^{136}Xe(^{19}F,5nγ) 1995Jo18

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, A. A. Sonzogni	NDS 114, 435 (2013)	1-Apr-2013

1995Jo18: ^{136}Xe(^{19}F,5n)^{150}Eu, E = 85 MeV, measured Eγ, γ-multiplicity, $\gamma\gamma$(t), eγ(t) coincidences, deduced DCO ratio, using the NORDBALL setup with 20 Compton-suppressed Ge detectors and 10 BaF_2 detectors. At the IPN (Orsay) the authors measured conversion electrons in conjunction with a 20% Compton-suppressed Ge detector and a 8-element BaF_2 array and determined conversion coefficients using ^{7}Li(^{148}Nd,5nγ), E=50 MeV.

^{150}Eu Levels

E(level)[e]	J$^\pi$[†]	$T_{1/2}$[f]	E(level)[e]	J$^\pi$[†]	E(level)[e]	J$^\pi$[†]
0.0	5$^-$	36.9 y *9*	1829.80[c] *14*	14$^+$	3713.96[#] *18*	(19$^-$)
190.39 *6*	6$^-$		1848.11[‡] *13*	14$^-$	3841.40[‡] *18*	20$^-$
247.88 *7*	6$^-$		1897.24[d] *18*	(13$^+$)	3967.85[d] *25*	(19$^+$)
359.91 *9*	(5$^-$)		2168.45[@] *14*	14$^-$	3979.93[@] *20*	(20$^-$)
412.51 *7*	5$^-$		2343.90[#] *13*	15$^-$	4124.08[a] *17*	21$^-$
417.22 *7*	7$^-$		2386.97[a] *13*	15$^-$	4255.72[c] *20*	(20$^+$)
561.92 *6*	6$^+$		2440.49[‡] *14*	16$^-$	4394.39[&] *19*	22$^-$
588.77 *9*	8$^+$	45 ns *3*	2530.74[d] *20*	(15$^+$)	4452.96[#] *21*	(21$^-$)
718.34[d] *11*	9$^+$		2630.12[c] *15*	16$^+$	4576.49[b] *19*	22$^-$
779.22 *10*	10$^+$		2685.63[@] *14*	16$^-$	4618.71[‡] *20*	(22$^-$)
1207.94 *10*	10$^+$		2827.84[a] *14*	17$^-$	5077.29[a] *19*	23$^-$
1236.11[c] *13*	12$^+$		2987.15[#] *15*	17$^-$	5197.89[&] *21*	24$^-$
1267.88 *11*	(9$^-$)		3106.00[‡] *15*	18$^-$	5249.96[#] *23*	(23$^-$)
1274.64[d] *15*	(11$^+$)		3213.65[d] *23*	(17$^+$)	5334.29[b] *22*	24$^-$
1287.2	(9$^-$)		3252.68[a] *15*	19$^-$	6023.09[a] *22*	25$^-$
1371.83[#] *10*	11$^-$		3365.03[@] *17*	18$^-$	6111.40[&] *24*	26$^-$
1382.13[‡] *12*	12$^-$		3469.82[c] *18*	18$^+$	6191.79[b] *24*	
1786.94[#] *12*	13$^-$		3691.09[&] *16*	20$^-$		

[†] As given by 1995Jo18 based on DCO ratios, α(K)exp, α(L)exp and band structure.
[‡] Band(A): Band 1.
[#] Band(B): Band 2.
[@] Band(C): Band 3.
[&] Band(D): Band 4.
[a] Band(E): Band 5.
[b] Band(F): Band 6.
[c] Band(G): Band 7.
[d] Band(H): Band 8.
[e] From least squares fit to Eγ.
[f] From Adopted Levels.

γ(^{150}Eu)

DCO are E2 gated, DCO ~ 1 for E2 transitions and DCO ~ 2 for dipole transitions.

