^{150}Nd(^{7}Li,4nγ) 1997Ba58,1994Pe03,2000Sm09

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 170, 1 (2020)	16-Aug-2020

The level scheme of 1997Ba58 is the same as that of 1994Pe03, except for the addition of a few high-energy levels. The data of 1997Ba58 are more complete so it is adopted here; however, they do not give explicitly the γ-ray placements which results in alternative placements being noted in several cases. The results of 2000Sm09 adds a band based on a (19/2$^-$) isomer and a few higher-spin levels.

1994Pe03: E=40 MeV; 16 Compton-suppressed Ge detectors; measured Eγ, Iγ, $\gamma\gamma$ coin.

1997Ba58: E ≈ 36 MeV, 6 Compton-suppressed Ge detectors; measured Eγ, Iγ, $\gamma\gamma$ coin. and DCO ratios.

1998Ch03: E=36 MeV, and 14 element BGO multiplicity filter; measured $\gamma\gamma$(t); report level $T_{1/2}$.

2000Sm09: E=35 MeV for pulsed beam, 8 Compton-suppressed Ge detectors, an electron spectrometer, and 6 barium fluoride detectors for timing; measured Eγ and γ(t).

^{153}Eu Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	Comments
0.0[@]	5/2$^+$		
83.4[@] 5	7/2$^+$		
97.4[&] 5	5/2$^-$		
103.3[a] 6	3/2$^+$		
151.4[&] 5	7/2$^-$		
172.7[a] 7	5/2$^+$		
193.2[@] 5	9/2$^+$		
235.1[&] 5	9/2$^-$		
269.5[a] 6	7/2$^+$		
321.5[&] 5	11/2$^-$		
324.7[@] 5	11/2$^+$		
395.8[a] 6	9/2$^+$		
477.5[&] 5	13/2$^-$		
480.8[@] 5	13/2$^+$		
537.3[a] 6	11/2$^+$		
588.8[&] 6	15/2$^-$		
654.7[@] 6	15/2$^+$		
715.4[a] 6	13/2$^+$		
824.7[&] 6	17/2$^-$		
851.3[@] 6	17/2$^+$		
890.6[a] 6	15/2$^+$		
954.0[&] 6	19/2$^-$		
1061.2[@] 6	19/2$^+$		
1113.5[a] 6	17/2$^+$		
1262.1[&] 6	21/2$^-$		
1293.5[@] 6	21/2$^+$		
1313.8[a] 6	19/2$^+$		
1404.3[&] 7	23/2$^-$		
1534.3[@] 7	23/2$^+$		
1574.5[a] 7	21/2$^+$		
1770.6[#b] 6	19/2$^-$	475 ns *10*	$T_{1/2}$: From 2000Sm09.
1771.6[&] 7	25/2$^-$		
1795.8[a] 7	23/2$^+$		

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^{150}Nd(^{7}Li,4nγ) 1997Ba58,1994Pe03,2000Sm09 (continued)

^{153}Eu Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$	Comments
1797.6[@] *7*	25/2^{+}		
1925.3[&] *8*	27/2^{-}		
1970.7[#b] *7*	21/2^{-}		
2065.0[@] *8*	27/2^{+}		
2082.3[a] *8*	25/2^{+}		
2181.9[#b] *7*	23/2^{-}		
2337.2[&] *8*	29/2^{-}		
2354.8[@] *8*	29/2^{+}		
2401.2[#b] *7*	25/2^{-}		
2500.4[&] *8*	31/2^{-}		
2626.5[#b] *8*	27/2^{-}		
2645.6[@] *8*	31/2^{+}		
2723.4[a] *10*	29/2^{+}		
2858.6[#b] *8*	29/2^{-}		
2929.5[&] *9*	33/2^{-}		
2956.7[@] *9*	33/2^{+}		
3100.9[&] *10*	35/2^{-}	8.6 ns *13*	T$_{1/2}$: From 1998Ch03.
3266.9[@] *10*	35/2^{+}		
3445.0[#&]	37/2^{-}		
3593.5[#@]	37/2^{+}		
3665.2[#&]	39/2^{-}		
3735.9 *13*	39/2^{-}		J$^{\pi}$: In 1997Ba58 assigned as 39/2,5/2[532], but in 2000Sm09 this state is assigned to level at 3667.
3917.8[@] *13*	39/2^{+}		
3978.7[#&]	41/2^{-}		
4233.8[#&]	43/2^{-}		
4251.3[#@]	41/2^{+}		
4426.2 *17*	(43/2^{-})		J$^{\pi}$: In 1997Ba58 assigned as 43/2,5/2[532], but in 2000Sm09 this state is assigned to level at 4235.
4583.6[#@]	43/2^{+}		
4598.[#&]	45/2^{-}		
4928.[#@]	45/2^{+}		

[†] From least-squares fit to γ energies.
[‡] Authors′ assignments; 1997Ba58 and 1994Pe03 agree throughout.
[#] Reported by 2000Sm09.
[@] Band(A): 5/2[413].
[&] Band(B): 5/2[532].
[a] Band(C): 3/2[411].
[b] Band(D): band based on (19/2^{-}) isomer.

^{150}Nd(^{7}Li,4nγ) 1997Ba58,1994Pe03,2000Sm09 (continued)

$\gamma(^{153}Eu)$

Unplaced γ's are from 1997Ba58.

Possible errors in the placements of γ rays related to the 235-, 588-, and 1113-keV levels are suggested by the fact that each has more γ intensity into it, by a factor of ≈ 2, than out of it, and this will not change if internal conversion is taken into account.

