

$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007AI37,1993Wi19

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Full Evaluation	J. Katakura	NDS 112, 495 (2011)	1-Jan-2010

2007AI37: $^{48}\text{Ca}(^{82}\text{Se},5n)$, E=205 MeV; Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, $\gamma\gamma(\theta)$ (DCO) using GAMMASPHERE array of 100 Compton-suppressed Ge detectors.

1993Wi19: $^{48}\text{Ca}(^{82}\text{Se},5n)$, E=275 MeV; γ .

 ^{125}Xe Levels

E(level) ^{†@}	J π #	E(level) ^{†@}	J π #	E(level) ^{†@}	J π #
0.0 ^u	1/2(+)	2818.2 ^m 12	(17/2)	6348.1 ^e 16	(39/2)
111.7 ^v 8	3/2(+)	2890.4 ^d 12	(21/2)	6752.5 ⁿ 16	(39/2)
252.2 ^a 11	9/2(-)	2928.1 ⁿ 13	(19/2)	6813.1 ^c 23	(39/2)
295.7 ^r 10	7/2(+)	2952.1 [‡] 13	(19/2)	7097.9 ^o 17	(41/2)
309.8 ^{&} 11	11/2(-)	2968.6 ^u 12	(21/2)	7176.2 20	(43/2)
335.1 ^u 8	5/2(+)	2997.9 [‡] 13		7177.9 ^d 24	(41/2)
483.5 ^v 9	7/2(+)	3056.4 ^a 12	25/2	7217.3 ^{&} 19	(43/2)
596.3 ^q 10	9/2(+)	3073.7 ^m 11	(21/2)	7286.9 ^m 16	(41/2)
736.2 ^a 11	13/2(-)	3100.0 ^{&} 12	27/2(-)	7335.1 ^e 18	(43/2)
795.9 ^{&} 11	15/2(-)	3130.9 ^r 13	(23/2)	7769.3 ⁿ 17	(43/2)
837.4 ^u 10	9/2(+)	3149.7 13	(21/2)	7891 ^c 3	(43/2)
870.4 ^r 10	11/2(+)	3276.4 ⁿ 12	(23/2)	8244.1 ^e 19	(47/2)
891.8 ^t 14	13/2(-)	3322.1 ^c 12	(23/2)	8265.4 ^m 17	(45/2)
919.5 ^s 13	11/2	3484.9 ^m 12	(25/2)	8315.0 ^o 17	(45/2)
1029.9 ^v 10	11/2(+)	3487.4 ^q 16	(25/2)	8335 ^d 3	(45/2)
1209.9 ^q 11	13/2(+)	3519.9 ^d 14	(25/2)	8353.2 22	(47/2)
1247.4 ^w 11	11/2	3618.8 ^b 13	(27/2)	8399.6 [?] & 20	(47/2)
1308.8 ^t 15	(15/2-)	3957.2 ⁿ 12	(27/2)	8408.2 ^l 22	(47/2)
1310.0 ^b 12	15/2(-)	4052.1 ^a 14	29/2	8498.3 [?] & 22	
1386.8 ^a 11	17/2	4064.1 ^c 16	(27/2)	8705.4 ⁿ 18	(47/2)
1440.7 ^{&} 11	19/2(-)	4071.5 ^{&} 13	(31/2-)	9289.2 ^o 18	(49/2)
1478.2 ^u 11	13/2(+)	4133.1 [‡] 13		9327.4 ^m 18	(49/2)
1535.4 ^r 11	15/2(+)	4147.9 ^r 17	(27/2)	9402.8 ^e 20	(51/2)
1659.2 ^s 13	15/2	4268.9 ^d 17	(29/2)	9519.2 ^l 23	(51/2)
1718.3 ^v 13	15/2	4291.0 ^m 12	(29/2)	9572 ^d 3	(49/2)
1857.8 ^t 15	17/2(-)	4383.3 ^b 13	(31/2)	9709.4 ⁿ 19	(51/2)
1925.4 ^q 12	17/2(+)	4762.2 ⁿ 13	(31/2)	10368.2 ^o 20	(53/2)
1976.2 ^w 13	(15/2)	4911.1 ^c 19	(31/2)	10474.8 23	(55/2)
2005.9 ^b 12	19/2(-)	5068.3 ^{&} 16	(35/2)	10584.8 ^e 23	(55/2)
2165.9 ^a 11	21/2	5122.0 ^a 15	(33/2)	10751.3 ^l 25	(55/2)
2215.5 ^{&} 11	23/2-	5138.9 ^d 20	(33/2)	10851 ^d 3	(53/2)
2235.9 ^u 12	17/2	5161.8 ^m 14	(33/2)	11514.2 ^o 23	(57/2)
2272.3 ^r 12	19/2(+)	5319.9 ^b 15	(35/2)	11871.8 ^e 25	(59/2)
2313.5 [‡] 13		5320.8 ^e 16	(35/2)	12082 ^l 3	(59/2)
2423.8 [‡] 13	19/2(+)	5826.1 ^c 21	(35/2)	12770.2 ^o 25	(61/2)
2508.0 ^s 13	19/2	5975.9 ^o 16	(37/2)	13164 ^e 3	(63/2)
2550.8 ^v 12	19/2	5994.9 ⁿ 14	(35/2)	13522 ^l 3	(63/2)
2651.8 ^t 13	19/2	6098.2 ^{&} 18	(39/2)	13921 ^p 4	(61/2)
2664.2 ^w 16		6114.9 ^d 22	(37/2)	14144 ^o 3	(65/2)
2704.4 ^q 12	21/2(+)	6252.0 ^m 15	(37/2)	15079 ^l 3	(67/2)
2811.0 ^b 12	(23/2)	6343.9 [?] b 18	(39/2)	15172 ^p 4	(65/2)

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$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007A137,1993Wi19 (continued) ^{125}Xe Levels (continued)

E(level) ^{†@}	J ^π #	Comments
15638 ^o 3	(69/2)	
16492 ^p 4	(69/2)	
16759 ^l 4	(71/2)	
17248 ^o 3	(73/2)	
17888 ^p 4	(73/2)	
18558 ^l 4	(75/2)	
18967 ^o 4	(77/2)	
19356 ^p 4	(77/2)	
20458 ^l 4	(79/2)	
20775 ^o 4	(81/2)	
20911 ^p 4	(81/2)	
22340 ^l 4	(83/2)	
22472 ^p 4	(85/2)	
22508 ^o 4	(85/2)	
24130 ^p 4	(89/2)	
24253 ^l 4	(87/2)	
24341 ^o 4	(89/2)	
25880 ^p 4	(93/2)	
26172 ^o 4	(93/2)	
26276 ^l 4	(91/2)	
27741 ^p 4	(97/2)	
28098 ^o 4	(97/2)	
28414 ^l 4	(95/2)	
29720 ^p 4	(101/2)	
30117 ^o 4	(101/2)	
30703 ^l 5	(99/2)	
31826 ^p 4	(105/2)	
32226 ^o 4	(105/2)	
32857 ^l 5	(103/2)	
34058 ^p 4	(109/2)	
34408 ^o 5	(109/2)	
35202 ^l 5	(107/2)	
36413 ^p 5	(113/2)	
36668 ^o 5	(113/2)	
37619 ^l 5	(111/2)	
x ^f	(47/2 ⁻)	Additional information 1.
		E(level): x ≈ 8500 from level-scheme figure 2 of 2007A137 .
1077.0+x ^f 10	(51/2 ⁻)	
2231.0+x ^f 15	(55/2 ⁻)	
3455.0+x ^f 18	(59/2 ⁻)	
4777.0+x ^f 20	(63/2 ⁻)	
6189.0+x ^f 23	(67/2 ⁻)	
7696.0+x ^f 25	(71/2 ⁻)	
9307+x ^f 3	(75/2 ⁻)	
11008+x ^f 3	(79/2 ⁻)	
11036+x ^g 3	(79/2 ⁻)	
12709+x ^f 3	(83/2 ⁻)	
12860+x ^g 3	(83/2 ⁻)	
14499+x ^f 4	(87/2 ⁻)	

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$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ **2007A137,1993Wi19** (continued) ^{125}Xe Levels (continued)

E(level) [†] @	J ^π #	Comments
14747+x ^g 3	(87/2 ⁻)	
16382+x ^f 4	(91/2 ⁻)	
16696+x ^g 4	(91/2 ⁻)	
18355+x ^f 4	(95/2 ⁻)	
18730+x ^g 4	(95/2 ⁻)	
20426+x ^f 4	(99/2 ⁻)	
22594+x ^f 4	(103/2 ⁻)	
24850+x ^f 4	(107/2 ⁻)	
27174+x ^f 4	(111/2 ⁻)	
y ^h	(49/2 ⁻)	Additional information 2. E(level): y ≈ 9000 from level-scheme figure 2 of 2007A137 .
1091.0+y ^h 10	(53/2 ⁻)	
2339.0+y ^h 15	(57/2 ⁻)	
3596.0+y ^h 18	(61/2 ⁻)	
4896.0+y ^h 20	(65/2 ⁻)	
6211.0+y ^h 23	(69/2 ⁻)	
7592.0+y ^h 25	(73/2 ⁻)	
9080+y ^h 3	(77/2 ⁻)	
10684+y ^h 3	(81/2 ⁻)	
12343+y ^h 3	(85/2 ⁻)	
14056+y ^h 4	(89/2 ⁻)	
15809+y ^h 4	(93/2 ⁻)	
17671+y ^h 4	(97/2 ⁻)	
19648+y ^h 4	(101/2 ⁻)	
21752+y ^h 4	(105/2 ⁻)	
23982+y ^h 4	(109/2 ⁻)	
26337+y ^h 4	(113/2 ⁻)	
z ⁱ	(53/2 ⁻)	Additional information 3. E(level): z ≈ 10750 from level-scheme figure 2 of 2007A137 .
1116.0+z ⁱ 10	(57/2 ⁻)	
2317.0+z ⁱ 15	(61/2 ⁻)	
3618.0+z ⁱ 18	(65/2 ⁻)	
5030.0+z ⁱ 20	(69/2 ⁻)	
6554.0+z ⁱ 23	(73/2 ⁻)	
8189.0+z ⁱ 25	(77/2 ⁻)	
9847+z ^j 3	(81/2 ⁻)	
9919+z ⁱ 3	(81/2 ⁻)	
11601+z ^j 3	(85/2 ⁻)	
11732+z ⁱ 3	(85/2 ⁻)	
13469+z ^j 3	(89/2 ⁻)	
13652+z ⁱ 3	(89/2 ⁻)	
15448+z ^j 3	(93/2 ⁻)	
15686+z ⁱ 4	(93/2 ⁻)	
17535+z ^j 4	(97/2 ⁻)	
17844+z ⁱ 4	(97/2 ⁻)	
20108+z ⁱ 4	(101/2 ⁻)	
u ^k	(55/2 ⁺)	Additional information 4. E(level): u ≈ 10750 from level-scheme figure 2 of 2007A137 .

