

¹⁶⁴Dy(¹¹B,α3nγ) **2007CaZW**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 111, 1807 (2010)	15-Jun-2010

E(¹¹B)=85 MeV; GASP array (40 Compton-suppressed Ge detectors and 80 BGO elements for multiplicity filter); measured E_γ, γγ coin.

¹⁶⁸Tm Levels

E(level) [†]	J ^{π‡}	E(level) [†]	J ^{π‡}	E(level) [†]	J ^{π‡}	E(level) [†]	J ^{π‡}
0.0 [@]	3 ⁺	1098.7 [#]	12 ⁻	3549.0 ^{&}	(20 ⁻)	3095.3+x ^b	
41 ^{&d}	(2 ⁻)	1212.2 [@]	12 ⁺	3625.4 [#]	21 ⁻	3733.0+x ^b	
64.1 [@]	4 ⁺	1310.3 [#]	13 ⁻	3881.4 [@]	21 ⁺	0.0+y (7 ⁺)	
144.7 [@]	5 ⁺	1422.0 ^{&}	(12 ⁻)	3929.3 [#]	22 ⁻	182.6+y ^c (7 ⁻)	
178.9 ^{&}	(4 ⁻)	1451.0 [@]	13 ⁺	4190? [@]	22 ⁺	292.9+y ^c (8 ⁻)	
198.9 [#]	4 ⁻	1514.5 [#]	14 ⁻	4221.3 ^{&}	(22 ⁻)	420.9+y ^c (9 ⁻)	
242.4 [#]	5 ⁻	1677.8 [@]	14 ⁺	4379.7 [#]	23 ⁻	567.5+y ^c (10 ⁻)	
243.4 [@]	6 ⁺	1774.9 [#]	15 ⁻	4705.1 [#]	24 ⁻	733.6+y ^c (11 ⁻)	
307.4 [#]	6 ⁻	1873.7 ^{&}	(14 ⁻)	4952.1 ^{&}	(24 ⁻)	919.5+y ^c (12 ⁻)	
358.0 [@]	7 ⁺	1967.9 [@]	15 ⁺	0.0+x ^a	(2 ⁺)	1125.2+y ^c (13 ⁻)	
392.6 ^{&}	(6 ⁻)	2007.0 [#]	16 ⁻	121.2+x ^a	(4 ⁺)	1350.4+y ^c (14 ⁻)	
392.7 [#]	7 ⁻	2212.2 [@]	16 ⁺	291.8+x ^a	(5 ⁺)	1595.4+y ^c (15 ⁻)	
493.7 [@]	8 ⁺	2318.3 [#]	17 ⁻	315.1+x ^a	(6 ⁺)	1857.3+y ^c (16 ⁻)	
495.7 [#]	8 ⁻	2377.0 ^{&}	(16 ⁻)	508.7+x ^a	(7 ⁺)	2140.9+y ^c (17 ⁻)	
620.0 [#]	9 ⁻	2548.2 [@]	17 ⁺	582.5+x ^a	(8 ⁺)	2434.6+y ^c (18 ⁻)	
644.5 [@]	9 ⁺	2575.0 [#]	18 ⁻	795.8+x ^a	(9 ⁺)	2757.0+y ^c (19 ⁻)	
676.2 ^{&}	(8 ⁻)	2812.6 [@]	18 ⁺	922.4+x ^a	(10 ⁺)	3076.1+y ^c (20 ⁻)	
759.3 [#]	10 ⁻	2934.8 ^{&}	(18 ⁻)	1143.4+x ^a	(11 ⁺)	3437.2+y ^c (21 ⁻)	
816.9 [@]	10 ⁺	2936.5 [#]	19 ⁻	1333.1+x ^a	(12 ⁺)	3772.9+y ^c (22 ⁻)	
925.5 [#]	11 ⁻	3186.3 [@]	19 ⁺	1539.2+x ^b		4170+y? ^c (23 ⁻)	
1008.5 [@]	11 ⁺	3217.0 [#]	20 ⁻	1996.8+x ^b		4518+y? ^c (24 ⁻)	
1021.4 ^{&}	(10 ⁻)	3475.5 [@]	20 ⁺	2516.6+x ^b			

[†] From least-squares fit to E_γ, assigning equal weight to all data.

[‡] Authors' values; justification not given by authors. Presumably based on deduced band structure and other unenumerated information.