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	Comments
53.6 *8*	140 *7*	151.4	7/2$^-$	97.4	5/2$^-$		R_{DCO}=1.27 *7* (1997Ba58).
69		172.7	5/2$^+$	103.3	3/2$^+$		E_γ: γ is shown in 1997Ba58 decay scheme, but no γ data in table; γ is reported by 1994Pe03.
83.1 *7*	131 *4*	83.4	7/2$^+$	0.0	5/2$^+$		
83.3 *7*	21 *4*	235.1	9/2$^-$	151.4	7/2$^-$		
86.0 *7*	113 *3*	321.5	11/2$^-$	235.1	9/2$^-$		
89.6 *7*	9.2 *3*	324.7	11/2$^+$	235.1	9/2$^-$		R_{DCO}=1.30 *7* (1997Ba58).
96.6 *7*	20.2 *10*	269.5	7/2$^+$	172.7	5/2$^+$		
97.1 *7*	145 *3*	97.4	5/2$^-$	0.0	5/2$^+$		
102.6 *7*	1.6 *2*	954.0	19/2$^-$	851.3	17/2$^+$		
103.2 *7*	23.1 *18*	103.3	3/2$^+$	0.0	5/2$^+$		
108.3 *7*	4.4 *8*	588.8	15/2$^-$	480.8	13/2$^+$		
109.3 *7*	28 *6*	193.2	9/2$^+$	83.4	7/2$^+$		
110.		1404.3	23/2$^-$	1293.5	21/2$^+$		E_γ: γ is shown in scheme of 1997Ba58. Possible tabulated γ's of 109.3 and 111.3 keV are placed from 193 and 588 levels, so this placement requires a second placement of one of these γ's.
111.3 *7*	28.1 *6*	588.8	15/2$^-$	477.5	13/2$^-$	&	R_{DCO}=1.04 *9* (1997Ba58).
126.4 *7*	5.2 *8*	395.8	9/2$^+$	269.5	7/2$^+$		
[x]126.5 *7*	12.0 *7*						
127.4[@]		1925.3	27/2$^-$	1797.6	25/2$^+$		
128.5 *7*	39.8 *16*	321.5	11/2$^-$	193.2	9/2$^+$		
129.5 *7*	20.8 *8*	954.0	19/2$^-$	824.7	17/2$^-$		
131.6 *7*	>8.3	324.7	11/2$^+$	193.2	9/2$^+$		E_γ: Data of 1997Ba58 would allow either this γ or 129.5 to be placed here; but value of 132.1 *4* in 2002Sm09 supports this assignment.
[x]132.0 *7*	<5.4						
137.5 *7*	5.4 *20*	235.1	9/2$^-$	97.4	5/2$^-$		
141.5 *7*	12.4 *8*	537.3	11/2$^+$	395.8	9/2$^+$		
142.0 *7*	31 *5*	1404.3	23/2$^-$	1262.1	21/2$^-$	D	R_{DCO}=1.64 *12* (1997Ba58).
145.4[@]		3100.9	35/2$^-$	2956.7	33/2$^+$		
146.5 *7*	0.6 *1*	2500.4	31/2$^-$	2354.8	29/2$^+$		
151.4		151.4	7/2$^-$	0.0	5/2$^+$		I_γ: Iγ(151.4+151.6)=179 *3*.
151.6		235.1	9/2$^-$	83.4	7/2$^+$		I_γ: Iγ(151.4+151.6)=179 *3*.
152.7[@]		477.5	13/2$^-$	324.7	11/2$^+$		
154.1 *7*	12.4 *15*	1925.3	27/2$^-$	1770.6	19/2$^-$		
155.7 *6*	103 *3*	477.5	13/2$^-$	321.5	11/2$^-$		
156.8 *6*	17.5 *4*	480.8	13/2$^+$	324.7	11/2$^+$	&	R_{DCO}=0.7 *1* (1997Ba58).
159.6 *6*	14 *3*	480.8	13/2$^+$	321.5	11/2$^-$	D	R_{DCO}=1.7 (1997Ba58).
162.9 *6*	1.2 *1*	2500.4	31/2$^-$	2337.2	29/2$^-$		
166.3 *6*	65.9 *17*	269.5	7/2$^+$	103.3	3/2$^+$		
170.0 *6*	219 *3*	321.5	11/2$^-$	151.4	7/2$^-$	Q	R_{DCO}=0.93 *9* (1997Ba58).
170.2 *6*	5.4 *3*	824.7	17/2$^-$	654.7	15/2$^+$	(D)	R_{DCO}=1.5 *4* (1997Ba58).
170.9[@]		3100.9	35/2$^-$	2929.5	33/2$^-$		
172.4[@]		269.5	7/2$^+$	97.4	5/2$^-$		
174.7 *6*	41 *4*	654.7	15/2$^+$	480.8	13/2$^+$		E_γ: Data of 1997Ba58 would allow either this γ or 170.2

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^{150}Nd(^{7}Li,4nγ) 1997Ba58,1994Pe03,2000Sm09 (continued)

