

$^{82}\text{Se}(^{48}\text{Ca}, 6n\gamma)$ [2008A112,2007A137](#)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	J. Katakura, Z. D. Wu	NDS 109, 1655 (2008)		1-Apr-2008

Data set based on the XUNDL data set compiled by B. Singh (McMaster) April 26, 2008.

Compiled (unevaluated) dataset from [2008A112](#): Eur Phys J A (2008) (in press, published online April 21, 2008, Al-Khatib et al.); and [2007A137](#): Acta Phys Pol B38, 1431 (2007).

[2008A112,2007A137](#): E=205 MeV beam provided by ATLAS accelerator at Argonne. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, $\gamma\gamma(\theta)$ (DCO) using GAMMASPHERE array of 100 Compton-suppressed Ge detectors. [2007A137](#) is a preliminary conference report from the authors of [2008A112](#).

Complete details of data e.g. gamma-ray energies, relative intensities, DCO's, etc. are not available in the publication; such data are listed by [2008A112](#) only for a few transitions in two irregular (possibly non-collective) structures.

 ^{124}Xe Levels

E(level) [†]	J ^π @	E(level) [†]	J ^π @	E(level) [†]	J ^π @	E(level) [†]	J ^π @
0.0 ^{&}	0 ⁺	4298.5 ^d 13	(12 ⁺)	6541.7 ^h 22	(17 ⁺)	9105.9 ^f 19	23 ⁽⁻⁾
354.2 ^{&} 8	2 ⁺	4421.1 ^g 14	12 ⁽⁻⁾	6553.0 ^k 14	17 ⁽⁺⁾	9374.9 ^e 19	(23 ⁻)
846.3 ⁱ 8	2 ⁺	4573.6 ^b 13	13 ⁽⁻⁾	6740.6 ^g 17	18 ⁽⁻⁾	9483.1 ^k 16	23 ⁽⁺⁾
879.2 ^{&} 10	4 ⁺	4599.3 ^f 15	13 ⁽⁻⁾	6828.2 ^d 17	(18 ⁺)	9648 [‡] 3	
1247.7 ^h 10	3 ⁺	4612.5 ^a 14	14 ⁽⁺⁾	6984.3 ^j 15	18 ⁽⁺⁾	9657.0 16	(24 ⁺)
1437.4 ⁱ 9	4 ⁺	4741.6 ^h 17	(13 ⁺)	7019.5 ^c 20	(18 ⁻)	9668 [‡] 3	
1548.7 ^{&} 11	6 ⁺	4758.8 ^e 14	(13 ⁻)	7031.4 ^f 17	19 ⁽⁻⁾	9675.1 ^g 19	24 ⁽⁻⁾
1836.9 ^h 10	5 ⁺	4809.1 17		7050.4 20	(18 ⁻)	9760.8 ^b 25	(23 ⁻)
2143.1 ⁱ 11	6 ⁺	4837.2 15		7118.0 ^l 15	(18 ⁺)	9926.8 ^j 16	24 ⁽⁺⁾
2226.9 ^b 12	5 ⁽⁻⁾	4874.8 14		7218.9 16	(18 ⁺)	9994.0 20	
2331.4 ^{&} 12	8 ⁺	5025.8 14		7395.3 ^e 17	(19 ⁻)	9996.8 ^a 21	24 ⁽⁺⁾
2574.5 ^h 11	7 ⁺	5048.8 ^j 13	(12 ⁺)	7432.7 ^k 14	19 ⁽⁺⁾	10088.3 ^d 22	(24 ⁺)
2578.8 ^g 12	6 ⁽⁻⁾	5067.3 ^c 15	14 ⁽⁻⁾	7480.6 ^b 20	(19 ⁻)	10088.4 [#] 21	
2625.2 ^b 12	7 ⁻	5113.6 ^d 14	(14 ⁺)	7524.2 ^a 15	20 ⁽⁺⁾	10123.0 ^c 25	(24 ⁻)
2676.0 ^f 12	7 ⁽⁻⁾	5181.9 ^g 15	14 ⁽⁻⁾	7552.7 ^h 25	(19 ⁺)	10342.4 ^f 19	25 ⁽⁻⁾
2809.3 ^c 13	8 ⁻	5289.8 ^k 13	13 ⁽⁺⁾	7626.1 ^g 18	20 ⁽⁻⁾	10428.0 16	(25)
2911.2 ⁱ 13	8 ⁺	5431.8 ^l 14	(14 ⁺)	7810.7 ^d 16	(20 ⁺)	10537.9 ^e 20	(25 ⁻)
3095.8 ^g 13	8 ⁽⁻⁾	5434.0 ^f 16	15 ⁽⁻⁾	7928.4 ^j 15	20 ⁽⁺⁾	10800 [‡] 3	
3111.5 ^b 12	9 ⁻	5462.1 ^b 14	(15 ⁻)	7939.5 ^f 18	21 ⁽⁻⁾	10809.8 17	(26 ⁺)
3148.0 ^f 13	9 ⁽⁻⁾	5465.8 ^a 14	16 ⁽⁺⁾	8070.7 ^l 15	(20 ⁺)	10836 [‡] 3	
3171.4 ^{&} 12	10 ⁺	5518.3 13	14	8083.0 ^l 15	(20 ⁺)	10896.1 ^g 19	26 ⁽⁻⁾
3273.6 ^e 14	9 ⁽⁻⁾	5551.2 ^j 13	14 ⁽⁺⁾	8093.5 ^c 20	(20 ⁻)	10929.2 17	(26 ⁺)
3343.7 ^h 14	(9 ⁺)	5590.7 ^h 20	(15 ⁺)	8100.0 16		11054.1 19	(26)
3461.9 ^c 13	10 ⁽⁻⁾	5658.8 ^e 15	(15 ⁻)	8355.6 ^e 19	(21 ⁻)	11239.5 ^a 23	(26 ⁺)
3502.5 13	(10 ⁺)	5826.9 ^k 13	15 ⁽⁺⁾	8364.8 ^k 15	21 ⁽⁺⁾	11258.2 [#] 23	
3557.0 15		5937.2 ^d 16	(16 ⁺)	8483.4 17		11265 ^c 3	(26 ⁻)
3668.9 ⁱ 15	(10 ⁺)	5973.7 ^g 16	16 ⁽⁻⁾	8522.2 ^g 18	22 ⁽⁻⁾	11384.9 ^d 24	(26 ⁺)
3717.4 ^g 13	10 ⁽⁻⁾	6011.3 ^c 18	(16 ⁻)	8564 ^h 3	(21 ⁺)	11473.0 17	(27)
3786.6 ^b 13	11 ⁽⁻⁾	6134.7 ^f 17	17 ⁽⁻⁾	8569.8 ^b 22	(21 ⁻)	11553.9 ^f 19	27 ⁽⁻⁾
3823.0 ^f 13	11 ⁽⁻⁾	6153.2 ^j 14	16 ⁽⁺⁾	8722.4 ^a 18	22 ⁽⁺⁾	11623.9 20	(27)
3882.9 ^a 13	12 ⁽⁺⁾	6255.3 ^l 14	(16 ⁺)	8859.7 ^l 15	(22 ⁺)	11738.5 19	(27 ⁻)
3955.5 ^e 14	(11 ⁻)	6304.7 16	(16 ⁺)	8899.0 ^d 19	(22 ⁺)	11781.0 22	
4002.6 ^h 14	(11 ⁺)	6437.7 ^b 17	(17 ⁻)	8911.3 ^j 16	22 ⁽⁺⁾	11821.5 18	(28 ⁺)
4018.1 13	(10 ⁺)	6438.9 ^a 15	18 ⁽⁺⁾	9047.4 17		11869.0 19	(28)
4215.5 ^c 13	12 ⁽⁻⁾	6534.9 ^e 15	(17 ⁻)	9083.6 ^c 23	(22 ⁻)	12169.0 18	(28)

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$^{82}\text{Se}(^{48}\text{Ca}, 6n\gamma)$ **2008AI12,2007AI37 (continued)** ^{124}Xe Levels (continued)

E(level) [†]	J ^π @	E(level) [†]	J ^π @	E(level) [†]	J ^π @	E(level) [†]	J ^π @
12197.1 ^g 20	(28 ⁻)	12593.9 20	(29)	13577.2 ^f 22	(31 ⁻)	15036.1 22	(33)
12333.0 20		12721.3 19	(29)	13638.1 21	(31)	15177.9 21	(34)
12359.5 ^f 20	(29 ⁻)	12772.6 20		13856.6 19	(31)	16384.5 24	
12463.6 ^a 25	(28 ⁺)	12992.8 21	(30)	14049.6 19	(32)	16512.1 23	
12491.6 18	(29)	13304.6 19	(30)	14777.7 21	(33)	16528.7 24	
12517 ^c 3	(28 ⁻)	13317.0 21	(30)	14813.0 21	(32)		

[†] From least-squares fit to E γ 's (by the compiler).[‡] Extension of quasi-gamma band.# Fork structure of band based on 12⁽⁺⁾.

@ From Adopted Levels.

& Band(A): The g.s. band.

^a Band(B): Band based on 12⁺. Continuation of g.s. band.^b Band(C): Band based on 5⁻, $\alpha=1$.^c Band(c): Band based on 8⁻, $\alpha=0$.^d Band(D): Band based on 12⁺.^e Band(E): Band based on 9⁻.^f Band(F): Band based on 7⁻, $\alpha=1$.^g Band(f): Band based on 6⁻, $\alpha=0$.^h Band(G): Quasi γ -band, $\alpha=1$.ⁱ Band(g): Quasi γ -band, $\alpha=0$.^j Band(H): Band based on 12⁺, $\alpha=0$.^k Band(h): Band based on 13⁺, $\alpha=1$.^l Band(I): Band based on 14⁺. $\gamma(^{124}\text{Xe})$

The DCO ratios correspond to gates on $\Delta J=2$, quadrupole transitions and expected DCO=1.0 for $\Delta J=2$, quadrupole and 0.55 for $\Delta J=1$, dipole transitions.