[#] Band(A): (ν i_{13/2})⊗(π h_{9/2}) band. ¹⁶⁸Er2c1 J^π=(4⁻) for lowest-energy level observed.

[@] Band(B): K^π=3⁺ g.s. band. Configuration=((ν 7/2[633])-(π 1/2[411])).

[&] Band(C): K^π=1⁻ band. Configuration=((ν 1/2[521])+(π 1/2[411])).

^a Band(D): (ν 7/2[633])⊗(π 7/2[404]) band. ¹⁶⁸Er2c1 J^π=(2⁺) for lowest-energy level observed.

^b Band(E): sideband.

^c Band(F): (ν i_{13/2})⊗(π 7/2[523]) band. J^π=(7⁻) for lowest-energy level observed.

^d 41 I from Adopted Levels.

$^{164}\text{Dy}(^{11}\text{B},\alpha 3n\gamma)$ **2007CaZW (continued)** $\gamma(^{168}\text{Tm})$

E_γ †	$E_i(\text{level})$	J_i^π	E_f	J_f^π	E_γ †	$E_i(\text{level})$	J_i^π	E_f	J_f^π
64.2	64.1	4 ⁺	0.0	3 ⁺	267.6	582.5+x	(8 ⁺)	315.1+x	(6 ⁺)
65.0	307.4	6 ⁻	242.4	5 ⁻	274.6	567.5+y	(10 ⁻)	292.9+y	(8 ⁻)
73.7	582.5+x	(8 ⁺)	508.7+x	(7 ⁺)	283.5	2140.9+y	(17 ⁻)	1857.3+y	(16 ⁻)
80.7	144.7	5 ⁺	64.1	4 ⁺	283.6	676.2	(8 ⁻)	392.6	(6 ⁻)
85.2	392.7	7 ⁻	307.4	6 ⁻	286.5	644.5	9 ⁺	358.0	7 ⁺
98.7	243.4	6 ⁺	144.7	5 ⁺	287.1	795.8+x	(9 ⁺)	508.7+x	(7 ⁺)
103.1	495.7	8 ⁻	392.7	7 ⁻	293.6	2434.6+y	(18 ⁻)	2140.9+y	(17 ⁻)
108.5	307.4	6 ⁻	198.9	4 ⁻	305.4	925.5	11 ⁻	620.0	9 ⁻
108.5	925.5	11 ⁻	816.9	10 ⁺	311.3	2318.3	17 ⁻	2007.0	16 ⁻
110.2	292.9+y	(8 ⁻)	182.6+y	(7 ⁻)	312.7	733.6+y	(11 ⁻)	420.9+y	(9 ⁻)
114.6	358.0	7 ⁺	243.4	6 ⁺	323.3	816.9	10 ⁺	493.7	8 ⁺
115.1	759.3	10 ⁻	644.5	9 ⁺	339.4	1098.7	12 ⁻	759.3	10 ⁻
121.2	121.2+x	(4 ⁺)	0.0+x	(2 ⁺)	340.0	922.4+x	(10 ⁺)	582.5+x	(8 ⁺)
124.3	620.0	9 ⁻	495.7	8 ⁻	345.2	1021.4	(10 ⁻)	676.2	(8 ⁻)
126.3	620.0	9 ⁻	493.7	8 ⁺	347.5	1143.4+x	(11 ⁺)	795.8+x	(9 ⁺)
126.7	922.4+x	(10 ⁺)	795.8+x	(9 ⁺)	351.9	919.5+y	(12 ⁻)	567.5+y	(10 ⁻)
127.8	420.9+y	(9 ⁻)	292.9+y	(8 ⁻)	363.7	1008.5	11 ⁺	644.5	9 ⁺
135.7	493.7	8 ⁺	358.0	7 ⁺	384.7	1310.3	13 ⁻	925.5	11 ⁻
137.5	495.7	8 ⁻	358.0	7 ⁺	391.7	1125.2+y	(13 ⁻)	733.6+y	(11 ⁻)
137.8	178.9	(4 ⁻)	41	(2 ⁻)	395.5	1212.2	12 ⁺	816.9	10 ⁺
139.1	759.3	10 ⁻	620.0	9 ⁻	395.8	1539.2+x		1143.4+x	(11 ⁺)
144.7	144.7	5 ⁺	0.0	3 ⁺	400.6	1422.0	(12 ⁻)	1021.4	(10 ⁻)
146.6	567.5+y	(10 ⁻)	420.9+y	(9 ⁻)	410.7	1333.1+x	(12 ⁺)	922.4+x	(10 ⁺)