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$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ **2007Al37,1993Wi19** (continued) ^{125}Xe Levels (continued)

E(level) ^{†@}	J ^π #
1223.0+u ^k 10	(59/2 ⁺)
2548.0+u ^k 15	(63/2 ⁺)
3940.0+u ^k 18	(67/2 ⁺)
5427.0+u ^k 20	(71/2 ⁺)
7015.0+u ^k 23	(75/2 ⁺)
8711.1+u ^k 25	(79/2 ⁺)
10517+u ^k 3	(83/2 ⁺)
12437+u ^k 3	(87/2 ⁺)
14467+u ^k 3	(91/2 ⁺)
16610+u ^k 4	(95/2 ⁺)
18861+u ^k 4	(99/2 ⁺)
21213+u ^k 4	(103/2 ⁺)
23630+u ^k 4	(107/2 ⁺)

[†] From least-squares fit to E γ 's.

[‡] From [1993Wi19](#).

From Adopted Levels.

@ From least-squares fit to E γ 's (by the evaluators) assuming $\Delta(E\gamma)=1$ keV for each γ ray.

& Band(A): Band h_{11/2}, $\alpha=-1/2$.

^a Band(a): Band h_{11/2}, $\alpha=+1/2$.

^b Band(B): Band based on 15/2⁽⁻⁾, $\alpha=-1/2$.

^c Band(C): Band based on (23/2⁻), $\alpha=-1/2$.

^d Band(D): Band based on (21/2⁻), $\alpha=+1/2$.

^e Band(E): Band based on (35/2⁻), $\alpha=-1/2$.

^f Band(F): Band based on (47/2⁻), $\alpha=-1/2$.

^g Band(f): Fork structure for band based on (47/2⁻), $\alpha=-1/2$.

^h Band(G): Band based on (49/2⁻), $\alpha=+1/2$.

ⁱ Band(H): Band based on (53/2⁻), $\alpha=+1/2$.

^j Band(h): Fork structure for band based on (53/2⁻), $\alpha=-1/2$.

^k Band(I): Band based on (55/2⁺), $\alpha=-1/2$.

^l Band(J): Band based on (47/2⁻), $\alpha=-1/2$.

^m Band(K): Band based on (17/2⁺), $\alpha=+1/2$.

ⁿ Band(k): Band based on (19/2⁺), $\alpha=-1/2$.

^o Band(L): Band based on (37/2⁺), $\alpha=+1/2$.

^p Band(l): Fork structure for band based on (37/2⁺), $\alpha=+1/2$.

^q Band(M): Band based on 9/2⁽⁺⁾, $\alpha=+1/2$.

^r Band(m): Band based on 7/2⁽⁺⁾, $\alpha=-1/2$.

^s Band(N): Band based on (11/2⁺), $\alpha=-1/2$.

^t Band(O): Band based on (13/2⁻).

^u Band(P): Band based on 1/2⁽⁺⁾, $\alpha=+1/2$.

^v Band(p): Band based on 3/2⁽⁺⁾, $\alpha=-1/2$.

^w Band(Q): Band based on 11/2, $\alpha=-1/2$.

$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007A137,1993Wi19 (continued) $\gamma(^{125}\text{Xe})$

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
58	309.8	11/2 ⁽⁻⁾	252.2	9/2 ⁽⁻⁾	482	7769.3	(43/2)	7286.9	(41/2)
60	795.9	15/2 ⁽⁻⁾	736.2	13/2 ⁽⁻⁾	484	736.2	13/2 ⁽⁻⁾	252.2	9/2 ⁽⁻⁾
105	3073.7	(21/2)	2968.6	(21/2)	486	795.9	15/2 ⁽⁻⁾	309.8	11/2 ⁽⁻⁾
111.8	111.7	3/2 ⁽⁺⁾	0.0	1/2 ⁽⁺⁾	496	8265.4	(45/2)	7769.3	(43/2)
127	3276.4	(23/2)	3149.7	(21/2)	501	6752.5	(39/2)	6252.0	(37/2)
141	252.2	9/2 ⁽⁻⁾	111.7	3/2 ⁽⁺⁾	502	837.4	9/2 ⁽⁺⁾	335.1	5/2 ⁽⁺⁾
145	3276.4	(23/2)	3130.9	(23/2)	505 ‡	2818.2	(17/2)	2313.5	
148	483.5	7/2 ⁽⁺⁾	335.1	5/2 ⁽⁺⁾	506	1535.4	15/2 ⁽⁺⁾	1029.9	11/2 ⁽⁺⁾
158 ‡	4291.0	(29/2)	4133.1		514	1310.0	15/2 ⁽⁻⁾	795.9	15/2 ⁽⁻⁾
163	3484.9	(25/2)	3322.1	(23/2)	519	3618.8	(27/2)	3100.0	27/2 ⁽⁻⁾
184	295.7	7/2 ⁽⁺⁾	111.7	3/2 ⁽⁺⁾	523	3073.7	(21/2)	2550.8	19/2
188	483.5	7/2 ⁽⁺⁾	295.7	7/2 ⁽⁺⁾	528 ‡	2952.1	(19/2)	2423.8	19/2 ⁽⁺⁾
193	1029.9	11/2 ⁽⁺⁾	837.4	9/2 ⁽⁺⁾	534	7286.9	(41/2)	6752.5	(39/2)
203	3276.4	(23/2)	3073.7	(21/2)	546	1029.9	11/2 ⁽⁺⁾	483.5	7/2 ⁽⁺⁾
208	3484.9	(25/2)	3276.4	(23/2)	549	1857.8	17/2 ⁽⁻⁾	1308.8	(15/2 ⁻)
219	4291.0	(29/2)	4071.5	(31/2 ⁻)	565	2005.9	19/2 ⁽⁻⁾	1440.7	19/2 ⁽⁻⁾
223	335.1	5/2 ⁽⁺⁾	111.7	3/2 ⁽⁺⁾	572	3276.4	(23/2)	2704.4	21/2 ⁽⁺⁾
239	4291.0	(29/2)	4052.1	29/2	574	870.4	11/2 ⁽⁺⁾	295.7	7/2 ⁽⁺⁾
242	837.4	9/2 ⁽⁺⁾	596.3	9/2 ⁽⁺⁾	574	1310.0	15/2 ⁽⁻⁾	736.2	13/2 ⁽⁻⁾
256	3073.7	(21/2)	2818.2	(17/2)	582	891.8	13/2 ⁽⁻⁾	309.8	11/2 ⁽⁻⁾
258	6252.0	(37/2)	5994.9	(35/2)	591	1386.8	17/2	795.9	15/2 ⁽⁻⁾
274	870.4	11/2 ⁽⁺⁾	596.3	9/2 ⁽⁺⁾	596	2811.0	(23/2)	2215.5	23/2 ⁻
279 ‡	3276.4	(23/2)	2997.9		610	919.5	11/2	309.8	11/2 ⁽⁻⁾
287	596.3	9/2 ⁽⁺⁾	309.8	11/2 ⁽⁻⁾	614	1209.9	13/2 ⁽⁺⁾	596.3	9/2 ⁽⁺⁾
301	596.3	9/2 ⁽⁺⁾	295.7	7/2 ⁽⁺⁾	618	2890.4	(21/2)	2272.3	19/2 ⁽⁺⁾
312	4383.3	(31/2)	4071.5	(31/2 ⁻)	618	3322.1	(23/2)	2704.4	21/2 ⁽⁺⁾
325	1535.4	15/2 ⁽⁺⁾	1209.9	13/2 ⁽⁺⁾	619	2005.9	19/2 ⁽⁻⁾	1386.8	17/2
332	3149.7	(21/2)	2818.2	(17/2)	621	9327.4	(49/2)	8705.4	(47/2)
333	4291.0	(29/2)	3957.2	(27/2)	626	2550.8	19/2	1925.4	17/2 ⁽⁺⁾
335	335.1	5/2 ⁽⁺⁾	0.0	1/2 ⁽⁺⁾	629	3519.9	(25/2)	2890.4	(21/2)
339	1209.9	13/2 ⁽⁺⁾	870.4	11/2 ⁽⁺⁾	641.2	1478.2	13/2 ⁽⁺⁾	837.4	9/2 ⁽⁺⁾
348	3276.4	(23/2)	2928.1	(19/2)	645	1440.7	19/2 ⁽⁻⁾	795.9	15/2 ⁽⁻⁾
354	837.4	9/2 ⁽⁺⁾	483.5	7/2 ⁽⁺⁾	645	2811.0	(23/2)	2165.9	21/2
370 ‡	3322.1	(23/2)	2952.1	(19/2)	648 ‡	4133.1		3484.9	(25/2)
372	483.5	7/2 ⁽⁺⁾	111.7	3/2 ⁽⁺⁾	650	1386.8	17/2	736.2	13/2 ⁽⁻⁾
377	1247.4	11/2	870.4	11/2 ⁽⁺⁾	651	1247.4	11/2	596.3	9/2 ⁽⁺⁾
381	9709.4	(51/2)	9327.4	(49/2)	665	1535.4	15/2 ⁽⁺⁾	870.4	11/2 ⁽⁺⁾
385	3484.9	(25/2)	3100.0	27/2 ⁽⁻⁾	675	2890.4	(21/2)	2215.5	23/2 ⁻
387	870.4	11/2 ⁽⁺⁾	483.5	7/2 ⁽⁺⁾	680 ‡	2952.1	(19/2)	2272.3	19/2 ⁽⁺⁾
400	5161.8	(33/2)	4762.2	(31/2)	681 #	3957.2	(27/2)	3276.4	(23/2)
410 #	3484.9	(25/2)	3073.7	(21/2)	682	1478.2	13/2 ⁽⁺⁾	795.9	15/2 ⁽⁻⁾
417	1308.8	(15/2 ⁻)	891.8	13/2 ⁽⁻⁾	688	1718.3	15/2	1029.9	11/2 ⁽⁺⁾
422	3073.7	(21/2)	2651.8	19/2	688	2664.2		1976.2	(15/2)
426	736.2	13/2 ⁽⁻⁾	309.8	11/2 ⁽⁻⁾	696	2005.9	19/2 ⁽⁻⁾	1310.0	15/2 ⁽⁻⁾
430	3484.9	(25/2)	3056.4	25/2	716	1925.4	17/2 ⁽⁺⁾	1209.9	13/2 ⁽⁺⁾
433	1029.9	11/2 ⁽⁺⁾	596.3	9/2 ⁽⁺⁾	724	2890.4	(21/2)	2165.9	21/2
440	8705.4	(47/2)	8265.4	(45/2)	726	2165.9	21/2	1440.7	19/2 ⁽⁻⁾
445	3149.7	(21/2)	2704.4	21/2 ⁽⁺⁾	729	1976.2	(15/2)	1247.4	11/2
448	1478.2	13/2 ⁽⁺⁾	1029.9	11/2 ⁽⁺⁾	732.6	2968.6	(21/2)	2235.9	17/2
464	3519.9	(25/2)	3056.4	25/2	737	2272.3	19/2 ⁽⁺⁾	1535.4	15/2 ⁽⁺⁾
471	4762.2	(31/2)	4291.0	(29/2)	740	1659.2	15/2	919.5	11/2
473	3957.2	(27/2)	3484.9	(25/2)	742	4064.1	(27/2)	3322.1	(23/2)