E γ	I γ	E _i (level)	J _i ^π	E _f	J _f ^π	Mult. [†]	Comments
130.4	1.24	11869.0	(28)	11738.5	(27 ⁻)	D	DCO=0.61 17
161.1		6134.7	17 ⁽⁻⁾	5973.7	16 ⁽⁻⁾		
178.2		4599.3	13 ⁽⁻⁾	4421.1	12 ⁽⁻⁾		
184.0		2809.3	8 ⁻	2625.2	7 ⁻		
193.0	2.05	14049.6	(32)	13856.6	(31)	D	DCO=0.57 5
216.7		5025.8		4809.1			
223.1	0.57	15036.1	(33)	14813.0	(32)	D	DCO=0.76 29
228.3		5518.3	14	5289.8	13 ⁽⁺⁾		
240 [‡]		5048.8	(12 ⁺)	4809.1			
240.6		5289.8	13 ⁽⁺⁾	5048.8	(12 ⁺)		
244.8	0.99	11869.0	(28)	11623.9	(27)	D	DCO=0.62 14
251.3		5434.0	15 ⁽⁻⁾	5181.9	14 ⁽⁻⁾		
261.7		5551.2	14 ⁽⁺⁾	5289.8	13 ⁽⁺⁾		
264.3		5289.8	13 ⁽⁺⁾	5025.8			
275.9		5826.9	15 ⁽⁺⁾	5551.2	14 ⁽⁺⁾		

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$^{82}\text{Se}(^{48}\text{Ca},6n\gamma)$ [2008AI12,2007AI37](#) (continued) $\gamma(^{124}\text{Xe})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	Comments
281		12772.6		12491.6	(29)		
290.8		7031.4	19 ⁽⁻⁾	6740.6	18 ⁽⁻⁾		
302.3		3111.5	9 ⁻	2809.3	8 ⁻		
308.8		5826.9	15 ⁽⁺⁾	5518.3	14		
313.0		7939.5	21 ⁽⁻⁾	7626.1	20 ⁽⁻⁾		
315.0		11869.0	(28)	11553.9	27 ⁽⁻⁾	D	DCO=0.42 10
321.1	2.95	13638.1	(31)	13317.0	(30)	D	DCO=0.41 8
322.6	1.59	12491.6	(29)	12169.0	(28)	D	DCO=0.66 12
324.8		3786.6	11 ⁽⁻⁾	3461.9	10 ⁽⁻⁾		
326.6		6153.2	16 ⁽⁺⁾	5826.9	15 ⁽⁺⁾		
331.2		3502.5	(10 ⁺)	3171.4	10 ⁺		
344.6		2676.0	7 ⁽⁻⁾	2331.4	8 ⁺		
350.3		3461.9	10 ⁽⁻⁾	3111.5	9 ⁻		
354.0		354.2	2 ⁺	0.0	0 ⁺		
358.3		4573.6	13 ⁽⁻⁾	4215.5	12 ⁽⁻⁾		
368.5		1247.7	3 ⁺	879.2	4 ⁺		
380.4		3882.9	12 ⁽⁺⁾	3502.5	(10 ⁺)		
381.8		10809.8	(26 ⁺)	10428.0	(25)	D	DCO=0.50 17
398.5		2625.2	7 ⁻	2226.9	5 ⁽⁻⁾		
399		12992.8	(30)	12593.9	(29)		
399.9		6553.0	17 ⁽⁺⁾	6153.2	16 ⁽⁺⁾		
400.1		1836.9	5 ⁺	1437.4	4 ⁺		
400.2		15177.9	(34)	14777.7	(33)		
401.4		1247.7	3 ⁺	846.3	2 ⁺		
415.8		4298.5	(12 ⁺)	3882.9	12 ⁽⁺⁾		
419.7		3095.8	8 ⁽⁻⁾	2676.0	7 ⁽⁻⁾		
429.3		4215.5	12 ⁽⁻⁾	3786.6	11 ⁽⁻⁾		
430.6		2574.5	7 ⁺	2143.1	6 ⁺		
430.9		6984.3	18 ⁽⁺⁾	6553.0	17 ⁽⁺⁾		
436.0		8364.8	21 ⁽⁺⁾	7928.4	20 ⁽⁺⁾		
443.7		9926.8	24 ⁽⁺⁾	9483.1	23 ⁽⁺⁾		
448.6		7432.7	19 ⁽⁺⁾	6984.3	18 ⁽⁺⁾		
449		2676.0	7 ⁽⁻⁾	2226.9	5 ⁽⁻⁾		
452.8		5289.8	13 ⁽⁺⁾	4837.2			
472.0		3148.0	9 ⁽⁻⁾	2676.0	7 ⁽⁻⁾		
478.0		2809.3	8 ⁻	2331.4	8 ⁺		
486.1		3111.5	9 ⁻	2625.2	7 ⁻		
490.2		12359.5	(29 ⁻)	11869.0	(28)		
492.0		846.3	2 ⁺	354.2	2 ⁺		
494.0		5067.3	14 ⁽⁻⁾	4573.6	13 ⁽⁻⁾		
495.2		8859.7	(22 ⁺)	8364.8	21 ⁽⁺⁾		
496.5		7928.4	20 ⁽⁺⁾	7432.7	19 ⁽⁺⁾		
499.6		11553.9	27 ⁽⁻⁾	11054.1	(26)		
501.5		5113.6	(14 ⁺)	4612.5	14 ⁽⁺⁾		
501.5		10428.0	(25)	9926.8	24 ⁽⁺⁾		
502.6		5551.2	14 ⁽⁺⁾	5048.8	(12 ⁺)		
517.0		3095.8	8 ⁽⁻⁾	2578.8	6 ⁽⁻⁾		
524.9	100.0	879.2	4 ⁺	354.2	2 ⁺		
537.1		5826.9	15 ⁽⁺⁾	5289.8	13 ⁽⁺⁾		
539.5		5973.7	16 ⁽⁻⁾	5434.0	15 ⁽⁻⁾		
543.9		11473.0	(27)	10929.2	(26 ⁺)		
546.0		8911.3	22 ⁽⁺⁾	8364.8	21 ⁽⁺⁾		
553.7		10896.1	26 ⁽⁻⁾	10342.4	25 ⁽⁻⁾		

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$^{82}\text{Se}(^{48}\text{Ca},6n\gamma)$ **2008AI12,2007AI37** (continued) $\gamma(^{124}\text{Xe})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	Comments
555.0		8483.4		7928.4	20 ⁽⁺⁾		
558.3		1437.4	4 ⁺	879.2	4 ⁺		
558.8		8083.0	(20 ⁺)	7524.2	20 ⁽⁺⁾		
564.0		9047.4		8483.4			
569.2		9675.1	24 ⁽⁻⁾	9105.9	23 ⁽⁻⁾		
569.4		3717.4	10 ⁽⁻⁾	3148.0	9 ⁽⁻⁾		
572.0		9483.1	23 ⁽⁺⁾	8911.3	22 ⁽⁺⁾		
582.4		5181.9	14 ⁽⁻⁾	4599.3	13 ⁽⁻⁾		
582.6		8522.2	22 ⁽⁻⁾	7939.5	21 ⁽⁻⁾		
583.2		13304.6	(30)	12721.3	(29)	D	DCO=0.71 9
583.7		9105.9	23 ⁽⁻⁾	8522.2	22 ⁽⁻⁾		
589.2		1836.9	5 ⁺	1247.7	3 ⁺		
591.2		1437.4	4 ⁺	846.3	2 ⁺		
594.2		2143.1	6 ⁺	1548.7	6 ⁺		
594.6		7626.1	20 ⁽⁻⁾	7031.4	19 ⁽⁻⁾		
598.1		4421.1	12 ⁽⁻⁾	3823.0	11 ⁽⁻⁾		
602.3		6153.2	16 ⁽⁺⁾	5551.2	14 ⁽⁺⁾		
605.8		6740.6	18 ⁽⁻⁾	6134.7	17 ⁽⁻⁾		
615		3786.6	11 ⁽⁻⁾	3171.4	10 ⁺		
621.6		3717.4	10 ⁽⁻⁾	3095.8	8 ⁽⁻⁾		
633.2	4.17	12992.8	(30)	12359.5	(29 ⁻)	D	DCO=0.77 11
638.2		8070.7	(20 ⁺)	7432.7	19 ⁽⁺⁾		
643.2		12197.1	(28 ⁻)	11553.9	27 ⁽⁻⁾		
643.5		5518.3	14	4874.8			
645.5	0.90	13638.1	(31)	12992.8	(30)		
650.6		8083.0	(20 ⁺)	7432.7	19 ⁽⁺⁾		
651.6		3823.0	11 ⁽⁻⁾	3171.4	10 ⁺		
652.5		3461.9	10 ⁽⁻⁾	2809.3	8 ⁻		
657.8		11553.9	27 ⁽⁻⁾	10896.1	26 ⁽⁻⁾		
658.8		4002.6	(11 ⁺)	3343.7	(9 ⁺)		
663.2	12.9	11473.0	(27)	10809.8	(26 ⁺)	D	DCO=0.53 4
667.3		10342.4	25 ⁽⁻⁾	9675.1	24 ⁽⁻⁾		
667.4		8100.0		7432.7	19 ⁽⁺⁾		
669.5		1548.7	6 ⁺	879.2	4 ⁺		
675.0		3823.0	11 ⁽⁻⁾	3148.0	9 ⁽⁻⁾		
675.2		3786.6	11 ⁽⁻⁾	3111.5	9 ⁻		
679.1		7118.0	(18 ⁺)	6438.9	18 ⁽⁺⁾		
681.9		3955.5	(11 ⁻)	3273.6	9 ⁽⁻⁾		
691.0		6153.2	16 ⁽⁺⁾	5462.1	(15 ⁻)		
696.0		12169.0	(28)	11473.0	(27)		
700.6		6134.7	17 ⁽⁻⁾	5434.0	15 ⁽⁻⁾		
703.7		4421.1	12 ⁽⁻⁾	3717.4	10 ⁽⁻⁾		
705.4		2143.1	6 ⁺	1437.4	4 ⁺		
711.6		3882.9	12 ⁽⁺⁾	3171.4	10 ⁺		
723	7.71	13317.0	(30)	12593.9	(29)	D	DCO=0.41 10 I _γ and DCO combined for 723+725.
725	7.71	12593.9	(29)	11869.0	(28)	D	DCO=0.41 10 I _γ and DCO combined for 723+725.
726.4		6553.0	17 ⁽⁺⁾	5826.9	15 ⁽⁺⁾		
727.4		5025.8		4298.5	(12 ⁺)		
727.8		11623.9	(27)	10896.1	26 ⁽⁻⁾	D	DCO=0.75 32
729.6		4612.5	14 ⁽⁺⁾	3882.9	12 ⁽⁺⁾		
736		12359.5	(29 ⁻)	11623.9	(27)		