149.4	392.7	7 ⁻	243.4	6 ⁺	415.9	1514.5	14 ⁻	1098.7	12 ⁻
150.7	644.5	9 ⁺	493.7	8 ⁺	430.8	1350.4+y	(14 ⁻)	919.5+y	(12 ⁻)
166.1	733.6+y	(11 ⁻)	567.5+y	(10 ⁻)	442.5	1451.0	13 ⁺	1008.5	11 ⁺
166.3	925.5	11 ⁻	759.3	10 ⁻	451.7	1873.7	(14 ⁻)	1422.0	(12 ⁻)
170.6	291.8+x	(5 ⁺)	121.2+x	(4 ⁺)	457.6	1996.8+x		1539.2+x	
172.4	816.9	10 ⁺	644.5	9 ⁺	464.6	1774.9	15 ⁻	1310.3	13 ⁻
173.2	1098.7	12 ⁻	925.5	11 ⁻	465.6	1677.8	14 ⁺	1212.2	12 ⁺
179.3	243.4	6 ⁺	64.1	4 ⁺	470.2	1595.4+y	(15 ⁻)	1125.2+y	(13 ⁻)
182.6	182.6+y	(7 ⁻)	0.0+y	(7 ⁺)	492.5	2007.0	16 ⁻	1514.5	14 ⁻
185.9	919.5+y	(12 ⁻)	733.6+y	(11 ⁻)	503.3	2377.0	(16 ⁻)	1873.7	(14 ⁻)
188.4	495.7	8 ⁻	307.4	6 ⁻	506.9	1857.3+y	(16 ⁻)	1350.4+y	(14 ⁻)
191.7	1008.5	11 ⁺	816.9	10 ⁺	516.9	1967.9	15 ⁺	1451.0	13 ⁺
193.4	508.7+x	(7 ⁺)	315.1+x	(6 ⁺)	519.8	2516.6+x		1996.8+x	
193.9	315.1+x	(6 ⁺)	121.2+x	(4 ⁺)	534.4	2212.2	16 ⁺	1677.8	14 ⁺
203.6	1212.2	12 ⁺	1008.5	11 ⁺	543.3	2318.3	17 ⁻	1774.9	15 ⁻
204.2	1514.5	14 ⁻	1310.3	13 ⁻	545.4	2140.9+y	(17 ⁻)	1595.4+y	(15 ⁻)
205.8	1125.2+y	(13 ⁻)	919.5+y	(12 ⁻)	557.8	2934.8	(18 ⁻)	2377.0	(16 ⁻)
211.6	1310.3	13 ⁻	1098.7	12 ⁻	568.0	2575.0	18 ⁻	2007.0	16 ⁻
213.2	795.8+x	(9 ⁺)	582.5+x	(8 ⁺)	577.5	2434.6+y	(18 ⁻)	1857.3+y	(16 ⁻)
213.3	358.0	7 ⁺	144.7	5 ⁺	578.7	3095.3+x		2516.6+x	
213.6	392.6	(6 ⁻)	178.9	(4 ⁻)	580.3	2548.2	17 ⁺	1967.9	15 ⁺
221.1	1143.4+x	(11 ⁺)	922.4+x	(10 ⁺)	600.4	2812.6	18 ⁺	2212.2	16 ⁺
225.2	1350.4+y	(14 ⁻)	1125.2+y	(13 ⁻)	614.2	3549.0	(20 ⁻)	2934.8	(18 ⁻)
227.4	620.0	9 ⁻	392.7	7 ⁻	616.1	2757.0+y	(19 ⁻)	2140.9+y	(17 ⁻)
232.1	2007.0	16 ⁻	1774.9	15 ⁻	618.2	2936.5	19 ⁻	2318.3	17 ⁻
238.4	420.9+y	(9 ⁻)	182.6+y	(7 ⁻)	637.7	3733.0+x		3095.3+x	
245.0	1595.4+y	(15 ⁻)	1350.4+y	(14 ⁻)	638.1	3186.3	19 ⁺	2548.2	17 ⁺
250.4	493.7	8 ⁺	243.4	6 ⁺	641.5	3076.1+y	(20 ⁻)	2434.6+y	(18 ⁻)
256.7	2575.0	18 ⁻	2318.3	17 ⁻	642.0	3217.0	20 ⁻	2575.0	18 ⁻
260.5	1774.9	15 ⁻	1514.5	14 ⁻	662.9	3475.5	20 ⁺	2812.6	18 ⁺
262.0	1857.3+y	(16 ⁻)	1595.4+y	(15 ⁻)	672.3	4221.3	(22 ⁻)	3549.0	(20 ⁻)
263.7	759.3	10 ⁻	495.7	8 ⁻	680.2	3437.2+y	(21 ⁻)	2757.0+y	(19 ⁻)

