Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 160, 1 (2019)	21-Oct-2019

Q(β^-)=3251 *5*; S(n)=6.50×10^3 *5*; S(p)=8.40×10^3 *5*; Q(α)=−2585 *13* 2017Wa10
S(2n)=12435 *5*; S(2p)=19949 *5* 2017Wa10

^{155}Pm Levels

Cross Reference (XREF) Flags

A ^{155}Nd β^- decay
B ^{252}Cf SF decay

E(level)	J$^\pi$[†]	T$_{1/2}$	XREF	Comments
0.0[‡]	5/2$^-$	41.5 s *2*	AB	%β^-=100 T$_{1/2}$: from 1988GrZY. Other value: 48 s *4* (1982Gr13). J$^\pi$: log *ft*=5.4 to 3/2$^-$ level in ^{155}Sm suggests π=− and J=1/2, 3/2, or 5/2. β transitions to 7/2$^-$ levels rule out 1/2 and 3/2. The low log *ft* value to the 778, 3/2$^-$, level in ^{155}Sm suggests that the asymptotic quantum numbers of both orbitals involved in the β transition are the same ([532] in this case).
67.435[#] *14*	(7/2)$^-$		AB	
154.594[‡] *24*	(9/2)$^-$		AB	
180.565[@] *18*	(5/2)$^+$		A	
253.09[@] *3*	(7/2$^+$)		A	
260.11[#] *19*	(11/2$^-$)		B	
345.73[@] *8*	(9/2$^+$)		A	
387.60[‡] *22*	(13/2$^-$)		B	
418.99 *4*			A	
471.88 *9*			A	
495.89 *17*			A	
529.6[#] *3*	(15/2$^-$)		B	
544.59 *15*			A	
698.7[‡] *3*	(17/2$^-$)		B	
714.60 *17*			A	
774.69 *16*			A	
872.8[#] *4*	(19/2$^-$)		B	
955.10 *6*			A	
959.37 *13*			A	
999.84 *21*			A	
1034.16 *13*			A	
1063.6? *3*			A	
1068.96 *16*			A	
1085.9[‡] *4*	(21/2$^-$)		B	
1114.07 *12*			A	
1129.30 *12*			A	
1170.24 *13*			A	
1177.9? *3*			A	
1287.9[#] *4*	(23/2$^-$)		B	
1346.4 *3*			A	
1390.99 *10*			A	
1432.43 *18*			A	
1546.9[‡] *8*	(25/2$^-$)		B	

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Adopted Levels, Gammas (continued)

^{155}Pm Levels (continued)

E(level)	J^{π}[†]	XREF	E(level)	XREF	E(level)	XREF
1769.9[#] *9*	(27/2$^-$)	B	2358.7 *5*	A	2589.4 *4*	A
1876.0 *3*		A	2389.3 *4*	A	2673.6? *5*	A
2244.4 *5*		A	2468.8 *4*	A	2770.6 *5*	A
2311.3? *5*		A	2471.6 *5*	A		
2353.2 *5*		A	2479.1 *5*	A		

[†] Unless otherwise noted, these assignments are those proposed by 1993GrZP (^{155}Nd β^- decay) and are based on the apparent existence of rotational bands in this nuclide and on the multipolarities of the γ transitions. These assignments were followed by 2009Hw03 and 2018Bh07 (^{252}Cf SF decay) in continuation of the g.s. negative parity band to higher levels.
[‡] Band(A): π5/2[532], α=+1/2 g.s. band. (A=9.63 keV from the 5/2$^-$ and 7/2$^-$ level energies).
[#] Band(a): π5/2[532], α=−1/2 g.s. band. (A=9.63 keV from the 5/2$^-$ and 7/2$^-$ level energies).
[@] Band(B): (π5/2[413]) possible K$^{\pi}$=5/2$^+$ band. (A=10.36 keV from the 5/2$^+$ and 7/2$^+$ level energies).