$\gamma(^{153}Eu)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
							to be placed here; but value of 174.0 *4* in 2002Sm09 supports this assignment. R_{DCO}=1.5 *4* (1997Ba58).
175.6 *6*	5.4 *3*	890.6	15/2$^+$	715.4	13/2$^+$		E_γ: Data of 1997Ba58 would allow either this γ or 174.7 to be placed here.
176.7 *6*	33 *4*	654.7	15/2$^+$	477.5	13/2$^-$	(D)	E_γ: Data of 1997Ba58 would allow either this γ or 177.7 to be placed here.
[x]177.7 *6*	9.3 *5*						
178.2 *6*	15.4 *15*	715.4	13/2$^+$	537.3	11/2$^+$		
193.7 *6*	81.1 *20*	193.2	9/2$^+$	0.0	5/2$^+$	Q	R_{DCO}=0.96 *3* (1997Ba58).
196.4 *6*	8.8 *8*	851.3	17/2$^+$	654.7	15/2$^+$		
200.0 *6*	22 *4*	1313.8	19/2$^+$	1113.5	17/2$^+$		E_γ: Data of 1997Ba58 would allow either this γ or 200.9 to be placed here. R_{DCO}=1.80 *9* (1997Ba58).
200.1[a] *4*		1970.7	21/2$^-$	1770.6	19/2$^-$		
200.9 *6*	2.3 *4*	1262.1	21/2$^-$	1061.2	19/2$^+$		E_γ: Data of 1997Ba58 would allow either this γ or 200.0 to be placed here.
209.6 *7*	6.0 *11*	1061.2	19/2$^+$	851.3	17/2$^+$	&	R_{DCO}=1.17 *7* (1997Ba58).
211.2[a] *4*		2181.9	23/2$^-$	1970.7	21/2$^-$		
219.3[a] *4*		2401.2	25/2$^-$	2181.9	23/2$^-$		
222.2[@]		1795.8	23/2$^+$	1574.5	21/2$^+$		
[x]222.3							I_γ: Iγ(222.3+222.4+222.5)=11 *4*.
[x]222.4							I_γ: Iγ(222.3+222.4+222.5)=11 *4*.
222.5		1113.5	17/2$^+$	890.6	15/2$^+$		I_γ: Iγ(222.3+222.4+222.5)=11 *4*. E_γ: Data of 1997Ba58 would allow either this γ or one of 222.3, 222.4, or 223.2 keV to be placed here.
223.2 *6*	13 *4*	395.8	9/2$^+$	172.7	5/2$^+$		E_γ: Data of 1997Ba58 would allow either this γ or one of 222.3, 222.4, or 222.5 keV to be placed here.
225.2[a] *4*		2626.5	27/2$^-$	2401.2	25/2$^-$		
232.0[a] *4*		2858.6	29/2$^-$	2626.5	27/2$^-$		
232.3 *6*	3.5 *18*	1293.5	21/2$^+$	1061.2	19/2$^+$	&	R_{DCO}=0.71 *5* (1997Ba58).
235.8 *6*	77.0 *23*	824.7	17/2$^-$	588.8	15/2$^-$		R_{DCO}=1.25 *5* (1997Ba58).
236.8 *6*	8.9 *3*	1061.2	19/2$^+$	824.7	17/2$^-$		
237.3[@]		1771.6	25/2$^-$	1534.3	23/2$^+$		
241.3[@]		1534.3	23/2$^+$	1293.5	21/2$^+$		
241.4 *6*	177 *5*	324.7	11/2$^+$	83.4	7/2$^+$		R_{DCO}=0.90 *3* (1997Ba58).
242.3 *6*	101 *4*	477.5	13/2$^-$	235.1	9/2$^-$	Q	R_{DCO}=0.94 *7* (1997Ba58).
244.5 *6*	5.8 *3*	395.8	9/2$^+$	151.4	7/2$^-$		
261.6 *7*	7.4 *13*	1574.5	21/2$^+$	1313.8	19/2$^+$		
263.2[b] *7*	1.0[b] *1*	851.3	17/2$^+$	588.8	15/2$^-$		
263.2[b] *7*	1.0[b] *1*	1797.6	25/2$^+$	1534.3	23/2$^+$		
267.5 *7*	84.1 *7*	588.8	15/2$^-$	321.5	11/2$^-$	Q	E_γ: Data of 1997Ba58 would allow either this γ or 267.7 to be placed here. R_{DCO}=0.90 *8* (1997Ba58).
267.7 *7*	14.8 *7*	537.3	11/2$^+$	269.5	7/2$^+$		E_γ: Data of 1997Ba58 would allow either this γ or 267.5 to be placed here.
267.8[@]		2065.0	27/2$^+$	1797.6	25/2$^+$		
271.7 *7*	9.5 *16*	2337.2	29/2$^-$	2065.0	27/2$^+$		
271.9 *7*	2.2 *4*	1534.3	23/2$^+$	1262.1	21/2$^-$	D	R_{DCO}=2.08 *12* (1997Ba58).
284.1[@]		2929.5	33/2$^-$	2645.6	31/2$^+$		
287.6 *7*	100	480.8	13/2$^+$	193.2	9/2$^+$	Q	R_{DCO}=1.02 *3* (1997Ba58).
287.6 *7*		2082.3	25/2$^+$	1795.8	23/2$^+$		I_γ: Value is 100 (1997Ba58), but primarily from 481-keV level.
290.8 *7*	1.3 *6*	2354.8	29/2$^+$	2065.0	27/2$^+$		

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^{150}Nd(^{7}Li,4nγ) 1997Ba58,1994Pe03,2000Sm09 (continued)

