^{76}Ge(^{37}Cl,α4nγ) 1994Je12

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. Lalkovski, J. Timar and Z. Elekes	NDS 161, 1 (2019)	1-Apr-2019

1994Je12,1995Je05: Facility: Niles Bohr Institute's Tandem accelerator; Beam: E(^{37}Cl)=162, 170, 173 MeV; Target: self-supporting 320 μg/cm^2 thick, ^{76}Ge; Detectors: Nordball comprising 19 Compton-suppressed HPGe detectors, one LEP, Siball for charged particles consisting of 20 Si particle detector; Measured: α-γ coinc., γ-γ coinc., Eγ, Iγ, γ-γ(θ); Deduced: ^{105}Ag level scheme, Mult. J^π.
Also, from the same collaboration: 1995Je05.

^{105}Ag Levels

E(level)[†]	J$^\pi$[†]	Comments
0[‡]	1/2$^-$	
25.48[‡] 2	7/2$^+$	
53.15[‡] 1	9/2$^+$	
668.6	11/2$^+$	
917.3	13/2$^+$	
1681.0	15/2$^+$	
1734.0	15/2$^+$	
1978.0	17/2$^+$	
2277.3	17/2$^+$	
2299.0	17/2$^+$	J$^\pi$: 17/2$^-$ in the Adopted Levels.
2461.6?	17/2$^+$	
2469.7	15/2$^-$	
2496.8	15/2$^-$	
2595.7[b]	17/2$^-$	
2751.2[c]	19/2$^-$	
2865.6	19/2$^+$	
2935.7[b]	21/2$^-$	
3125.1	21/2$^+$	
3176.04[c]	23/2$^-$	
3510.5[b]	25/2$^-$	
3909.2[#a]	23/2$^+$[@]	
3927.8[c]	27/2$^-$	
4158.1[#a]	25/2$^+$[@]	
4361.7[b]	29/2$^-$	
4461.1[#a]	27/2$^+$[@]	
4839.1[#&]	29/2$^+$[@]	
4931.7[c]	31/2$^-$	
5225.4[#a]	31/2$^+$[@]	
5445.0[b]	33/2$^-$	
5698.6[#&]	33/2$^+$[@]	
6113.0[c]	35/2$^-$	
6160.5[#a]	35/2$^+$[@]	
6689.5[#&]	37/2$^+$[@]	
6715.0[b]	37/2$^-$	
7218.5[#a]	39/2$^+$[@]	
7438.0[c]	(39/2$^-$)	
7804.5[#&]	41/2$^+$[@]	
8419.5[#a]	43/2$^+$[@]	

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^{76}Ge(^{37}Cl,α4nγ) 1994Je12 (continued)

^{105}Ag Levels (continued)

E(level)[†]	J$^\pi$[†]	Comments
9100.5[#&]	45/2$^+$[@]	
(x[d])	(27/2)	E(level): X ≈ 4600 (1994Je12).
704.6+x[d] *3*	(31/2)	
1564.4+x[d] *5*	(35/2)	
2557.2+x[d] *6*	(39/2)	
3685.1+x[d] *6*	(43/2)	
4926.8+x[d] *7*	(47/2)	
6230.9+x[d] *8*	(51/2)	
7662.4+x[d] *8*	(55/2)	
9209.9+x[d] *9*	(59/2)	
10866.0+x[d] *9*	(63/2)	
12618.7+x[d] *10*	(67/2)	

[†] From 1994Je12, unless otherwise noted.
[‡] From the Adopted Levels.
[#] Level energy corrected by the evaluators to account for transitions not observed in 1994Je12; In 1994Je12, E underestimated by ≈1033 keV.
[@] From the Adopted Levels. In 1994Je12, J^π underestimated by 1 unit.
[&] Band(A): Band, based on 23/2$^+$, α=+1/2.
[a] Band(a): Band, based on 23/2$^+$, α=−1/2.
[b] Band(B): Band, based on 17/2$^-$, α=+1/2. configuration=$\pi g_{9/2}\nu(h_{11/2}g_{7/2})$.
[c] Band(b): Band, based on 17/2$^-$, α=−1/2. configuration=$\pi g_{9/2}\nu(h_{11/2}g_{7/2})$.
[d] Band(C): Probable SD band. configuration=$\pi(h^1_{11/2})\pi(g^2_{9/2})\nu(h^2_{11/2})$ (1994Je12).