γ(^{155}Pm)

E_i(level)	J_i^{π}	E_{γ}[‡]	I_{γ}[‡]	E_f	J_f^{π}	Mult.[#]	α[†]	Comments
67.435	(7/2)$^-$	67.432 *15*	100	0.0	5/2$^-$	M1	4.82	α(K)=4.09 *6*; α(L)=0.578 *8*; α(M)=0.1234 *18* α(N)=0.0278 *4*; α(O)=0.00419 *6*; α(P)=0.000264 *4*
154.594	(9/2)$^-$	87.155 *20*	100 *10*	67.435	(7/2)$^-$	M1(+E2)	3.0 *8*	α(K)=1.84 *11*; α(L)=0.91 *64*; α(M)=0.21 *15* α(N)=0.045 *33*; α(O)=0.0059 *40*; α(P)=1.00×10^{-4} *26*
		154.7 *3*	12 *4*	0.0	5/2$^-$			
180.565	(5/2)$^+$	113.08 *4*	10.8 *11*	67.435	(7/2)$^-$			
		180.574 *20*	100 *10*	0.0	5/2$^-$	E1	0.0536	α(K)=0.0456 *7*; α(L)=0.00629 *9*; α(M)=0.001336 *19* α(N)=0.000298 *5*; α(O)=4.35×10^{-5} *6*; α(P)=2.42×10^{-6} *4*
253.09	(7/2$^+$)	98.35 *15*	15 *4*	154.594	(9/2)$^-$			
		185.70 *4*	77 *8*	67.435	(7/2)$^-$			
		253.07 *4*	100 *10*	0.0	5/2$^-$			
260.11	(11/2$^-$)	105.5 *3*	100 *7*	154.594	(9/2)$^-$			
		192.7 *3*	37 *7*	67.435	(7/2)$^-$			
345.73	(9/2$^+$)	190.9 *2*	34 *9*	154.594	(9/2)$^-$			
		278.29 *10*	100 *15*	67.435	(7/2)$^-$			
387.60	(13/2$^-$)	127.5 *3*	100 *5*	260.11	(11/2$^-$)			
		233.0 *3*	46 *5*	154.594	(9/2)$^-$			
418.99		238.54 *15*	3.3 *10*	180.565	(5/2)$^+$			
		418.99 *4*	100 *10*	0.0	5/2$^-$			
471.88		53.0 *2*	32 *13*	418.99		M1	9.69 *18*	α(K)=8.21 *15*; α(L)=1.169 *21*; α(M)=0.250 *5* α(N)=0.0563 *10*; α(O)=0.00847 *16*; α(P)=0.000532 *10*
		219.2 *3*	19 *10*	253.09	(7/2$^+$)			
		291.2 *2*	41 *10*	180.565	(5/2)$^+$			
		404.39 *15*	100 *15*	67.435	(7/2)$^-$			
		471.9 *3*	35 *14*	0.0	5/2$^-$			
495.89		76.8 *2*	9 *4*	418.99				
		496.1 *3*	100 *30*	0.0	5/2$^-$			

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Adopted Levels, Gammas (continued)

