^{159}Tb(^{29}Si,4nγ) 2005Zh30,2004Zh38,2004Zh16

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 111,275 (2010)	1-Oct-2009

2004Zh16, 2004Zh38, 2005Zh30: E=140 MeV; GASP detector array (40 Compton-suppressed large-volume Ge detectors and multiplicity filter of 80 BGO elements); measured Eγ, Iγ, $\gamma\gamma$ coin, DCO ratios (θ=34°, 90°). For further discussion, see 2006ZhZZ and 2006Zh38.

In order to search for new bands in ^{184}Au, the authors also recorded the sum energy and multiplicity of the γ-rays detected by the BGO filter.

^{184}Au Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]
0.0[d]	5$^+$	20.6[h] s *9*	4656[d] *3*	(24$^+$)	919.1+y[#] *12*	(14$^-$)
83.5[d] *8*	6$^+$		4817.8[e] *20*	26$^+$	1016.6+y[&] *18*	(12$^-$)
186.9[d] *8*	7$^+$		5172.3[e] *22*	(27$^+$)	1180.5+y[a] *18*	(13$^-$)
311.0[d] *10*	8$^+$		5551.8[e] *22*	(28$^+$)	1220.4+y[@] *13*	(15$^-$)
456.9[d] *11*	9$^+$		5950.3[e] *24*	(29$^+$)	1231.0+y[b] *14*	(14)
623.6[d] *11*	10$^+$		6322.1[e] *25*	(30$^+$)	1370.3+y[&] *16*	(14$^-$)
810.7[d] *12*	11$^+$		0.0+x[f]		1453.2+y[#] *14*	(16$^-$)
848.4[e] *12*	(9$^+$)		176.5+x[g] *10*	(11$^-$)	1571.8+y[a] *16*	(15$^-$)
1016.9[e] *13*	(10$^+$)		482.2+x[f] *13*	(12$^-$)	1756.1+y[b] *14*	(16)
1017.2[d] *12*	12$^+$		662.2+x[g] *13*	(13$^-$)	1771.1+y[@] *15*	(17$^-$)
1174.5[e] *12*	11$^+$		1005.7+x[f] *14*	(14$^-$)	1794.2+y[&] *14*	(16$^-$)
1241.7[d] *13*	13$^+$		1315.7+x[g] *15*	(15$^-$)	2015.0+y[a] *15*	(17$^-$)
1291.1[e] *14*	12$^+$		1635.5+x[f] *15*	(16$^-$)	2065.5+y[#] *15*	(18$^-$)
1436.3[e] *13*	13$^+$		1958.6+x[g] *16*	(17$^-$)	2205.7+y[b] *15*	
1484.0[d] *14*	14$^+$		2283.7+x[f] *17*	(18$^-$)	2254.2+y[&] *15*	(18$^-$)
1588.2[e] *14*	14$^+$		2620.8+x[g] *17*	(19$^-$)	2382.2+y[@] *16*	(19$^-$)
1741.7[d] *15*	15$^+$		2968.4+x[f] *18*	(20$^-$)	2505.0+y[a] *15*	(19$^-$)
1797.8[e] *14*	15$^+$		3324.6+x[g] *19*	(21$^-$)	2732.2+y[#] *18*	(20$^-$)
1978.9[e] *14*	16$^+$		3716.1+x[f] *19*	(22$^-$)	2766.7+y[&] *15*	(20$^-$)
2018.8[d] *17*	16$^+$		0.0+z[c]	(5$^+$)	3037.1+y[a] *18*	(21$^-$)
2237.4[e] *14*	17$^+$		161.2+z[c] *10*	(7$^+$)	3040.0+y[@] *19*	(21$^-$)
2305.5[d] *18*	17$^+$		434.2+z[c] *15*	(9$^+$)	3320.4+y[&] *18*	(22$^-$)
2446.8[e] *15*	18$^+$		800.4+z[c] *18*	(11$^+$)	3396.3+y[#] *21*	(22$^-$)
2608.4[d] *20*	18$^+$		1240.8+z[c] *20*	(13$^+$)	3597.0+y[a] *21*	(23$^-$)
2726.4[e] *16*	19$^+$		1741.5+z[c] *23*	(15$^+$)	3752.7+y[@] *21*	(23$^-$)
2920.3[d] *21*	19$^+$		2288.9+z[c] *25*	(17$^+$)	3915.6+y[&] *21*	(24$^-$)
2964.7[e] *16*	20$^+$		2875+z[c] *3*	(19$^+$)	4078.3+y[#] *23*	(24$^-$)
3243.7[e] *17*	21$^+$		3509+z[c] *3*	(21$^+$)	4196.8+y[a] *23*	(25$^-$)
3250.5[d] *22*	20$^+$		4205+z[c] *3*	(23$^+$)	4494.7+y[@] *24*	(25$^-$)
3525.3[e] *18*	22$^+$		0.0+y[#]	(8$^-$)	4556.1+y[&] *23*	(26$^-$)
3574.3[d] *23*	(21$^+$)		80.6+y[@] *8*	(9$^-$)	4795.1+y[#] *25*	(26$^-$)
3810.8[e] *18*	23$^+$		156.8+y[#] *8*	(10$^-$)	4852.6+y[a] *25*	(27$^-$)
3939.5[d] *24*	(22$^+$)		354.8+y[@] *10*	(11$^-$)	5247.8+y[&] *25*	(28$^-$)
4140.2[e] *19*	24$^+$		478.3+y[#] *11*	(12$^-$)	5543+y[#] *3*	(28$^-$)
4232.8[d] *25*	(23$^+$)		742.8+y[@] *12*	(13$^-$)	5576+y[a] *3*	(29$^-$)
4453.4[e] *19*	25$^+$		869.1+y[a] *21*	(11$^-$)		