γ(^{105}Ag)

E$_\gamma$[†]	I$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[‡]	Comments
25.48[# *2*]		25.48	7/2$^+$	0	1/2$^-$		
27.67[# *1*]		53.15	9/2$^+$	25.48	7/2$^+$		
98.9 *1*	34 *5*	2595.7	17/2$^-$	2496.8	15/2$^-$	M1	Mult.: R$_{DCO}$=1.18 *5* in 1994Je12.
126.0 *1*	18 *4*	2595.7	17/2$^-$	2469.7	15/2$^-$	M1	Mult.: R$_{DCO}$=1.00 *3* in 1994Je12.
155.4 *1*	70 *5*	2751.2	19/2$^-$	2595.7	17/2$^-$	M1	Mult.: R$_{DCO}$=1.00 *2* in 1994Je12.
184.5 *1*	70 *5*	2935.7	21/2$^-$	2751.2	19/2$^-$	M1	Mult.: R$_{DCO}$=0.99 *2* in 1994Je12.
240.3 *1*	69 *5*	3176.04	23/2$^-$	2935.7	21/2$^-$	M1	Mult.: R$_{DCO}$=0.98 *2* in 1994Je12.
248.6 *1*	40 *5*	917.3	13/2$^+$	668.6	11/2$^+$	M1	Mult.: R$_{DCO}$=0.62 *4* in 1994Je12.
248.8 *4*	14 *4*	4158.1	25/2$^+$	3909.2	23/2$^+$		
259.5 *1*	19.3 *20*	3125.1	21/2$^+$	2865.6	19/2$^+$	M1	Mult.: R$_{DCO}$=0.98 *5* or 0.43 *8* in 1994Je12.
296.5 *1*	7.6 *15*	2595.7	17/2$^-$	2299.0	17/2$^+$	E1+M2	Mult.: R$_{DCO}$=0.65 *6* in 1994Je12.
296.6 *1*	8.6 *20*	1978.0	17/2$^+$	1681.0	15/2$^+$		
303.0 *1*	73 *6*	4461.1	27/2$^+$	4158.1	25/2$^+$	M1	Mult.: R$_{DCO}$=1.05 *4* or 0.54 *3* in 1994Je12.
334.5 *1*	50 *4*	3510.5	25/2$^-$	3176.04	23/2$^-$	M1	Mult.: R$_{DCO}$=1.01 *5* in 1994Je12.
340.0 *2*	8.8 *16*	2935.7	21/2$^-$	2595.7	17/2$^-$	(E2)	Mult.: R$_{DCO}$=0.95 *10* in 1994Je12.
378.0 *1*	56 *5*	4839.1	29/2$^+$	4461.1	27/2$^+$	M1	Mult.: R$_{DCO}$=0.99 *4* or 0.51 *14* in 1994Je12.
386.3 *1*	51 *3*	5225.4	31/2$^+$	4839.1	29/2$^+$	M1	Mult.: R$_{DCO}$=1.00 *7* or 0.42 *16* in 1994Je12.
404.0[& *5*]	2.5 *5*	2865.6	19/2$^+$	2461.6?	17/2$^+$		
417.3 *1*	34 *6*	3927.8	27/2$^-$	3510.5	25/2$^-$	M1	Mult.: R$_{DCO}$=1.07 *8* in 1994Je12.

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^{76}Ge(^{37}Cl,α4nγ) 1994Je12 (continued)

