Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, Alexander A. Rodionov And Yuri L. Khazov	NDS 109,517 (2008)	22-Jan-2008

Q(β^-)=2628 *5*; S(n)=7801 *8*; S(p)=8542 *6*; Q(α)=−4232 *6* 2012Wa38
Note: Current evaluation has used the following Q record 2627 6 *7788* 11 *8519* 13-4227 22 2003Au03.
Nuclear structure calculations (levels, moments, shell model): 2002Ma44, 2000Yo08 (IBF model), 1998Su03, 1997An10, 1988Lo12, 1982Di07, 1978Ba40, 1971Wi25.
Additional information 1.

^{135}I Levels

See 1998Su03 for proposed configurations based on quasiparticle-phonon model for g.s., 604, 871, 1133, 1421 and 1993.

Cross Reference (XREF) Flags

- A ^{135}Te β^- decay (19.0 s)
- B ^{136}Te β^-n decay (17.63 s)
- C ^{248}Cm SF decay
- D ^{136}Xe(d,^{3}He)

E(level)†	J$^\pi$	$T_{1/2}$	XREF	Comments
0.0#	7/2$^+$	6.58 h *3*	ABCD	%β^-=100 μ=(+)2.940 *2* (1998Wh04) J$^\pi$: spin from atomic beam (1960Ja12); parity from L(d,^{3}He)=4. μ: NMR on oriented nuclei, measured $\gamma(\theta$,H,temp) (1998Wh04). The positive sign is from systematics of odd-A I nuclides where the magnetic moment of the 7/2$^+$ g.s. has been measured as positive. See also compilation by 2005St24. $T_{1/2}$: unweighted average of 6.55 h *3* (1982Wa21) and 6.61 h *1* (1974LaZV). Others: 6.585 h *2* (quoted by 1971Ha13 from their 'to be published' paper, but which never appeared), 6.7 h *2* (1953Pa25), 6.7 h *1* (1950Gl09), 6.6 h *3* (1940Do07), 1955Wa35, 1950Ka06, 1945Wu05.
603.68 *3*	(5/2)$^+$		A D	J$^\pi$: L(d,^{3}He)=2; log *ft*=6.5 from (7/2$^-$). Single-quasiparticle state (1998Su03).
870.52 *4*	(5/2)$^+$		A D	J$^\pi$: L(d,^{3}He)=2; log *ft*=6.6 from (7/2$^-$). Configuration=2$^+$ coupled to $g_{7/2}$ (1998Su03).
1009.94 *20*			A	
1133.4# *3*	(11/2$^+$)‡		A C	Configuration=2$^+$ coupled to $g_{7/2}$ (1998Su03).
1183.87# *17*	(9/2$^+$)‡		A	
1421.5# *4*	(15/2$^+$)‡		C	Configuration=4$^+$ coupled to $g_{7/2}$ (1998Su03).
1516.80 *25*			A	
1709.8 *3*			A	
1857.0 *5*			A	
1993.9 *4*	(17/2$^+$)‡		C	Configuration=$\pi g^2_{7/2}\otimes\pi d_{5/2}$ or $g_{7/2}\otimes 6^+$ (1998Su03).
2027.2 *4*			A	
2069.15 *19*			A	
2157.0 *5*			A	
2312.6 *4*			A	
2350.2 *4*			C	
2421.5 *5*			C	
2873.5 *4*			C	
3046.5 *7*	(7/2$^+$,9/2$^+$)		A	J$^\pi$: γ's to (11/2$^+$) and (5/2)$^+$.
3357.0 *7*			A	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{135}I Levels (continued)

