^{155}Gd(^{32}S,4nγ) E=159 MeV 1995La10

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 134, 149 (2016)	15-Apr-2015

1995La10: E=159 MeV; 91% enriched ^{155}Gd targets (thin or Pb-backed); CAESAR detector array (6 Compton-suppressed HPGe detectors) for γ and x detection, θ=48°, 97° and 145°; measured Eγ, Iγ, $\gamma\gamma$ coin (±432 ns overlap), $\gamma(\theta)$, DCO ratios.

^{183}Hg Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0#	1/2−	542.2@ 5	(11/2−)	1404.6# 6	21/2−	2582.8+y[a] 5	31/2−
0.0+x[b]	13/2+	577.2# 6	13/2−	1465.8+y[a] 4	23/2−	2873.0+x[d] 6	(35/2+)
0.0+y[a]	7/2−	585.79+y[a] 22	15/2−	1649.8+x[d] 3	27/2+	2879.5+y& 5	33/2−
66.8@ 3	(3/2−)	700.95+x[d] 19	19/2+	1720.9+y& 4	25/2−	3022.2@ 8	(31/2−)
86.7# 5	5/2−	779.48+y& 25	17/2−	1808.6+x[c] 4	29/2+	3029.2+x[c] 5	(37/2+)
101.6+x[d] 4	(11/2+)	833.04+x[c] 22	21/2+	1848.9@ 7	(23/2−)	3102.0# 8	33/2−
104.93+y& 16	9/2−	906.2@ 5	(15/2−)	1921.4# 7	25/2−	3214.0+y[a] 6	(35/2−)
251.57+y[a] 16	11/2−	953.2# 6	17/2−	1997.7+y[a] 4	27/2−	3520.0+y& 7	(37/2−)
261.3@ 4	(7/2−)	993.0+y[a] 3	19/2−	2231.7+x[d] 5	31/2+	3565.2+x[d] 9	(39/2+)
285.8# 5	9/2−	1136.55+x[d] 24	23/2+	2276.7+y& 4	29/2−	3712.7+x[c] 7	(41/2+)
354.27+x[d] 17	15/2+	1219.5+y& 3	21/2−	2391.6+x[c] 4	33/2+	3725.8# 10	(37/2−)
406.93+y& 21	13/2−	1287.3+x[c] 3	25/2+	2408.6@ 7	(27/2−)	3882.4+y[a] 7	(39/2−)
429.33+x[c] 17	17/2+	1345.0@ 6	(19/2−)	2491.9# 7	29/2−	4435.8+x[c] 9	(45/2+)

† From least-squares fit to Eγ. from Adopted Levels, Gammas, energy offset x=183 9.
‡ Authors′ values, based on measured γ multipolarity data and deduced band structure.
# Band(A): 1/2[521], α=+1/2 band.
@ Band(a): 1/2[521], α=−1/2 band.
& Band(B): 7/2[514], α=+1/2 band.
[a] Band(b): 7/2[514], α=−1/2 band.
[b] Band(C): $i_{13/2}$ band. Oblate, possibly isomeric, bandhead is the only state observed.
[c] Band(D): 9/2[624], α=+1/2 band.
[d] Band(d): 9/2[624], α=−1/2 band.

$\gamma(^{183}Hg)$

Eγ	Iγ	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.†	Comments
66.8 3	7 3	66.8	(3/2−)	0.0	1/2−		
75		429.33+x	17/2+	354.27+x	15/2+		
87		86.7	5/2−	0.0	1/2−		
104.9 2	6 2	104.93+y	9/2−	0.0+y	7/2−		Mult.: DCO=1.15 27.
131.9 3	3 1	833.04+x	21/2+	700.95+x	19/2+		
146.6 2	29 6	251.57+y	11/2−	104.93+y	9/2−	D	Mult.: DCO=0.79 24.
150.7 4	2 1	1287.3+x	25/2+	1136.55+x	23/2+	D+Q	Mult.: DCO=0.67 25.
155.2 3	7 3	406.93+y	13/2−	251.57+y	11/2−		Mult.: DCO=0.67 26.
174.7 3	4 2	261.3	(7/2−)	86.7	5/2−		
178.8 3	5 2	585.79+y	15/2−	406.93+y	13/2−	D+Q	Mult.: DCO=0.58 23.
193.7 3	4 2	779.48+y	17/2−	585.79+y	15/2−		
194.5 2	15 3	261.3	(7/2−)	66.8	(3/2−)		
199.1 2	55 5	285.8	9/2−	86.7	5/2−	Q	Mult.: DCO=1.51 13.