Continued on next page (footnotes at end of table)

$^{164}\text{Dy}(^{11}\text{B},\alpha 3n\gamma)$ $^{2007}\text{CaZW}$ (continued) $\gamma(^{168}\text{Tm})$ (continued)

E_γ^\dagger	$E_i(\text{level})$	J_i^π	E_f	J_f^π	E_γ^\dagger	$E_i(\text{level})$	J_i^π	E_f	J_f^π
688.9	3625.4	21^-	2936.5	19^-	730.8	4952.1	(24^-)	4221.3	(22^-)
695.1	3881.4	21^+	3186.3	19^+	733 ‡	4170+y?	(23^-)	3437.2+y	(21^-)
696.8	3772.9+y	(22^-)	3076.1+y	(20^-)	745 ‡	4518+y?	(24^-)	3772.9+y	(22^-)
712.3	3929.3	22^-	3217.0	20^-	754.3	4379.7	23^-	3625.4	21^-
714 ‡	4190?	22^+	3475.5	20^+	775.8	4705.1	24^-	3929.3	22^-

† From level-scheme drawing ($^{2007}\text{CaZW}$); uncertainties unstated by authors.

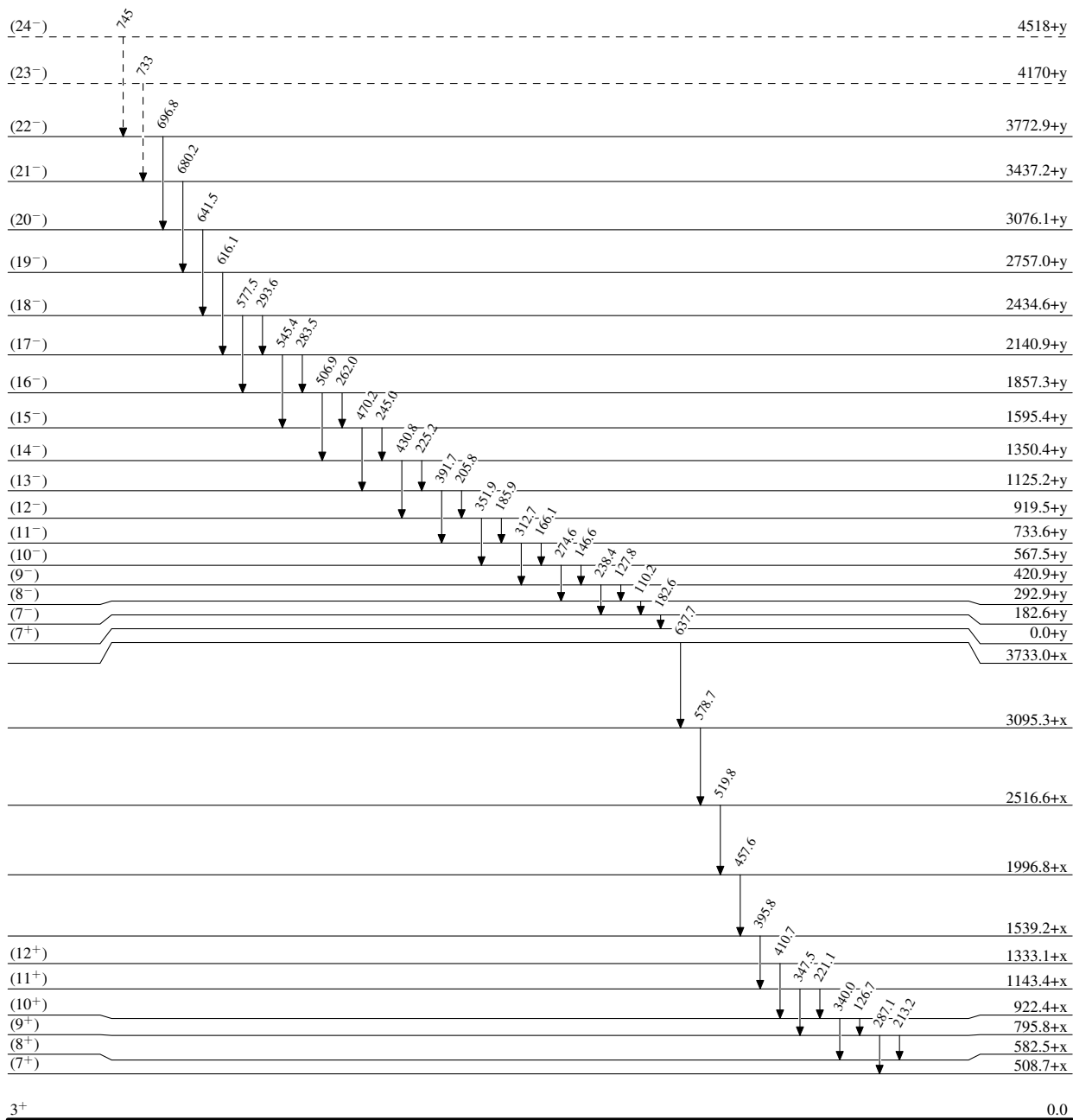
‡ Placement of transition in the level scheme is uncertain.