$\gamma(^{153}Eu)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
291.0[@]		2645.6	31/2$^+$	2354.8	29/2$^+$		
293.2 *7*	10 *3*	2065.0	27/2$^+$	1771.6	25/2$^-$		
302.3 *7*	11.6 *12*	537.3	11/2$^+$	235.1	9/2$^-$		
308.7[@]		2645.6	31/2$^+$	2337.2	29/2$^-$		
309.2 *7*	38 *3*	1262.1	21/2$^-$	954.0	19/2$^-$		
309.6 *7*	0.4 *1*	3266.9	35/2$^+$	2956.7	33/2$^+$		E_γ: Data of 1997Ba58 would allow either this γ or 310.8 to be placed here.
310.8 *7*	0.4 *2*	2956.7	33/2$^+$	2645.6	31/2$^+$		E_γ: Data of 1997Ba58 would allow either this γ or 309.6 to be placed here.
319.9 *7*	11 *3*	715.4	13/2$^+$	395.8	9/2$^+$		
329.5 *7*	96 *3*	654.7	15/2$^+$	324.7	11/2$^+$	Q	R_{DCO}=0.98 *4* (1997Ba58).
338.2[@]		3266.9	35/2$^+$	2929.5	33/2$^-$		
339.0 *7*	18 *3*	1293.5	21/2$^+$	954.0	19/2$^-$	(D)	R_{DCO}=1.8 *5* (1997Ba58).
347.4 *7*	90.1 *18*	824.7	17/2$^-$	477.5	13/2$^-$	Q	R_{DCO}=0.92 *10* (1997Ba58).
353.2 *7*	11.7 *3*	890.6	15/2$^+$	537.3	11/2$^+$		
364.9 *7*	151 *3*	954.0	19/2$^-$	588.8	15/2$^-$	Q	R_{DCO}=1.0 *4* (1997Ba58).
367.2 *7*	7.0 *4*	1771.6	25/2$^-$	1404.3	23/2$^-$	D	R_{DCO}=1.54 *12* (1997Ba58).
370.3 *7*	83 *6*	851.3	17/2$^+$	480.8	13/2$^+$	Q	R_{DCO}=0.99 *5* (1997Ba58).
393.3[b] *7*	3.6[b] *1*	715.4	13/2$^+$	321.5	11/2$^-$	D	R_{DCO}=2.1 *7* (1997Ba58).
393.3[b] *7*	3.6[b] *1*	1797.6	25/2$^+$	1404.3	23/2$^-$	(D)	R_{DCO}=2.1 *7* (1997Ba58).
397.5 *7*	7.4 *4*	1113.5	17/2$^+$	715.4	13/2$^+$		
406.4 *7*	48 *3*	1061.2	19/2$^+$	654.7	15/2$^+$	Q	R_{DCO}=0.99 *6* (1997Ba58).
411.3[a] *4*		2181.9	23/2$^-$	1770.6	19/2$^-$		
412.3 *7*	30 *9*	2337.2	29/2$^-$	1925.3	27/2$^-$	&	R_{DCO}=0.77 *8* (1997Ba58).
413.1 *7*	11 *3*	890.6	15/2$^+$	477.5	13/2$^-$		
423.7 *7*	18 *3*	1313.8	19/2$^+$	890.6	15/2$^+$		
429.3[b] *7*	4.9[b] *2*	2354.8	29/2$^+$	1925.3	27/2$^-$	D	R_{DCO}=1.82 *2* (1997Ba58).
429.3[b] *7*	4.9[b] *2*	2929.5	33/2$^-$	2500.4	31/2$^-$	D	R_{DCO}=1.82 *2* (1997Ba58).
430.5[a] *4*		2401.2	25/2$^-$	1970.7	21/2$^-$		
436.8 *7*	61.0 *12*	1262.1	21/2$^-$	824.7	17/2$^-$	Q	R_{DCO}=1.02 *10* (1997Ba58).
442.1 *7*	40.2 *8*	1293.5	21/2$^+$	851.3	17/2$^+$	Q	R_{DCO}=1.01 *8* (1997Ba58).
444.5[a] *4*		2626.5	27/2$^-$	2181.9	23/2$^-$		
450.2 *7*	74.5 *11*	1404.3	23/2$^-$	954.0	19/2$^-$	Q	R_{DCO}=1.0 *7* (1997Ba58).
456.9 *7*	0.9 *1*	2956.7	33/2$^+$	2500.4	31/2$^-$	D	R_{DCO}=1.80 *4* (1997Ba58).
457.6[a] *4*		2858.6	29/2$^-$	2401.2	25/2$^-$		
460.4 *7*	13.6 *16*	1574.5	21/2$^+$	1113.5	17/2$^+$		
473.2 *7*	43 *3*	1534.3	23/2$^+$	1061.2	19/2$^+$	Q	R_{DCO}=1.03 *9* (1997Ba58).
[x]476.0 *7*	2.8 *3*						
477.0[a] *4*		1770.6	19/2$^-$	1293.5	21/2$^+$		I_γ: Iγ(477)/Iγ(709)/Iγ(919) = 14 *4* / 7 *3* /79 *5* (2000Sm09).
481.9 *8*	11.8 *14*	1795.8	23/2$^+$	1313.8	19/2$^+$		
489.7 *7*	10.4 *13*	1313.8	19/2$^+$	824.7	17/2$^-$		
504.1 *8*	22 *3*	1797.6	25/2$^+$	1293.5	21/2$^+$	Q	R_{DCO}=0.96 *8* (1997Ba58).
507.2 *8*	1.4 *1*	2082.3	25/2$^+$	1574.5	21/2$^+$		
509.6 *8*	54 *5*	1771.6	25/2$^-$	1262.1	21/2$^-$	Q	R_{DCO}=1.07 *10* (1997Ba58).
515.5[a]		3445.0	37/2$^-$	2929.5	33/2$^-$		
520.8 *8*	62.7 *25*	1925.3	27/2$^-$	1404.3	23/2$^-$	Q	R_{DCO}=1.01 *8* (1997Ba58).
524.8[@]		1113.5	17/2$^+$	588.8	15/2$^-$		
530.9 *8*	23.3 *21*	2065.0	27/2$^+$	1534.3	23/2$^+$	Q	R_{DCO}=0.98 *8* (1997Ba58).
533.7[a]		3978.7	41/2$^-$	3445.0	37/2$^-$		
534.8 *9*	9.5 *14*	1795.8	23/2$^+$	1262.1	21/2$^-$		
556.9 *8*	10.5 *4*	2354.8	29/2$^+$	1797.6	25/2$^+$	Q	R_{DCO}=1.08 *12* (1997Ba58).
564.3[a]		3665.2	39/2$^-$	3100.9	35/2$^-$		

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^{150}Nd(^{7}Li,4nγ) 1997Ba58,1994Pe03,2000Sm09 (continued)