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^{155}Gd(^{32}S,4nγ) E=159 MeV 1995La10 (continued)

$\gamma(^{183}Hg)$ (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	Comments
213.2 *4*	2 *1*	993.0+y	19/2$^-$	779.48+y	17/2$^-$		
226.4 *4*	1 *1*	1219.5+y	21/2$^-$	993.0+y	19/2$^-$		
251.6 *2*	74 *8*	251.57+y	11/2$^-$	0.0+y	7/2$^-$		Mult.: DCO=1.21 *25*; A_2=+0.20 *22*.
252.7 *3*	16 *4*	354.27+x	15/2$^+$	101.6+x	(11/2$^+$)		Mult.: DCO=1.4 *5*; A_2=+0.3 *4*.
257[‡]	<1	542.2	(11/2$^-$)	101.6+x	(11/2$^+$)		
271.5 *2*	16 *3*	700.95+x	19/2$^+$	429.33+x	17/2$^+$	D+Q	Mult.: DCO=0.60 *9*; A_2=−0.39 *19*.
280.9 *2*	13 *3*	542.2	(11/2$^-$)	261.3	(7/2$^-$)		
291.4 *2*	38 *4*	577.2	13/2$^-$	285.8	9/2$^-$	Q	Mult.: DCO=1.34 *17*; A_2=+0.27 *18*.
302.0 *2*	58 *5*	406.93+y	13/2$^-$	104.93+y	9/2$^-$	Q	Mult.: DCO=1.25 *20*; A_2=+0.33 *24*.
303.4 *2*	5 *2*	1136.55+x	23/2$^+$	833.04+x	21/2$^+$	D+Q	Mult.: DCO=0.66 *16*.
329[‡]	<1	906.2	(15/2$^-$)	577.2	13/2$^-$		
334.3 *2*	55 *7*	585.79+y	15/2$^-$	251.57+y	11/2$^-$	Q	Mult.: DCO=1.34 *23*; A_2=+0.30 *9*.
346.8 *2*	36 *9*	700.95+x	19/2$^+$	354.27+x	15/2$^+$	Q	Mult.: DCO=1.46 *23*.
354.4 *2*	20 *6*	354.27+x	15/2$^+$	0.0+x	13/2$^+$	D+Q	Mult.: DCO=0.20 *11*; A_2=−0.7 *5*.
364.0 *2*	12 *3*	906.2	(15/2$^-$)	542.2	(11/2$^-$)		
372.5 *2*	44 *4*	779.48+y	17/2$^-$	406.93+y	13/2$^-$	Q	Mult.: DCO=1.29 *20*; A_2=+0.33 *25*.
376.0 *2*	38 *4*	953.2	17/2$^-$	577.2	13/2$^-$	Q	Mult.: DCO=1.34 *17*; A_2=+0.30 *21*.
403.7 *2*	80 *7*	833.04+x	21/2$^+$	429.33+x	17/2$^+$	(Q)	Mult.: DCO=1.26 *13*; A_2=+0.11 *14*.
407.2 *2*	32 *6*	993.0+y	19/2$^-$	585.79+y	15/2$^-$	Q	Mult.: DCO=1.15 *16*; A_2=+0.50 *26*.
429.2 *2*	100 *8*	429.33+x	17/2$^+$	0.0+x	13/2$^+$	Q	Mult.: DCO=1.43 *14*; A_2=+0.27 *9*.
435.7 *2*	15 *2*	1136.55+x	23/2$^+$	700.95+x	19/2$^+$	(Q)	Mult.: A_2=+0.23 *12*.
438.8 *3*	11 *3*	1345.0	(19/2$^-$)	906.2	(15/2$^-$)		
440.0 *2*	33 *4*	1219.5+y	21/2$^-$	779.48+y	17/2$^-$	Q	Mult.: DCO=1.53 *27*; A_2=+0.37 *14*.