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^{136}Xe(^{19}F,5nγ) 1995Jo18 (continued)

γ(^{150}Eu) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	Comments
10.3[#] *1*		1382.13	12^-	1371.83	11^-		
26.8[‡#] *1*		588.77	8^+	561.92	6^+		
57.5[‡#] *1*		247.88	6^-	190.39	6^-		
60.8 *1*	3.0 *2*	779.22	10^+	718.34	9^+	M1,E2	
61.2[#] *1*		1848.11	14^-	1786.94	13^-		
84.8 *1*	5.0 *3*	1371.83	11^-	1287.2	(9^-)		
96.6 *1*		2440.49	16^-	2343.90	15^-		
104.0 *1*	1.5 *4*	1371.83	11^-	1267.88	(9^-)		
118.9 *1*		3106.00	18^-	2987.15	17^-		
129.6 *1*	19.7 *10*	718.34	9^+	588.77	8^+	M1,E2	α(K)exp=0.61 *6*; α(L)exp=0.11 *2* DCO=1.69 *4*.
142.2 *1*	5.0 *1*	2827.84	17^-	2685.63	16^-	M1,E2	α(K)exp=0.47 *9*; α(L)exp=0.09 *2* DCO=1.6 *2*.
144.7 *1*	0.4 *1*	561.92	6^+	417.22	7^-		
146.8 *1*	0.5 *1*	3252.68	19^-	3106.00	18^-		
149.6 *1*	0.3 *1*	561.92	6^+	412.51	5^-		
163.9 *1*	87.0 *44*	1371.83	11^-	1207.94	10^+	E1	α(K)exp=0.047 *4*; α(L)exp=0.005 *1* DCO=1.72 *4*.
169.3 *1*	2.5 *6*	359.91	(5^-)	190.39	6^-		
169.3 *1*	2.5 *6*	417.22	7^-	247.88	6^-		
171.5 *1*	3.6 *2*	588.77	8^+	417.22	7^-		
190.4 *1*	58 *3*	190.39	6^-	0.0	5^-	M1	α(K)exp=0.19 *3*; α(L)exp=0.031 *4* DCO=1.51 *6*.
190.4 *1*	67.0 *35*	779.22	10^+	588.77	8^+	E2	α(K)exp=0.19 *3*; α(L)exp=0.031 *4* DCO=1.17 *6*.
197.7 *1*	2.5 *1*	2827.84	17^-	2630.12	16^+	(E1)	DCO=1.7 *1*.
201.8 *1*	2.0 *5*	561.92	6^+	359.91	(5^-)		
218.4 *1*	2.6 *1*	2386.97	15^-	2168.45	14^-	M1,E2	α(K)exp=0.6 *2* DCO=2.4 *6*.
222.2 *1*	2.8 *7*	412.51	5^-	190.39	6^-	M1	
226.9 *1*	10.3 *5*	417.22	7^-	190.39	6^-	M1	α(K)exp=0.13 *2*
247.9 *1*	85.8 *43*	247.88	6^-	0.0	5^-	M1	α(K)exp=0.11 *1*; α(L)exp=0.026 *2* DCO=1.63 *5*.
314.1 *1*	100 *5*	561.92	6^+	247.88	6^-	E1	α(K)exp=0.018 *1* DCO=1.59 *1*.
341.7 *1*	11.5 *6*	2685.63	16^-	2343.90	15^-	M1	α(K)exp=0.069 *6* DCO=1.76 *6*.
371.6 *1*	62.0 *31*	561.92	6^+	190.39	6^-	E1	α(K)exp=0.009 *1*; α(L)exp=0.0069 *7* DCO=1.54 *4*.
381.4 *1*	16.1 *8*	2168.45	14^-	1786.94	13^-	M1	α(K)exp=0.042 *4* DCO=1.61 *6*.
387.3 *1*	18.6 *9*	2827.84	17^-	2440.49	16^-	M1	α(K)exp=0.044 *4* DCO=1.81 *5*.
404.8 *1*	8.5 *4*	1786.94	13^-	1382.13	12^-	M1	α(K)exp=0.0037 *3* DCO=2.3 *3*.
412.6 *1*		412.51	5^-	0.0	5^-		
415.1 *1*	58.0 *29*	1786.94	13^-	1371.83	11^-	E2	α(K)exp=0.020 *2* DCO=1.05 *3*.
417.3 *1*	1.7 *4*	417.22	7^-	0.0	5^-		
424.7 *1*	41.0 *21*	3252.68	19^-	2827.84	17^-	E2	α(K)exp=0.011 *1* DCO=0.98 *3*.
428.7 *1*	15.0 *8*	1207.94	10^+	779.22	10^+	M1	α(K)exp=0.029 *4* DCO=0.8 *1*.
432.9 *1*	2.8 *2*	4124.08	21^-	3691.09	20^-		DCO=0.9 *1*.
438.3 *1*	11.6 *6*	3691.09	20^-	3252.68	19^-	(E2)	DCO=2.3 *2*.