E(level)[†]	Jπ	XREF	Comments
3655.3[@] 4	(19/2⁻)[‡]	C	
3689.7[@] 4	(23/2⁻)[‡]	C	
3765.8[@] 4	(21/2⁻)[‡]	C	
4241.9[&] 4	(19/2⁺)[‡]	C	
4313.6 6	(7/2⁺,9/2⁺)	A	Jπ: γ's to (11/2⁺) and (5/2)⁺.
4380.5[&] 4	(21/2⁺)[‡]	C	
4463.9 5	(7/2⁻,9/2⁻)	A	Jπ: log *ft*=5.5 from (7/2⁻); γ to (11/2⁺).
4772.7 5	(5/2⁻,7/2⁻,9/2⁻)	A	Jπ: log *ft*=5.2 from (7/2⁻).
4776.4[&] 4	(23/2⁺)[‡]	C	
4779.2 7		C	
5329.1[&] 5	(25/2⁺)[‡]	C	
5577.6[&] 5	(27/2⁺)[‡]	C	
5616.2[a] 7	(23/2⁻)[‡]	C	
5849.2[a] 7	(25/2⁻)[‡]	C	

[†] From least-squares fit to Eγ's. The 947.5γ from 5329.1 level was not used in the fitting procedure due to its poor fit.
[‡] Shell model, theoretical prediction.
[#] Band(A): $\pi g^3_{7/2}$ multiplet.
[@] Band(B): $\pi g^2_{7/2}\pi h_{11/2}$ multiplet.
[&] Band(C): $\pi g^3_{7/2}\nu f_{7/2}\nu h^{-1}_{11/2}$ multiplet. VMI analysis: parameter Δ=84 keV.
[a] Band(D): $\pi g^3_{7/2}\nu f_{7/2}\nu d^{-1}_{3/2}$ multiplet.

γ(^{135}I)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f
603.68	(5/2)⁺	603.70 3	100	0.0	7/2⁺
870.52	(5/2)⁺	266.87 3	100.0 15	603.68	(5/2)⁺
		870.3 1	74.6 15	0.0	7/2⁺
1009.94		139.5 4	100 8	870.52	(5/2)⁺
		407.4 5	35 8	603.68	(5/2)⁺
		1009.8 3	70 5	0.0	7/2⁺
1133.4	(11/2⁺)	1133.7 3	100	0.0	7/2⁺
1183.87	(9/2⁺)	174.8 5	6.3 17	1009.94	
		312.6 4	16.7 21	870.52	(5/2)⁺
		1183.9 2	100 4	0.0	7/2⁺
1421.5	(15/2⁺)	288.1 2	100	1133.4	(11/2⁺)
1516.80		647.3 4	86 11	870.52	(5/2)⁺
		912.4 4	100 8	603.68	(5/2)⁺
		1516.3 5	96 15	0.0	7/2⁺
1709.8		1107.0 7	89 14	603.68	(5/2)⁺
		1709.6 3	100 5	0.0	7/2⁺
1857.0		1253.3 14	100 23	603.68	(5/2)⁺
		1856.3 18	72 17	0.0	7/2⁺
1993.9	(17/2⁺)	572.3 2	100	1421.5	(15/2⁺)
2027.2		1423.3 7	13.9 14	603.68	(5/2)⁺
		2027.2 4	100 8	0.0	7/2⁺
2069.15		1198.6 2	100 5	870.52	(5/2)⁺
		1465.6 5	57.9 19	603.68	(5/2)⁺
2157.0		1554.5 15	15 4	603.68	(5/2)⁺
		2156.8 6	100 10	0.0	7/2⁺