$\gamma(^{153}Eu)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
565.6 *8*	39 *9*	2337.2	29/2$^-$	1771.6	25/2$^-$		
568.6[a]		4233.8	43/2$^-$	3665.2	39/2$^-$		
574.9 *8*	23.0 *24*	2500.4	31/2$^-$	1925.3	27/2$^-$	Q	R_{DCO}=0.96 *6* (1997Ba58).
580.2 *8*	9.5 *10*	2645.6	31/2$^+$	2065.0	27/2$^+$	Q	R_{DCO}=0.99 *9* (1997Ba58).
592.1 *9*	11.3 *34*	2929.5	33/2$^-$	2337.2	29/2$^-$		
600.1 *9*	11 *3*	3100.9	35/2$^-$	2500.4	31/2$^-$		R_{DCO}=1.02 *11* (1997Ba58).
601.2 *9*	5.9 *18*	2956.7	33/2$^+$	2354.8	29/2$^+$	Q	R_{DCO}=0.91 *9* (1997Ba58).
619.6[a]		4598.	45/2$^-$	3978.7	41/2$^-$		
619.8 *9*	6.7 *17*	1574.5	21/2$^+$	954.0	19/2$^-$		
621.6 *9*	3.4 *5*	3266.9	35/2$^+$	2645.6	31/2$^+$	Q	R_{DCO}=0.95 *2* (1997Ba58).
635.0 *9*	3.3 *4*	3735.9	39/2$^-$	3100.9	35/2$^-$	Q	R_{DCO}=0.99 *12* (1997Ba58).
636.8[a]		3593.5	37/2$^+$	2956.7	33/2$^+$		
641.3 *9*	1.1 *1*	2723.4	29/2$^+$	2082.3	25/2$^+$		
650.9 *9*	0.9 *1*	3917.8	39/2$^+$	3266.9	35/2$^+$		
657.8[a]		4251.3	41/2$^+$	3593.5	37/2$^+$		
665.8[a]		4583.6	43/2$^+$	3917.8	39/2$^+$		
676.7[a]		4928.	45/2$^+$	4251.3	41/2$^+$		
677.		2082.3	25/2$^+$	1404.3	23/2$^-$		E_γ: γ is in scheme of 1997Ba58, but no data in γ table.
690.3 *10*	1.4 *2*	4426.2	(43/2$^-$)	3735.9	39/2$^-$		
709.4[a] *4*		1770.6	19/2$^-$	1061.2	19/2$^+$		
797.9		2723.4	29/2$^+$	1925.3	27/2$^-$		E_γ: In 1997Ba58 scheme, but not in γ table.
919.4[a] *4*		1770.6	19/2$^-$	851.3	17/2$^+$	E1	α(K)exp=0.00098 *24* α(K)exp: From 2000Sm09.

[†] From 1997Ba58, unless otherwise noted. Comments in 1994Pe03 suggest their values were more precise, but their energies and uncertainties are not given explicitly.

[‡] From 1997Ba58; see 1994Pe03 for some intensity ratios.

[#] 1997Ba58 reports DCO ratios and give suggested DCO ranges for stretched dipole and stretched quadrupole transitions, but do not give any multipolarity assignments explicitly. The evaluator has included such assignments and noted when they are in conflict with the J^π assignments.

[@] Reported in 1994Pe03, but not in 1997Ba58 scheme.

[&] The DCO ratio (1997Ba58) implies stretched Q transition which is not consistent with ΔJ=1 from J^π's.

[a] Reported by 2000Sm09.

[b] Multiply placed with undivided intensity.

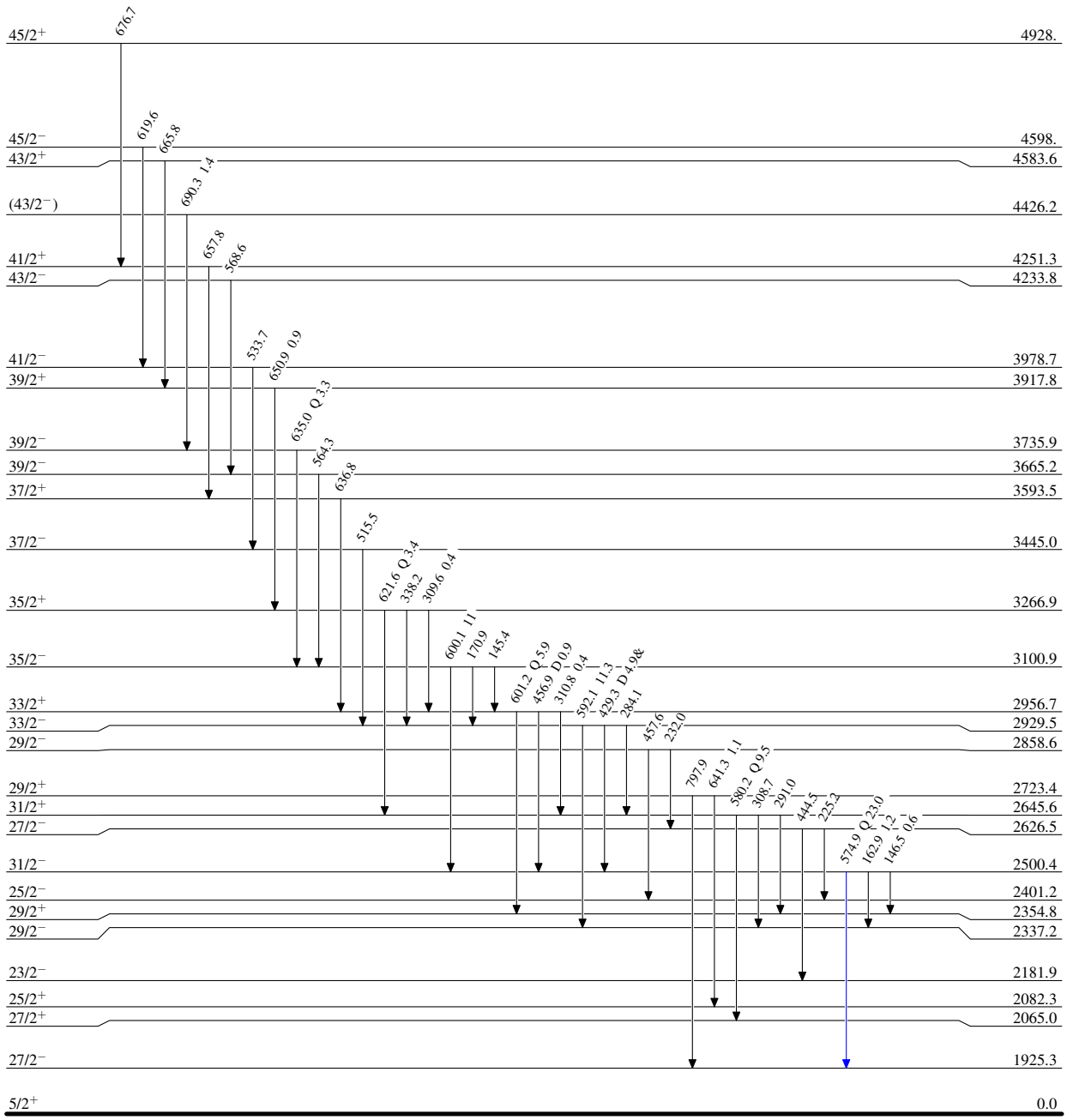
[x] γ ray not placed in level scheme.