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^{136}Xe(^{19}F,5nγ) 1995Jo18 (continued)

γ(^{150}Eu) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	Comments
440.8 *1*	22.0 *11*	2827.84	17^-	2386.97	15^-	E2	α(K)exp=0.025 *3* DCO=0.98 *3*.
452.4 *1*	9.8 *5*	4576.49	22^-	4124.08	21^-	M1	α(K)exp=0.020 *3* DCO=2.0 *1*.
456.9 *1*	46.5 *23*	1236.11	12^+	779.22	10^+	E2	α(K)exp=0.013 *2* DCO=1.04 *3*.
466.0 *1*	46.0 *23*	1848.11	14^-	1382.13	12^-	E2	α(K)exp=0.012 *2* DCO=1.05 *3*.
489.7 *1*	14.0 *7*	1207.94	10^+	718.34	9^+	M1	α(K)exp=0.013 *2* DCO=1.58 *7*.
495.8 *1*		2343.90	15^-	1848.11	14^-		
517.2 *1*	19.4 *10*	2685.63	16^-	2168.45	14^-	E2	α(K)exp=0.012 *2* DCO=0.8 *1*.
538.9 *1*	4.9 *2*	2386.97	15^-	1848.11	14^-	M1	DCO=1.27 *8*.
556.3 *1*	6.3 *3*	1274.64	(11^+)	718.34	9^+		
557.0 *1*	50.0 *25*	2343.90	15^-	1786.94	13^-	E2	α(K)exp=0.01 *1* DCO=1.04 *4*.
557.2 *1*	16.0 *8*	2386.97	15^-	1829.80	14^+	E1,M1	α(K)exp=0.010 *1* DCO=2.0 *1*.
561.8 *1*	6.4 *3*	561.92	6^+	0.0	5^-		
585.1 *1*	9.0 *6*	3691.09	20^-	3106.00	18^-	E2	α(K)exp=2.1 *4* DCO=0.93 *7*.
592.4 *1*	42.0 *21*	2440.49	16^-	1848.11	14^-	E2	α(K)exp=0.0091 *9* DCO=1.04 *4*.
592.5 *1*	11.0 *6*	1371.83	11^-	779.22	10^+	E1	α(K)exp=0.0091 *9* DCO=1.36 *6*.
593.7 *1*	40.0 *20*	1829.80	14^+	1236.11	12^+	E2	α(K)exp=0.005 *1* DCO=1.00 *2*.
614.9 *1*	3.7 *2*	3979.93	(20^-)	3365.03	18^-		
619.1 *1*	55.7 *28*	1207.94	10^+	588.77	8^+	E2	α(K)exp=0.0056 *6* DCO=1.01 *2*.
622.6 *1*	7.0 *4*	1897.24	(13^+)	1274.64	(11^+)	E2	α(K)exp=0.009 *3*
633.5 *1*	2.5 *1*	2530.74	(15^+)	1897.24	(13^+)	E2	
643.3 *1*	18.0 *9*	2987.15	17^-	2343.90	15^-	E2	α(K)exp=0.005 *1* DCO=0.93 *5*.
665.6 *1*	25.3 *13*	3106.00	18^-	2440.49	16^-	E2	α(K)exp=0.005 *1* DCO=0.95 *5*.
679.4 *1*	4.4 *2*	3365.03	18^-	2685.63	16^-	E2	α(K)exp=0.006 *1* DCO=1.0 *1*.
682.9 *1*	1.2 *3*	3213.65	(17^+)	2530.74	(15^+)		
703.3 *1*	10.7 *5*	4394.39	22^-	3691.09	20^-	E2	α(K)exp=0.003 *1* DCO=1.00 *6*.
726.8 *1*	5.2 *3*	3713.96	(19^-)	2987.15	17^-		α(K)exp=0.003 *1* DCO=1.6 *2*.
735.4 *1*	7.5 *4*	3841.40	20^-	3106.00	18^-	E2	α(K)exp=0.004 *1* DCO=1.13 *7*.
739.0 *1*	3.4 *2*	4452.96	(21^-)	3713.96	(19^-)	E2	DCO=1.0 *2*.
754.2 *1*	1.0 *3*	3967.85	(19^+)	3213.65	(17^+)		
757.8 *1*	8.1 *4*	5334.29	24^-	4576.49	22^-	E2	DCO=0.8 *2*.
777.3 *1*	2.8 *1*	4618.71	(22^-)	3841.40	20^-		DCO=1.5 *3*.
785.9 *1*	2.4 *1*	4255.72	(20^+)	3469.82	18^+		DCO=0.7 *2*.
797.0 *1*	2.8 *1*	5249.96	(23^-)	4452.96	(21^-)		
800.3 *1*	15.0 *8*	2630.12	16^+	1829.80	14^+	E2	α(K)exp=0.003 *1* DCO=0.8 *1*.
803.5 *1*	3.0 *1*	5197.89	24^-	4394.39	22^-	E2	DCO=1.0 *2*.
839.7 *1*	5.8 *3*	3469.82	18^+	2630.12	16^+	E2	DCO=0.9 *2*.