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^{159}Tb(^{29}Si,4nγ) 2005Zh30,2004Zh38,2004Zh16 (continued)

^{184}Au Levels (continued)

† From least squares fit to Eγ assigning 1 keV uncertainty to all data.
‡ Authors′ values based on observed band structure.
# Band(A): α=0, (ν 9/2[624])⊗(π h$_{9/2}$) band (2005Zh30).
@ Band(a): α=1, (ν 9/2[624])⊗(π h$_{9/2}$) band (2005Zh30).
& Band(B): π=(−), α=0 band (2005Zh30).
a Band(b): π=(−), α=1 band (2005Zh30).
b Band(C): band fragment (2005Zh30).
c Band(D): (ν 1/2[521])⊗(π 1/2[541]), α=1 band. 2005Zh30 adopt J$^\pi$ values proposed by 1996Ib01 In their (^{24}Mg,5nγ) study.
d Band(E): (ν 7/2[514])(π 3/2[532]) band (2004Zh38).
e Band(F): (ν i$_{13/2}$)(π i$_{13/2}$) band (2004Zh38).
f Band(G): K$^\pi$=11$^-$,α=0, π h$^{-1}_{11/2}$⊗ν i$^{-1}_{13/2}$ band. Oblate band; from 2004Zh16 only. analogous to 11$^-$ bands In odd-odd isotopes from ^{186}Au though ^{194}Au.
g Band(g): K$^\pi$=11$^-$,α=1, π h$^{-1}_{11/2}$⊗ν i$^{-1}_{13/2}$ band. Oblate band; from 2004Zh16 only. analogous to 11$^-$ bands In odd-odd isotopes from ^{186}Au though ^{194}Au.
h From Adopted Levels.

γ(^{184}Au)

E$_\gamma$ †	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.‡	Comments
76.2@	156.8+y	(10$^-$)	80.6+y	(9$^-$)		
80.6@	80.6+y	(9$^-$)	0.0+y	(8$^-$)		
83.6	83.5	6$^+$	0.0	5$^+$	(M1+E2)	Mult.: 2005Zh30 propose mult=M1+E2 based on unenumerated DCO data and intensity balance information.
103.6	186.9	7$^+$	83.5	6$^+$		
116.4	1291.1	12$^+$	1174.5	11$^+$		
123.4@	478.3+y	(12$^-$)	354.8+y	(11$^-$)		
124	311.0	8$^+$	186.9	7$^+$		
145.2	1436.3	13$^+$	1291.1	12$^+$		
145.9	456.9	9$^+$	311.0	8$^+$		
151.8	1588.2	14$^+$	1436.3	13$^+$		
156.8@	156.8+y	(10$^-$)	0.0+y	(8$^-$)		
157.0	1174.5	11$^+$	1017.2	12$^+$		
157.7	1174.5	11$^+$	1016.9	(10$^+$)		
161.2@	161.2+z	(7$^+$)	0.0+z	(5$^+$)		
163.8@	1180.5+y	(13$^-$)	1016.6+y	(12$^-$)		
166.6	623.6	10$^+$	456.9	9$^+$		
176.5#	176.5+x	(11$^-$)	0.0+x			
176.5@	919.1+y	(14$^-$)	742.8+y	(13$^-$)		
180.1#	662.2+x	(13$^-$)	482.2+x	(12$^-$)		
181.2	1978.9	16$^+$	1797.8	15$^+$		
186.8	186.9	7$^+$	0.0	5$^+$	Q	Mult.: DCO=1.10 *24* (2005Zh30).
187.1	810.7	11$^+$	623.6	10$^+$	D+Q	Mult.: DCO=0.75 *11* (2005Zh30).
197.9@	354.8+y	(11$^-$)	156.8+y	(10$^-$)		
201.5@	1571.8+y	(15$^-$)	1370.3+y	(14$^-$)		
206.5	1017.2	12$^+$	810.7	11$^+$		
209.5	1797.8	15$^+$	1588.2	14$^+$		
209.5	2446.8	18$^+$	2237.4	17$^+$		
221@	2015.0+y	(17$^-$)	1794.2+y	(16$^-$)		
224.9	1241.7	13$^+$	1017.2	12$^+$		
225.0	848.4	(9$^+$)	623.6	10$^+$		

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^{159}Tb(^{29}Si,4nγ) 2005Zh30,2004Zh38,2004Zh16 (continued)

$\gamma(^{184}Au)$ (continued)