$\gamma(^{105}Ag)$ (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
424.8 *3*	7.8 *15*	3176.04	23/2$^-$	2751.2	19/2$^-$	(E2)	Mult.: R_{DCO}=0.72 *10* in 1994Je12.
433.9 *2*	31 *3*	4361.7	29/2$^-$	3927.8	27/2$^-$	M1	Mult.: R_{DCO}=1.10 *8* in 1994Je12.
461.9 *1*	39 *4*	6160.5	35/2$^+$	5698.6	33/2$^+$	M1	Mult.: R_{DCO}=1.09 *7* or 0.50 *6* in 1994Je12.
473.2 *1*	39 *4*	5698.6	33/2$^+$	5225.4	31/2$^+$	M1	Mult.: R_{DCO}=0.96 *8* or 0.68 *8* in 1994Je12.
513.3 *2*	32 *6*	5445.0	33/2$^-$	4931.7	31/2$^-$	M1	Mult.: R_{DCO}=1.08 *12* in 1994Je12.
529.0[@] *4*	34[@] *5*	6689.5	37/2$^+$	6160.5	35/2$^+$	(M1)	Mult.: R_{DCO}=1.06 *9* for the doublet in 1994Je12.
529.0[@] *4*	27[@] *4*	7218.5	39/2$^+$	6689.5	37/2$^+$	(M1)	Mult.: R_{DCO}=1.06 *9* for the doublet in 1994Je12.
564.8 *1*	13 *3*	2299.0	17/2$^+$	1734.0	15/2$^+$		
570.0 *3*	24 *7*	4931.7	31/2$^-$	4361.7	29/2$^-$	M1	Mult.: R_{DCO}=1.06 *9* in 1994Je12.
574.8 *3*	1.2 *6*	3510.5	25/2$^-$	2935.7	21/2$^-$	E2	Mult.: R_{DCO}=0.48 *13* in 1994Je12.
586.0 *2*	23 *4*	7804.5	41/2$^+$	7218.5	39/2$^+$	M1	Mult.: R_{DCO}=1.3 *3* or 0.70 *8* in 1994Je12.
588.3 *5*	5.0 *25*	2865.6	19/2$^+$	2277.3	17/2$^+$		
602.0 *5*	12 *3*	6715.0	37/2$^-$	6113.0	35/2$^-$	M1(+E2)	Mult.: R_{DCO}=0.80 *20* in 1994Je12.
615.0 *3*	10 *3*	8419.5	43/2$^+$	7804.5	41/2$^+$		Mult.: R_{DCO}=1.04 *25* in 1994Je12.
615.5 *1*	86 *11*	668.6	11/2$^+$	53.15	9/2$^+$	M1(+E2)	Mult.: R_{DCO}=0.80 *4* in 1994Je12.
668.0 *3*	18 *4*	6113.0	35/2$^-$	5445.0	33/2$^-$	M1	Mult.: R_{DCO}=0.99 *8* in 1994Je12.
680.5 *5*	6.3 *20*	4839.1	29/2$^+$	4158.1	25/2$^+$	E2	Mult.: R_{DCO}=0.54 *17* in 1994Je12.
681.0 *8*	14 *5*	9100.5	45/2$^+$	8419.5	43/2$^+$	M1	Mult.: R_{DCO}=1.08 *6* or 0.54 *6* in 1994Je12.
704.6	8 *3*	704.6+x	(31/2)	x?	(27/2)	(E2)	Mult.: R_{DCO}=0.77 *9*, 0.72 *25* in 1994Je12.
723.0 *5*	7.1 *20*	7438.0	(39/2$^-$)	6715.0	37/2$^-$		
751.5 *3*	6.6 *14*	3927.8	27/2$^-$	3176.04	23/2$^-$	E2	Mult.: R_{DCO}=0.73 *7* in 1994Je12.
763.8 *1*	15.4 *17*	1681.0	15/2$^+$	917.3	13/2$^+$		
763.8 *3*	17.8 *10*	5225.4	31/2$^+$	4461.1	27/2$^+$	E2	Mult.: R_{DCO}=0.54 *5* in 1994Je12.
851.2 *3*	12.1 *18*	4361.7	29/2$^-$	3510.5	25/2$^-$	E2	Mult.: R_{DCO}=0.64 *17* in 1994Je12.
859.5 *2*	4.8 *5*	5698.6	33/2$^+$	4839.1	29/2$^+$	E2	Mult.: R_{DCO}=0.49 *17* in 1994Je12.