γ(^{155}Pm) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π
529.6	(15/2$^-$)	142.0 *3*	100 *5*	387.60	(13/2$^-$)
		269.5 *3*	55 *5*	260.11	(11/2$^-$)
544.59		72.8 *2*	89 *43*	471.88	
		291.3 *4*	46 *23*	253.09	(7/2$^+$)
		364.0 *3*	89 *45*	180.565	(5/2)$^+$
		389.9 *4*	100 *50*	154.594	(9/2)$^-$
698.7	(17/2$^-$)	169.1 *3*	100 *6*	529.6	(15/2$^-$)
		311.1 *3*	93 *10*	387.60	(13/2$^-$)
714.60		534.0 *2*	100	180.565	(5/2)$^+$
774.69		521.8 *2*	100 *40*	253.09	(7/2$^+$)
		593.7 *3*	35 *14*	180.565	(5/2)$^+$
872.8	(19/2$^-$)	174.1 *3*	100 *7*	698.7	(17/2$^-$)
		343.2 *3*	97 *11*	529.6	(15/2$^-$)
955.10		609.23 *15*	32 *5*	345.73	(9/2$^+$)
		702.0 *5*	8 *4*	253.09	(7/2$^+$)
		800.55 *15*	56 *8*	154.594	(9/2)$^-$
		887.72 *10*	65 *10*	67.435	(7/2)$^-$
		955.08 *10*	100 *15*	0.0	5/2$^-$
959.37		706.0 *4*	35 *10*	253.09	(7/2$^+$)
		804.7 *3*	26 *8*	154.594	(9/2)$^-$
		891.9 *2*	38 *12*	67.435	(7/2)$^-$
		959.5 *2*	100 *20*	0.0	5/2$^-$
999.84		932.6 *4*	40 *12*	67.435	(7/2)$^-$
		999.8 *3*	100 *20*	0.0	5/2$^-$
1034.16		781.0 *5*	39 *15*	253.09	(7/2$^+$)
		853.53 *15*	100 *20*	180.565	(5/2)$^+$
		967.0 *3*	61 *18*	67.435	(7/2)$^-$
1063.6?		883.3[@] *5*	48 *24*	180.565	(5/2)$^+$
		908.8[@] *3*	100 *50*	154.594	(9/2)$^-$
1068.96		294.3 *4*	17 *8*	774.69	
		914.5 *2*	58 *18*	154.594	(9/2)$^-$
		1001.2 *3*	100 *25*	67.435	(7/2)$^-$
1085.9	(21/2$^-$)	213.1 *3*	89 *11*	872.8	(19/2$^-$)
		387.2 *3*	100 *11*	698.7	(17/2$^-$)
1114.07		642.2 *3*	100 *40*	471.88	
		695.3 *3*	35 *14*	418.99	
		861.2[@] *5*	44 *22*	253.09	(7/2$^+$)
		933.6 *4*	27 *13*	180.565	(5/2)$^+$
1129.30		710.4 *2*	100 *20*	418.99	
		876.0[@] *5*	24 *12*	253.09	(7/2$^+$)
		948.6 *3*	32 *13*	180.565	(5/2)$^+$
		1129.4 *3*	17 *9*	0.0	5/2$^-$
1170.24		626.0[@] *4*	27 *11*	544.59	
		989.9[@] *5*	28 *14*	180.565	(5/2)$^+$
		1102.8 *3*	66 *20*	67.435	(7/2)$^-$
		1170.0 *3*	100 *25*	0.0	5/2$^-$
1177.9?		1023.3[@] *3*	100	154.594	(9/2)$^-$
1287.9	(23/2$^-$)	202.0 *3*	63 *13*	1085.9	(21/2$^-$)
		415.1 *3*	100 *13*	872.8	(19/2$^-$)
1346.4		850.1[@] *5*	75 *38*	495.89	
		1165.8 *3*	100 *30*	180.565	(5/2)$^+$
1390.99		220.67 *15*	63 *10*	1170.24	
		261.75 *20*	92 *14*	1129.30	
		276.95 *10*	78 *12*	1114.07	

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Adopted Levels, Gammas (continued)

$\gamma(^{155}Pm)$ (continued)