E_γ †	E_i(level)	J_i^π	E_f	J_f^π
227.6	311.0	8^+	83.5	6^+
232.8@	1453.2+y	(16^-)	1220.4+y	(15^-)
238.3	2964.7	20^+	2726.4	19^+
242.6	1484.0	14^+	1241.7	13^+
251@	2505.0+y	(19^-)	2254.2+y	(18^-)
258.7	2237.4	17^+	1978.9	16^+
259@	2015.0+y	(17^-)	1756.1+y	(16)
261.7	1436.3	13^+	1174.5	11^+
264.6@	742.8+y	(13^-)	478.3+y	(12^-)
270.0	456.9	9^+	186.9	7^+
273.0@	434.2+z	(9^+)	161.2+z	(7^+)
274.2@	354.8+y	(11^-)	80.6+y	(9^-)
278.8	3243.7	21^+	2964.7	20^+
279.6	2726.4	19^+	2446.8	18^+
281.6	3525.3	22^+	3243.7	21^+
285.7	3810.8	23^+	3525.3	22^+
297.1	1588.2	14^+	1291.1	12^+
299@	2505.0+y	(19^-)	2205.7+y	
301.5@	1220.4+y	(15^-)	919.1+y	(14^-)
305.8#	482.2+x	(12^-)	176.5+x	(11^-)
310.2#	1315.7+x	(15^-)	1005.7+x	(14^-)
311.4@	1180.5+y	(13^-)	869.1+y	(11^-)
312.6	623.6	10^+	311.0	8^+
313.1	4453.4	25^+	4140.2	24^+
316.7@	2382.2+y	(19^-)	2065.5+y	(18^-)
317.9@	1771.1+y	(17^-)	1453.2+y	(16^-)
319.8#	1635.5+x	(16^-)	1315.7+x	(15^-)
321.5@	478.3+y	(12^-)	156.8+y	(10^-)
323.2#	1958.6+x	(17^-)	1635.5+x	(16^-)
325.2#	2283.7+x	(18^-)	1958.6+x	(17^-)
326.3	1174.5	11^+	848.4	(9^+)
329.5	4140.2	24^+	3810.8	23^+
337.2#	2620.8+x	(19^-)	2283.7+x	(18^-)
343.6#	1005.7+x	(14^-)	662.2+x	(13^-)
347.8#	2968.4+x	(20^-)	2620.8+x	(19^-)
353.7@	1370.3+y	(14^-)	1016.6+y	(12^-)
353.8	810.7	11^+	456.9	9^+
356.2#	3324.6+x	(21^-)	2968.4+x	(20^-)
361.4	1797.8	15^+	1436.3	13^+
364.4	4817.8	26^+	4453.4	25^+
366.2@	800.4+z	(11^+)	434.2+z	(9^+)
388.1@	742.8+y	(13^-)	354.8+y	(11^-)
390.6	1978.9	16^+	1588.2	14^+
391.3#	3716.1+x	(22^-)	3324.6+x	(21^-)
391.3@	1571.8+y	(15^-)	1180.5+y	(13^-)
393.5	1017.2	12^+	623.6	10^+
424.0@	1794.2+y	(16^-)	1370.3+y	(14^-)
430.9	1241.7	13^+	810.7	11^+
439.6	2237.4	17^+	1797.8	15^+

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^{159}Tb(^{29}Si,4nγ) 2005Zh30,2004Zh38,2004Zh16 (continued)

γ(^{184}Au) (continued)

E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	Comments
440.4[@]	1240.8+z	(13$^+$)	800.4+z	(11$^+$)		
440.7[@]	919.1+y	(14$^-$)	478.3+y	(12$^-$)		
443.1[@]	2015.0+y	(17$^-$)	1571.8+y	(15$^-$)		
449.3[@]	2205.7+y		1756.1+y	(16)		
460.1[@]	2254.2+y	(18$^-$)	1794.2+y	(16$^-$)		
466.7	1484.0	14$^+$	1017.2	12$^+$		
467.8	2446.8	18$^+$	1978.9	16$^+$		
477.5[@]	1220.4+y	(15$^-$)	742.8+y	(13$^-$)		
485.6[#]	662.2+x	(13$^-$)	176.5+x	(11$^-$)		
488.2[@]	1231.0+y	(14)	742.8+y	(13$^-$)		
489.1	2726.4	19$^+$	2237.4	17$^+$		
490.2[@]	2505.0+y	(19$^-$)	2015.0+y	(17$^-$)		
495.1	1978.9	16$^+$	1484.0	14$^+$	Q	Mult.: DCO=1.02 *8* (2004Zh38).
495.6	2237.4	17$^+$	1741.7	15$^+$		
498.2[@]	2254.2+y	(18$^-$)	1756.1+y	(16)		
499.9	1741.7	15$^+$	1241.7	13$^+$		
500.7[@]	1741.5+z	(15$^+$)	1240.8+z	(13$^+$)		
512.5[@]	2766.7+y	(20$^-$)	2254.2+y	(18$^-$)		
517.4	3243.7	21$^+$	2726.4	19$^+$		
517.8	2964.7	20$^+$	2446.8	18$^+$		
523.5[#]	1005.7+x	(14$^-$)	482.2+x	(12$^-$)		
525.0[@]	1756.1+y	(16)	1231.0+y	(14)		
532.1[@]	3037.1+y	(21$^-$)	2505.0+y	(19$^-$)		
534.1[@]	1453.2+y	(16$^-$)	919.1+y	(14$^-$)		
534.8	2018.8	16$^+$	1484.0	14$^+$		
535.6[@]	1756.1+y	(16)	1220.4+y	(15$^-$)		
537.3	848.4	(9$^+$)	311.0	8$^+$		
547.4[@]	2288.9+z	(17$^+$)	1741.5+z	(15$^+$)		
550.7[@]	1771.1+y	(17$^-$)	1220.4+y	(15$^-$)		
550.9	1174.5	11$^+$	623.6	10$^+$	D+Q	Mult.: DCO=0.22 *2* (2004Zh38). δ: <0 (2004Zh38).
553.7[@]	3320.4+y	(22$^-$)	2766.7+y	(20$^-$)		
556.3	1797.8	15$^+$	1241.7	13$^+$		
559.9[@]	3597.0+y	(23$^-$)	3037.1+y	(21$^-$)		
560.0	1016.9	(10$^+$)	456.9	9$^+$		
560.6	3525.3	22$^+$	2964.7	20$^+$		
561.0[@]	2766.7+y	(20$^-$)	2205.7+y			
563.2[@]	1794.2+y	(16$^-$)	1231.0+y	(14)		
563.8	2305.5	17$^+$	1741.7	15$^+$		
567.0	3810.8	23$^+$	3243.7	21$^+$		
573.8[@]	1794.2+y	(16$^-$)	1220.4+y	(15$^-$)		
586.1[@]	2875+z	(19$^+$)	2288.9+z	(17$^+$)		
589.6	2608.4	18$^+$	2018.8	16$^+$		
595.2[@]	3915.6+y	(24$^-$)	3320.4+y	(22$^-$)		
599.8[@]	4196.8+y	(25$^-$)	3597.0+y	(23$^-$)		
611.1[@]	2382.2+y	(19$^-$)	1771.1+y	(17$^-$)		
612.3[@]	2065.5+y	(18$^-$)	1453.2+y	(16$^-$)		
614.8	2920.3	19$^+$	2305.5	17$^+$		
614.8	4140.2	24$^+$	3525.3	22$^+$		