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$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007A137,1993Wi19 (continued) $\gamma(^{125}\text{Xe})$ (continued)

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
749	4268.9	(29/2)	3519.9	(25/2)	1024#	6343.9?	(39/2)	5319.9	(35/2)
757	6752.5	(39/2)	5994.9	(35/2)	1024	9289.2	(49/2)	8265.4	(45/2)
757.5	2235.9	17/2	1478.2	13/2(+)	1027	6348.1	(39/2)	5320.8	(35/2)
765	4383.3	(31/2)	3618.8	(27/2)	1027	8244.1	(47/2)	7217.3	(43/2)
766	1976.2	(15/2)	1209.9	13/2(+)	1028#	8315.0	(45/2)	7286.9	(41/2)
774	2215.5	23/2-	1440.7	19/2(-)	1030	6098.2	(39/2)	5068.3	(35/2)
779	2165.9	21/2	1386.8	17/2	1035	7286.9	(41/2)	6252.0	(37/2)
779	2704.4	21/2(+)	1925.4	17/2(+)	1062	9327.4	(49/2)	8265.4	(45/2)
783‡	2997.9		2215.5	23/2-	1063	7177.9	(41/2)	6114.9	(37/2)
783	3487.4	(25/2)	2704.4	21/2(+)	1067	2508.0	19/2	1440.7	19/2(-)
794	2651.8	19/2	1857.8	17/2(-)	1071	5122.0	(33/2)	4052.1	29/2
802	3073.7	(21/2)	2272.3	19/2(+)	1072	10474.8	(55/2)	9402.8	(51/2)
805	2811.0	(23/2)	2005.9	19/2(-)	1077	1077.0+x	(51/2-)	x	(47/2-)
805	4762.2	(31/2)	3957.2	(27/2)	1078	7176.2	(43/2)	6098.2	(39/2)
806	4291.0	(29/2)	3484.9	(25/2)	1078	7891	(43/2)	6813.1	(39/2)
808	3618.8	(27/2)	2811.0	(23/2)	1079	10368.2	(53/2)	9289.2	(49/2)
814	5975.9	(37/2)	5161.8	(33/2)	1090	6252.0	(37/2)	5161.8	(33/2)
828	2215.5	23/2-	1386.8	17/2	1091	1091.0+y	(53/2-)	y	(49/2-)
832	2550.8	19/2	1718.3	15/2	1107	3322.1	(23/2)	2215.5	23/2-
833	5994.9	(35/2)	5161.8	(33/2)	1111	9519.2	(51/2)	8408.2	(47/2)
841	3056.4	25/2	2215.5	23/2-	1116	1116.0+z	(57/2-)	z	(53/2-)
847	4911.1	(31/2)	4064.1	(27/2)	1119	7217.3	(43/2)	6098.2	(39/2)
849	2508.0	19/2	1659.2	15/2	1122	7097.9	(41/2)	5975.9	(37/2)
856	3073.7	(21/2)	2215.5	23/2-	1146	11514.2	(57/2)	10368.2	(53/2)
857‡	4133.1		3276.4	(23/2)	1154	2231.0+x	(55/2-)	1077.0+x	(51/2-)
858	3130.9	(23/2)	2272.3	19/2(+)	1156	3322.1	(23/2)	2165.9	21/2
870	5138.9	(33/2)	4268.9	(29/2)	1157	8335	(45/2)	7177.9	(41/2)
870	5161.8	(33/2)	4291.0	(29/2)	1159	9402.8	(51/2)	8244.1	(47/2)
874#	5994.9	(35/2)	5122.0	(33/2)	1164	2550.8	19/2	1386.8	17/2
884	3100.0	27/2(-)	2215.5	23/2-	1166	9519.2	(51/2)	8353.2	(47/2)
888‡	2423.8	19/2(+)	1535.4	15/2(+)	1177	8353.2	(47/2)	7176.2	(43/2)
892	3056.4	25/2	2165.9	21/2	1182#	8399.6?	(47/2)	7217.3	(43/2)
899	3957.2	(27/2)	3056.4	25/2	1182	10584.8	(55/2)	9402.8	(51/2)
908	3073.7	(21/2)	2165.9	21/2	1201	2317.0+z	(61/2-)	1116.0+z	(57/2-)
909	8244.1	(47/2)	7335.1	(43/2)	1210	2005.9	19/2(-)	795.9	15/2(-)
915	5826.1	(35/2)	4911.1	(31/2)	1217	8315.0	(45/2)	7097.9	(41/2)
923	1659.2	15/2	736.2	13/2(-)	1223	1223.0+u	(59/2+)	u	(55/2+)
934	3100.0	27/2(-)	2165.9	21/2	1224	3455.0+x	(59/2-)	2231.0+x	(55/2-)
936	8705.4	(47/2)	7769.3	(43/2)	1232	5994.9	(35/2)	4762.2	(31/2)
937#	5319.9	(35/2)	4383.3	(31/2)	1232	8408.2	(47/2)	7176.2	(43/2)
952#	1247.4	11/2	295.7	7/2(+)	1232	10751.3	(55/2)	9519.2	(51/2)
971	4071.5	(31/2-)	3100.0	27/2(-)	1237	7335.1	(43/2)	6098.2	(39/2)
974	9289.2	(49/2)	8315.0	(45/2)	1237	9572	(49/2)	8335	(45/2)
976	6114.9	(37/2)	5138.9	(33/2)	1248	2339.0+y	(57/2-)	1091.0+y	(53/2-)
979	8265.4	(45/2)	7286.9	(41/2)	1248	5319.9	(35/2)	4071.5	(31/2-)
987	6813.1	(39/2)	5826.1	(35/2)	1249	5320.8	(35/2)	4071.5	(31/2-)
987	7335.1	(43/2)	6348.1	(39/2)	1251	15172	(65/2)	13921	(61/2)
997	4052.1	29/2	3056.4	25/2	1256	12770.2	(61/2)	11514.2	(57/2)
997	5068.3	(35/2)	4071.5	(31/2-)	1257	3596.0+y	(61/2-)	2339.0+y	(57/2-)
1003#	9402.8	(51/2)	8399.6?	(47/2)	1265	2651.8	19/2	1386.8	17/2
1005	9709.4	(51/2)	8705.4	(47/2)	1279	10851	(53/2)	9572	(49/2)
1017	4147.9	(27/2)	3130.9	(23/2)	1280	6348.1	(39/2)	5068.3	(35/2)
1017	7769.3	(43/2)	6752.5	(39/2)	1281‡# 1	8498.3?		7217.3	(43/2)

Continued on next page (footnotes at end of table)

$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007A137,1993Wi19 (continued) $\gamma(^{125}\text{Xe})$ (continued)