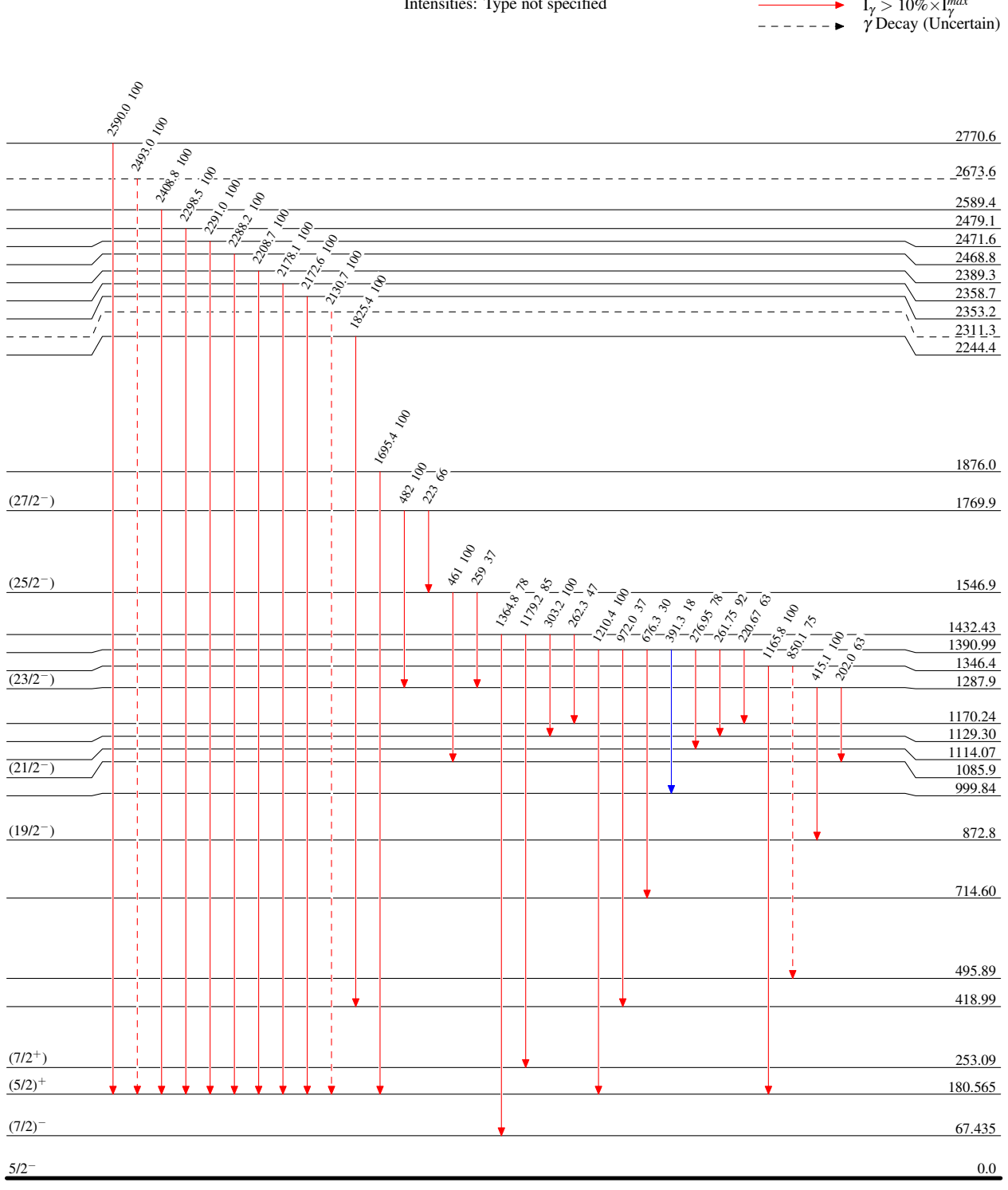
E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π
1390.99		391.3 *4*	18 *9*	999.84	
		676.3 *3*	30 *12*	714.60	
		972.0 *2*	37 *11*	418.99	
		1210.4 *2*	100 *20*	180.565	$(5/2)^+$
1432.43		262.3 *3*	47 *19*	1170.24	
		303.2 *3*	100 *30*	1129.30	
		1179.2 *4*	85 *34*	253.09	$(7/2^+)$
		1364.8 *4*	78 *31*	67.435	$(7/2)^-$
1546.9	$(25/2^-)$	259 *1*	37 *8*	1287.9	$(23/2^-)$
		461 *1*	100 *13*	1085.9	$(21/2^-)$
1769.9	$(27/2^-)$	223 *1*	66 *12*	1546.9	$(25/2^-)$
		482 *1*	100 *12*	1287.9	$(23/2^-)$
1876.0		1695.4 *3*	100	180.565	$(5/2)^+$
2244.4		1825.4 *5*	100	418.99	
2311.3?		2130.7[@] *5*	100	180.565	$(5/2)^+$
2353.2		2172.6 *5*	100	180.565	$(5/2)^+$
2358.7		2178.1 *5*	100	180.565	$(5/2)^+$
2389.3		2208.7 *4*	100	180.565	$(5/2)^+$
2468.8		2288.2 *4*	100	180.565	$(5/2)^+$
2471.6		2291.0 *5*	100	180.565	$(5/2)^+$
2479.1		2298.5 *5*	100	180.565	$(5/2)^+$
2589.4		2408.8 *4*	100	180.565	$(5/2)^+$
2673.6?		2493.0[@] *5*	100	180.565	$(5/2)^+$
2770.6		2590.0 *5*	100	180.565	$(5/2)^+$

[†] Additional information 1.
[‡] From one dataset or the other − each one containing mutually different sets of γ rays − except for the γ rays from 67 and 155 levels where the γ rays are from ^{155}Nd β- decay dataset.
[#] From ^{155}Nd β- decay dataset based on α(K)exp.
[@] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