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^{159}Tb(^{29}Si,4nγ) 2005Zh30,2004Zh38,2004Zh16 (continued)

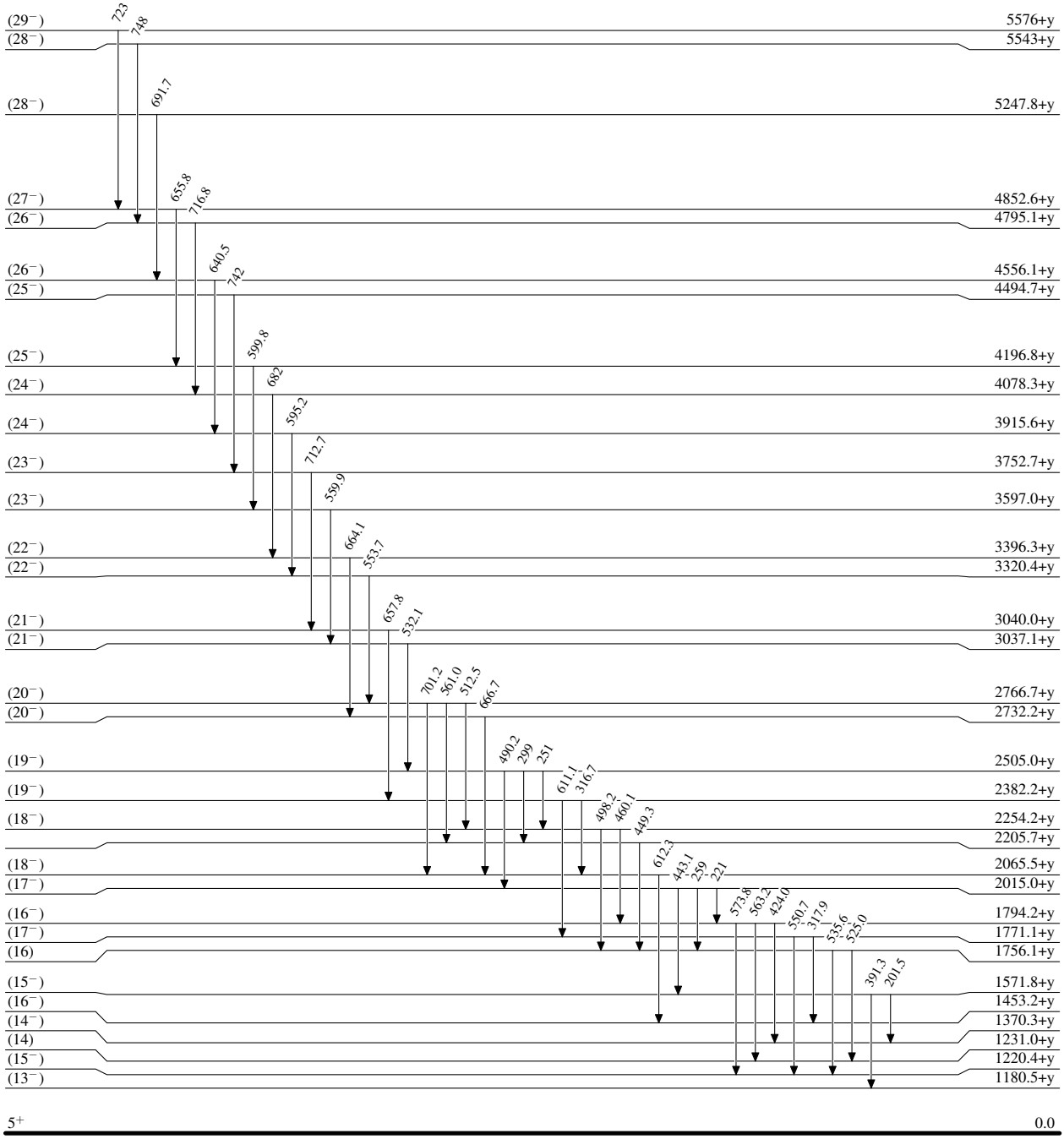
γ(^{184}Au) (continued)