859.8	20 *6*	1564.4+x	(35/2)	704.6+x	(31/2)	E2	Mult.: R_{DCO}=0.98 *10* in 1994Je12.
864.1 *1*	100 *5*	917.3	13/2$^+$	53.15	9/2$^+$	E2	Mult.: R_{DCO}=0.62 *8* in 1994Je12.
914.9 *1*	14.7 *18*	2595.7	17/2$^-$	1681.0	15/2$^+$	E1	Mult.: R_{DCO}=0.95 *1* in 1994Je12.
935.1 *2*	14.3 *14*	6160.5	35/2$^+$	5225.4	31/2$^+$	E2	Mult.: R_{DCO}=0.52 *6* in 1994Je12.
991.5 *3*	3.9 *6*	6689.5	37/2$^+$	5698.6	33/2$^+$	E2	Mult.: R_{DCO}=0.48 *10* in 1994Je12.
992.8	21 *5*	2557.2+x	(39/2)	1564.4+x	(35/2)	E2	Mult.: R_{DCO}=0.62 *3*, 1.00 *8* in 1994Je12.
1003.9 *4*	13.2 *20*	4931.7	31/2$^-$	3927.8	27/2$^-$	E2	Mult.: R_{DCO}=0.56 *14* in 1994Je12.
1012.6 *1*	7.6 *20*	1681.0	15/2$^+$	668.6	11/2$^+$		
1058.0 *2*	7.6 *10*	7218.5	39/2$^+$	6160.5	35/2$^+$		
1060.7 *1*	72 *5*	1978.0	17/2$^+$	917.3	13/2$^+$	E2	Mult.: R_{DCO}=0.65 *6* in 1994Je12.
1065.3 *1*	20 *4*	1734.0	15/2$^+$	668.6	11/2$^+$		
1083.8 *4*	14 *3*	5445.0	33/2$^-$	4361.7	29/2$^-$	E2	Mult.: R_{DCO}=0.65 *11* in 1994Je12.
1115.0 *5*	7.8 *18*	7804.5	41/2$^+$	6689.5	37/2$^+$	E2	Mult.: R_{DCO}=0.65 *10* in 1994Je12.
1127.9	20 *4*	3685.1+x	(43/2)	2557.2+x	(39/2)	E2	Mult.: R_{DCO}=0.89 *11* in 1994Je12.
1147.1 *2*	34 *6*	3125.1	21/2$^+$	1978.0	17/2$^+$	E2	Mult.: R_{DCO}=0.50 *5* or 1.00 *16* in 1994Je12.
1181.4 *3*	11.4 *20*	6113.0	35/2$^-$	4931.7	31/2$^-$	E2	Mult.: R_{DCO}=0.35 *13* in 1994Je12.
1201.9 *6*	3.2 *15*	8419.5	43/2$^+$	7218.5	39/2$^+$		
1241.7	22 *5*	4926.8+x	(47/2)	3685.1+x	(43/2)	E2	Mult.: R_{DCO}=0.55 *3*, 1.19 *15* in 1994Je12.
1270.0 *5*	5.6 *19*	6715.0	37/2$^-$	5445.0	33/2$^-$		
1296.0 *6*	4.5 *25*	9100.5	45/2$^+$	7804.5	41/2$^+$		
1304.1	17 *4*	6230.9+x	(51/2)	4926.8+x	(47/2)	E2	Mult.: R_{DCO}=0.60 *5*, 0.9 *3* in 1994Je12.
1360.0 *3*	12 *4*	2277.3	17/2$^+$	917.3	13/2$^+$	E2	Mult.: R_{DCO}=0.40 *16* in 1994Je12.
1431.5	14 *4*	7662.4+x	(55/2)	6230.9+x	(51/2)	E2	Mult.: R_{DCO}=0.58 *4*, 0.85 *18* in 1994Je12.
1544.3[&] *5*	11 *3*	2461.6?	17/2$^+$	917.3	13/2$^+$		
1547.5	13 *4*	9209.9+x	(59/2)	7662.4+x	(55/2)	E2	Mult.: R_{DCO}=1.16 *22* in 1994Je12.
1552.4 *3*	18 *4*	2469.7	15/2$^-$	917.3	13/2$^+$		
1579.5 *3*	29 *4*	2496.8	15/2$^-$	917.3	13/2$^+$		
1656.0	10 *4*	10866.0+x	(63/2)	9209.9+x	(59/2)	E2	Mult.: R_{DCO}=0.51 *7*, 1.11 *23* in 1994Je12.
1752.7	4.6 *20*	12618.7+x	(67/2)	10866.0+x	(63/2)	E2	Mult.: R_{DCO}=1.1 *4* in 1994Je12.