Intensities: Type not specified



$^{155}_{61}Pm_{94}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

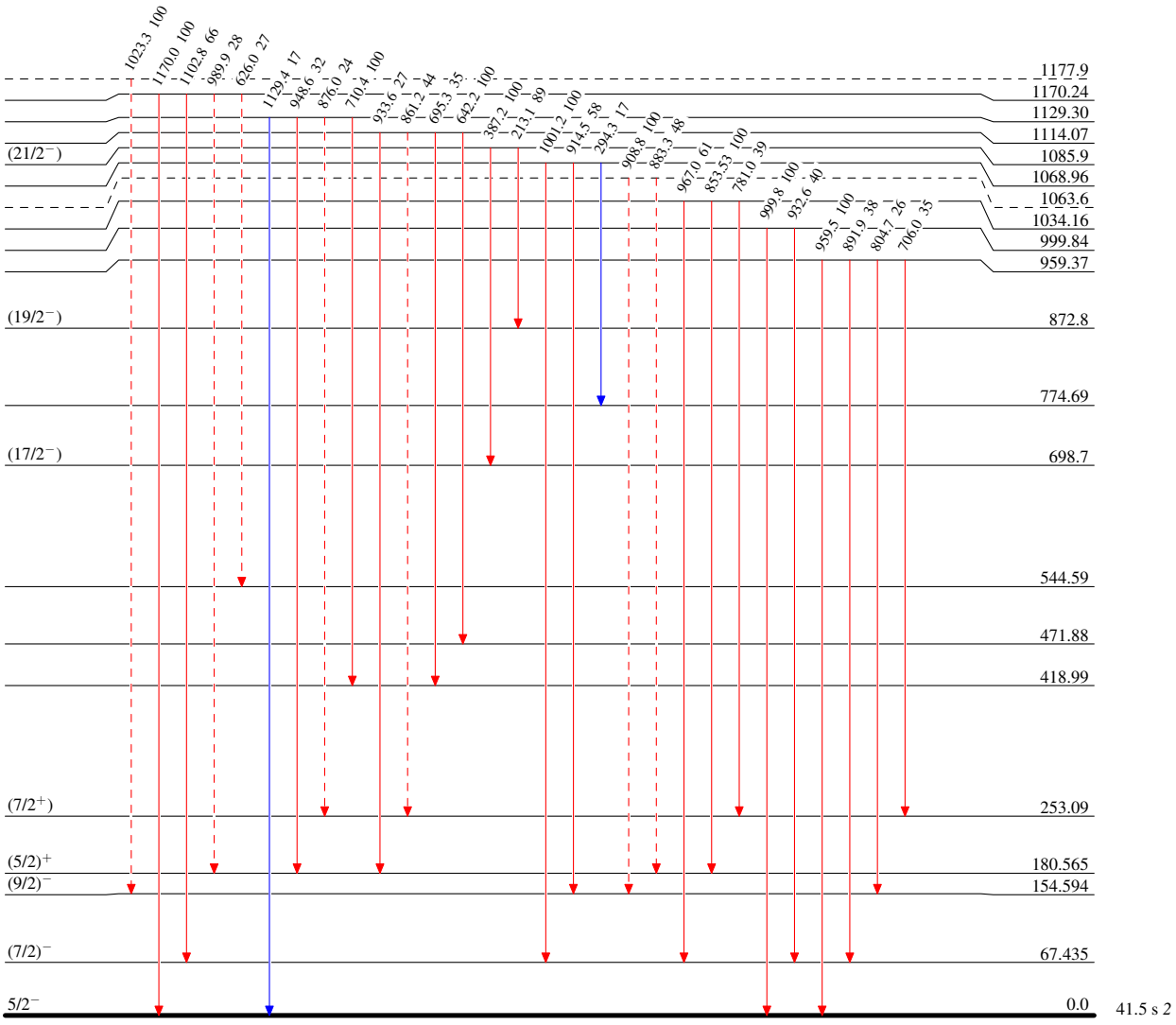
Legend

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

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

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

γ Decay (Uncertain)