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
1283	4383.3	(31/2)	3100.0	27/2 ⁽⁻⁾	1799	18558	(75/2)	16759	(71/2)
1287	11871.8	(59/2)	10584.8	(55/2)	1806	10517+u	(83/2 ⁺)	8711.1+u	(79/2 ⁺)
1292	13164	(63/2)	11871.8	(59/2)	1808	20775	(81/2)	18967	(77/2)
1300	4896.0+y	(65/2 ⁻)	3596.0+y	(61/2 ⁻)	1813	11732+z	(85/2 ⁻)	9919+z	(81/2 ⁻)
1301	3618.0+z	(65/2 ⁻)	2317.0+z	(61/2 ⁻)	1824	12860+x	(83/2 ⁻)	11036+x	(79/2 ⁻)
1315	6211.0+y	(69/2 ⁻)	4896.0+y	(65/2 ⁻)	1831	26172	(93/2)	24341	(89/2)
1320	16492	(69/2)	15172	(65/2)	1833	24341	(89/2)	22508	(85/2)
1322	4777.0+x	(63/2 ⁻)	3455.0+x	(59/2 ⁻)	1852 [#]	12860+x	(83/2 ⁻)	11008+x	(79/2 ⁻)
1325	2548.0+u	(63/2 ⁺)	1223.0+u	(59/2 ⁺)	1861	27741	(97/2)	25880	(93/2)
1331	12082	(59/2)	10751.3	(55/2)	1862	17671+y	(97/2 ⁻)	15809+y	(93/2 ⁻)
1374	14144	(65/2)	12770.2	(61/2)	1868	13469+z	(89/2 ⁻)	11601+z	(85/2 ⁻)
1378	2818.2	(17/2)	1440.7	19/2 ⁽⁻⁾	1882	22340	(83/2)	20458	(79/2)
1381	7592.0+y	(73/2 ⁻)	6211.0+y	(69/2 ⁻)	1883	16382+x	(91/2 ⁻)	14499+x	(87/2 ⁻)
1392	3940.0+u	(67/2 ⁺)	2548.0+u	(63/2 ⁺)	1887	14747+x	(87/2 ⁻)	12860+x	(83/2 ⁻)
1396	17888	(73/2)	16492	(69/2)	1900	20458	(79/2)	18558	(75/2)
1412	6189.0+x	(67/2 ⁻)	4777.0+x	(63/2 ⁻)	1913	24253	(87/2)	22340	(83/2)
1412	5030.0+z	(69/2 ⁻)	3618.0+z	(65/2 ⁻)	1920	13652+z	(89/2 ⁻)	11732+z	(85/2 ⁻)
1440	2235.9	17/2	795.9	15/2 ⁽⁻⁾	1920	12437+u	(87/2 ⁺)	10517+u	(83/2 ⁺)
1440	13522	(63/2)	12082	(59/2)	1926	28098	(97/2)	26172	(93/2)
1468	19356	(77/2)	17888	(73/2)	1944	20911	(81/2)	18967	(77/2)
1487	5427.0+u	(71/2 ⁺)	3940.0+u	(67/2 ⁺)	1949	16696+x	(91/2 ⁻)	14747+x	(87/2 ⁻)
1487	2928.1	(19/2)	1440.7	19/2 ⁽⁻⁾	1973	18355+x	(95/2 ⁻)	16382+x	(91/2 ⁻)
1488	9080+y	(77/2 ⁻)	7592.0+y	(73/2 ⁻)	1977	19648+y	(101/2 ⁻)	17671+y	(97/2 ⁻)
1494	15638	(69/2)	14144	(65/2)	1979	15448+z	(93/2 ⁻)	13469+z	(89/2 ⁻)
1507	7696.0+x	(71/2 ⁻)	6189.0+x	(67/2 ⁻)	1979	29720	(101/2)	27741	(97/2)
1518 [‡]	2313.5		795.9	15/2 ⁽⁻⁾	2019	30117	(101/2)	28098	(97/2)
1524	6554.0+z	(73/2 ⁻)	5030.0+z	(69/2 ⁻)	2023	26276	(91/2)	24253	(87/2)
1528 [#]	2968.6	(21/2)	1440.7	19/2 ⁽⁻⁾	2030	14467+u	(91/2 ⁺)	12437+u	(87/2 ⁺)
1555	20911	(81/2)	19356	(77/2)	2034	18730+x	(95/2 ⁻)	16696+x	(91/2 ⁻)
1557	15079	(67/2)	13522	(63/2)	2034	15686+z	(93/2 ⁻)	13652+z	(89/2 ⁻)
1561	22472	(85/2)	20911	(81/2)	2071	20426+x	(99/2 ⁻)	18355+x	(95/2 ⁻)
1588	7015.0+u	(75/2 ⁺)	5427.0+u	(71/2 ⁺)	2087	17535+z	(97/2 ⁻)	15448+z	(93/2 ⁻)
1604	10684+y	(81/2 ⁻)	9080+y	(77/2 ⁻)	2104	21752+y	(105/2 ⁻)	19648+y	(101/2 ⁻)
1610	17248	(73/2)	15638	(69/2)	2106	31826	(105/2)	29720	(101/2)
1611	9307+x	(75/2 ⁻)	7696.0+x	(71/2 ⁻)	2108 [#]	19356	(77/2)	17248	(73/2)
1635	8189.0+z	(77/2 ⁻)	6554.0+z	(73/2 ⁻)	2109	32226	(105/2)	30117	(101/2)
1658 [#]	9847+z	(81/2 ⁻)	8189.0+z	(77/2 ⁻)	2138	28414	(95/2)	26276	(91/2)
1658	24130	(89/2)	22472	(85/2)	2143	16610+u	(95/2 ⁺)	14467+u	(91/2 ⁺)
1659	12343+y	(85/2 ⁻)	10684+y	(81/2 ⁻)	2154	32857	(103/2)	30703	(99/2)
1680	16759	(71/2)	15079	(67/2)	2158	17844+z	(97/2 ⁻)	15686+z	(93/2 ⁻)
1682 [#]	11601+z	(85/2 ⁻)	9919+z	(81/2 ⁻)	2168	22594+x	(103/2 ⁻)	20426+x	(99/2 ⁻)
1696	8711.1+u	(79/2 ⁺)	7015.0+u	(75/2 ⁺)	2182	34408	(109/2)	32226	(105/2)
1697	22472	(85/2)	20775	(81/2)	2230	23982+y	(109/2 ⁻)	21752+y	(105/2 ⁻)
1701	11008+x	(79/2 ⁻)	9307+x	(75/2 ⁻)	2232	34058	(109/2)	31826	(105/2)
1701	12709+x	(83/2 ⁻)	11008+x	(79/2 ⁻)	2251	18861+u	(99/2 ⁺)	16610+u	(95/2 ⁺)
1713	14056+y	(89/2 ⁻)	12343+y	(85/2 ⁻)	2256	24850+x	(107/2 ⁻)	22594+x	(103/2 ⁻)
1719	18967	(77/2)	17248	(73/2)	2260 [#]	36668	(113/2)	34408	(109/2)
1729	11036+x	(79/2 ⁻)	9307+x	(75/2 ⁻)	2264	20108+z	(101/2 ⁻)	17844+z	(97/2 ⁻)
1730	9919+z	(81/2 ⁻)	8189.0+z	(77/2 ⁻)	2289	30703	(99/2)	28414	(95/2)
1733	22508	(85/2)	20775	(81/2)	2324	27174+x	(111/2 ⁻)	24850+x	(107/2 ⁻)
1750	25880	(93/2)	24130	(89/2)	2345 [#]	35202	(107/2)	32857	(103/2)
1753	15809+y	(93/2 ⁻)	14056+y	(89/2 ⁻)	2352	21213+u	(103/2 ⁺)	18861+u	(99/2 ⁺)
1754 [#]	11601+z	(85/2 ⁻)	9847+z	(81/2 ⁻)	2355	26337+y	(113/2 ⁻)	23982+y	(109/2 ⁻)
1790	14499+x	(87/2 ⁻)	12709+x	(83/2 ⁻)	2355	36413	(113/2)	34058	(109/2)

Continued on next page (footnotes at end of table)

 $^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ [2007Al37](#),[1993Wi19](#) (continued) $\gamma(^{125}\text{Xe})$ (continued)

E_γ^\dagger	$E_i(\text{level})$	J_i^π	E_f	J_f^π
2417	23630+u	(107/2 ⁺)	21213+u	(103/2 ⁺)
2417 [#]	37619	(111/2)	35202	(107/2)

[†] From [2007Al37](#), unless otherwise noted.

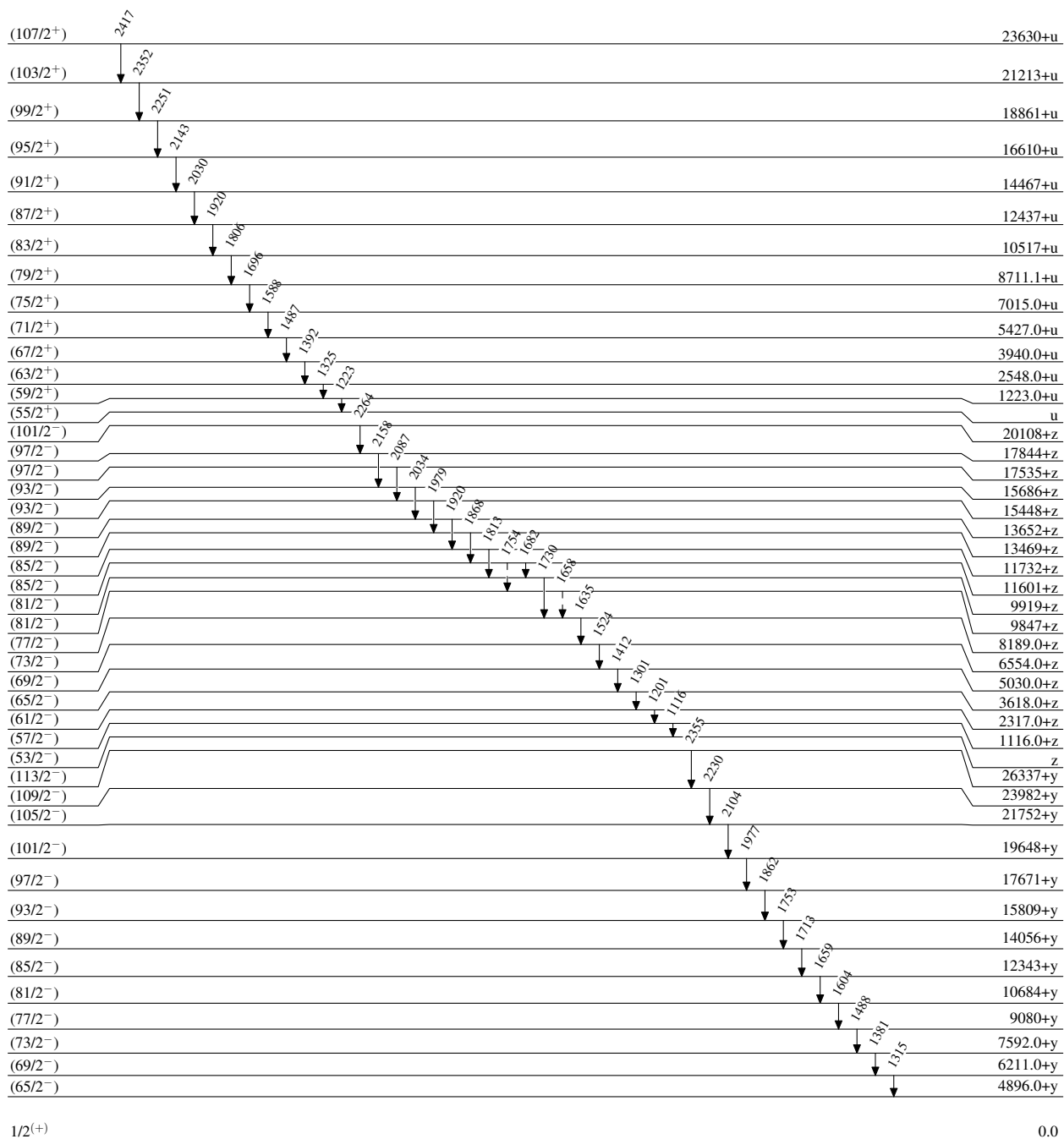
[‡] Calculated from level energies in [1993Wi19](#).

[#] Placement of transition in the level scheme is uncertain.