451.4 *2*	26 *4*	1404.6	21/2$^-$	953.2	17/2$^-$	Q	Mult.: DCO=1.9 *3*; A_2=+0.40 *18*.
454.3 *2*	65 *5*	1287.3+x	25/2$^+$	833.04+x	21/2$^+$	Q	Mult.: DCO=1.58 *18*; A_2=+0.27 *17*.
472.8 *2*	24 *4*	1465.8+y	23/2$^-$	993.0+y	19/2$^-$	Q	Mult.: DCO=1.45 *25*; A_2=+0.25 *19*.
501.4 *2*	24 *3*	1720.9+y	25/2$^-$	1219.5+y	21/2$^-$	Q	Mult.: DCO=1.6 *3*.
503.9 *3*	6 *1*	1848.9	(23/2$^-$)	1345.0	(19/2$^-$)		
513.2 *2*	8 *3*	1649.8+x	27/2$^+$	1136.55+x	23/2$^+$		Mult.: DCO=1.28 *22*.
516.8 *2*	18 *3*	1921.4	25/2$^-$	1404.6	21/2$^-$		Mult.: DCO=1.29 *19*; A_2=+0.0 *3*.
521.3 *2*	38 *4*	1808.6+x	29/2$^+$	1287.3+x	25/2$^+$	Q	Mult.: DCO=1.49 *18*; A_2=+0.20 *24*.
531.9 *2*	16 *3*	1997.7+y	27/2$^-$	1465.8+y	23/2$^-$		Mult.: DCO=1.2 *3*; A_2=+0.27 *26*.
555.8 *2*	23 *3*	2276.7+y	29/2$^-$	1720.9+y	25/2$^-$	Q	Mult.: DCO=1.42 *25*.
559.7 *3*	8 *2*	2408.6	(27/2$^-$)	1848.9	(23/2$^-$)		
570.5 *3*	11 *2*	2491.9	29/2$^-$	1921.4	25/2$^-$		Mult.: DCO=1.3 *3*.
581.9 *3*	5 *2*	2231.7+x	31/2$^+$	1649.8+x	27/2$^+$		Mult.: DCO=1.3 *4*; A_2=+0.5 *5*.
583.0 *2*	33 *3*	2391.6+x	33/2$^+$	1808.6+x	29/2$^+$		Mult.: DCO=1.27 *21*.
585.1 *2*	13 *3*	2582.8+y	31/2$^-$	1997.7+y	27/2$^-$		Mult.: DCO=1.4 *3*.
602.8 *3*	15 *3*	2879.5+y	33/2$^-$	2276.7+y	29/2$^-$	Q	Mult.: DCO=1.5 *3*.
610.1 *3*	10 *2*	3102.0	33/2$^-$	2491.9	29/2$^-$	Q	Mult.: DCO=2.0 *8*.
613.6 *4*	3 *1*	3022.2	(31/2$^-$)	2408.6	(27/2$^-$)		
623.8 *6*	5 *2*	3725.8	(37/2$^-$)	3102.0	33/2$^-$		
631.2 *3*	8 *3*	3214.0+y	(35/2$^-$)	2582.8+y	31/2$^-$		
637.6 *3*	12 *2*	3029.2+x	(37/2$^+$)	2391.6+x	33/2$^+$		Mult.: DCO=1.3 *3*.
640.5 *4*	8 *2*	3520.0+y	(37/2$^-$)	2879.5+y	33/2$^-$		Mult.: DCO=1.2 *4*.
641.3 *4*	3 *1*	2873.0+x	(35/2$^+$)	2231.7+x	31/2$^+$		
668.4 *4*	4 *2*	3882.4+y	(39/2$^-$)	3214.0+y	(35/2$^-$)		
683.5 *4*	4 *2*	3712.7+x	(41/2$^+$)	3029.2+x	(37/2$^+$)		
692.2 *6*	1 *1*	3565.2+x	(39/2$^+$)	2873.0+x	(35/2$^+$)		
723.1 *6*	2 *1*	4435.8+x	(45/2$^+$)	3712.7+x	(41/2$^+$)		