^{150}Nd(^{7}Li,4nγ) 1997Ba58,1994Pe03,2000Sm09

Level Scheme

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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



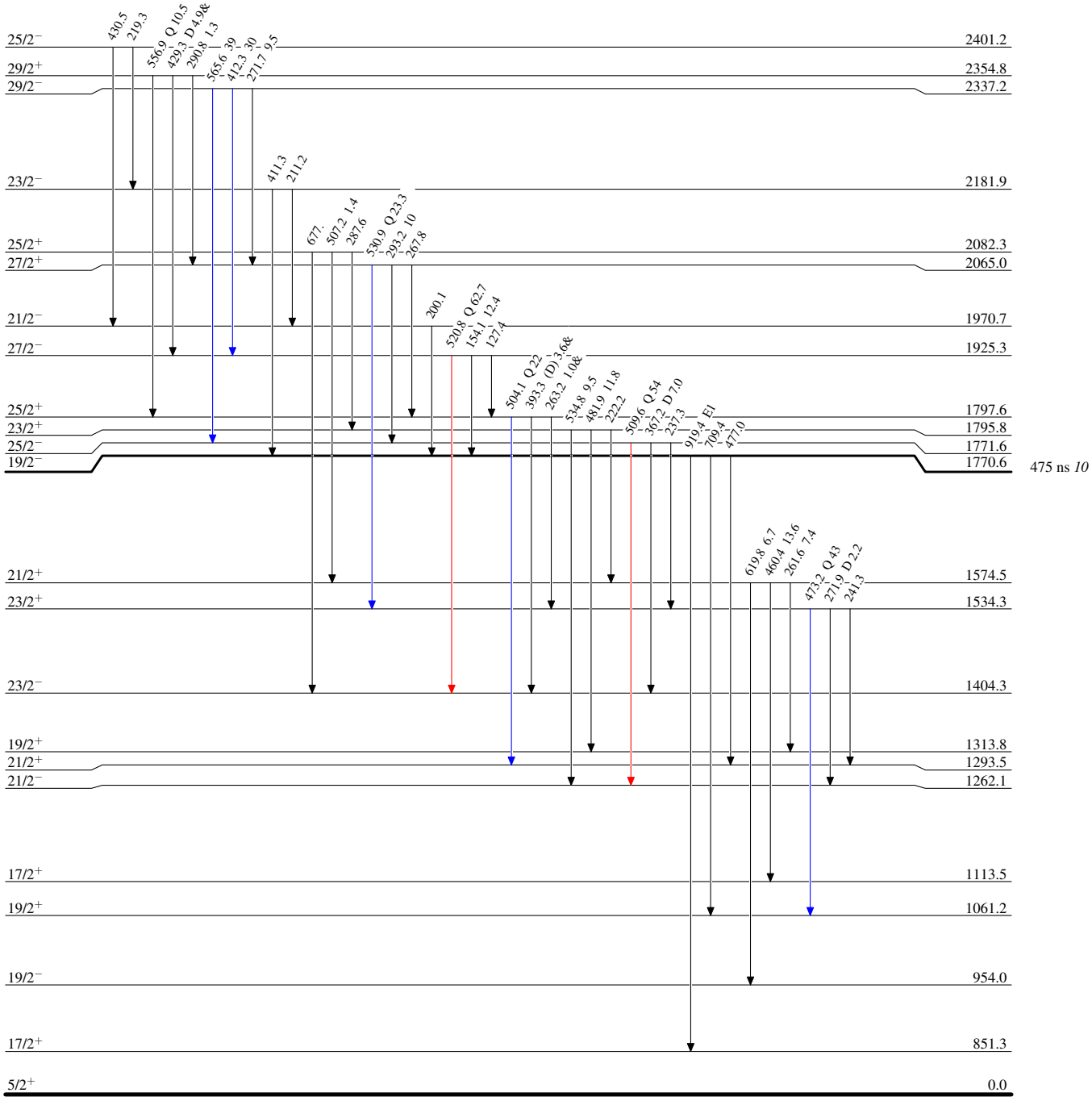
$^{153}_{63}Eu_{90}$

^{150}Nd(^{7}Li,4nγ) 1997Ba58,1994Pe03,2000Sm09

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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