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^{76}Ge(^{37}Cl,α4nγ) 1994Je12 (continued)

$\gamma(^{105}Ag)$ (continued)

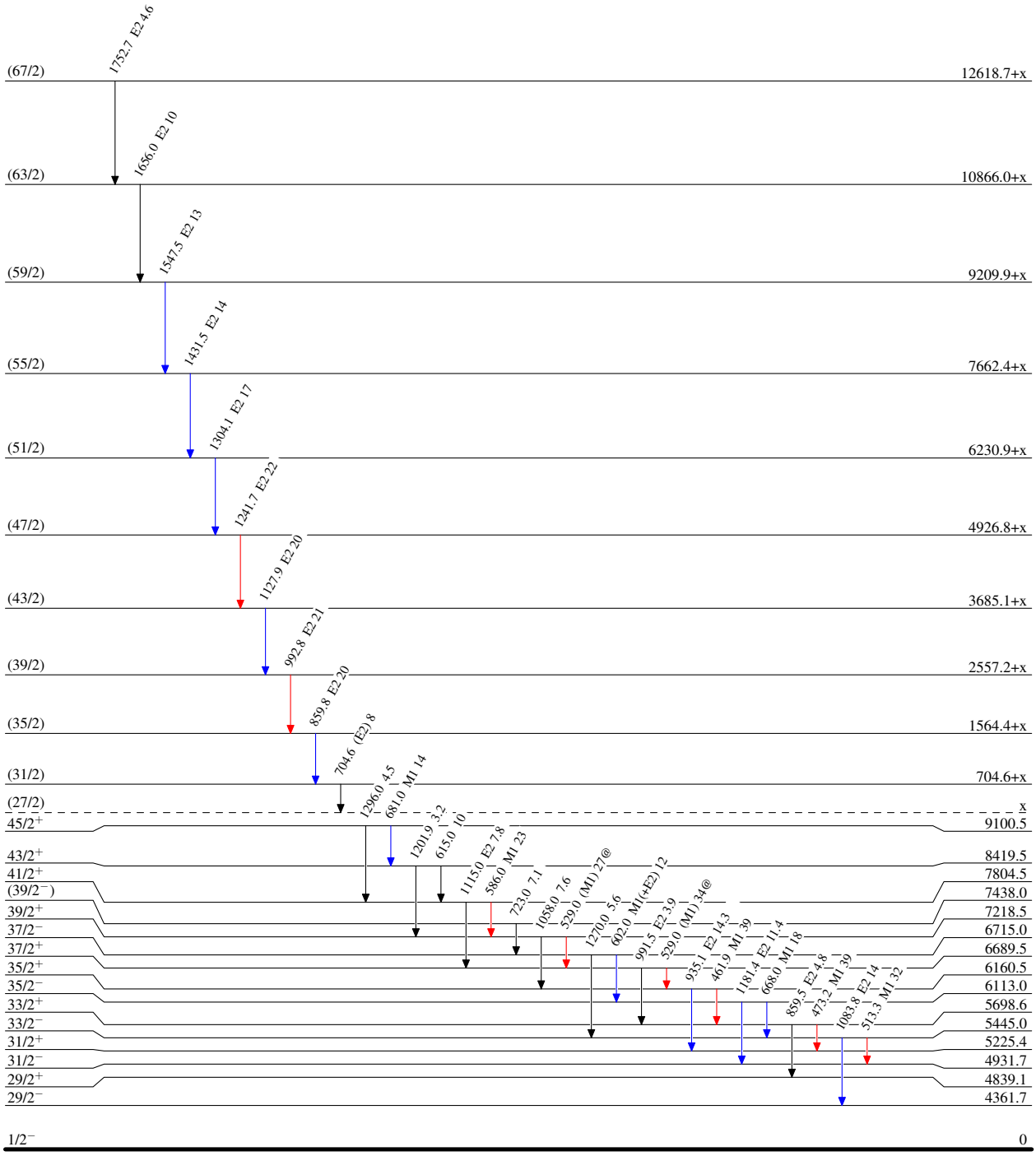
† From 1994Je12, unless otherwise noted.
‡ From 1994Je12, based on DCO analysis.
# From the adopted gammas.
@ Multiply placed with intensity suitably divided.
& Placement of transition in the level scheme is uncertain.