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

γ(^{135}I) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [†]	E_f	J_f^π
2312.6		455.6 *3*	63 *7*	1857.0	
		1442.4 *4*	100 *3*	870.52	$(5/2)^+$
		2311.2 *9*	18 *11*	0.0	$7/2^+$
2350.2		928.7 *2*	100	1421.5	$(15/2^+)$
2421.5		1000.0 *5*	100 *20*	1421.5	$(15/2^+)$
		1288.0 *5*	80 *20*	1133.4	$(11/2^+)$
2873.5		523.1 *5*	12 *12*	2350.2	
		1452.0 *2*	100 *20*	1421.5	$(15/2^+)$
3046.5	$(7/2^+,9/2^+)$	1336.6 *9*	83 *14*	1709.8	
		1913.1 *9*	65 *13*	1133.4	$(11/2^+)$
		2176.0 *19*	100 *14*	870.52	$(5/2)^+$
3357.0		2487.1 *9*	100 *15*	870.52	$(5/2)^+$
		2752.6 *9*	26 *8*	603.68	$(5/2)^+$
3655.3	$(19/2^-)$	1661.4 *2*	100	1993.9	$(17/2^+)$
3689.7	$(23/2^-)$	1695.8 *2*	100	1993.9	$(17/2^+)$
3765.8	$(21/2^-)$	1771.9 *5*	50 *12*	1993.9	$(17/2^+)$
		2344.2 *2*	100 *25*	1421.5	$(15/2^+)$
4241.9	$(19/2^+)$	2247.8 *2*	100 *20*	1993.9	$(17/2^+)$
		2821.2 *5*	6 *3*	1421.5	$(15/2^+)$
4313.6	$(7/2^+,9/2^+)$	3181.6 *8*	20.6 *20*	1133.4	$(11/2^+)$
		3441.7 *8*	100 *9*	870.52	$(5/2)^+$
		3709.5 *15*	30 *6*	603.68	$(5/2)^+$
4380.5	$(21/2^+)$	138.5 *2*	68 *15*	4241.9	$(19/2^+)$
		690.7 *2*	34 *7*	3689.7	$(23/2^-)$
		725.1 *2*	100 *20*	3655.3	$(19/2^-)$
		2386.8 *5*	12 *2*	1993.9	$(17/2^+)$
4463.9	$(7/2^-,9/2^-)$	3279.9 *7*	28.3 *13*	1183.87	$(9/2^+)$
		3330.8 *7*	25.2 *13*	1133.4	$(11/2^+)$
		4463.4 *9*	100 *4*	0.0	$7/2^+$
4772.7	$(5/2^-,7/2^-,9/2^-)$	2615.5 *8*	27 *4*	2157.0	
		3902.6 *9*	89 *8*	870.52	$(5/2)^+$
		4168.8 *12*	100 *16*	603.68	$(5/2)^+$
		4772.3 *8*	24 *5*	0.0	$7/2^+$
4776.4	$(23/2^+)$	395.9 *2*	100 *20*	4380.5	$(21/2^+)$
		1010.5 *5*	6 *2*	3765.8	$(21/2^-)$
4779.2		1089.5 *5*	100	3689.7	$(23/2^-)$
5329.1	$(25/2^+)$	552.5 *2*	100 *20*	4776.4	$(23/2^+)$
		947.5[‡#] *2*	70 *15*	4380.5	$(21/2^+)$
		1639.5 *2*	40 *10*	3689.7	$(23/2^-)$
5577.6	$(27/2^+)$	248.4 *2*	60 *20*	5329.1	$(25/2^+)$
		801.2 *2*	100 *20*	4776.4	$(23/2^+)$
5616.2	$(23/2^-)$	1926.5 *5*	100	3689.7	$(23/2^-)$
5849.2	$(25/2^-)$	2159.5 *5*	100	3689.7	$(23/2^-)$

[†] From either ^{135}Te β^- decay or ^{248}Cm SF decay. Most levels are populated independently, low spins in β^- decay and high spins in SF decay. Weighted averages are taken when a level is populated in both datasets.