$^{164}\text{Dy}(^{11}\text{B},\alpha 3n\gamma)$ 2007CaZW

Legend

Level Scheme

-----► γ Decay (Uncertain)

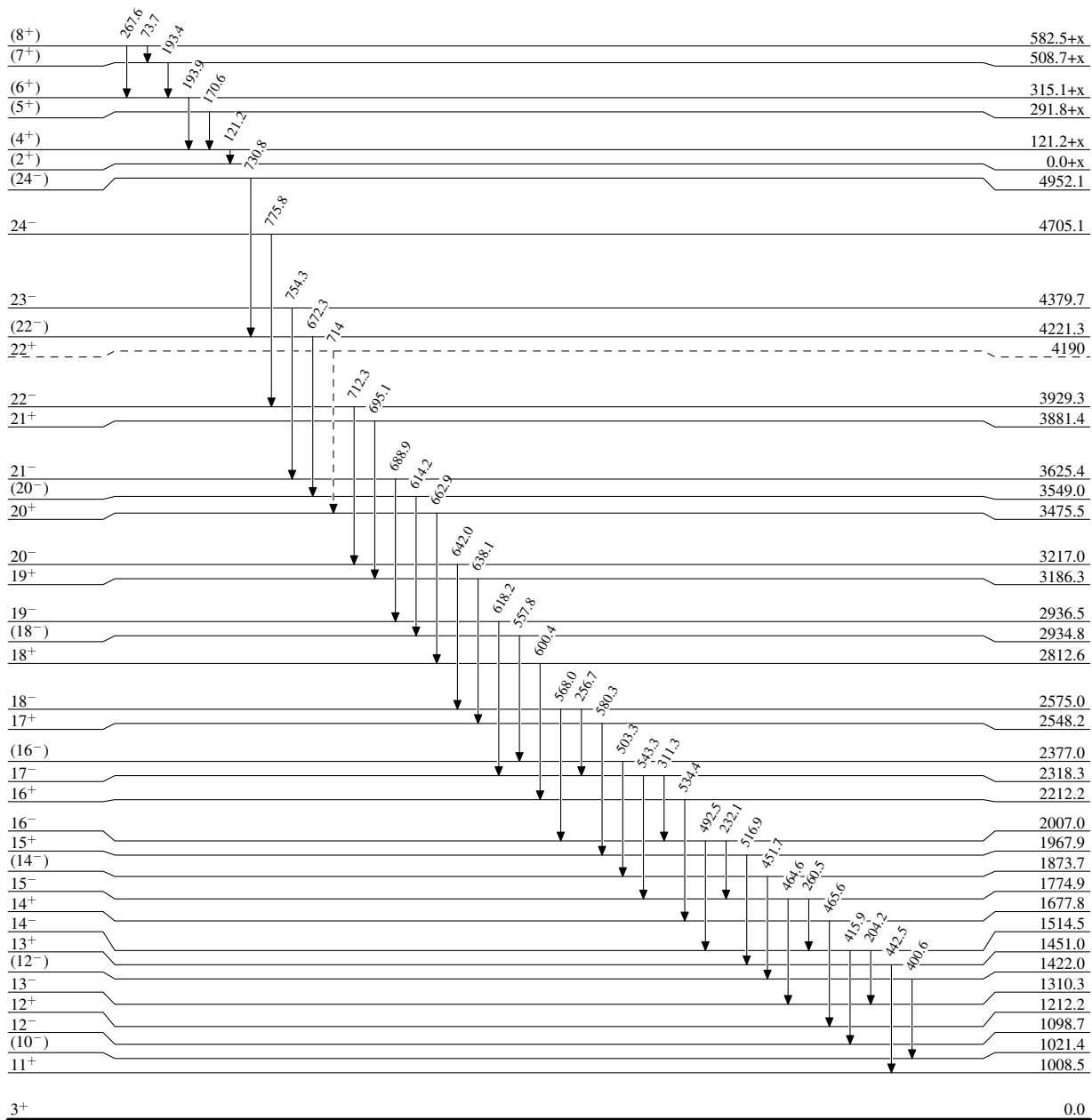