$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007Al37,1993Wi19

Legend

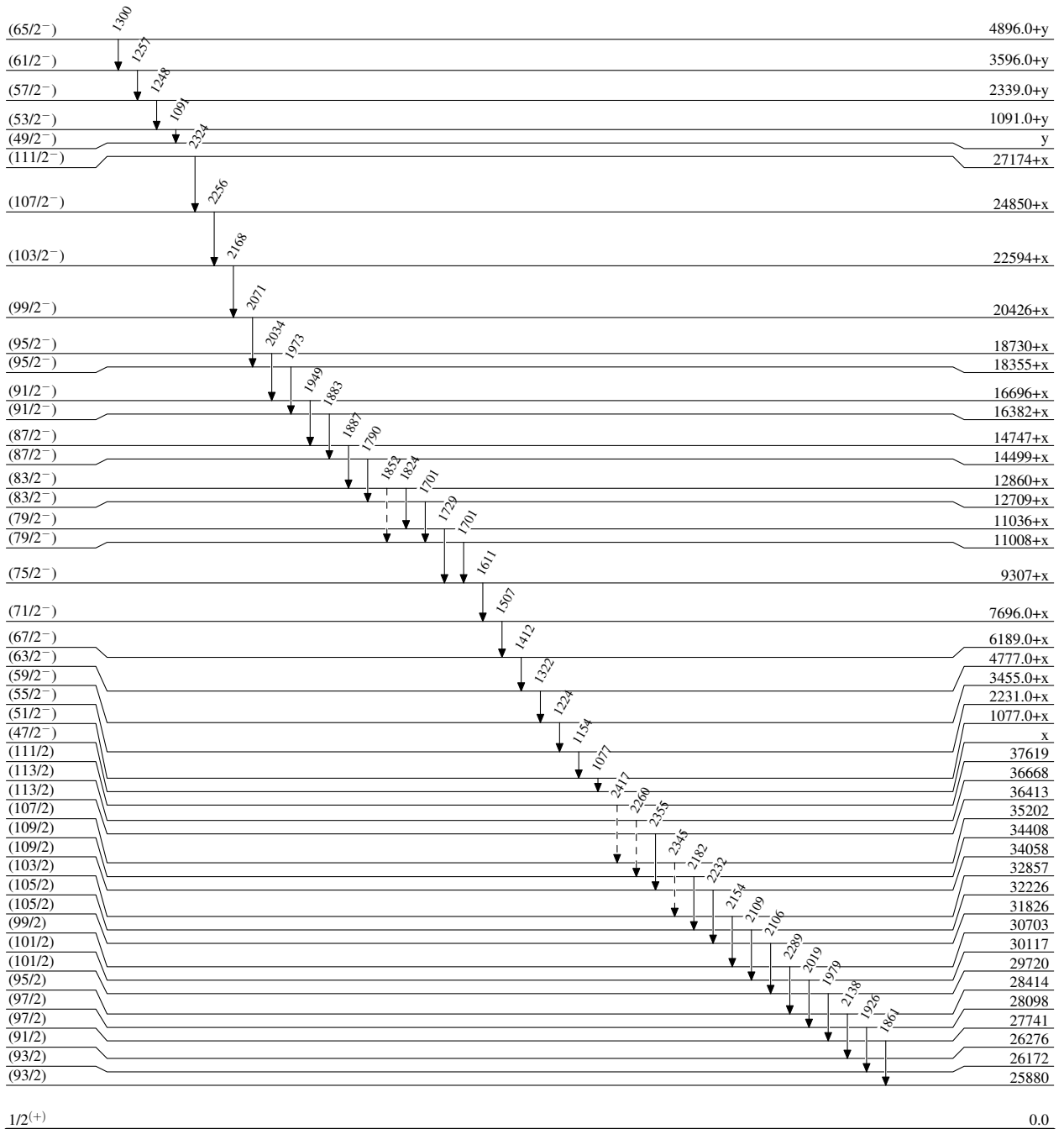
Level Scheme

-----> γ Decay (Uncertain) $^{125}_{54}\text{Xe}_{71}$

$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007Al37,1993Wi19

Legend

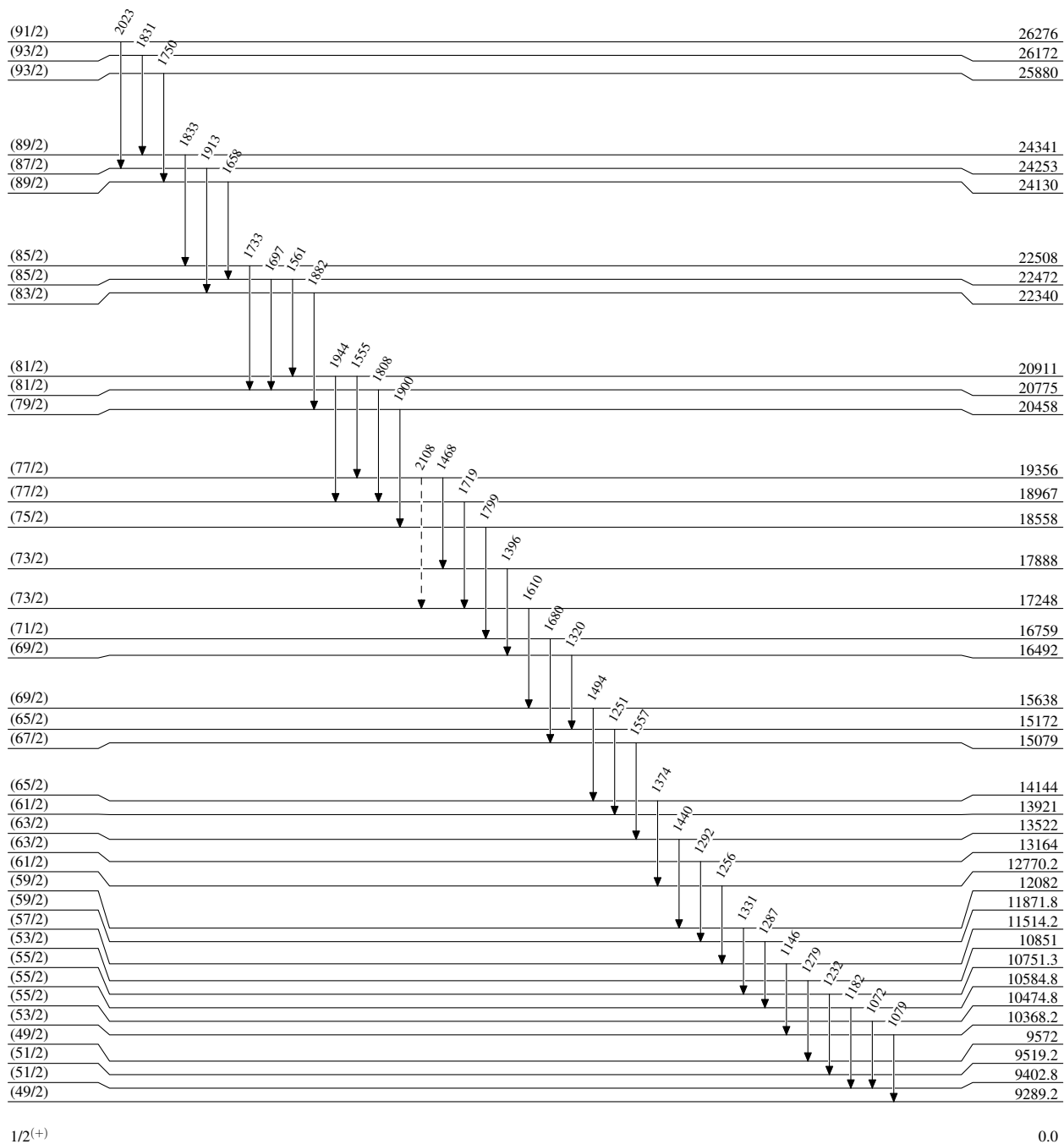
Level Scheme (continued)

-----> γ Decay (Uncertain) $^{125}_{54}\text{Xe}_{71}$

$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007AI37,1993Wi19

Legend

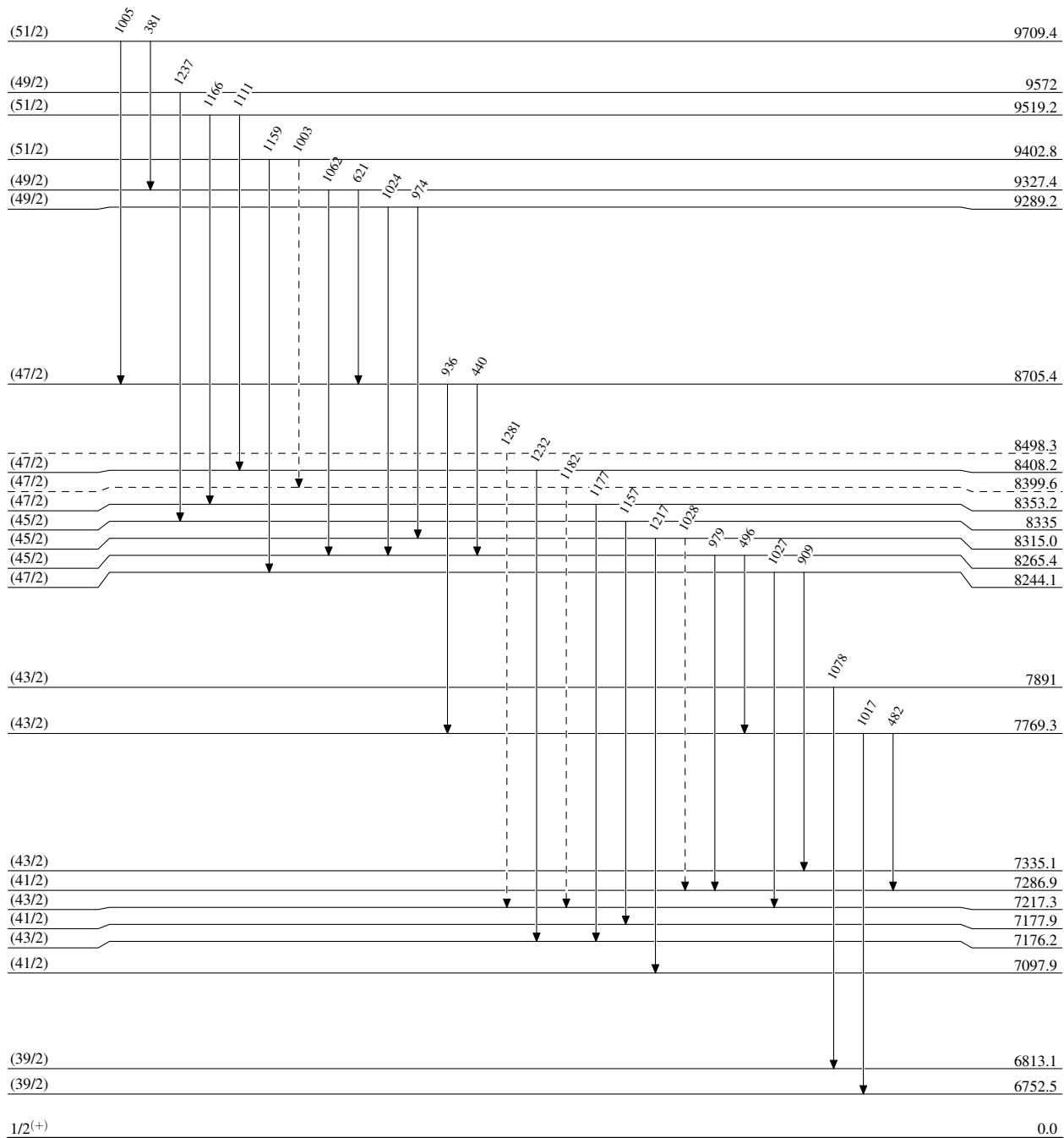
Level Scheme (continued)