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$^{82}\text{Se}(^{48}\text{Ca},6n\gamma)$ [2008AI12,2007AI37](#) (continued) $\gamma(^{124}\text{Xe})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	Comments
736.8		6255.3	(16 ⁺)	5518.3	14	Q	DCO=1.16 14
738		2574.5	7 ⁺	1836.9	5 ⁺		
739		4741.6	(13 ⁺)	4002.6	(11 ⁺)		
741.9		2578.8	6 ⁽⁻⁾	1836.9	5 ⁺		
745.0		14049.6	(32)	13304.6	(30)		
750.3		5048.8	(12 ⁺)	4298.5	(12 ⁺)		
753.2		4215.5	12 ⁽⁻⁾	3461.9	10 ⁽⁻⁾		
757.9		3668.9	(10 ⁺)	2911.2	8 ⁺		
759.8		8859.7	(22 ⁺)	8100.0		Q	DCO=1.01 10
760.6		5181.9	14 ⁽⁻⁾	4421.1	12 ⁽⁻⁾		
766.9		6740.6	18 ⁽⁻⁾	5973.7	16 ⁽⁻⁾		
768.4		2911.2	8 ⁺	2143.1	6 ⁺		
769.1		3343.7	(9 ⁺)	2574.5	7 ⁺		
770.9	1.29	10428.0	(25)	9657.0	(24 ⁺)	D	DCO=0.70 21
776.3		4599.3	13 ⁽⁻⁾	3823.0	11 ⁽⁻⁾		
776.6		8859.7	(22 ⁺)	8083.0	(20 ⁺)	Q	DCO=1.07 8
779		12333.0		11553.9	27 ⁽⁻⁾		
780.1		3111.5	9 ⁻	2331.4	8 ⁺		
782.7		2331.4	8 ⁺	1548.7	6 ⁺		
784.1		3955.5	(11 ⁻)	3171.4	10 ⁺		
786.8		4573.6	13 ⁽⁻⁾	3786.6	11 ⁽⁻⁾		
789.0	3.66	8859.7	(22 ⁺)	8070.7	(20 ⁺)	Q	DCO=1.13 10 I γ and DCO combined for 789.0+789.6.
789.6	3.66	6255.3	(16 ⁺)	5465.8	16 ⁽⁺⁾	Q	DCO=1.13 10 I γ and DCO combined for 789.0+789.6.
792.2		5973.7	16 ⁽⁻⁾	5181.9	14 ⁽⁻⁾		
793.2		6255.3	(16 ⁺)	5462.1	(15 ⁻)		
797.1	18.1	9657.0	(24 ⁺)	8859.7	(22 ⁺)	Q	DCO=1.14 10
803.4		4758.8	(13 ⁻)	3955.5	(11 ⁻)		
805.6		12359.5	(29 ⁻)	11553.9	27 ⁽⁻⁾		
814.9		5113.6	(14 ⁺)	4298.5	(12 ⁺)		
816.6		3148.0	9 ⁽⁻⁾	2331.4	8 ⁺		
823.5		6255.3	(16 ⁺)	5431.8	(14 ⁺)	Q	DCO=1.28 25
823.6		5937.2	(16 ⁺)	5113.6	(14 ⁺)		
831.3		6984.3	18 ⁽⁺⁾	6153.2	16 ⁽⁺⁾		
835.1		5434.0	15 ⁽⁻⁾	4599.3	13 ⁽⁻⁾		
840.1		3171.4	10 ⁺	2331.4	8 ⁺		
846.5		846.3	2 ⁺	0.0	0 ⁺		
849.1		5590.7	(15 ⁺)	4741.6	(13 ⁺)		
851.5		5067.3	14 ⁽⁻⁾	4215.5	12 ⁽⁻⁾		
853.2		5465.8	16 ⁽⁺⁾	4612.5	14 ⁽⁺⁾		
860.4		7395.3	(19 ⁻)	6534.9	(17 ⁻)		
862.5		7118.0	(18 ⁺)	6255.3	(16 ⁺)	Q	DCO=1.09 9
864		8083.0	(20 ⁺)	7218.9	(18 ⁺)		
875.9		4758.8	(13 ⁻)	3882.9	12 ⁽⁺⁾		
876.1		6534.9	(17 ⁻)	5658.8	(15 ⁻)		
880.3		7432.7	19 ⁽⁺⁾	6553.0	17 ⁽⁺⁾		
883		10809.8	(26 ⁺)	9926.8	24 ⁽⁺⁾		
885.4		7626.1	20 ⁽⁻⁾	6740.6	18 ⁽⁻⁾		
888		9994.0		9105.9	23 ⁽⁻⁾		
888.3		5462.1	(15 ⁻)	4573.6	13 ⁽⁻⁾		
890.9		6828.2	(18 ⁺)	5937.2	(16 ⁺)		
892.4		11821.5	(28 ⁺)	10929.2	(26 ⁺)	Q	DCO=1.22 26
893.4		1247.7	3 ⁺	354.2	2 ⁺		

Continued on next page (footnotes at end of table)

$^{82}\text{Se}(^{48}\text{Ca},6n\gamma)$ [2008AI12,2007AI37](#) (continued) $\gamma(^{124}\text{Xe})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	Comments
896.3		8522.2	22 ⁽⁻⁾	7626.1	20 ⁽⁻⁾		
896.6		7031.4	19 ⁽⁻⁾	6134.7	17 ⁽⁻⁾		
899.8	8.25	12721.3	(29)	11821.5	(28 ⁺)	D	DCO=0.63 11
900.0		5658.8	(15 ⁻)	4758.8	(13 ⁻)		
908.4		7939.5	21 ⁽⁻⁾	7031.4	19 ⁽⁻⁾		
914		7218.9	(18 ⁺)	6304.7	(16 ⁺)		
921.1	5.43	14777.7	(33)	13856.6	(31)	Q	DCO=1.17 21
931.0		8859.7	(22 ⁺)	7928.4	20 ⁽⁺⁾		
931.9		8364.8	21 ⁽⁺⁾	7432.7	19 ⁽⁺⁾		E_γ : from figure 1 of 2008AI12 , 931.0 in authors' table 1.
942.3		3273.6	9 ⁽⁻⁾	2331.4	8 ⁺	D	DCO=0.72 9
943.7		7928.4	20 ⁽⁺⁾	6984.3	18 ⁽⁺⁾		
944.0		6011.3	(16 ⁻)	5067.3	14 ⁽⁻⁾		
944.7		5518.3	14	4573.6	13 ⁽⁻⁾		
944.7		10428.0	(25)	9483.1	23 ⁽⁺⁾		
951.0		6541.7	(17 ⁺)	5590.7	(15 ⁺)		
952.5		8070.7	(20 ⁺)	7118.0	(18 ⁺)	Q	DCO=1.03 7
957.7		1836.9	5 ⁺	879.2	4 ⁺		
960.3		8355.6	(21 ⁻)	7395.3	(19 ⁻)		
964.9		8083.0	(20 ⁺)	7118.0	(18 ⁺)	Q	DCO=1.18 8
973.0		6438.9	18 ⁽⁺⁾	5465.8	16 ⁽⁺⁾		
973		11869.0	(28)	10896.1	26 ⁽⁻⁾		
975.6		6437.7	(17 ⁻)	5462.1	(15 ⁻)		
977.5		5551.2	14 ⁽⁺⁾	4573.6	13 ⁽⁻⁾		
982.5		3557.0		2574.5	7 ⁺		
982.5		7810.7	(20 ⁺)	6828.2	(18 ⁺)		
984.1		8911.3	22 ⁽⁺⁾	7928.4	20 ⁽⁺⁾		E_γ : somewhat poor fit, level-energy difference=982.9.
990.1		9083.6	(22 ⁻)	8093.5	(20 ⁻)		
1002.6		10929.2	(26 ⁺)	9926.8	24 ⁽⁺⁾		
1007.8		5025.8		4018.1	(10 ⁺)		
1008.3		7019.5	(18 ⁻)	6011.3	(16 ⁻)		
1011		7552.7	(19 ⁺)	6541.7	(17 ⁺)		
1011		8564	(21 ⁺)	7552.7	(19 ⁺)		
1011.7	8.11	11821.5	(28 ⁺)	10809.8	(26 ⁺)	Q	DCO=0.89 8
1015.9		9926.8	24 ⁽⁺⁾	8911.3	22 ⁽⁺⁾		
1018.6	8.00	12491.6	(29)	11473.0	(27)	Q	DCO=1.07 11
1019.4		9374.9	(23 ⁻)	8355.6	(21 ⁻)		
1026.2		2574.5	7 ⁺	1548.7	6 ⁺		
1030.1		2578.8	6 ⁽⁻⁾	1548.7	6 ⁺		
1030.7		5048.8	(12 ⁺)	4018.1	(10 ⁺)		
1039.0		7050.4	(18 ⁻)	6011.3	(16 ⁻)		
1039.4		10123.0	(24 ⁻)	9083.6	(22 ⁻)		
1042.9		7480.6	(19 ⁻)	6437.7	(17 ⁻)		
1043.0		8093.5	(20 ⁻)	7050.4	(18 ⁻)		
1044.2	3.12	13638.1	(31)	12593.9	(29)		
1045.0		11473.0	(27)	10428.0	(25)		
1046.1		5048.8	(12 ⁺)	4002.6	(11 ⁺)		
1046.2		5658.8	(15 ⁻)	4612.5	14 ⁽⁺⁾		
1049.0		8859.7	(22 ⁺)	7810.7	(20 ⁺)		
1060		11054.1	(26)	9994.0			
1069.2		6534.9	(17 ⁻)	5465.8	16 ⁽⁺⁾		
1074.0		8093.5	(20 ⁻)	7019.5	(18 ⁻)		
1074.3		5289.8	13 ⁽⁺⁾	4215.5	12 ⁽⁻⁾		
1076.1		2625.2	7 ⁻	1548.7	6 ⁺		
1083.2		1437.4	4 ⁺	354.2	2 ⁺		