E_γ †	E_i(level)	J_i^π	E_f	J_f^π	E_γ †	E_i(level)	J_i^π	E_f	J_f^π
629.8#	1635.5+x	(16$^-$)	1005.7+x	(14$^-$)	684.7#	2968.4+x	(20$^-$)	2283.7+x	(18$^-$)
633.7@	3509+z	(21$^+$)	2875+z	(19$^+$)	689.0	3939.5	(22$^+$)	3250.5	20$^+$
640.5@	4556.1+y	(26$^-$)	3915.6+y	(24$^-$)	691.7@	5247.8+y	(28$^-$)	4556.1+y	(26$^-$)
642.1	3250.5	20$^+$	2608.4	18$^+$	696.0@	4205+z	(23$^+$)	3509+z	(21$^+$)
642.6	4453.4	25$^+$	3810.8	23$^+$	701.2@	2766.7+y	(20$^-$)	2065.5+y	(18$^-$)
642.8#	1958.6+x	(17$^-$)	1315.7+x	(15$^-$)	703.5#	3324.6+x	(21$^-$)	2620.8+x	(19$^-$)
648.3#	2283.7+x	(18$^-$)	1635.5+x	(16$^-$)	712.7@	3752.7+y	(23$^-$)	3040.0+y	(21$^-$)
653.4#	1315.7+x	(15$^-$)	662.2+x	(13$^-$)	716.8@	4795.1+y	(26$^-$)	4078.3+y	(24$^-$)
654.0	3574.3	(21$^+$)	2920.3	19$^+$	717.0	4656	(24$^+$)	3939.5	(22$^+$)
655.8@	4852.6+y	(27$^-$)	4196.8+y	(25$^-$)	718.9	5172.3	(27$^+$)	4453.4	25$^+$
657.8@	3040.0+y	(21$^-$)	2382.2+y	(19$^-$)	723@	5576+y	(29$^-$)	4852.6+y	(27$^-$)
658.5	4232.8	(23$^+$)	3574.3	(21$^+$)	734.0	5551.8	(28$^+$)	4817.8	26$^+$
662.0#	2620.8+x	(19$^-$)	1958.6+x	(17$^-$)	742@	4494.7+y	(25$^-$)	3752.7+y	(23$^-$)
664.1@	3396.3+y	(22$^-$)	2732.2+y	(20$^-$)	748.0#	3716.1+x	(22$^-$)	2968.4+x	(20$^-$)
666.7@	2732.2+y	(20$^-$)	2065.5+y	(18$^-$)	748@	5543+y	(28$^-$)	4795.1+y	(26$^-$)
677.7	4817.8	26$^+$	4140.2	24$^+$	770.3	6322.1	(30$^+$)	5551.8	(28$^+$)
682@	4078.3+y	(24$^-$)	3396.3+y	(22$^-$)	778.0	5950.3	(29$^+$)	5172.3	(27$^+$)

† From 2004Zh38, except As noted. authors do not state uncertainties.
‡ From DCO (2004Zh38 and/or 2005Zh30); authors measured, but did not report, DCO ratios for additional transitions. Expected ratios are≈1.0 and≈0.5, respectively, for stretched Q (or D, ΔJ=0) transitions and pure stretched D transitions.
# From 2004Zh16; uncertainties unstated by authors.
@ From 2005Zh30; uncertainties unstated by authors.