^{76}Ge(^{37}Cl,α4nγ) 1994Je12

Level Scheme

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

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



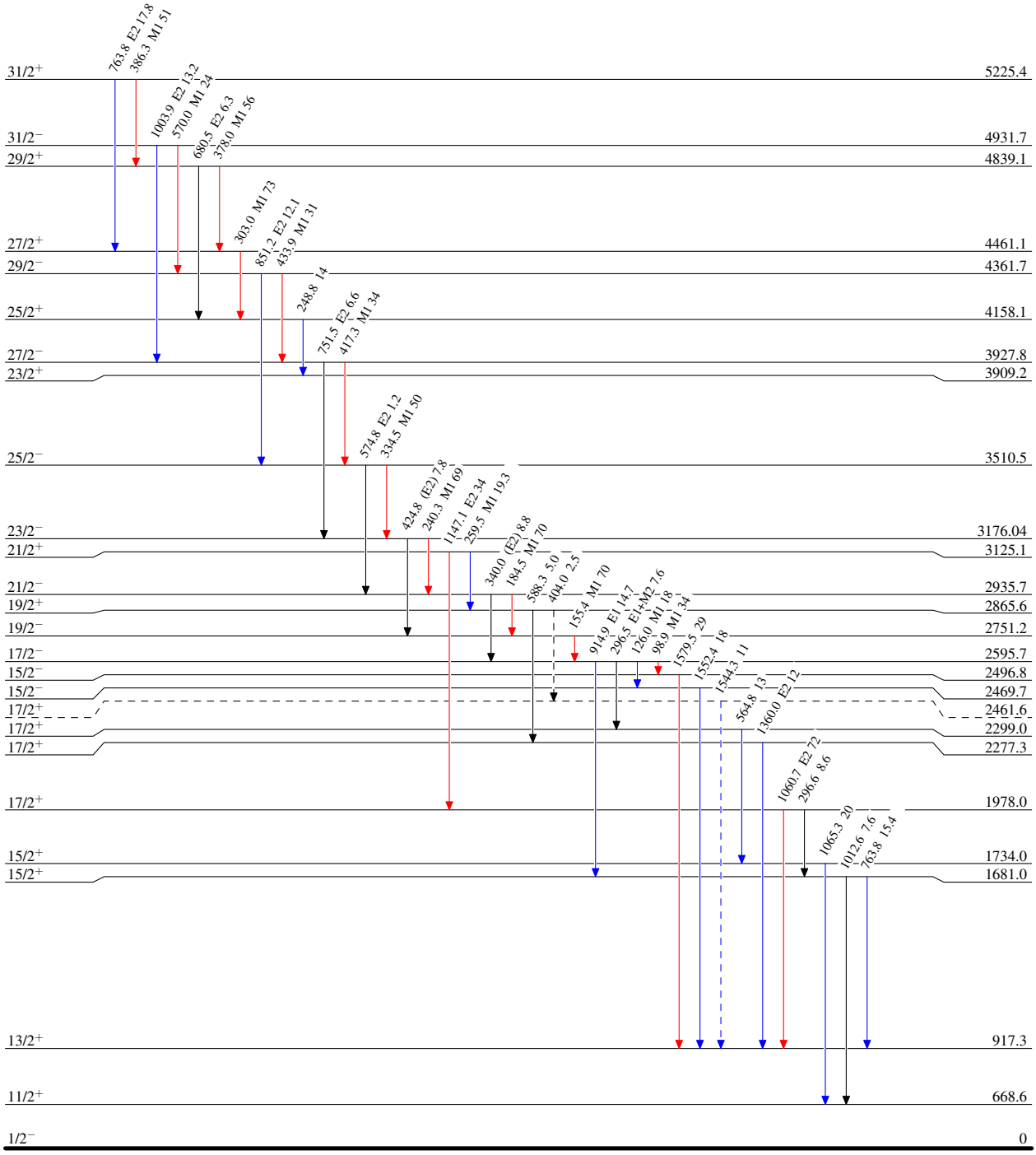
$^{105}_{47}Ag_{58}$

^{76}Ge(^{37}Cl,α4nγ) 1994Je12

Level Scheme (continued)

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

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)



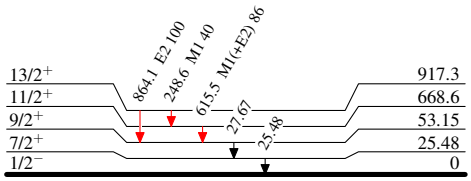
$^{105}_{47}Ag_{58}$

^{76}Ge(^{37}Cl,α4nγ) 1994Je12

Level Scheme (continued)