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^{136}Xe(^{19}F,5nγ) 1995Jo18 (continued)

γ(^{150}Eu) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	Comments
850.7 *1*		1267.88	(9$^-$)	417.22	7$^-$		
857.5 *1*	3.5 *2*	6191.79		5334.29	24$^-$		DCO=1.8 *2*.
870.0 *1*		1287.2	(9$^-$)	417.22	7$^-$		
871.5 *1*		4124.08	21$^-$	3252.68	19$^-$		
913.5 *1*	1.8 *5*	6111.40	26$^-$	5197.89	24$^-$	E2	DCO=0.9 *2*.
945.8 *1*	2.1 *1*	6023.09	25$^-$	5077.29	23$^-$		DCO=0.6 *2*.
953.2 *1*	3.1 *2*	5077.29	23$^-$	4124.08	21$^-$		DCO=0.7 *2*.

[†] From α(K)exp, α(L)exp values and DCO ratios.
[‡] From 1983So13; this, as yet unobserved transitions, are inferred from the decay of the 562-keV level, populated by 45 ns *8+* isomer at 589-keV.
[#] Placement of transition in the level scheme is uncertain.

^{136}Xe(^{19}F,5nγ) 1995Jo18

Level Scheme

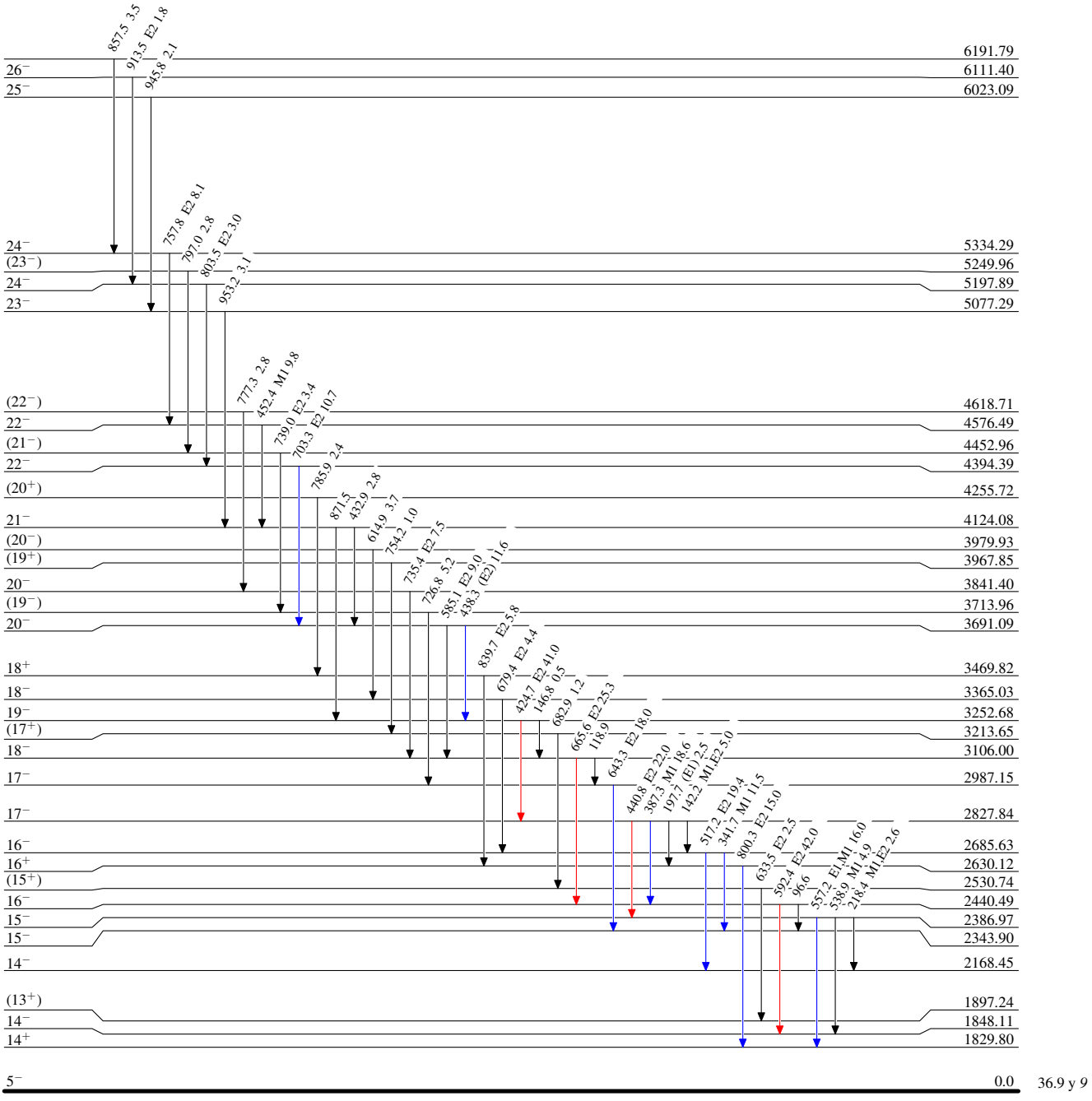
Intensities: Type not specified

Legend

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

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

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



$^{150}_{63}Eu_{87}$

^{136}Xe(^{19}F,5nγ) **1995Jo18**

Level Scheme (continued)