-----▶ γ Decay (Uncertain) $^{125}_{54}\text{Xe}_{71}$

$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007Al37,1993Wi19

Legend

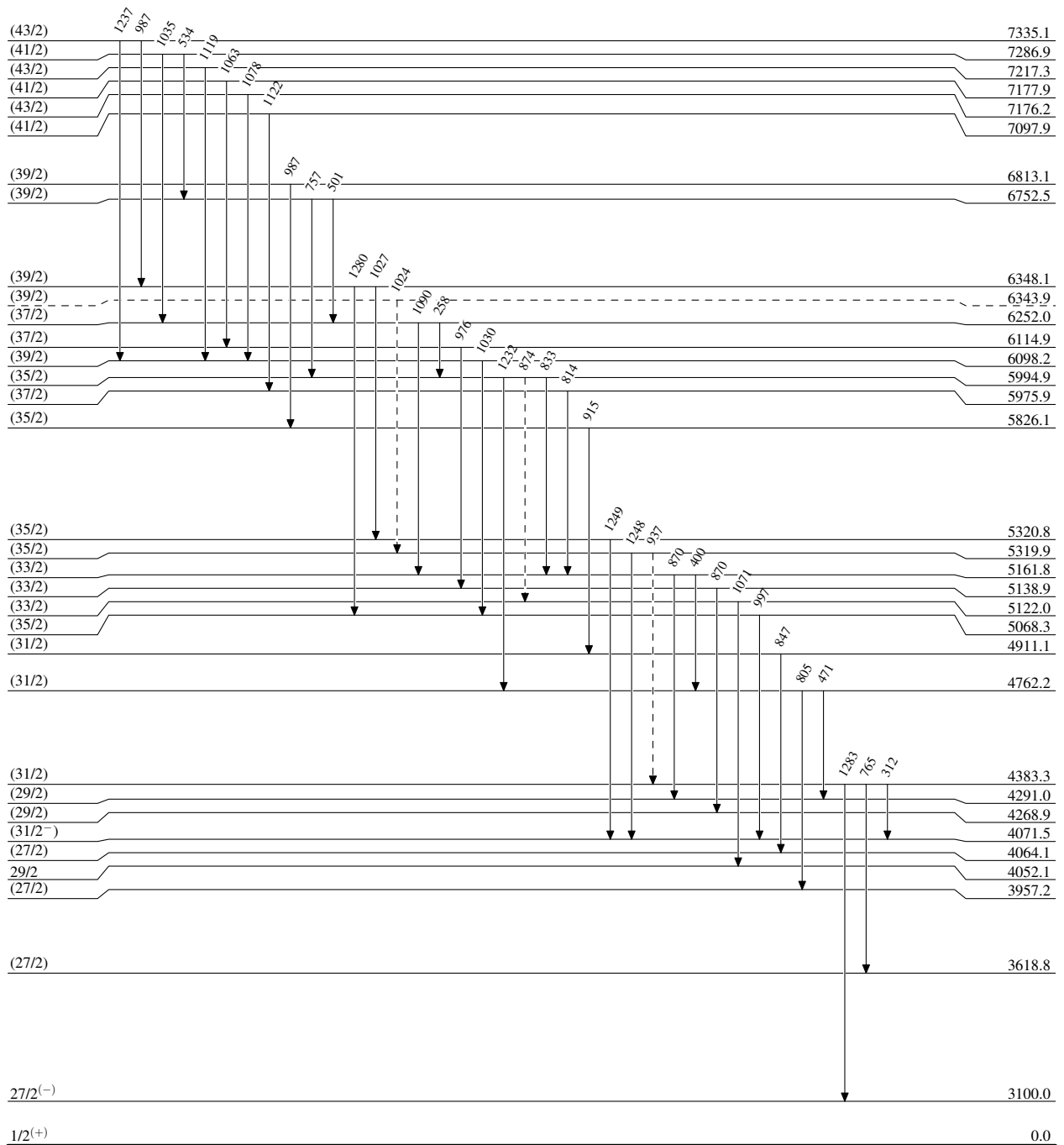
Level Scheme (continued)

-----► γ Decay (Uncertain) $^{125}_{54}\text{Xe}_{71}$

$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007Al37,1993Wi19

Legend

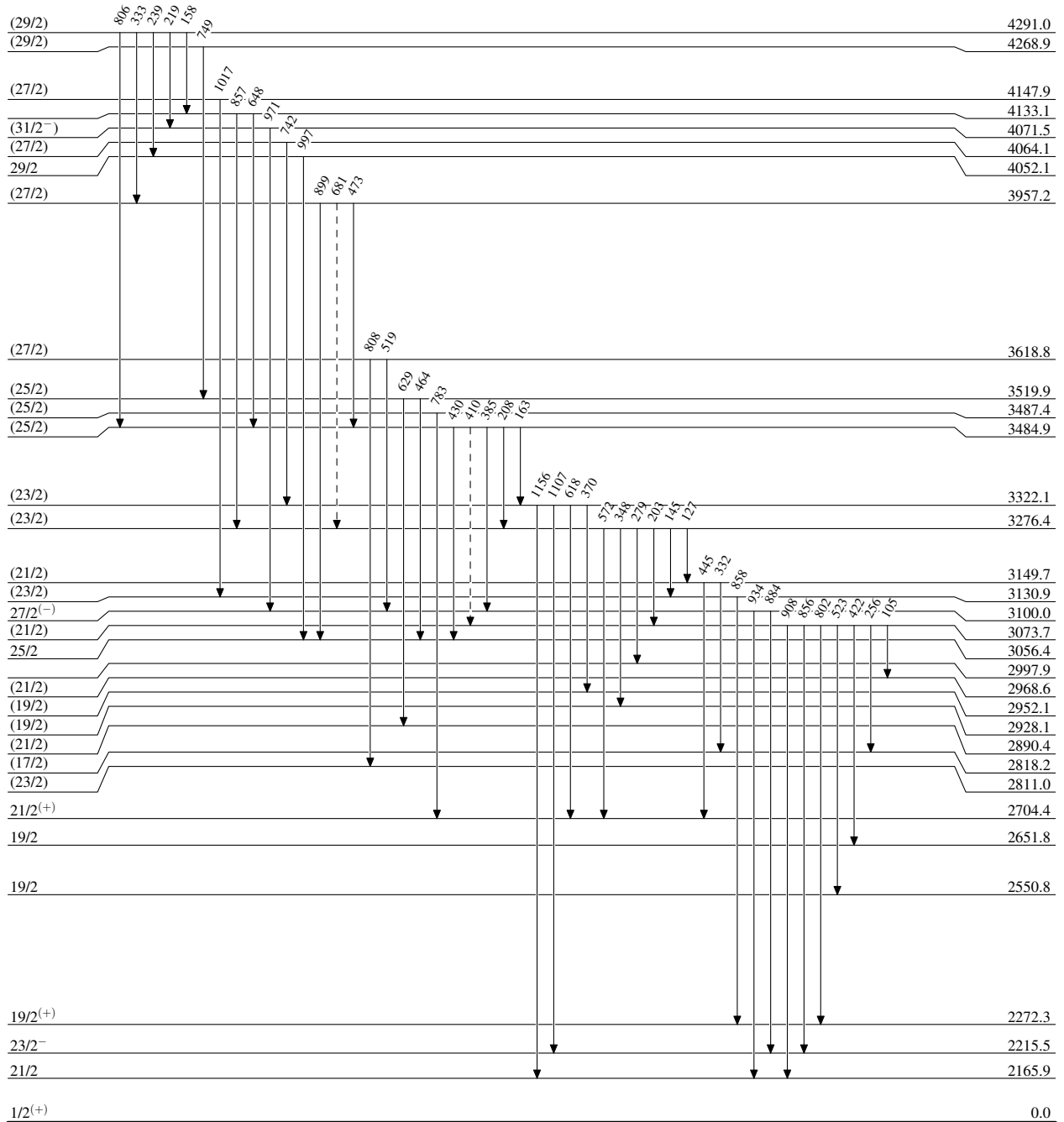
Level Scheme (continued)

-----> γ Decay (Uncertain) $^{125}_{54}\text{Xe}_{71}$

$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007Al37,1993Wi19

Legend

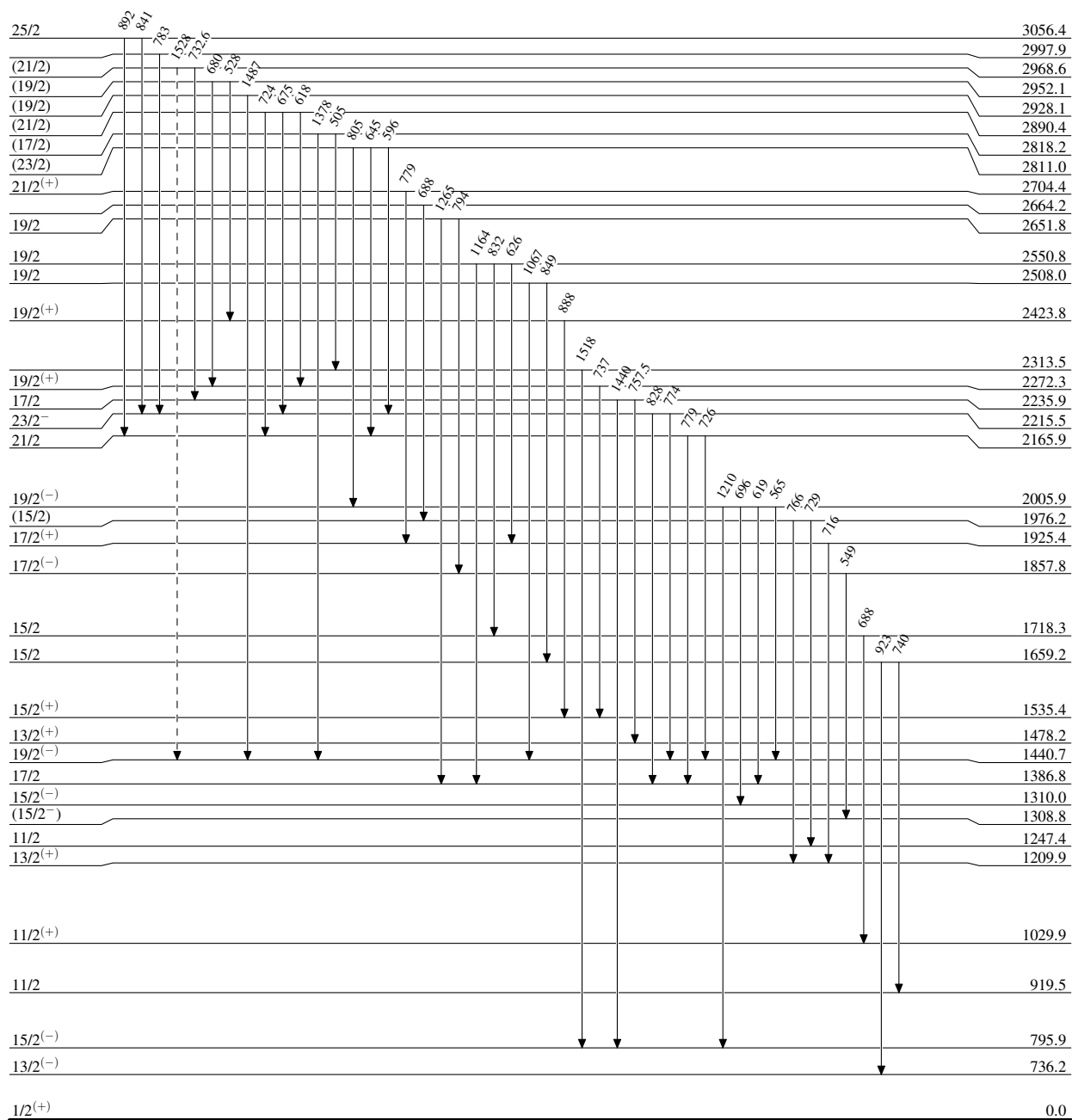
Level Scheme (continued)