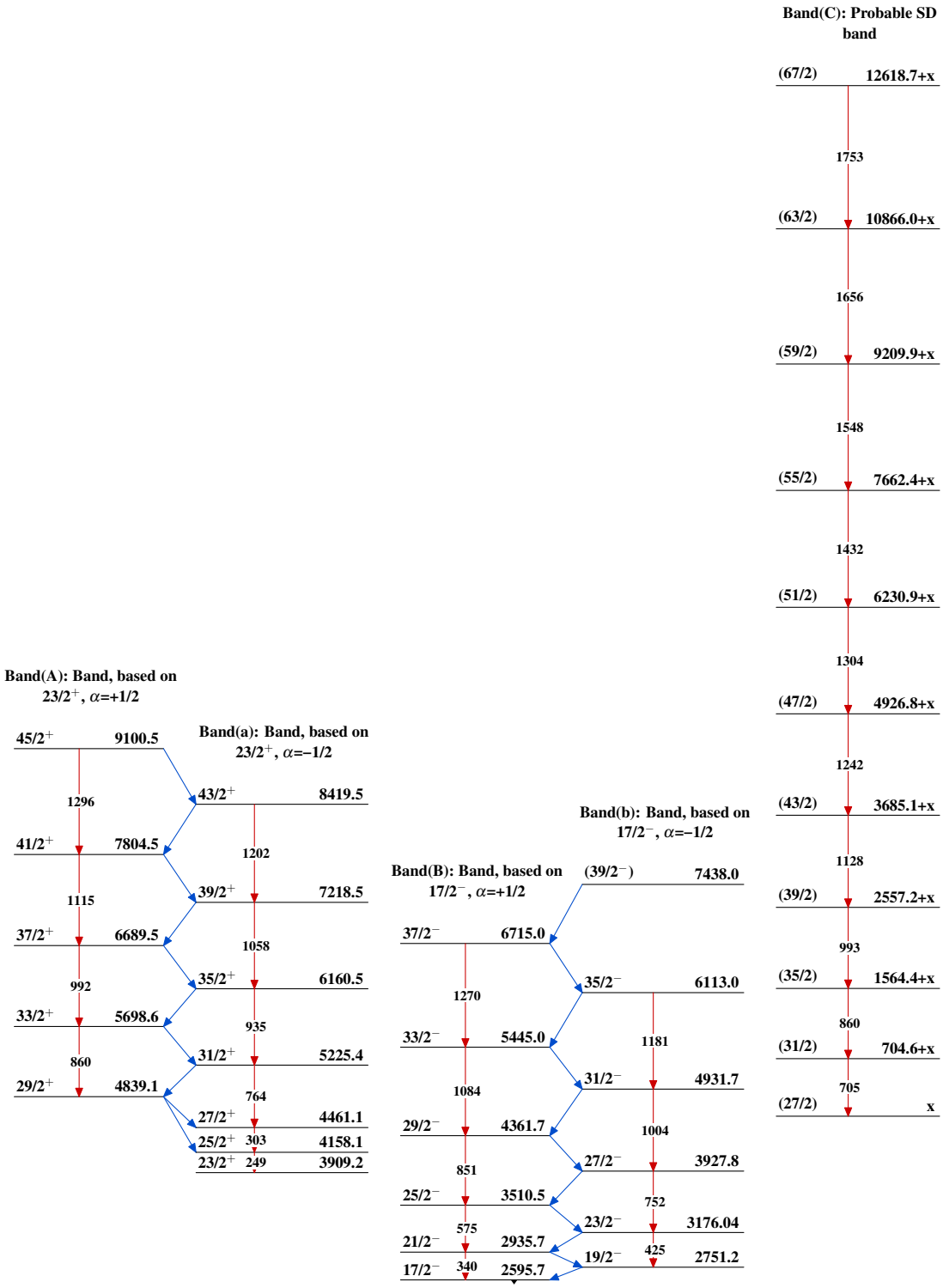
Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

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



$^{105}_{47}Ag_{58}$

^{76}Ge(^{37}Cl,α4nγ) 1994Je12



$^{105}_{47}Ag_{58}$