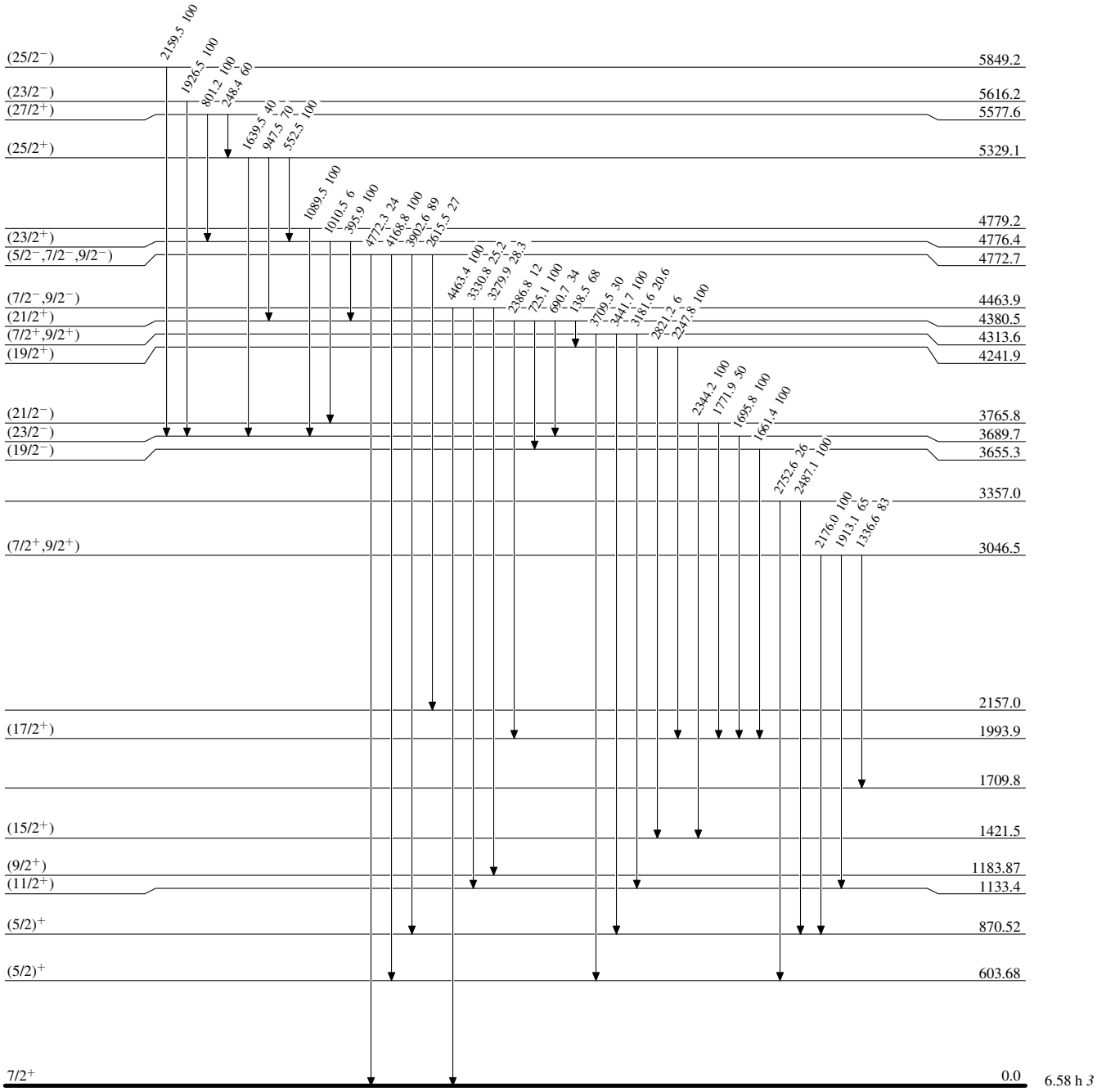
[‡] This γ was not used in the fitting procedure since it is poorly fitted.