Intensities: Type not specified

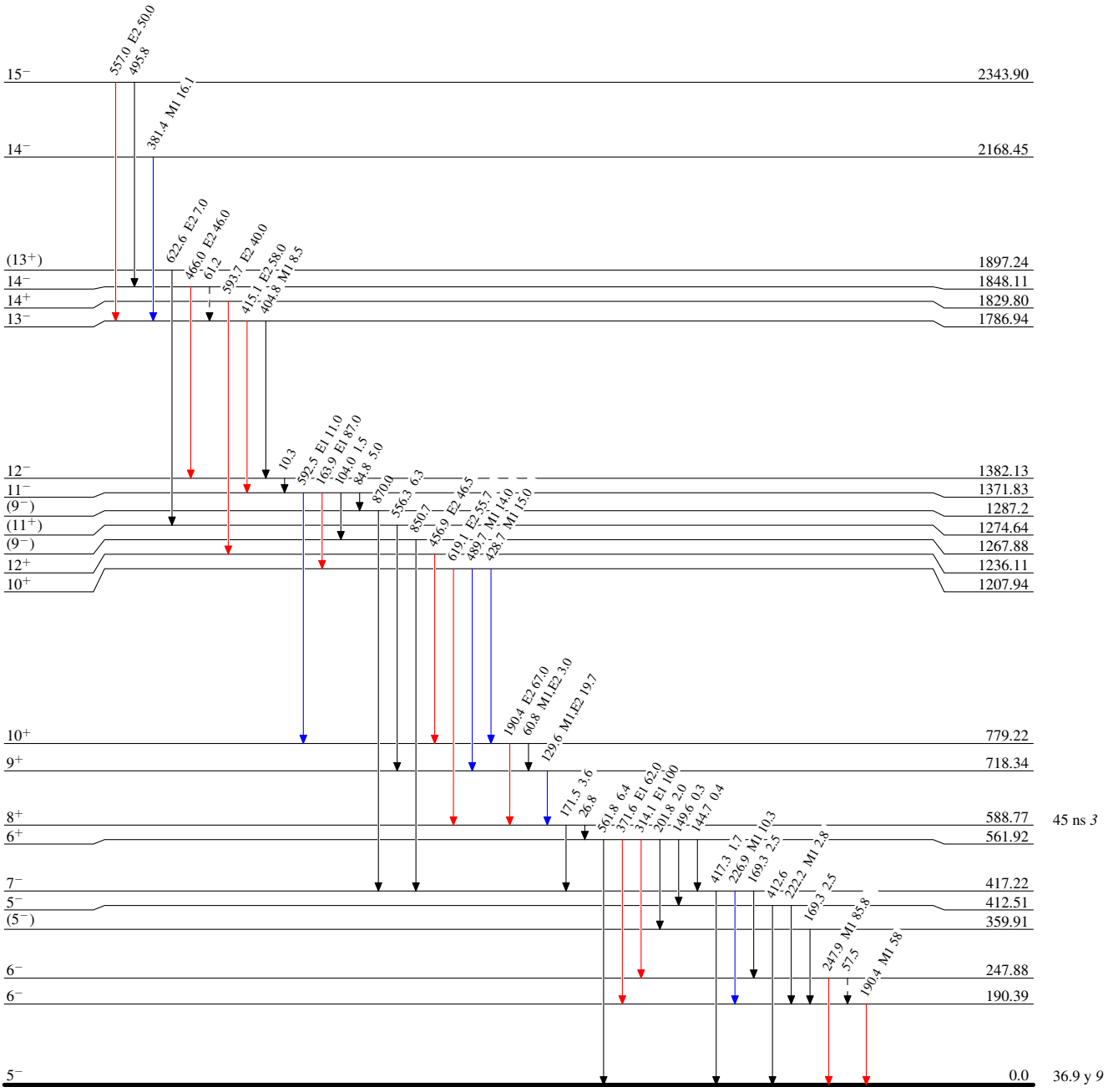
Legend

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