-----> γ Decay (Uncertain) $^{125}_{54}\text{Xe}_{71}$

$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007Al37,1993Wi19

Legend

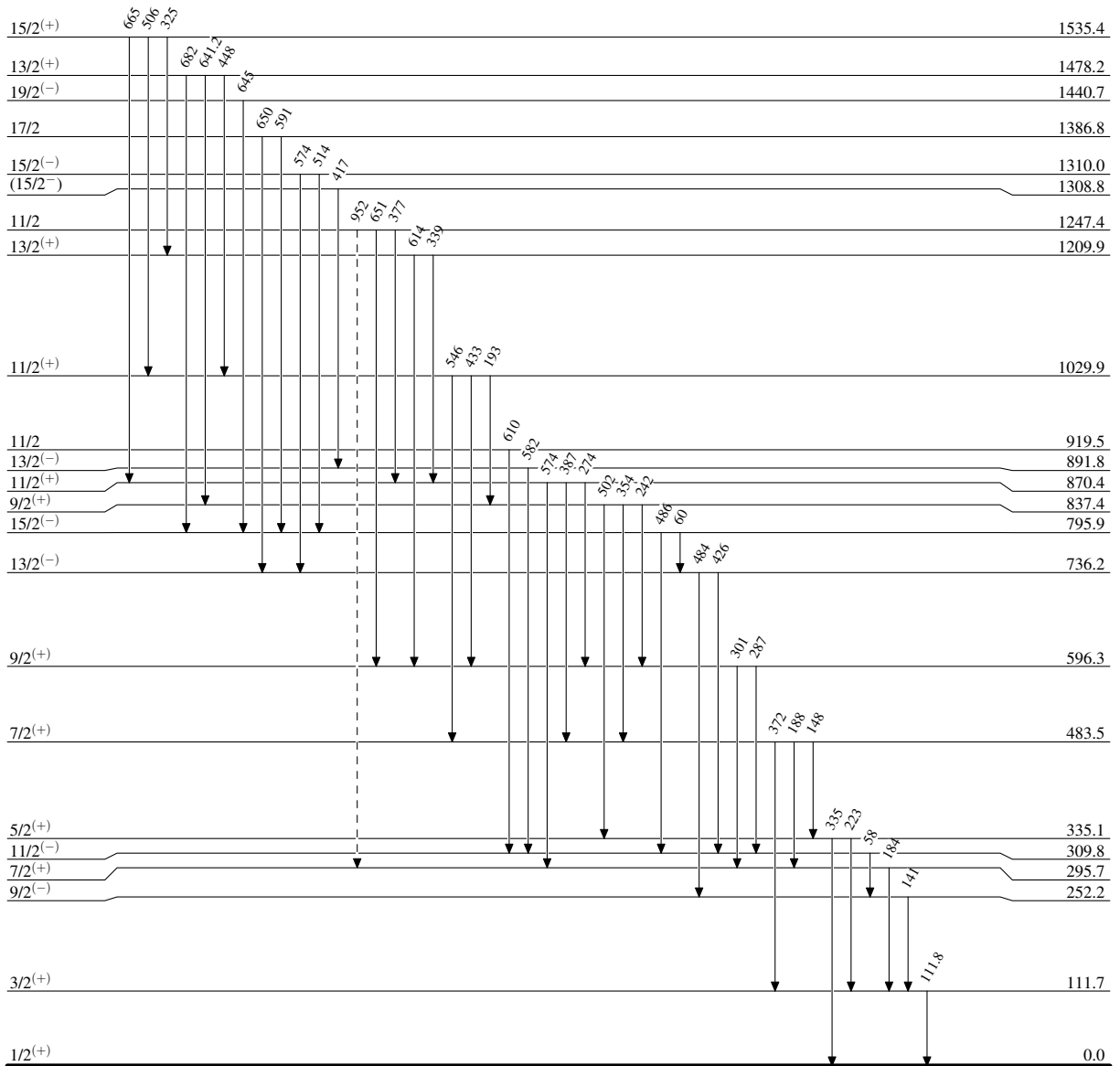
Level Scheme (continued)

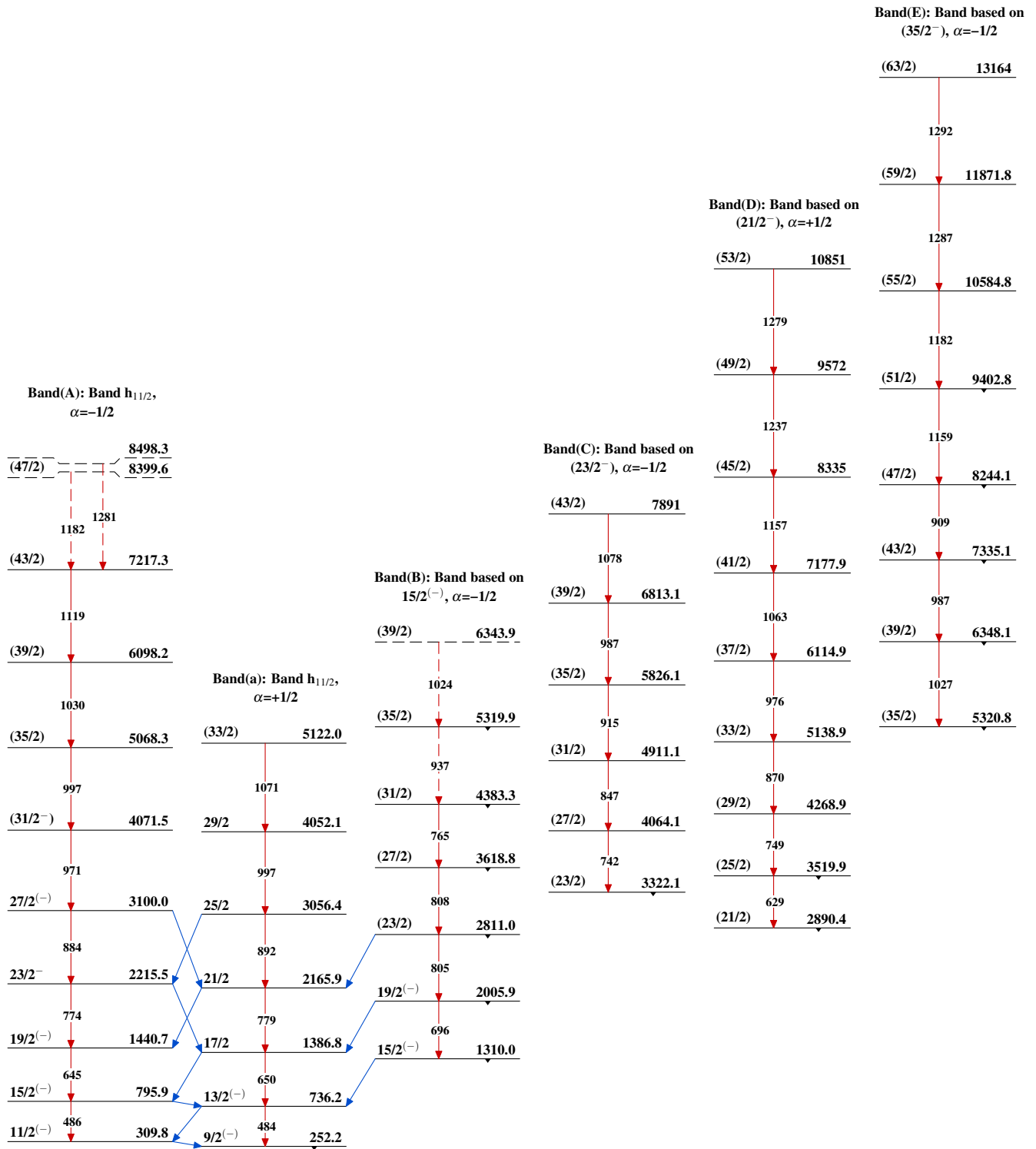
-----► γ Decay (Uncertain) $^{125}_{54}\text{Xe}_{71}$

$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007Al37,1993Wi19

Legend

Level Scheme (continued)

-----► γ Decay (Uncertain) $^{125}_{54}\text{Xe}_{71}$

$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007A137,1993Wi19 $^{125}_{54}\text{Xe}_{71}$

$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007Al37,1993Wi19 (continued)Band(F): Band based on
(47/2⁻), $\alpha=-1/2$

(111/2 ⁻)	27174+x
↓ 2324	
(107/2 ⁻)	24850+x
↓ 2256	
(103/2 ⁻)	22594+x
↓ 2168	
(99/2 ⁻)	20426+x
↓ 2071	
(95/2 ⁻)	18355+x
↓ 1973	
(91/2 ⁻)	16382+x
↓ 1883	
(87/2 ⁻)	14499+x
↓ 1790	
(83/2 ⁻)	12709+x
↓ 1701	
(79/2 ⁻)	11008+x
↓ 1701	
(75/2 ⁻)	9307+x
↓ 1611	
(71/2 ⁻)	7696.0+x
↓ 1507	
(67/2 ⁻)	6189.0+x
↓ 1412	
(63/2 ⁻)	4777.0+x
↓ 1322	
(59/2 ⁻)	3455.0+x
↓ 1224	
(55/2 ⁻)	2231.0+x
↓ 1154	
(51/2 ⁻)	1077.0+x
↓ 1077	
(47/2 ⁻)	x

Band(f): Fork structure
for band based on
(47/2⁻), $\alpha=-1/2$

(95/2 ⁻)	18730+x
↓ 2034	
(91/2 ⁻)	16696+x
↓ 1949	
(87/2 ⁻)	14747+x
↓ 1887	
(83/2 ⁻)	12860+x
↓ 1824	
(79/2 ⁻)	11036+x

