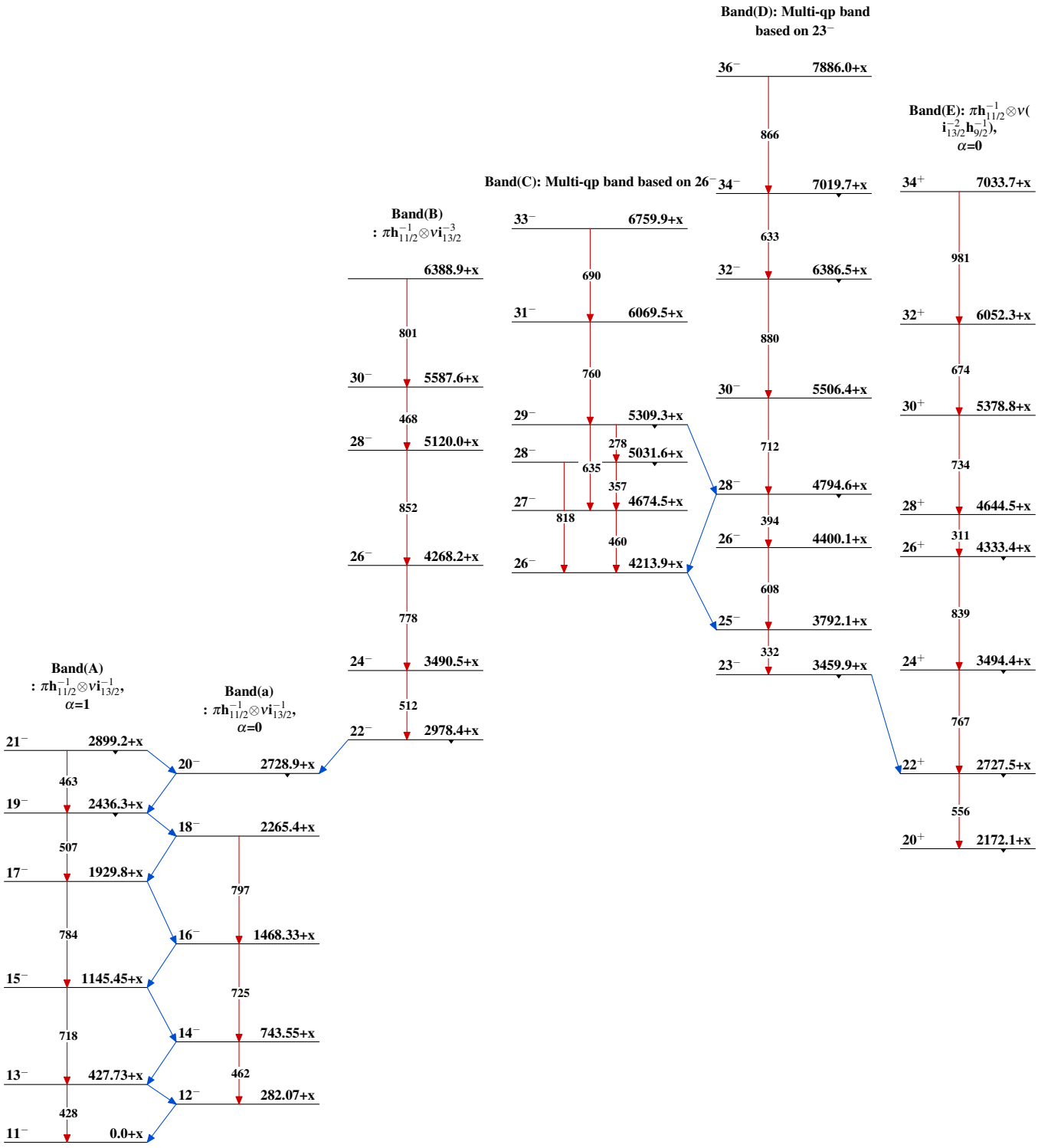
Intensities: Relative I_γ

Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)