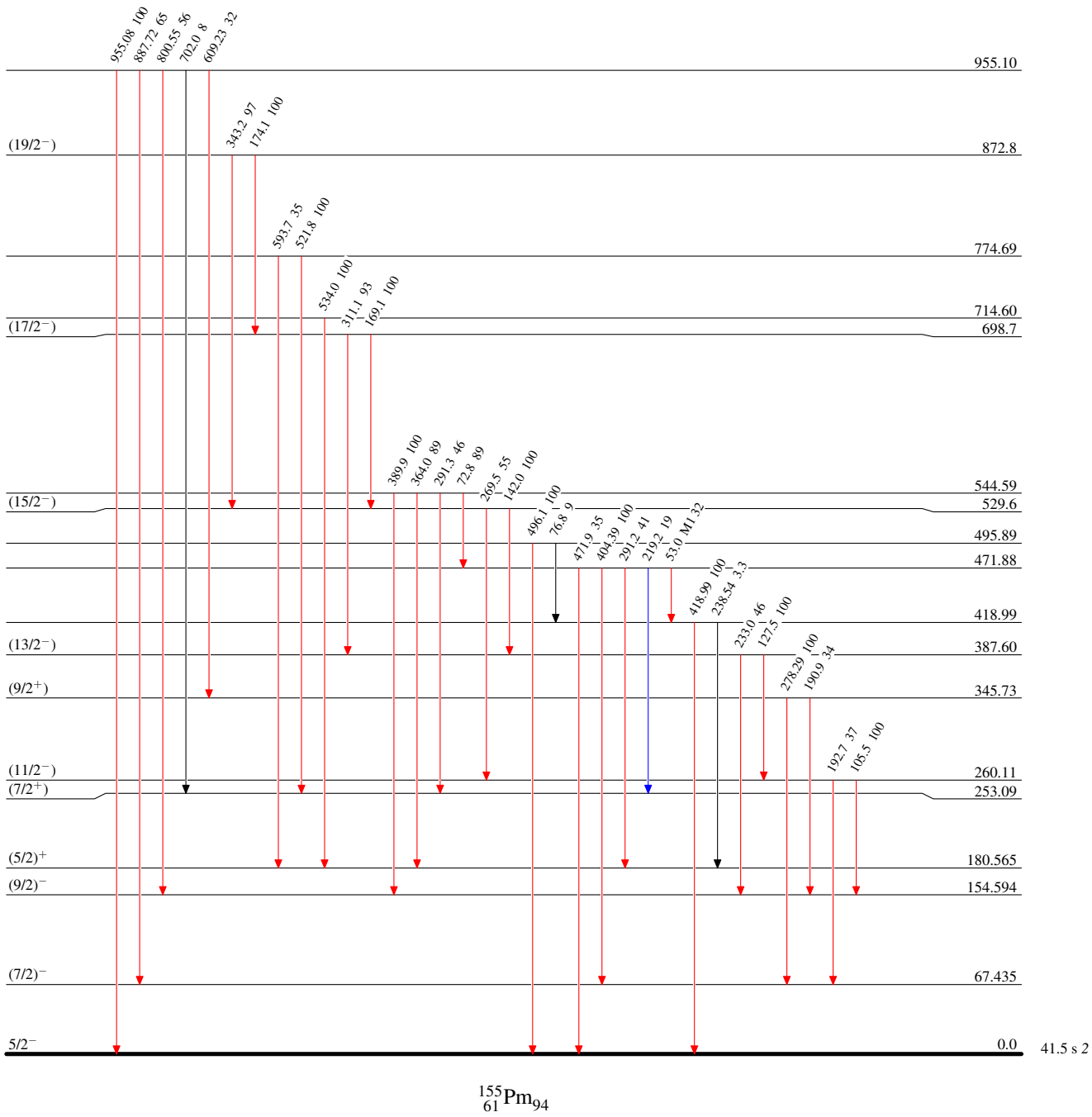


$^{155}_{61}Pm_{94}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

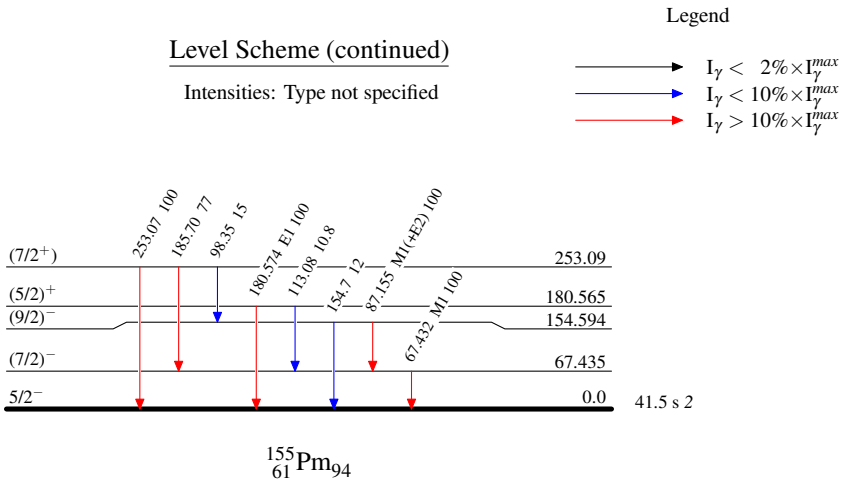


$^{155}_{61}Pm_{94}$