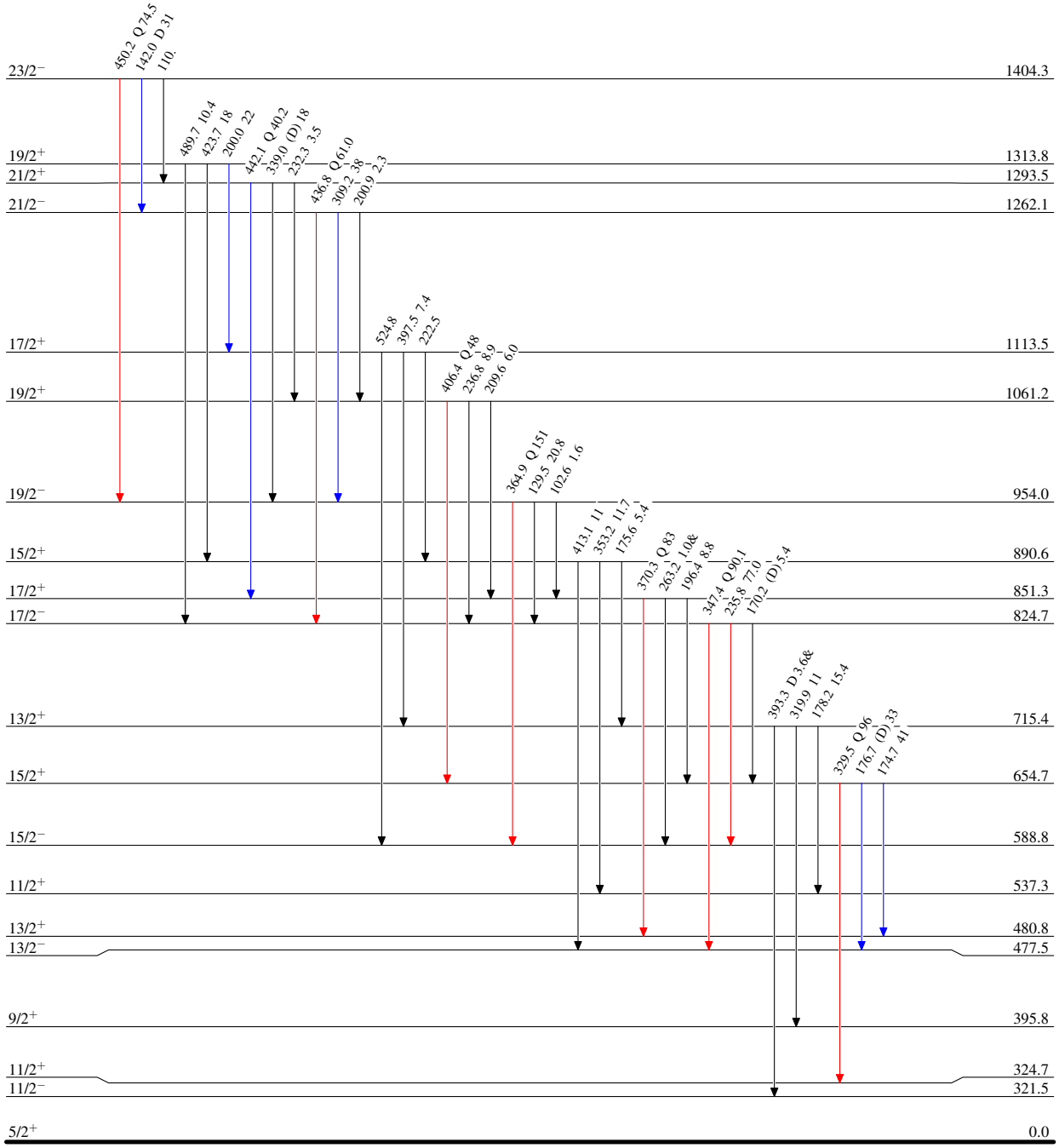
$^{153}_{63}Eu_{90}$

^{150}Nd(^{7}Li,4nγ) 1997Ba58,1994Pe03,2000Sm09

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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