$^{164}\text{Dy}(^{11}\text{B},\alpha 3n\gamma)$ 2007CaZW

Legend

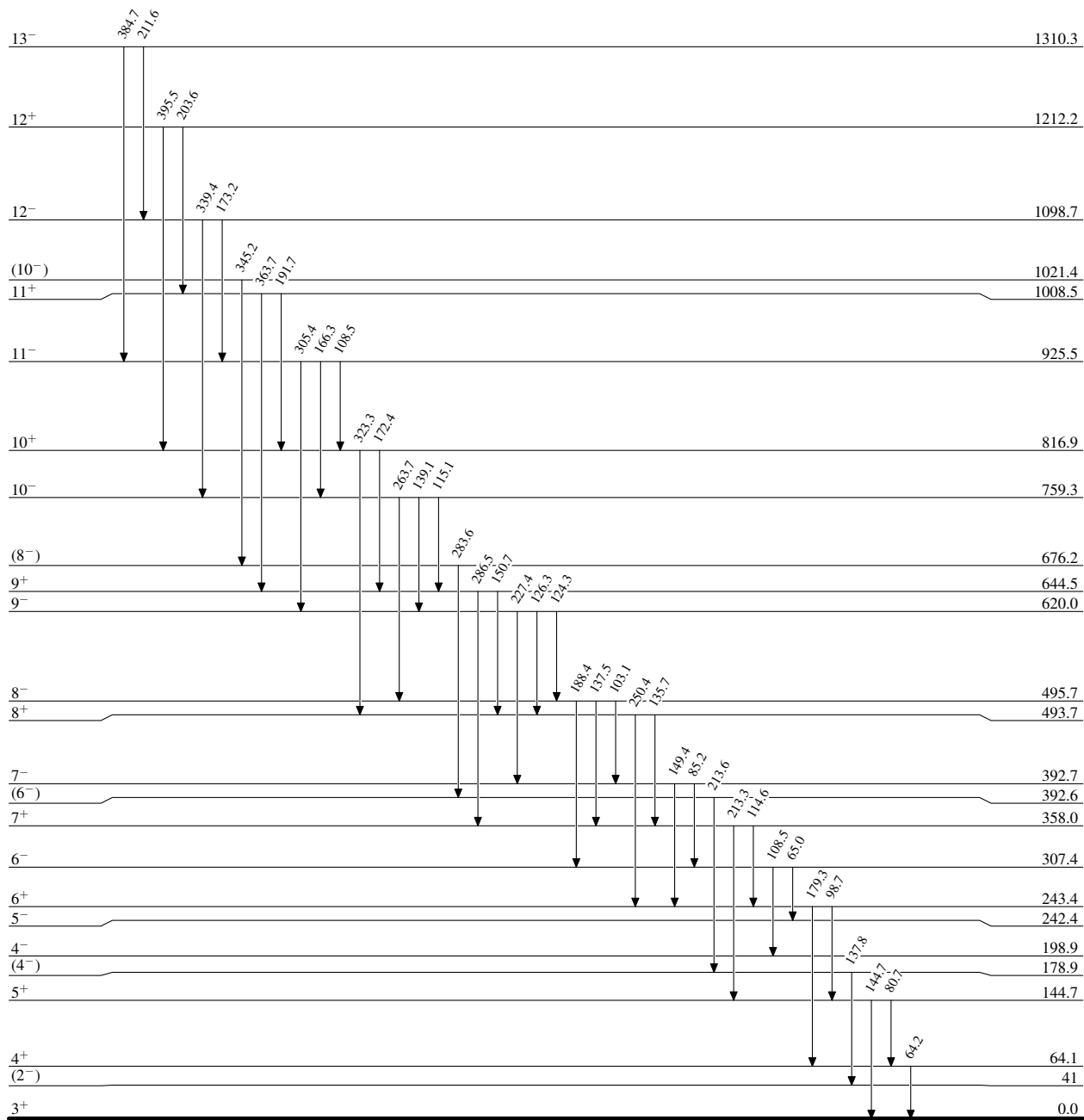
Level Scheme (continued)