^{159}Tb(^{29}Si,4nγ) 2005Zh30,2004Zh38,2004Zh16

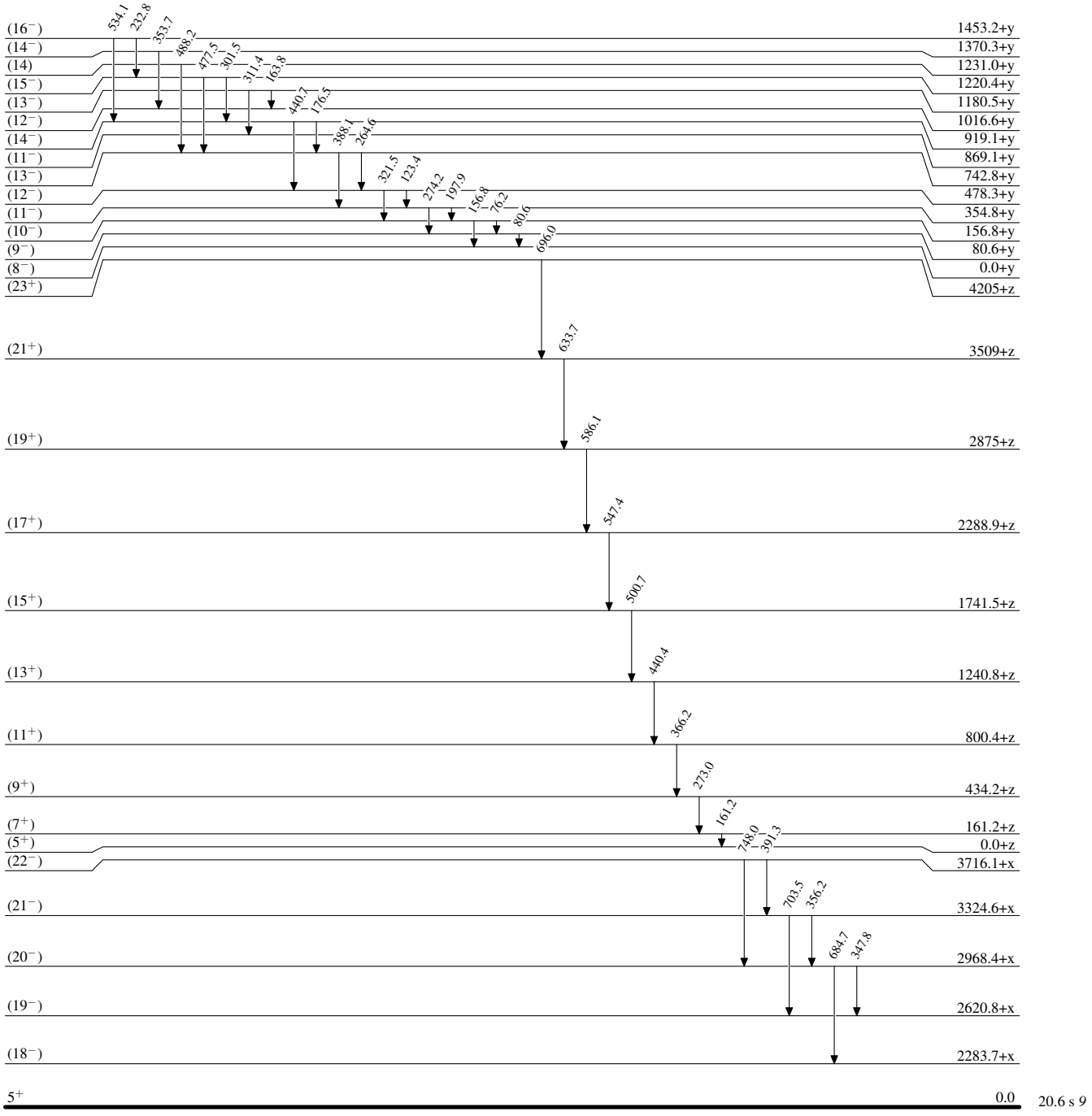
Level Scheme



$^{184}_{79}Au_{105}$

^{159}Tb(^{29}Si,4nγ) 2005Zh30,2004Zh38,2004Zh16

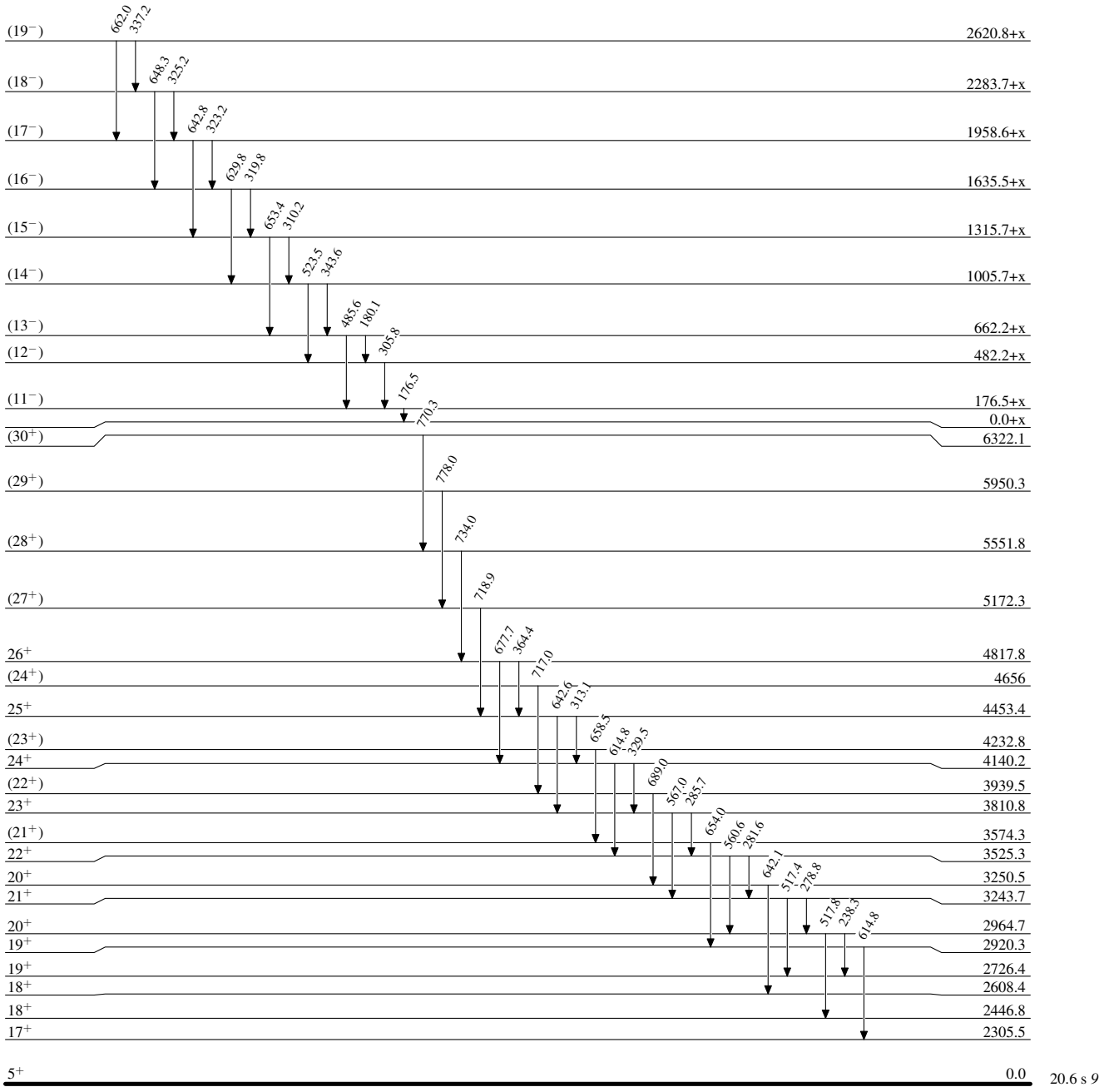
Level Scheme (continued)