Adopted Levels, Gammas

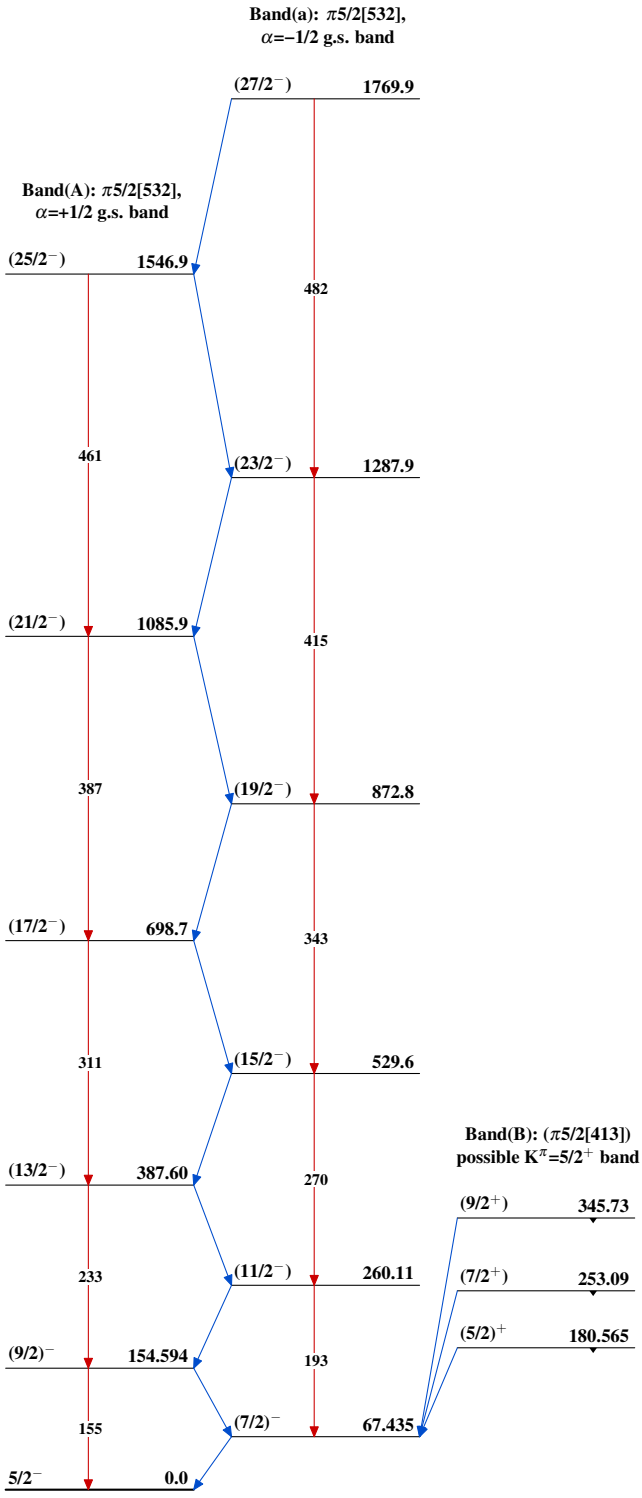
Level Scheme (continued)

Intensities: Type not specified



$^{155}_{61}Pm_{94}$

Adopted Levels, Gammas



$^{155}_{61}Pm_{94}$