-----► γ Decay (Uncertain)

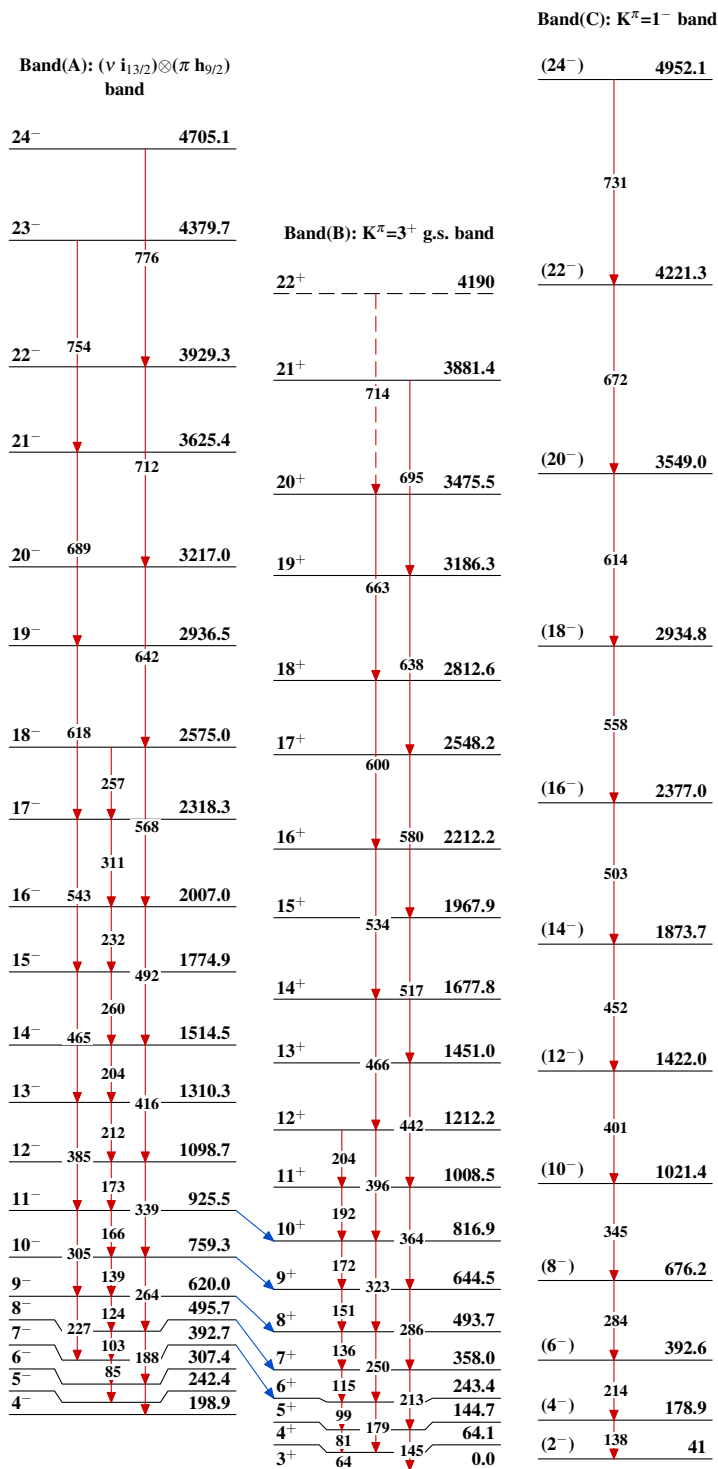


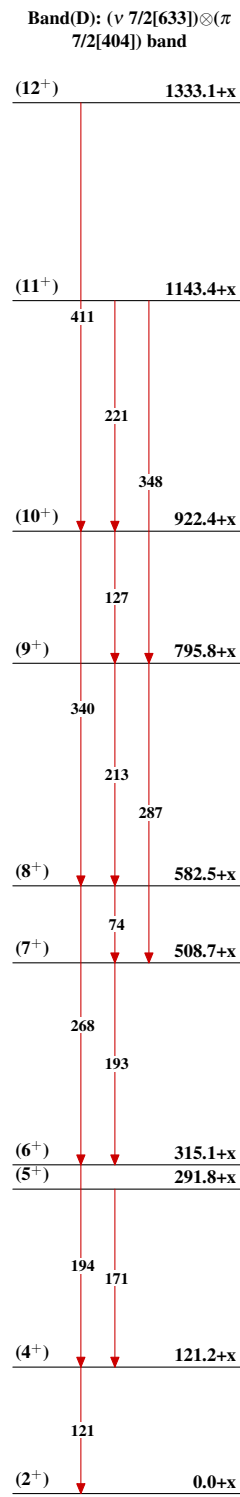
$^{164}\text{Dy}(^{11}\text{B},\alpha 3n\gamma)$ 2007CaZW

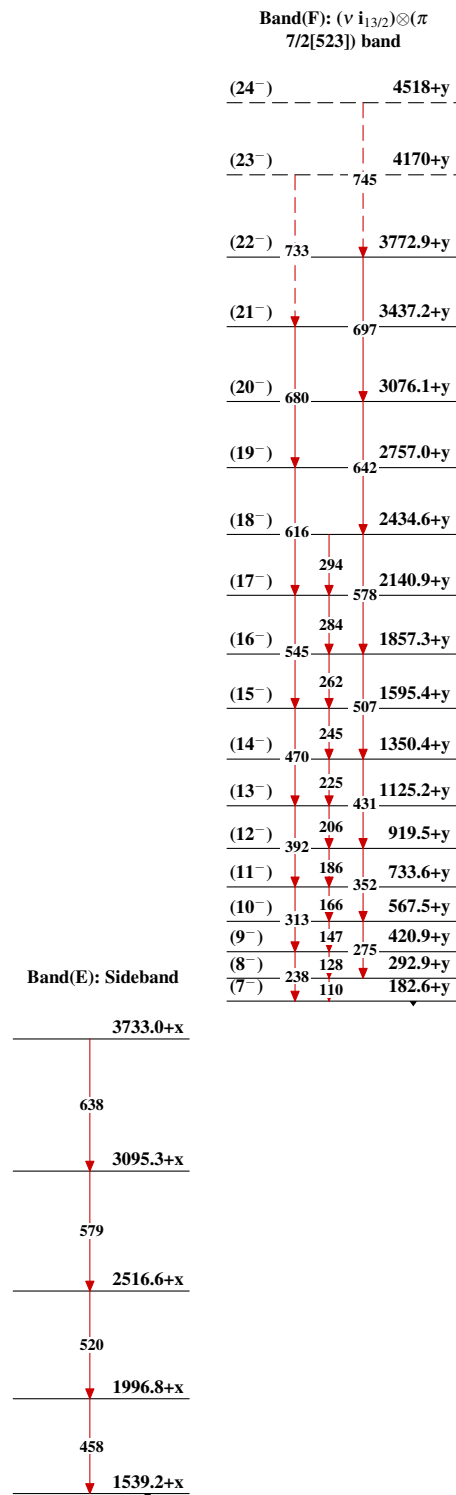
Level Scheme (continued)

 $^{168}_{69}\text{Tm}_{99}$

$^{164}\text{Dy}(^{11}\text{B},\alpha 3n\gamma)$ 2007CaZW



$^{164}\text{Dy} (^{11}\text{B}, \alpha 3\text{n}\gamma) \quad 2007\text{CaZW (continued)}$  $^{168}_{69}\text{Tm}_{99}$

$^{164}\text{Dy} (^{11}\text{B}, \alpha 3n\gamma)$ 2007CaZW (continued) $^{168}_{69}\text{Tm}_{99}$