Band(G): Band based on
(49/2⁻), $\alpha=+1/2$

(113/2 ⁻)	26337+y
↓ 2355	
(109/2 ⁻)	23982+y
↓ 2230	
(105/2 ⁻)	21752+y
↓ 2104	
(101/2 ⁻)	19648+y
↓ 1977	
(97/2 ⁻)	17671+y
↓ 1862	
(93/2 ⁻)	15809+y
↓ 1753	
(89/2 ⁻)	14056+y
↓ 1713	
(85/2 ⁻)	12343+y
↓ 1659	
(81/2 ⁻)	10684+y
↓ 1604	
(77/2 ⁻)	9080+y
↓ 1488	
(73/2 ⁻)	7592.0+y
↓ 1381	
(69/2 ⁻)	6211.0+y
↓ 1315	
(65/2 ⁻)	4896.0+y
↓ 1300	
(61/2 ⁻)	3596.0+y
↓ 1257	
(57/2 ⁻)	2339.0+y
↓ 1248	
(53/2 ⁻)	1091.0+y
↓ 1091	
(49/2 ⁻)	y

Band(H): Band based on
(53/2⁻), $\alpha=+1/2$

(101/2 ⁻)	20108+z
↓ 2264	
(97/2 ⁻)	17844+z
↓ 2158	
(93/2 ⁻)	15686+z
↓ 2034	
(89/2 ⁻)	13652+z
↓ 1920	
(85/2 ⁻)	11732+z
↓ 1813	
(81/2 ⁻)	9919+z
↓ 1730	
(77/2 ⁻)	8189.0+z
↓ 1635	
(73/2 ⁻)	6554.0+z
↓ 1524	
(69/2 ⁻)	5030.0+z
↓ 1412	
(65/2 ⁻)	3618.0+z
↓ 1301	
(61/2 ⁻)	2317.0+z
↓ 1201	
(57/2 ⁻)	1116.0+z
↓ 1116	
(53/2 ⁻)	z

Band(h): Fork structure
for band based on
(53/2⁻), $\alpha=-1/2$

(97/2 ⁻)	17535+z
↓ 2087	
(93/2 ⁻)	15448+z
↓ 1979	
(89/2 ⁻)	13469+z
↓ 1868	
(85/2 ⁻)	11601+z
↓ 1754	
(81/2 ⁻)	9847+z

Band(I): Band based on
(55/2⁺), $\alpha=-1/2$

(107/2 ⁺)	23630+u
↓ 2417	
(103/2 ⁺)	21213+u
↓ 2352	
(99/2 ⁺)	18861+u
↓ 2251	
(95/2 ⁺)	16610+u
↓ 2143	
(91/2 ⁺)	14467+u
↓ 2030	
(87/2 ⁺)	12437+u
↓ 1920	
(83/2 ⁺)	10517+u
↓ 1806	
(79/2 ⁺)	8711.1+u
↓ 1696	
(75/2 ⁺)	7015.0+u
↓ 1588	
(71/2 ⁺)	5427.0+u
↓ 1487	
(67/2 ⁺)	3940.0+u
↓ 1392	
(63/2 ⁺)	2548.0+u
↓ 1325	
(59/2 ⁺)	1223.0+u
↓ 1223	
(55/2 ⁺)	u

$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007Al37,1993Wi19 (continued)Band(J): Band based on
(47/2⁻), $\alpha=-1/2$

(111/2)	37619
2417	
(107/2)	35202
2345	
(103/2)	32857
2154	
(99/2)	30703
2289	
(95/2)	28414
2138	
(91/2)	26276
2023	
(87/2)	24253
1913	
(83/2)	22340
1882	
(79/2)	20458
1900	
(75/2)	18558
1799	
(71/2)	16759
1680	
(67/2)	15079
1557	
(63/2)	13522
1440	
(59/2)	12082
1331	
(55/2)	10751.3
1232	
(51/2)	9519.2
1111	
(47/2)	8408.2

Band(L): Band based on
(37/2⁺), $\alpha=+1/2$

(113/2)	36668
2260	
(109/2)	34408
2182	
(105/2)	32226
2109	
(101/2)	30117
2019	
(97/2)	28098
1926	
(93/2)	26172
1831	
(89/2)	24341
1833	
(85/2)	22508
1733	
(81/2)	20775
1808	
(77/2)	18967
1719	
(73/2)	17248
1610	
(69/2)	15638
1494	
(65/2)	14144
1374	
(61/2)	12770.2
1256	
(57/2)	11514.2
1146	
(53/2)	10368.2
1079	
(49/2)	9289.2
974	
(45/2)	8315.0
1217	
(41/2)	7097.9
1122	
(37/2)	5975.9

Band(I): Fork structure
for band based on
(37/2⁺), $\alpha=+1/2$

(113/2)	36413
2355	
(109/2)	34058
2232	
(105/2)	31826
2106	
(101/2)	29720
1979	
(97/2)	27741
1861	
(93/2)	25880
1750	
(89/2)	24130
1658	
(85/2)	22472
1561	
(81/2)	20911
1555	
(77/2)	19356
1468	
(73/2)	17888
1396	
(69/2)	16492
1320	
(65/2)	15172
1251	
(61/2)	13921

Band(K): Band based on
(17/2⁺), $\alpha=+1/2$

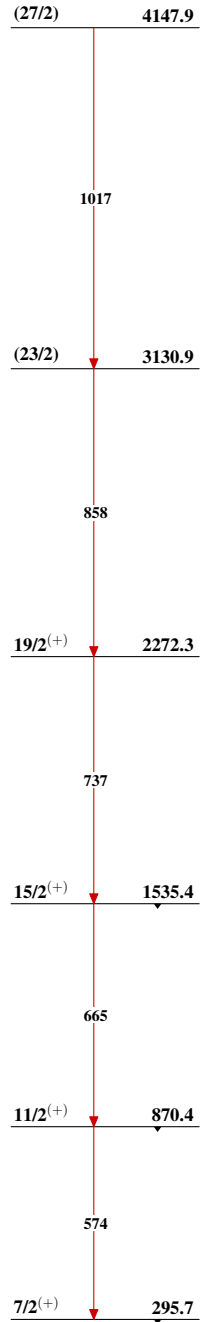
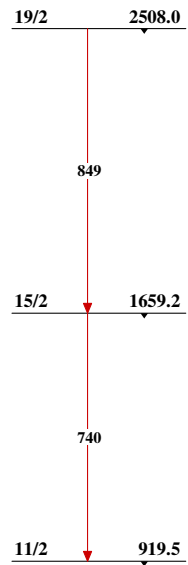
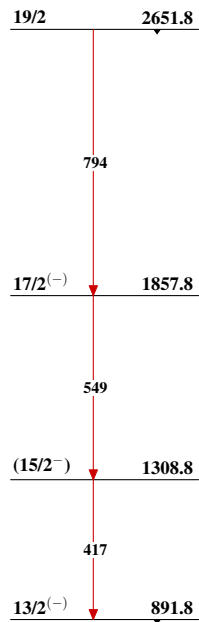
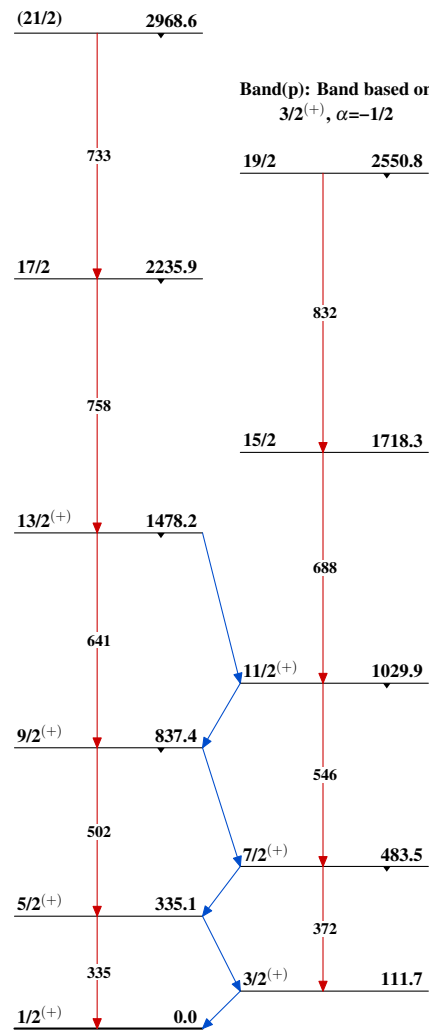
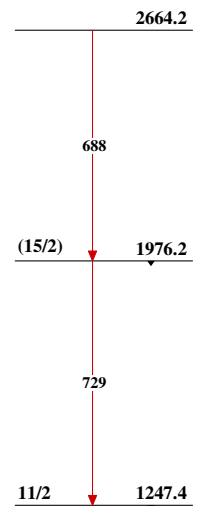
(49/2)	9327.4	(51/2)	9709.4
(45/2)	1062 8265.4	(47/2)	1005 8705.4
(41/2)	979 7286.9	(43/2)	936 7769.3
(37/2)	1035 6252.0	(39/2)	1017 6752.5
(33/2)	1090 5161.8	(35/2)	757 5994.9
(29/2)	870 4291.0	(31/2)	1232 4762.2
(25/2)	870 3484.9	(27/2)	805 3957.2
(21/2)	806 3073.7	(23/2)	681 3276.4
(17/2)	410 2818.2	(19/2)	348 2928.1

Band(k): Band based on
(19/2⁺), $\alpha=-1/2$

(49/2)	9327.4	(51/2)	9709.4
(45/2)	1062 8265.4	(47/2)	1005 8705.4
(41/2)	979 7286.9	(43/2)	936 7769.3
(37/2)	1035 6252.0	(39/2)	1017 6752.5
(33/2)	1090 5161.8	(35/2)	757 5994.9
(29/2)	870 4291.0	(31/2)	1232 4762.2
(25/2)	870 3484.9	(27/2)	805 3957.2
(21/2)	806 3073.7	(23/2)	681 3276.4
(17/2)	410 2818.2	(19/2)	348 2928.1

Band(M): Band based on
9/2⁽⁺⁾, $\alpha=+1/2$

(25/2)	3487.4
21/2 ⁽⁺⁾	783 2704.4
17/2 ⁽⁺⁾	779 1925.4
13/2 ⁽⁺⁾	716 1209.9
9/2 ⁽⁺⁾	614 596.3

$^{48}\text{Ca}(^{82}\text{Se},5n\gamma)$ 2007Al37,1993Wi19 (continued)Band(m): Band based on
 $7/2^{(+)}$, $\alpha=-1/2$ Band(N): Band based on
 $(11/2^{+})$, $\alpha=-1/2$ Band(O): Band based on
 $(13/2^{-})$ Band(P): Band based on
 $1/2^{(+)}$, $\alpha=+1/2$ Band(Q): Band based on
 $11/2$, $\alpha=-1/2$  $^{125}_{54}\text{Xe}_{71}$