Continued on next page (footnotes at end of table)

$^{82}\text{Se}(^{48}\text{Ca}, 6n\gamma)$ **2008AI12,2007AI37** (continued) $\gamma(^{124}\text{Xe})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	Comments
1083.8		9648		8564	(21 ⁺)		
1084		13856.6	(31)	12772.6			
1085.2		7524.2	20 ⁽⁺⁾	6438.9	18 ⁽⁺⁾		
1088.3		4874.8		3786.6	11 ⁽⁻⁾		
1088.3		8899.0	(22 ⁺)	7810.7	(20 ⁺)		
1089.2		8569.8	(21 ⁻)	7480.6	(19 ⁻)		
1104.0		9668		8564	(21 ⁺)		
1107		4018.1	(10 ⁺)	2911.2	8 ⁺		
1117.8		9483.1	23 ⁽⁺⁾	8364.8	21 ⁽⁺⁾		
1119.0		9047.4		7928.4	20 ⁽⁺⁾		
1127.2		4298.5	(12 ⁺)	3171.4	10 ⁺		
1127.4		2676.0	7 ⁽⁻⁾	1548.7	6 ⁺		
1128.3		15177.9	(34)	14049.6	(32)	Q	DCO=1.13 27
1133.3		5431.8	(14 ⁺)	4298.5	(12 ⁺)		
1142.5		11265	(26 ⁻)	10123.0	(24 ⁻)		
1152.7	22.0	10809.8	(26 ⁺)	9657.0	(24 ⁺)	Q	DCO=1.16 6
1152.8		10800		9648			
1152.9		9675.1	24 ⁽⁻⁾	8522.2	22 ⁽⁻⁾		
1163.0		10537.9	(25 ⁻)	9374.9	(23 ⁻)		
1166.3		9105.9	23 ⁽⁻⁾	7939.5	21 ⁽⁻⁾		
1168.4		4837.2		3668.9	(10 ⁺)		
1168.5		10836		9668			
1171		3502.5	(10 ⁺)	2331.4	8 ⁺		
1174.8		14813.0	(32)	13638.1	(31)		
1189.3		10088.3	(24 ⁺)	8899.0	(22 ⁺)		
1191		9760.8	(23 ⁻)	8569.8	(21 ⁻)		
1198.2		8722.4	22 ⁽⁺⁾	7524.2	20 ⁽⁺⁾		
1200.6		11738.5	(27 ⁻)	10537.9	(25 ⁻)		
1211.6		11553.9	27 ⁽⁻⁾	10342.4	25 ⁽⁻⁾		
1217.7		13577.2	(31 ⁻)	12359.5	(29 ⁻)		
1220.0		5518.3	14	4298.5	(12 ⁺)		
1221.0		10896.1	26 ⁽⁻⁾	9675.1	24 ⁽⁻⁾		
1224		12463.6	(28 ⁺)	11239.5	(26 ⁺)		
1230.4		5113.6	(14 ⁺)	3882.9	12 ⁽⁺⁾		
1236.4		10342.4	25 ⁽⁻⁾	9105.9	23 ⁽⁻⁾		
1242.7		11239.5	(26 ⁺)	9996.8	24 ⁽⁺⁾		
1243.1		11781.0		10537.9	(25 ⁻)		
1252.0		12517	(28 ⁻)	11265	(26 ⁻)		
1261.4		11258.2		9996.8	24 ⁽⁺⁾		
1262.1		5048.8	(12 ⁺)	3786.6	11 ⁽⁻⁾		
1263.7		2143.1	6 ⁺	879.2	4 ⁺		
1272.0	6.04	10929.2	(26 ⁺)	9657.0	(24 ⁺)	Q	DCO=1.03 20
1274.4		9996.8	24 ⁽⁺⁾	8722.4	22 ⁽⁺⁾		
1279		12333.0		11054.1	(26)		
1281.5	1.10	11623.9	(27)	10342.4	25 ⁽⁻⁾		
1296.6		11384.9	(26 ⁺)	10088.3	(24 ⁺)		
1301		12197.1	(28 ⁻)	10896.1	26 ⁽⁻⁾		
1334.2	1.64	16512.1		15177.9	(34)		
1335.4		8859.7	(22 ⁺)	7524.2	20 ⁽⁺⁾		
1347.7		2226.9	5 ⁽⁻⁾	879.2	4 ⁺		
1348.4		16384.5		15036.1	(33)		
1359.2		12169.0	(28)	10809.8	(26 ⁺)		
1364.9	7.89	13856.6	(31)	12491.6	(29)	Q	DCO=1.00 16
1366.0		10088.4		8722.4	22 ⁽⁺⁾		

Continued on next page (footnotes at end of table)

$^{82}\text{Se}^{(48}\text{Ca},6n\gamma)$ [2008AI12,2007AI37](#) (continued) $\gamma(^{124}\text{Xe})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	Comments
1379		11054.1	(26)	9675.1	$24^{(-)}$		
1396	5.99	11738.5	(27^-)	10342.4	$25^{(-)}$	Q	DCO=1.25 30 I γ and DCO combined for 1396+1398.
1398	5.99	15036.1	(33)	13638.1	(31)	Q	DCO=1.25 30 I γ and DCO combined for 1396+1398.
1448		13317.0	(30)	11869.0	(28)		
1483.0		13304.6	(30)	11821.5	(28^+)		
1492.6		16528.7		15036.1	(33)		
1496		14813.0	(32)	13317.0	(30)		
1546.2		5048.8	(12^+)	3502.5	(10^+)		
1548.9		5431.8	(14^+)	3882.9	$12^{(+)}$		
1692		6304.7	(16^+)	4612.5	$14^{(+)}$		
1703.7 [‡]		4874.8		3171.4	10^+		

[†] From DCO ratios.[‡] Placement of transition in the level scheme is uncertain.

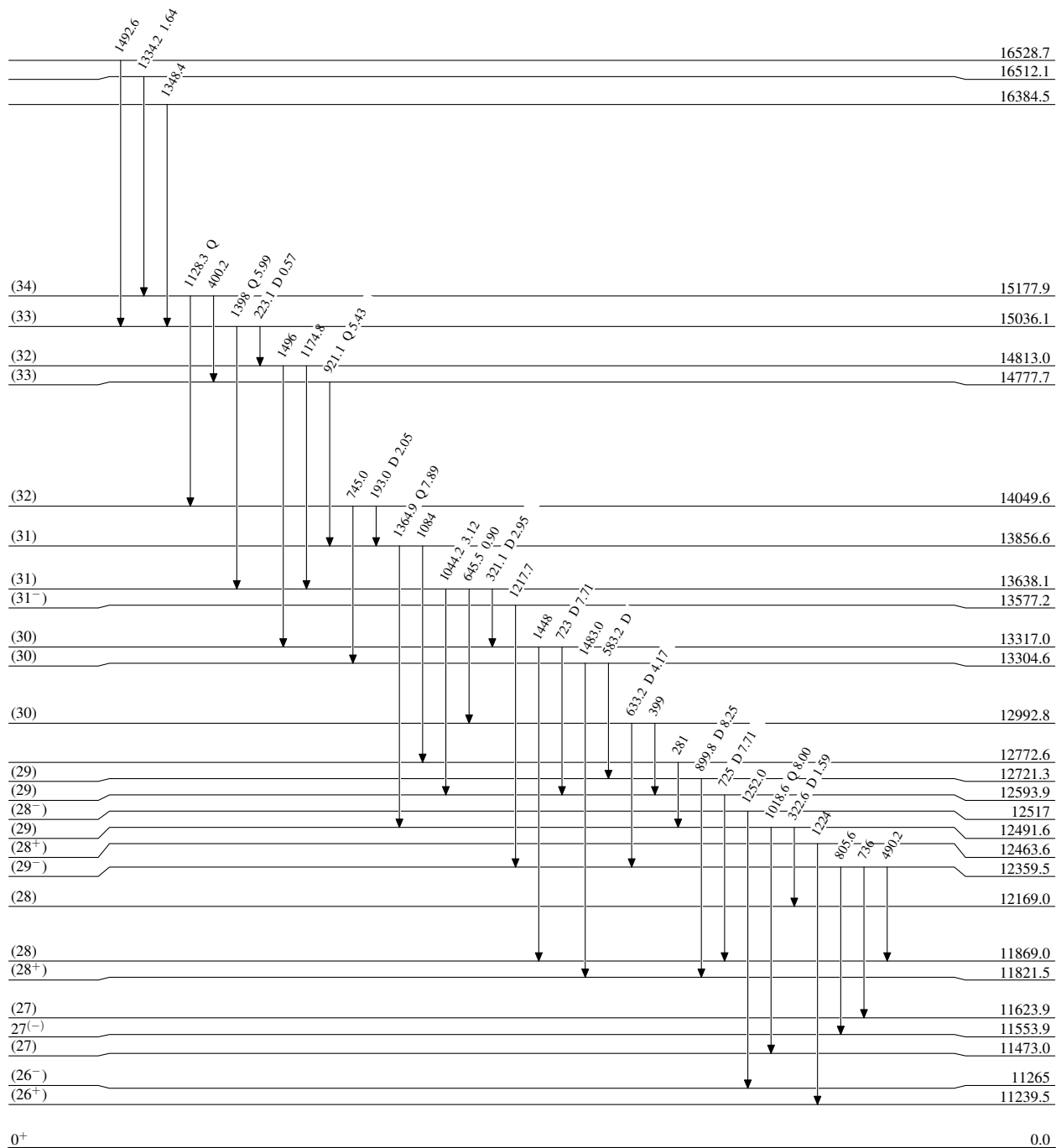
$^{82}\text{Se}(^{48}\text{Ca}, 6n\gamma)$ 2008A112,2007A137