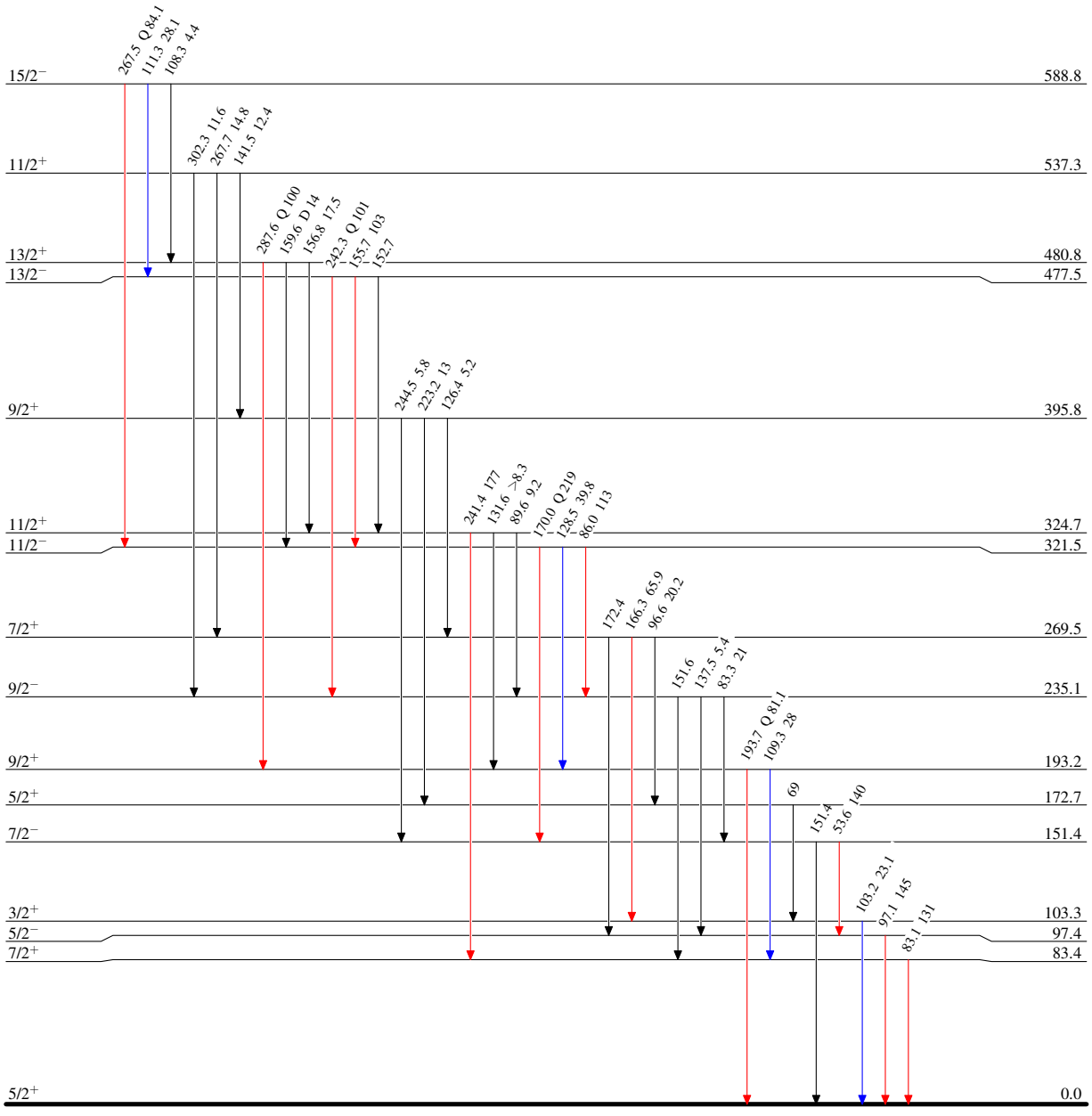
$^{153}_{63}Eu_{90}$

^{150}Nd(^{7}Li,4nγ) 1997Ba58,1994Pe03,2000Sm09

Level Scheme (continued)

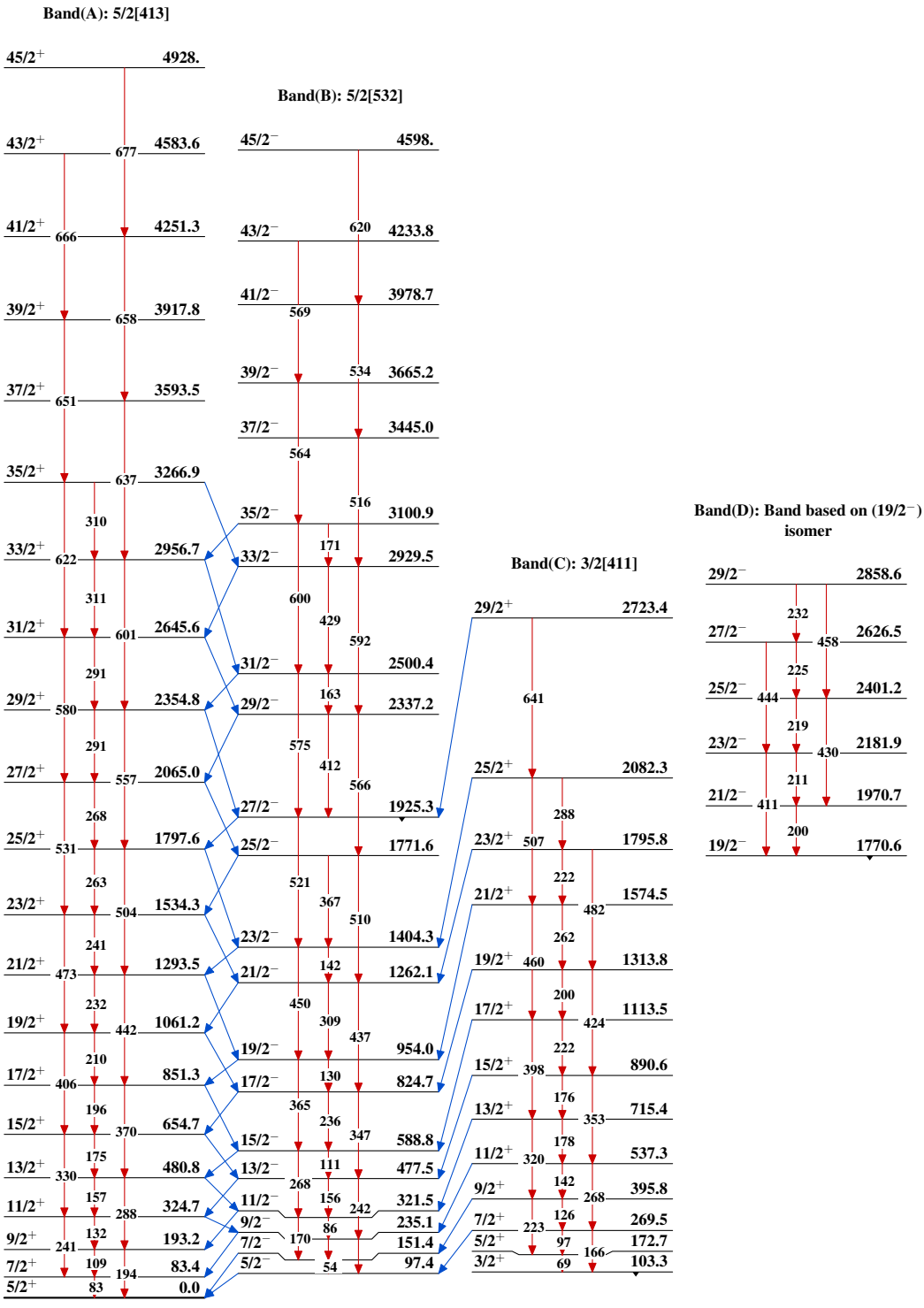
Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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



$^{153}_{63}Eu_{90}$

^{150}Nd(^{7}Li,4nγ) 1997Ba58,1994Pe03,2000Sm09



$^{153}_{63}Eu_{90}$