$^{184}_{79}Au_{105}$

^{159}Tb(^{29}Si,4nγ) 2005Zh30,2004Zh38,2004Zh16

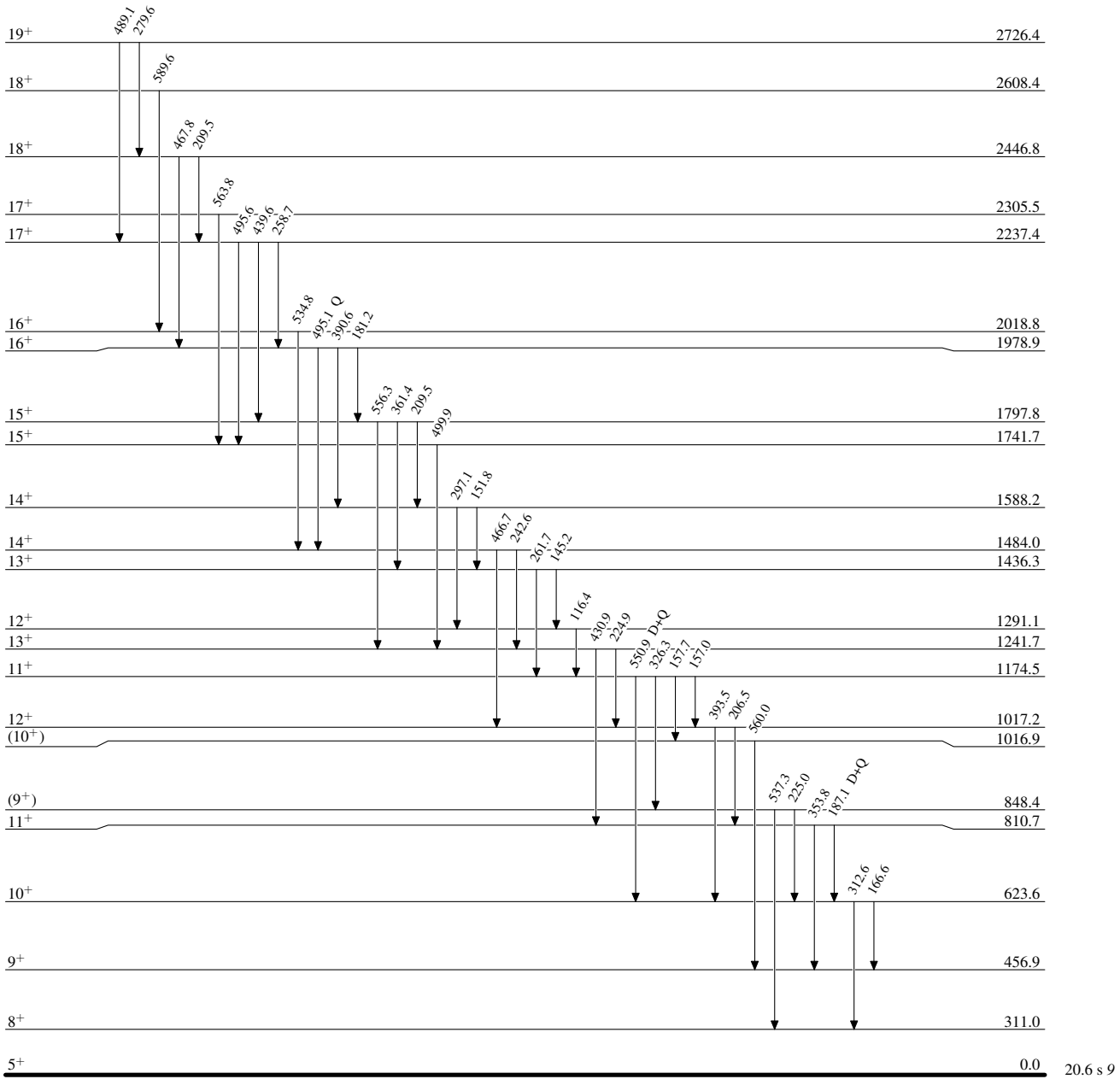
Level Scheme (continued)