Level Scheme

Intensities: Relative I_γ

Legend

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



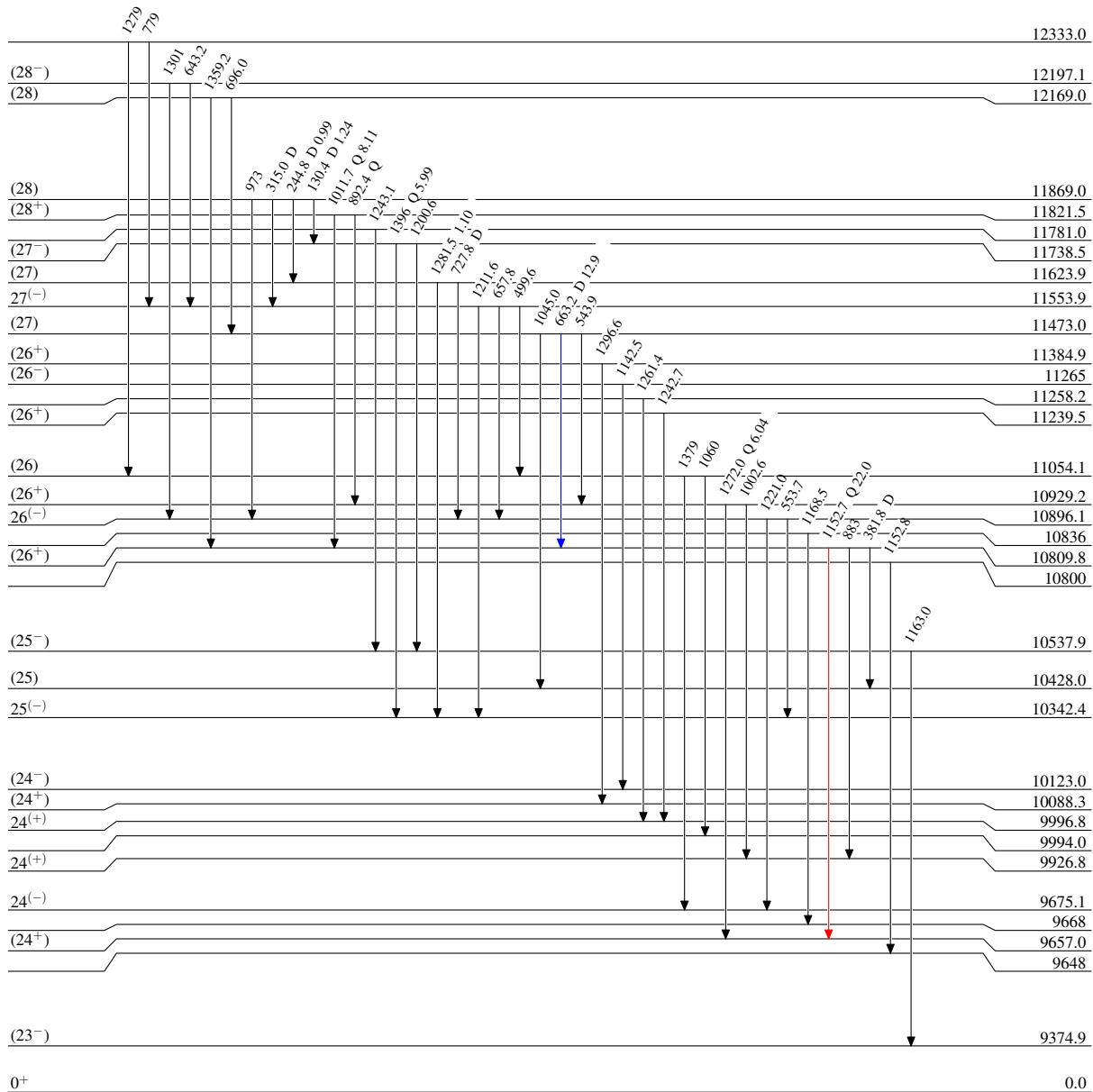
$^{82}\text{Se}(^{48}\text{Ca},6n\gamma)$ 2008AI12,2007AI37

Level Scheme (continued)

Intensities: Relative I_γ

Legend

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



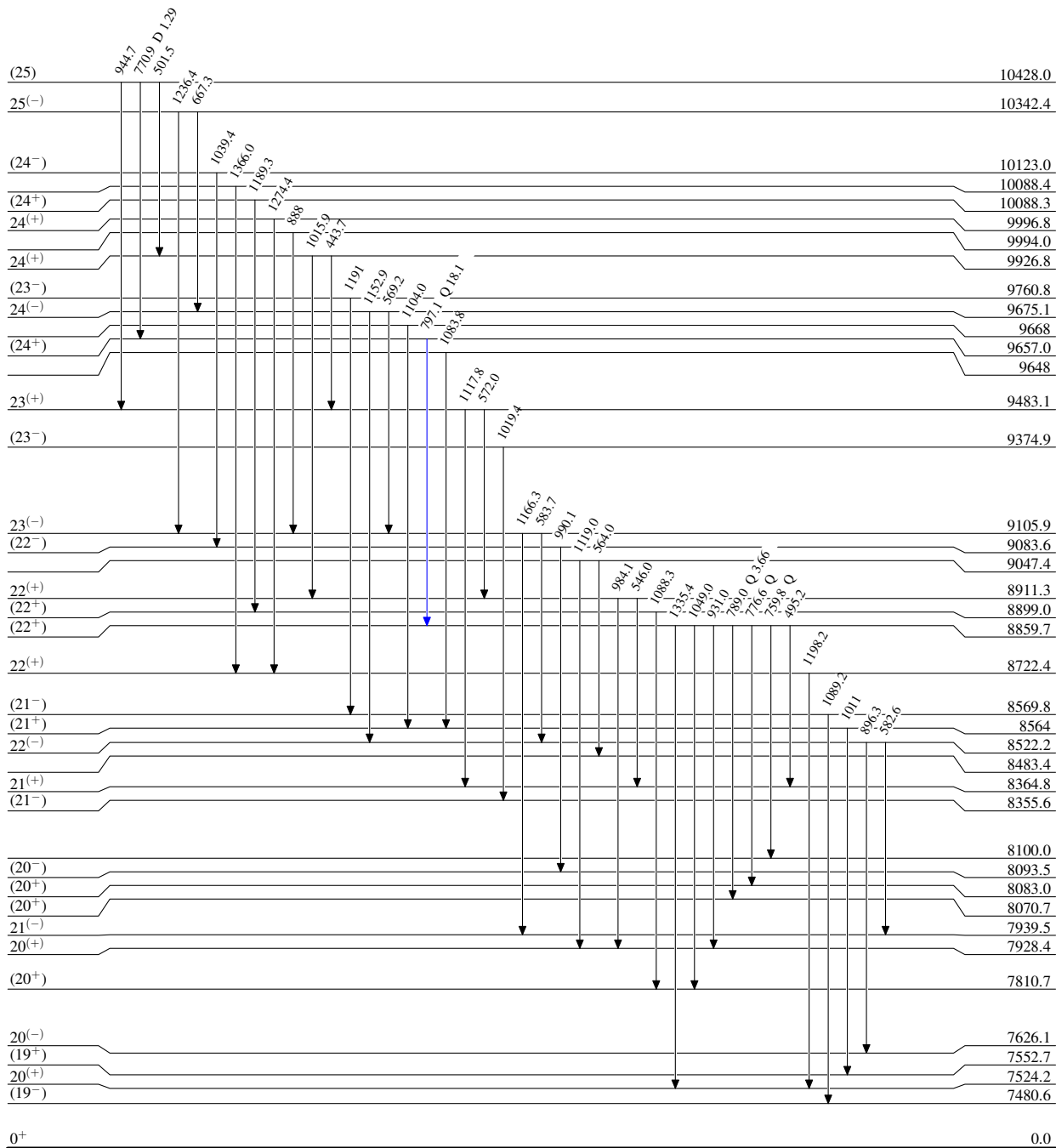
$^{82}\text{Se}(^{48}\text{Ca},6n\gamma)$ 2008A112,2007A137

Level Scheme (continued)