[#] Level-energy difference=948.6.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

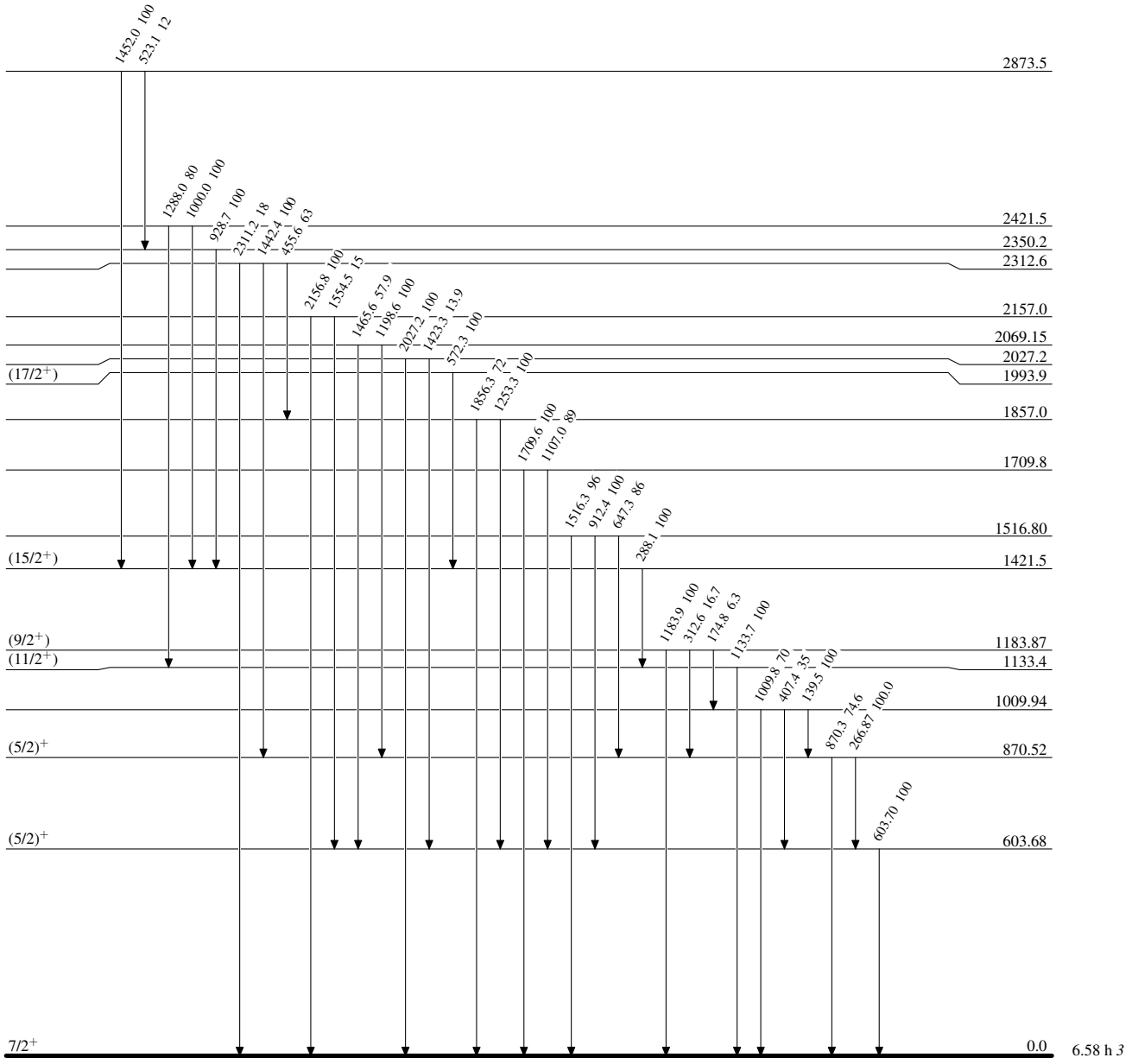


$^{135}_{53}I_{82}$

Adopted Levels, Gammas