$^{184}_{79}Au_{105}$

^{159}Tb(^{29}Si,4nγ) 2005Zh30,2004Zh38,2004Zh16

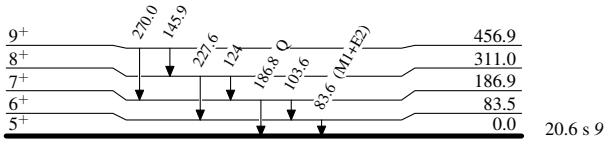
Level Scheme (continued)



$^{184}_{79}Au_{105}$

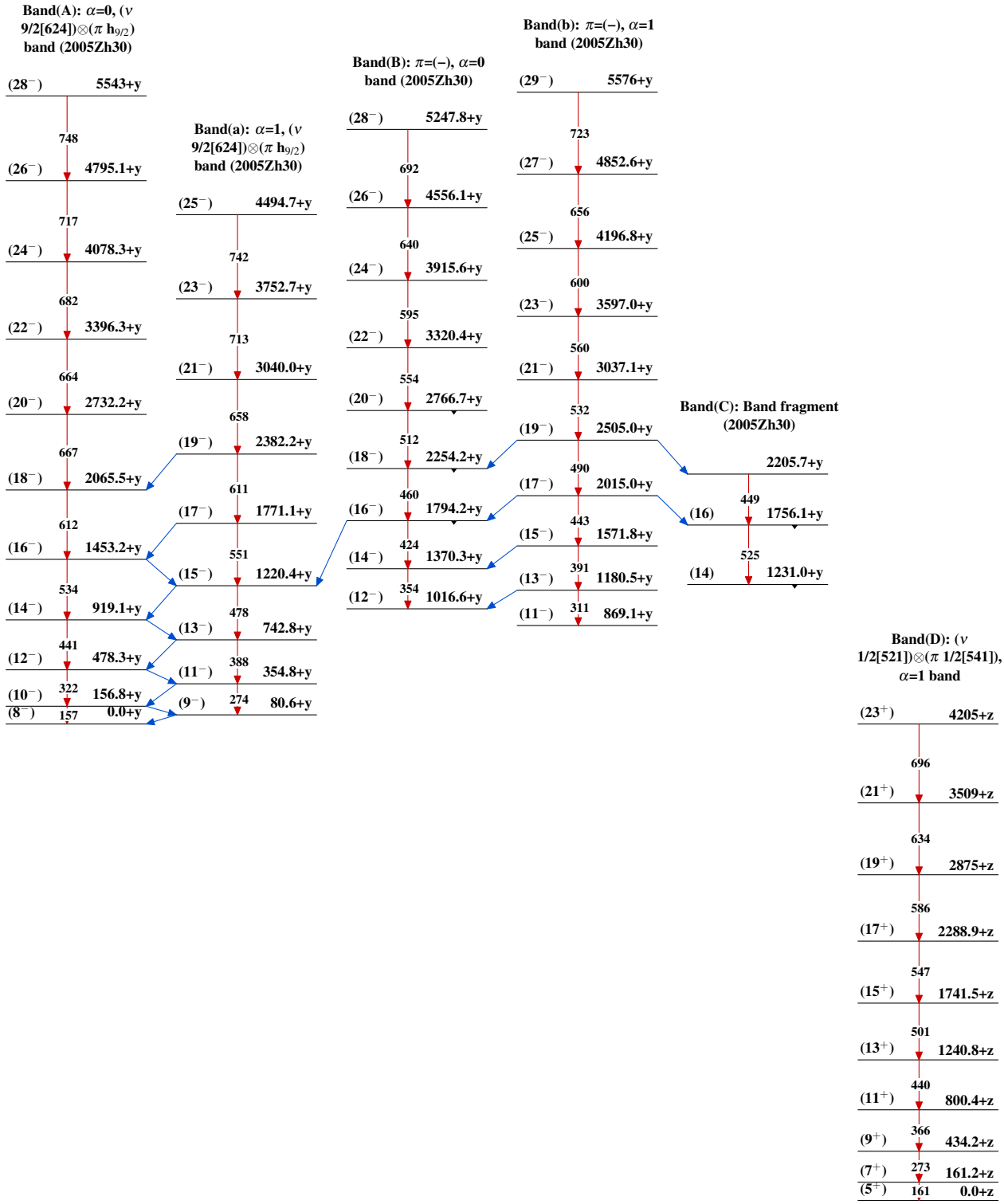
^{159}Tb(^{29}Si,4nγ) 2005Zh30,2004Zh38,2004Zh16

Level Scheme (continued)



$^{184}_{79}Au_{105}$

^{159}Tb(^{29}Si,4nγ) 2005Zh30,2004Zh38,2004Zh16



$^{159}Tb(^{29}Si,4n\gamma)$ 2005Zh30,2004Zh38,2004Zh16 (continued)