Intensities: Relative I_γ

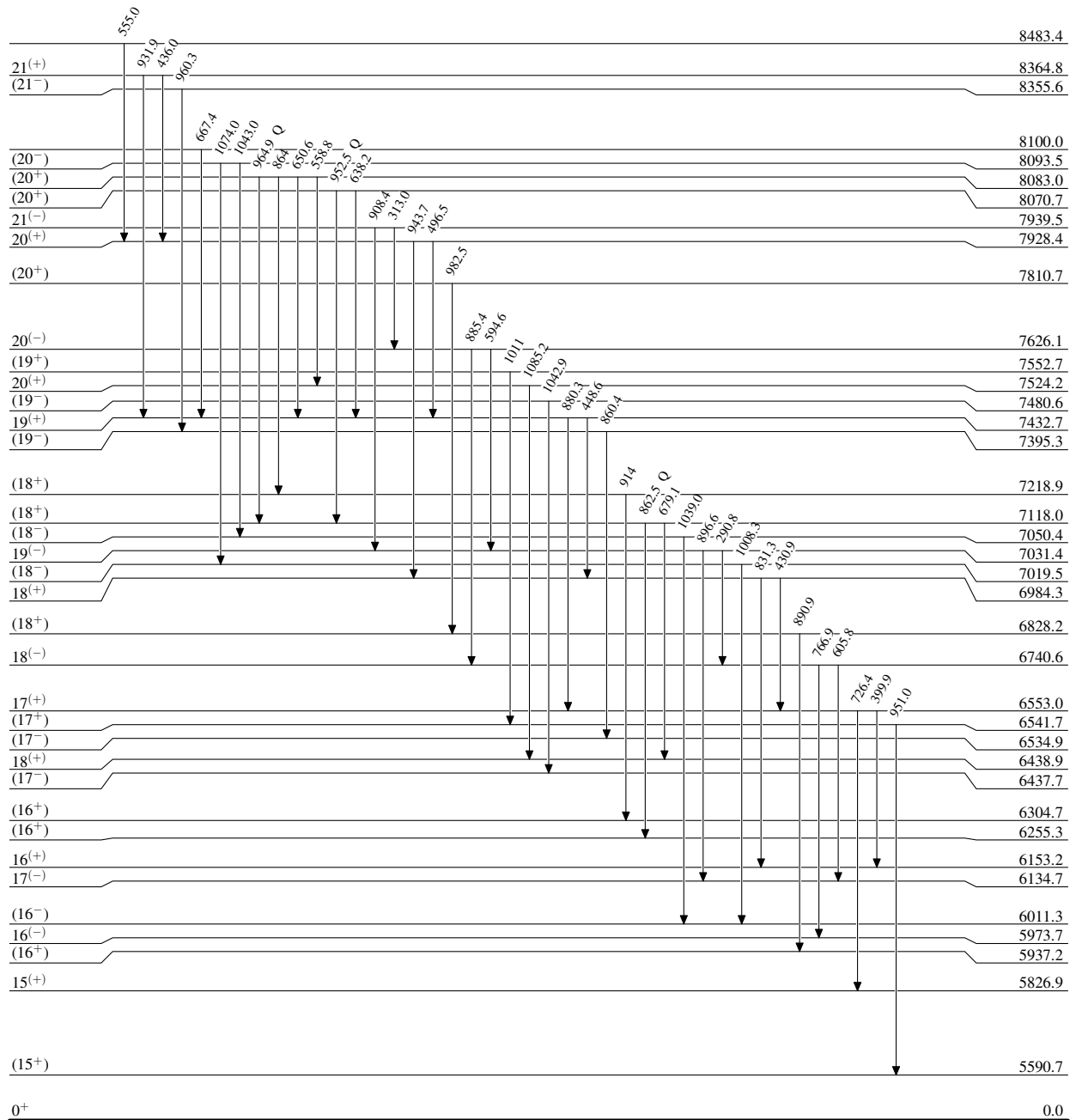
Legend

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



$^{82}\text{Se}(^{48}\text{Ca},6n\gamma)$ 2008AI12,2007A137

Level Scheme (continued)

Intensities: Relative I_γ 

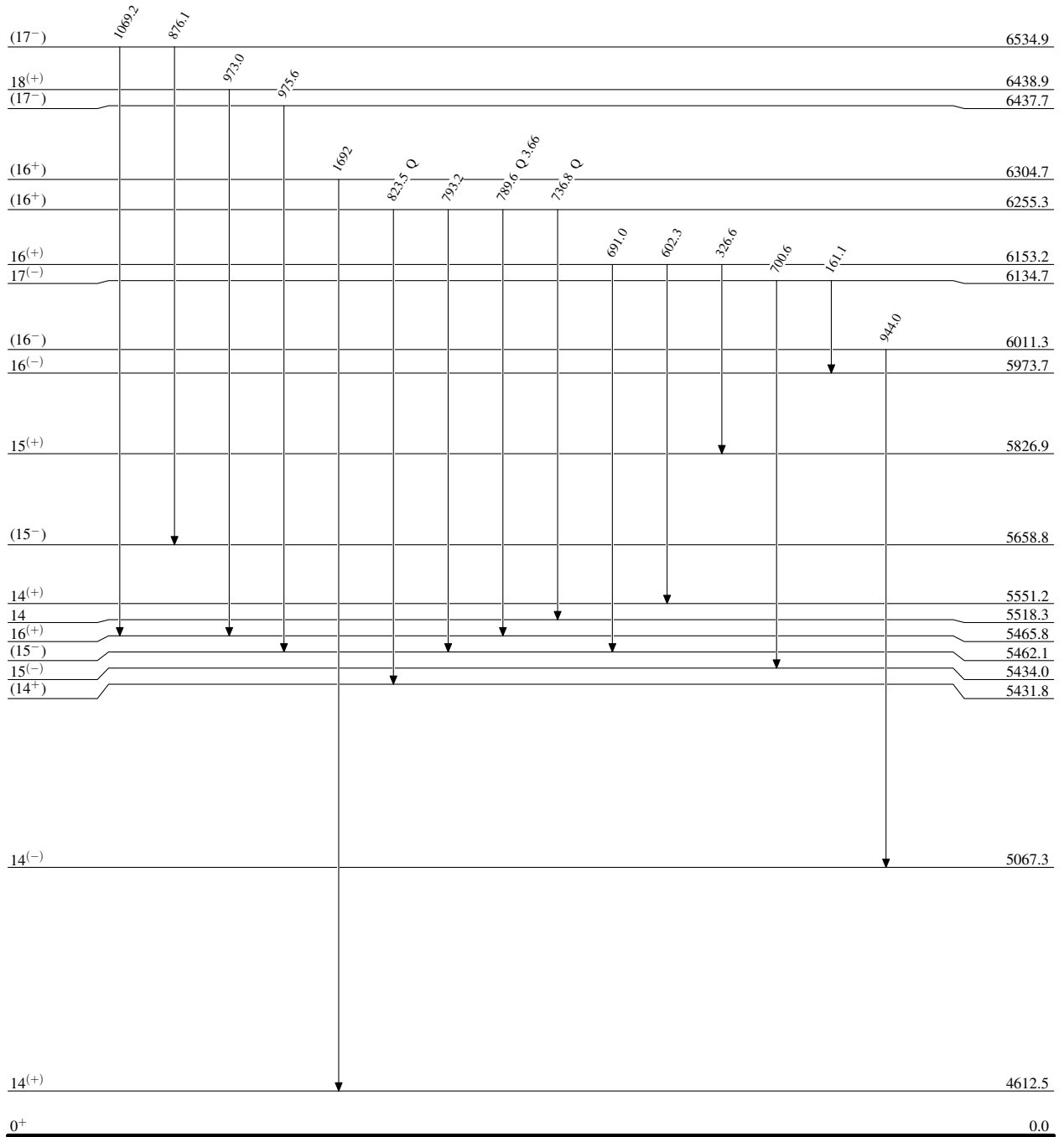
$^{82}\text{Se}(^{48}\text{Ca},6n\gamma)$ 2008A112,2007A137

Level Scheme (continued)