[†] Assigned by evaluator based on measured $\gamma(\theta)$ and/or DCO ratios. 1995La10 expect DCO ratios of≈1.4 and 1.0 for stretched Q (or D ΔJ=0) transitions and pure stretched D transitions, respectively. They assign Q transitions As E2, D transitions As M1,E2;

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^{155}Gd(^{32}S,4nγ) E=159 MeV 1995La10 (continued)

$\gamma(^{183}Hg)$ (continued)

see 1995La10 for authors′ suggested assignments based on $\gamma(\theta)$ or DCO, if available, and on deduced level scheme.
‡ Placement of transition in the level scheme is uncertain.

^{155}Gd(^{32}S,4nγ) E=159 MeV 1995La10

Level Scheme

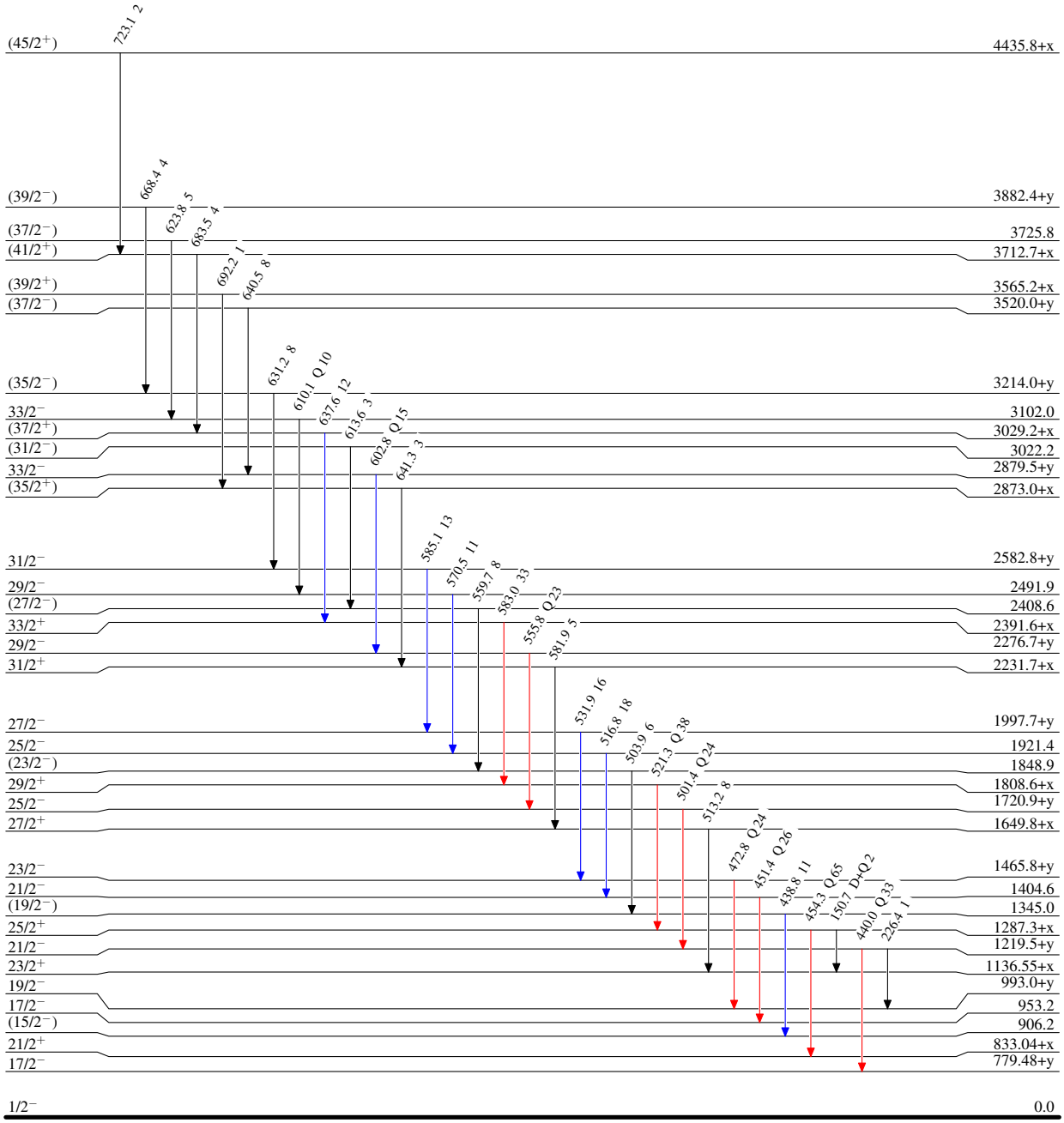
Intensities: Relative I_γ

Legend

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

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

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



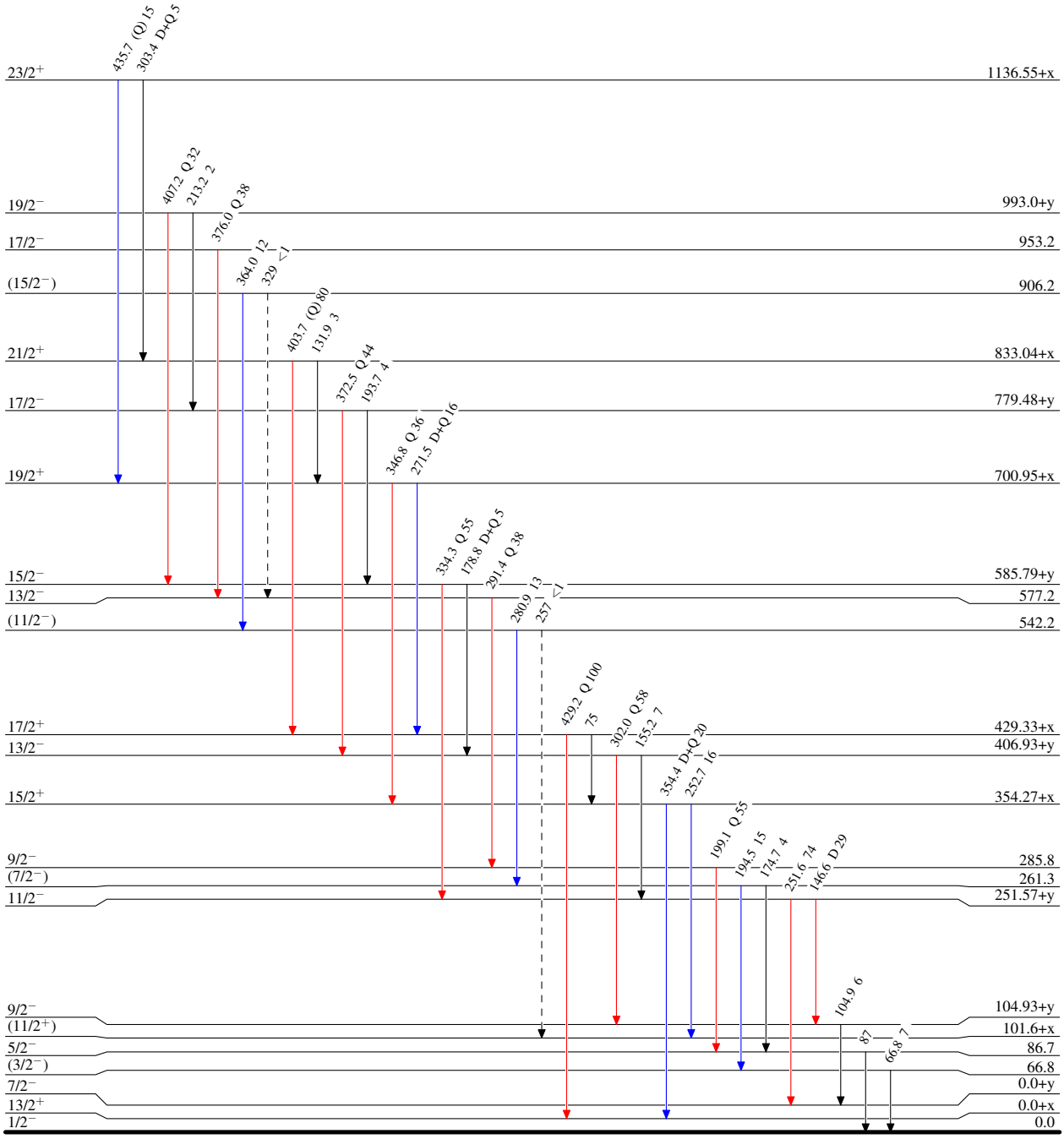
$^{183}_{80}Hg_{103}$

^{155}Gd(^{32}S,4nγ) E=159 MeV 1995La10

Level Scheme (continued)