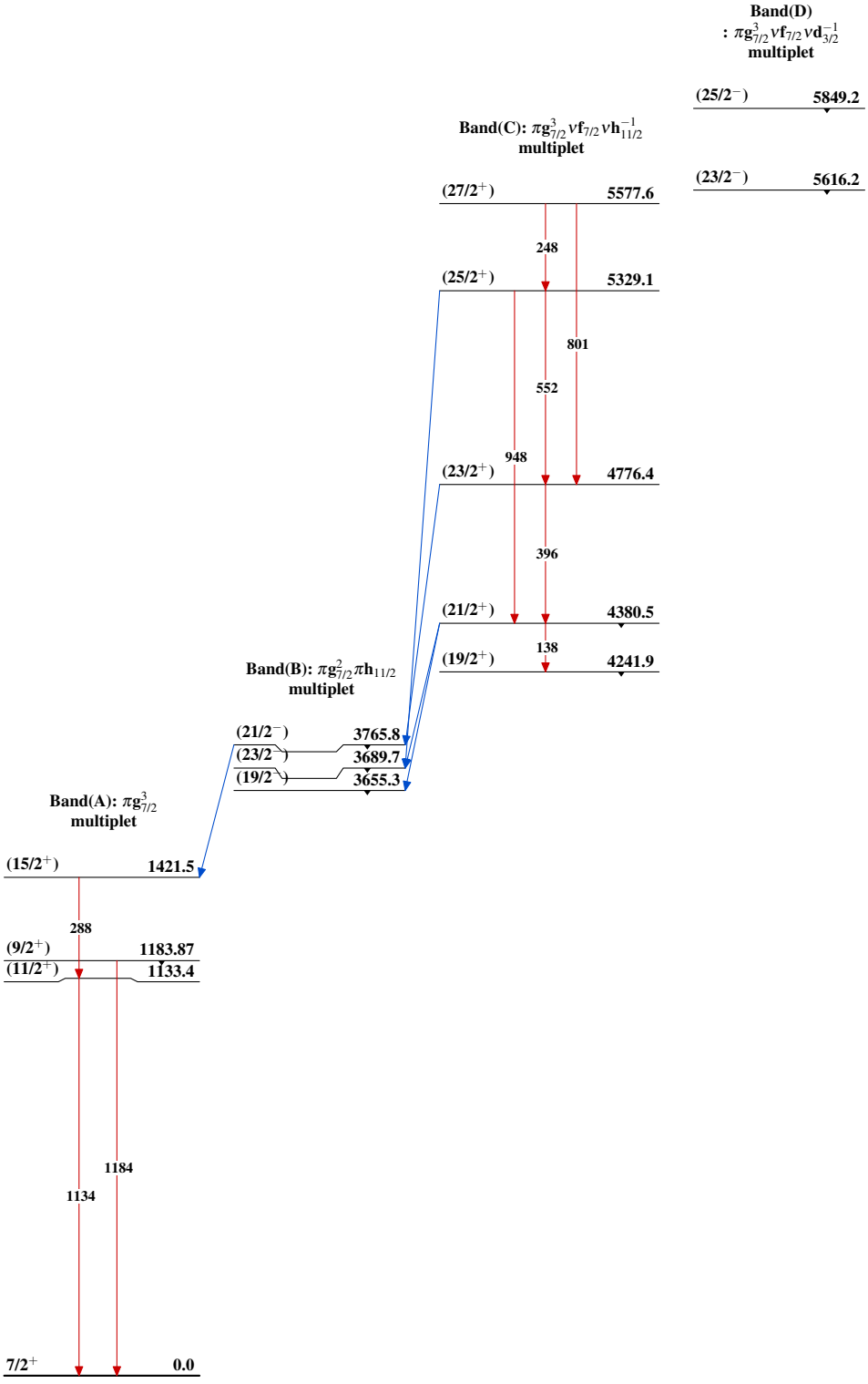
Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{135}_{53}I_{82}$

Adopted Levels, Gammas



$^{135}_{53}I_{82}$