Intensities: Relative I_γ

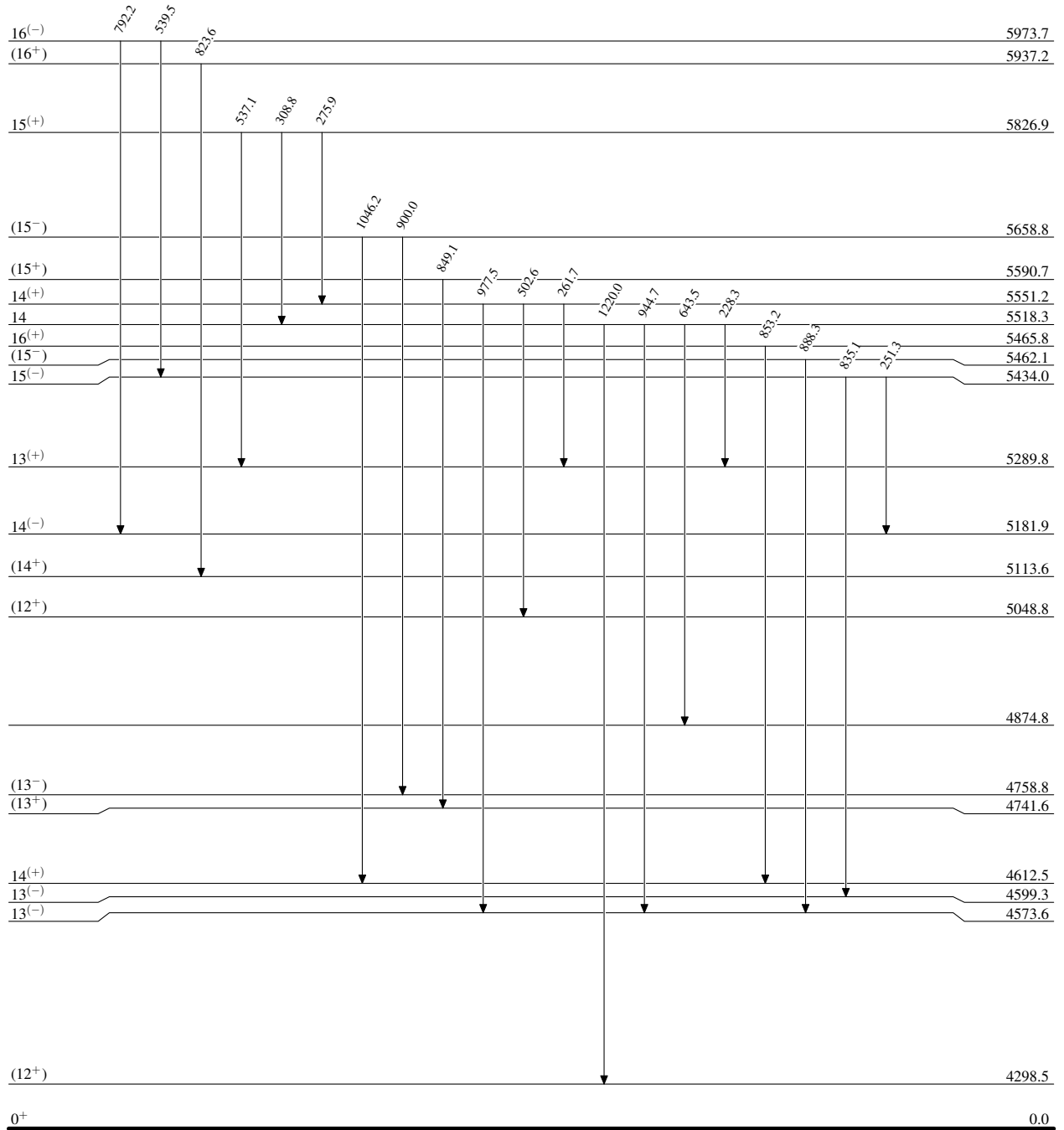
Legend

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



$^{82}\text{Se}(^{48}\text{Ca},6n\gamma)$ 2008A112,2007A137

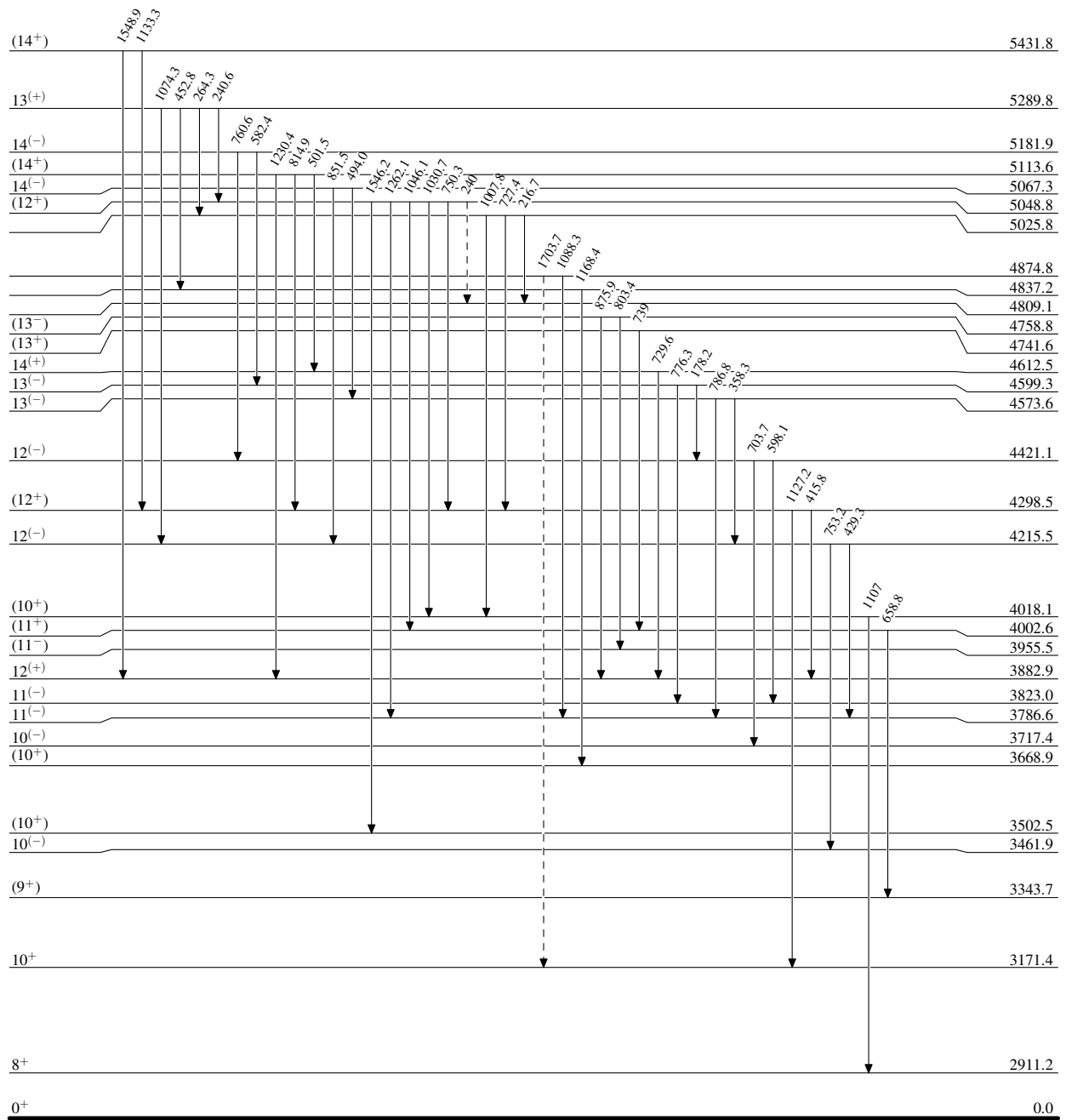
Level Scheme (continued)

Intensities: Relative I_γ  $^{124}_{54}\text{Xe}_{70}$

$^{82}\text{Se}(^{48}\text{Ca},6n\gamma)$ 2008A112,2007A137

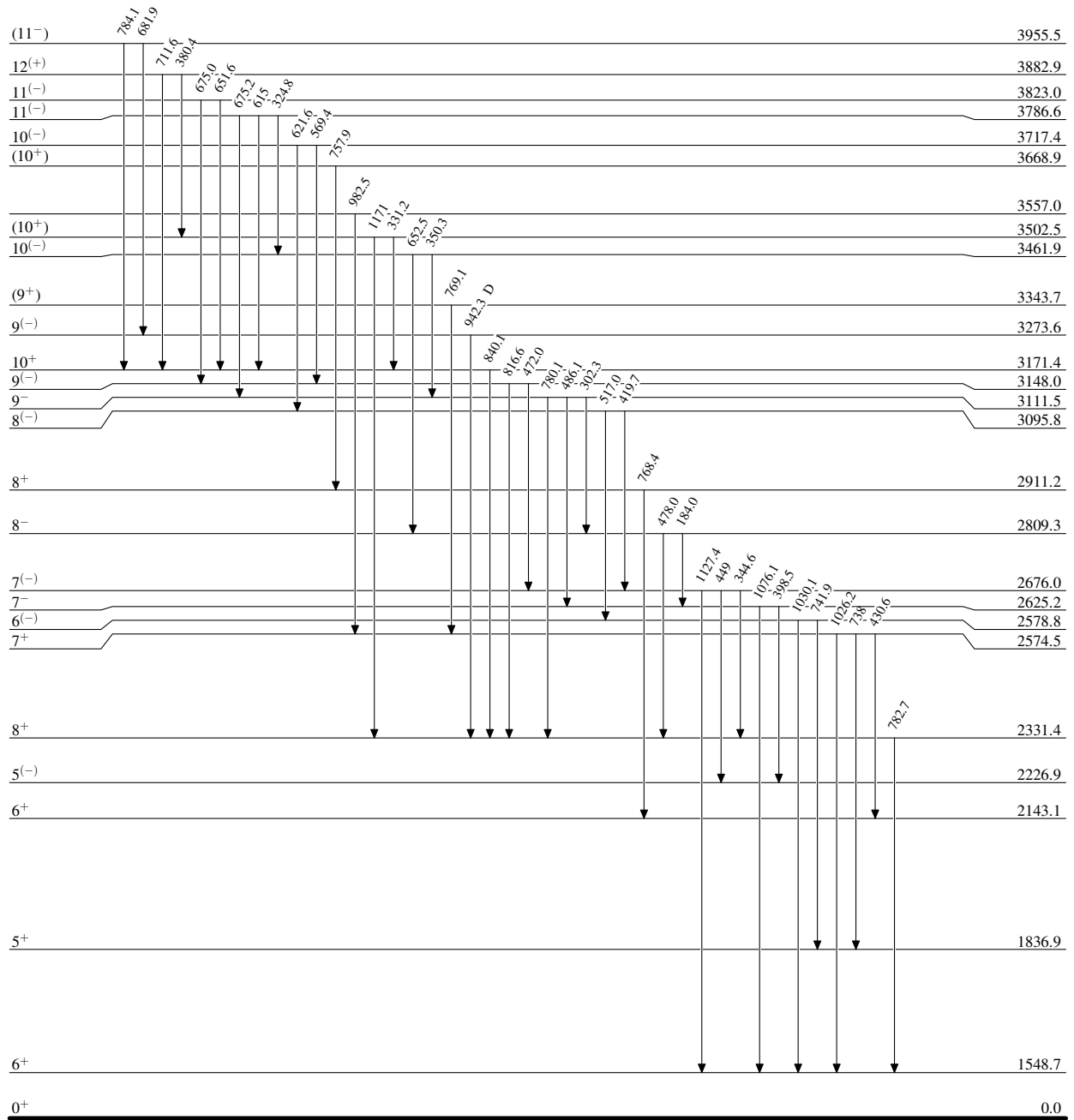
Legend

Level Scheme (continued)