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

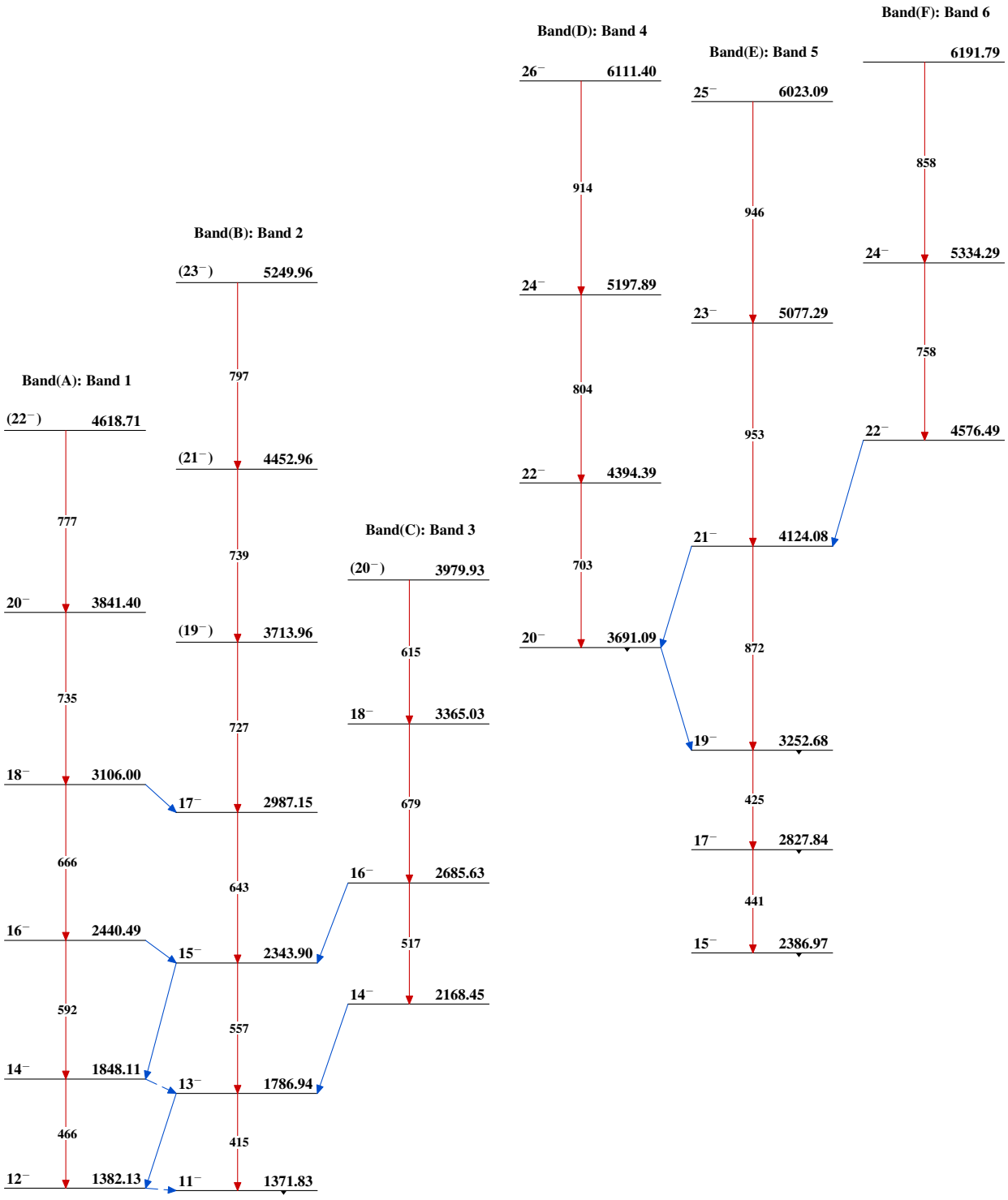
$I_\gamma > 10\% \times I_\gamma^{max}$

γ Decay (Uncertain)



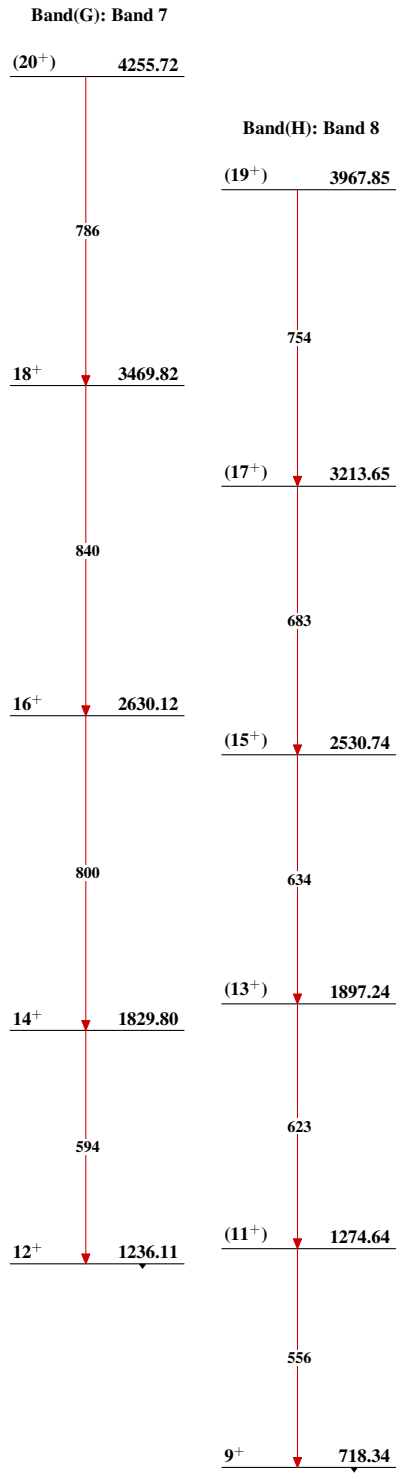
$^{150}_{63}Eu_{87}$

$^{136}Xe(^{19}F,5n\gamma)$ 1995Jo18



$^{150}_{63}Eu_{87}$

^{136}Xe(^{19}F,5nγ) 1995Jo18 (continued)



$^{150}_{63}Eu_{87}$