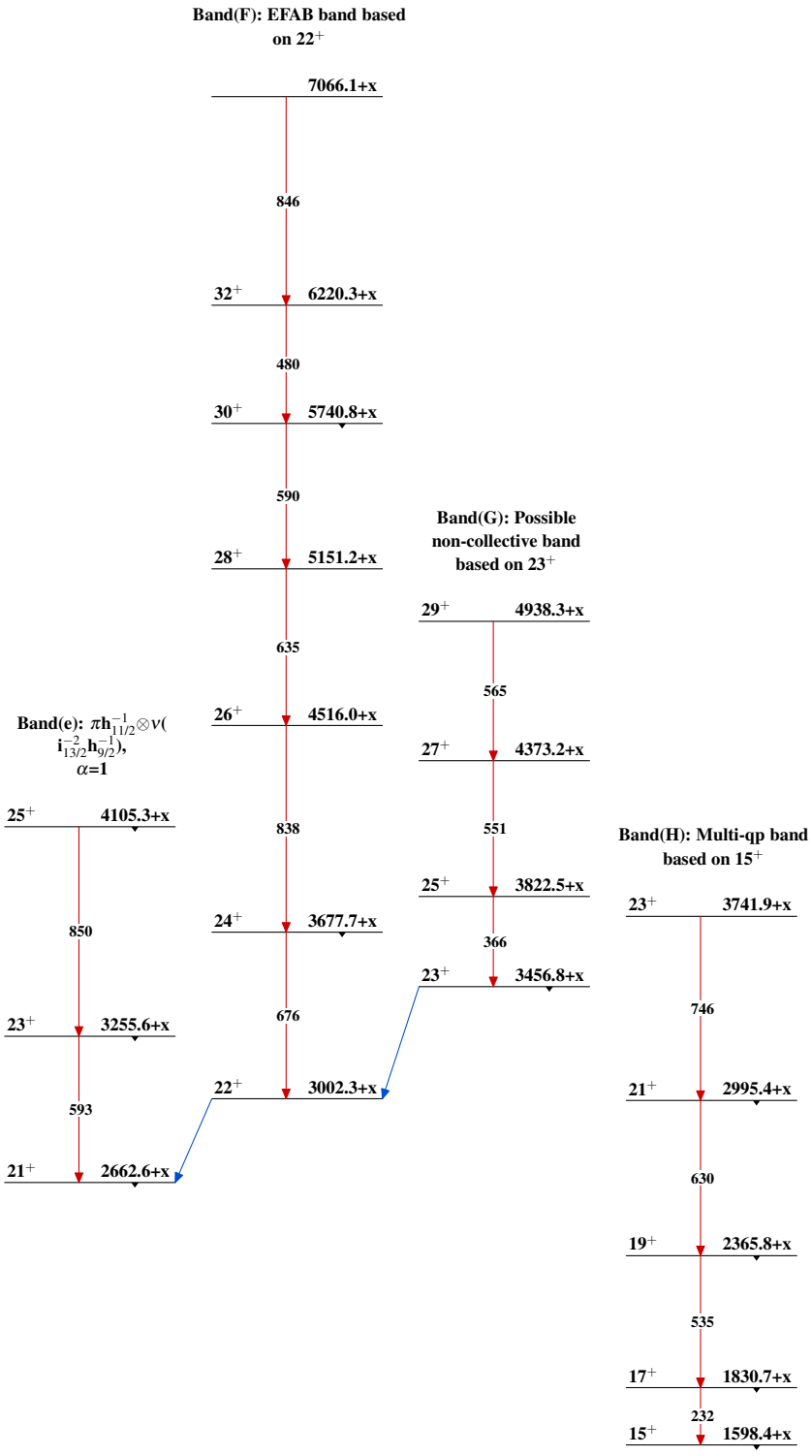
$^{190}_{79}Au_{111}$

$^{186}W(^{11}B,7n\gamma)$ 2004Gu07,2001Gu29



$^{190}_{79}Au_{111}$

$^{186}W(^{11}B,7n\gamma)$ 2004Gu07,2001Gu29 (continued)



$^{190}_{79}Au_{111}$