Intensities: Relative I_γ -----► γ Decay (Uncertain) $^{124}_{54}\text{Xe}_{70}$

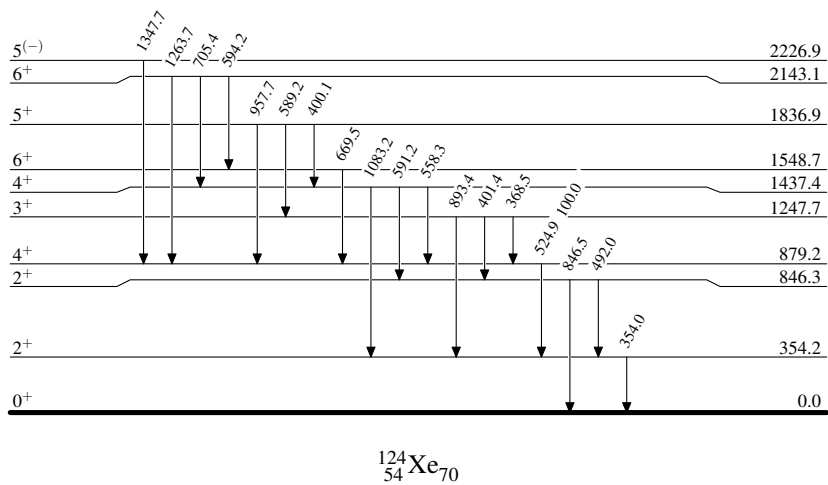
$^{82}\text{Se}(^{48}\text{Ca}, 6n\gamma)$ 2008AI12,2007A137

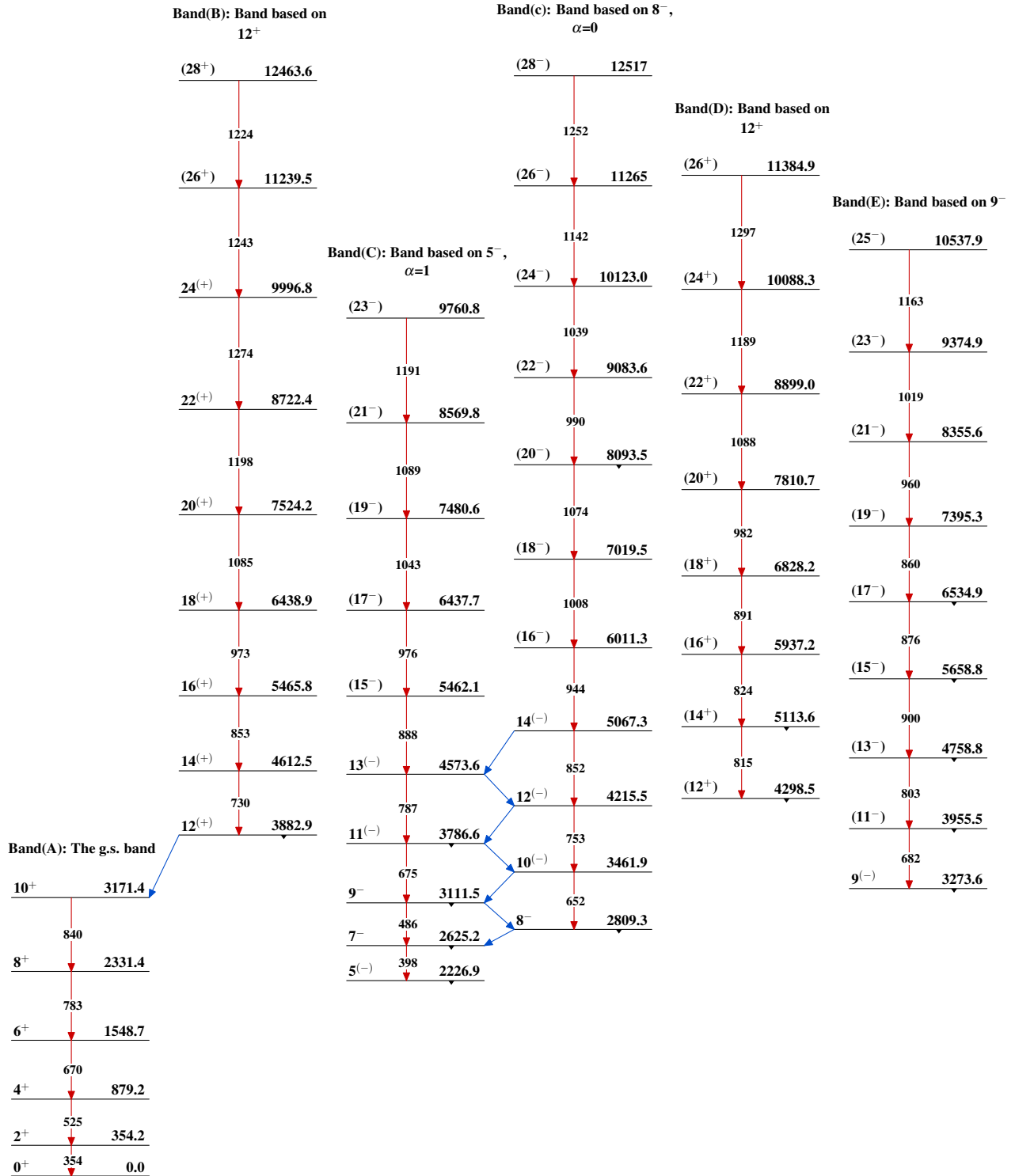
Level Scheme (continued)

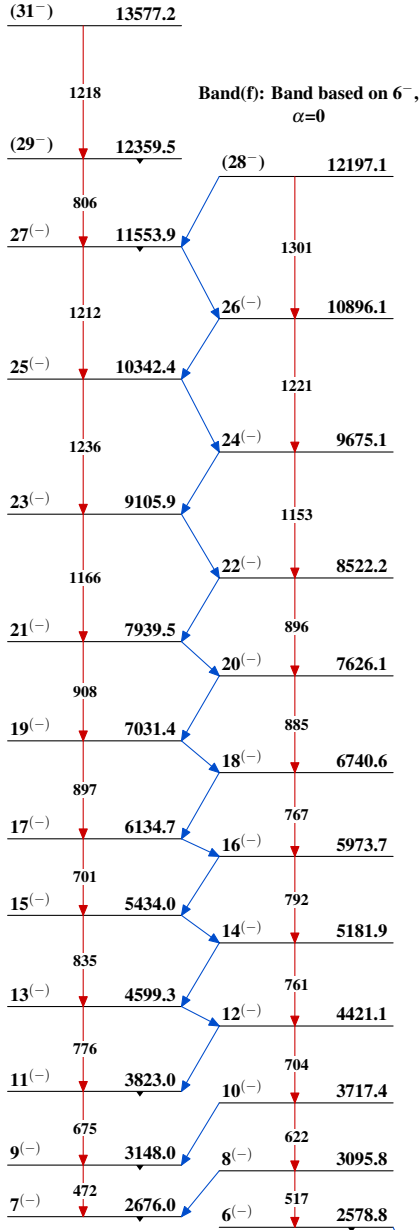
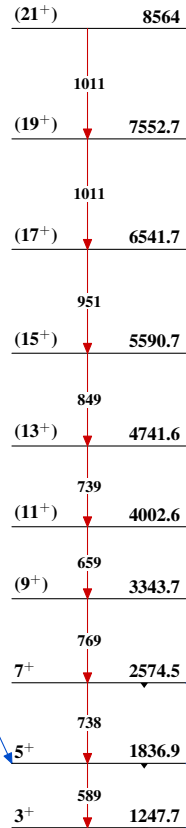
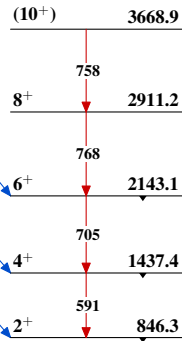
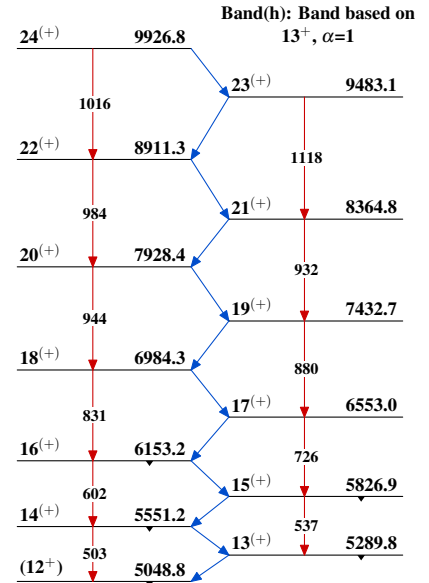
Intensities: Relative I_γ  $^{124}_{54}\text{Xe}_{70}$

$^{82}\text{Se}(^{48}\text{Ca},6n\gamma)$ 2008A112,2007A137

Level Scheme (continued)

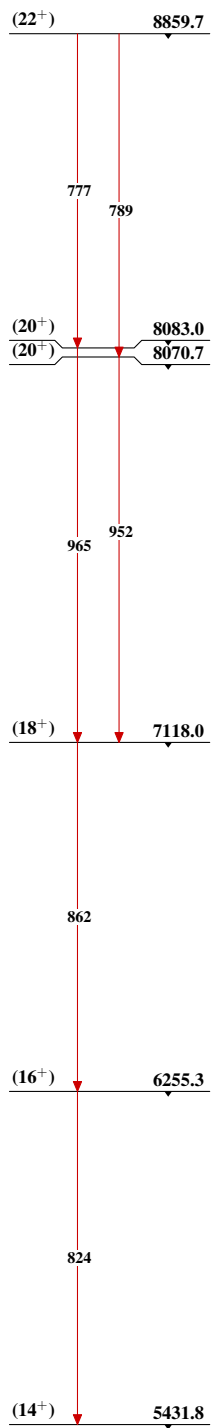
Intensities: Relative I_γ 

$^{82}\text{Se}(^{48}\text{Ca},6n\gamma)$ 2008A112,2007A137

$^{82}\text{Se}(^{48}\text{Ca}, 6n\gamma)$ 2008Al12,2007Al37 (continued)Band(F): Band based on 7^- ,
 $\alpha=1$ Band(G): Quasi γ -band,
 $\alpha=1$ Band(g): Quasi γ -band,
 $\alpha=0$ Band(H): Band based on
 12^+ , $\alpha=0$ 

$^{82}\text{Se}(^{48}\text{Ca},6n\gamma)$ 2008Al12,2007Al37 (continued)

Band(I): Band based on
 14^+



$^{124}_{54}\text{Xe}_{70}$