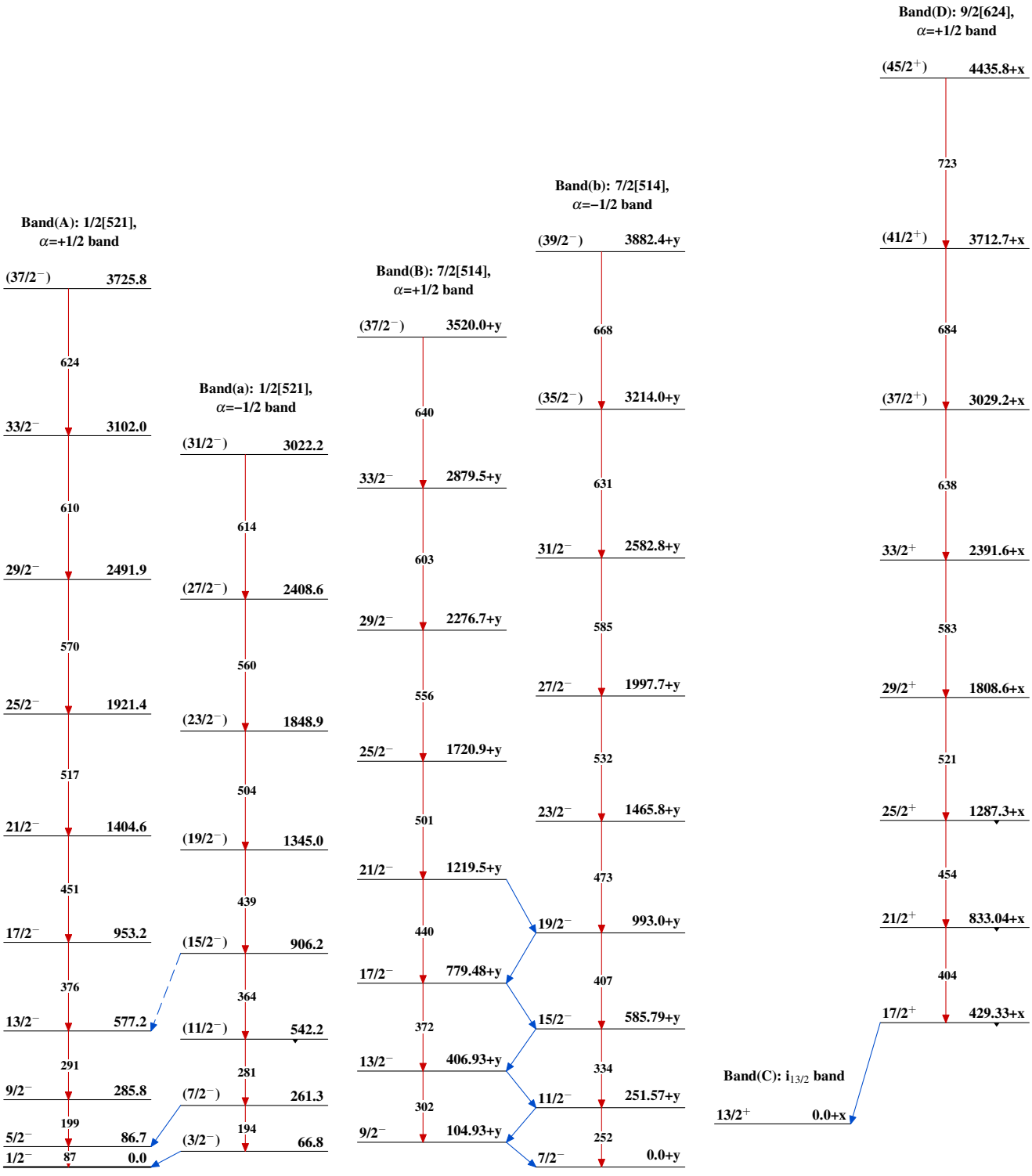
Intensities: Relative I_γ

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)



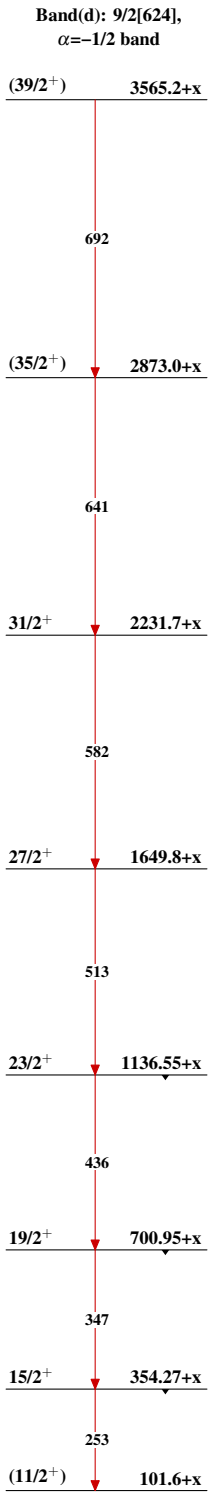
$^{183}_{80}Hg_{103}$

^{155}Gd(^{32}S,4nγ) E=159 MeV 1995La10



$^{183}_{80}Hg_{103}$

^{155}Gd(^{32}S,4nγ) E=159 MeV 1995La10 (continued)



$^{183}_{80}Hg_{103}$