Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 108,2173 (2007)	1-Oct-2006

Q(β^-)=−6.05×10^3 *5*; S(n)=1.096×10^4 *8*; S(p)=2163 *18*; Q(α)=1440 *18* 2012Wa38
Note: Current evaluation has used the following Q record −6050 4010950 802163 181440 18 2003Au03.
Additional information 1.

^{137}Pm Levels

Cross Reference (XREF) Flags

A (HI,xnγ)
B ^{137}Sm ε decay (45 s)

E(level)	J$^\pi$[†]	T$_{1/2}$[‡]	XREF	Comments
0.0[#]	11/2$^-$	2.4 min *1*	AB	%ε+%β^+=100 T$_{1/2}$: from 1975No08. Other: 7 min *+5−4* (1973WeZK). J$^\pi$: ε decay to 9/2$^-$ and 13/2$^-$ in ^{137}Nd levels with log *ft*≈5.7.
163.7	(7/2)$^-$		B	J$^\pi$: 163.7γ E2 to 11/2$^-$.
337.5[#] *1*	15/2$^-$	34.0 ps *21*	AB	J$^\pi$: stretched E2 to 11/2$^-$.
344.1			B	
380.5 *3*	(9/2)$^-$		B	J$^\pi$: 380γ M1 to 11/2$^-$, 216.7γ M1 to (7/2)$^-$.
559.0 *3*			B	
694.9			B	
789.0	(7/2,9/2,11/2)$^-$		B	J$^\pi$: 408γ M1 to (9/2)$^-$.
976.5[#]	19/2$^-$	8.0 ps *10*	A	
977.0			B	
1057.1[b]	(15/2$^+$)		A	
1507.6[c]	(17/2$^+$)		A	
1790.8[b]	(19/2$^+$)		A	
1812.0[&]	(19/2$^+$)	2.6 ps *5*	A	
1832.3[#]	23/2$^-$	1.04 ps *21*	A	
1991.7			A	
2087.5[a]	(21/2$^+$)	3.3 ps *6*	A	
2270.6[c]	(21/2$^+$)		A	
2286.8[&]	(23/2$^+$)	13.9 ps *26*	A	
2491.7[a]	(25/2$^+$)	5.8 ps *8*	A	
2711.9[b]	(23/2$^+$)		A	
2799.5[#]	27/2$^-$	<1.4 ps	A	
2819.0[&]	(27/2$^+$)	7.4 ps *10*	A	
3054.6[a]	(29/2$^+$)	6.6 ps *8*	A	
3083.8			A	
3233.6?[c]	(25/2$^+$)		A	
3544.0[&]	(31/2$^+$)	<1.4 ps	A	
3697.1[#]	31/2$^-$		A	
3732.9[b]	(27/2$^+$)		A	
3843.6[@]	(31/2$^-$)		A	
3859.0[a]	(33/2$^+$)	<1.4 ps	A	
4222.4?[c]	(29/2$^+$)		A	
4430.4[&]	(35/2$^+$)		A	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{137}Pm Levels (continued)

E(level)	J$^{\pi}$[†]	XREF
4456.9[#]	35/2$^-$	A
4772.4[@]	(35/2$^-$)	A
4841.9?[b]	(31/2$^+$)	A
4906.5[a]	(37/2$^+$)	A
5336.7[#]	39/2$^-$	A
6283.8?[#]	43/2$^-$	A

[†] From band structure and syst (1988Mu22). Based on $\gamma(\theta)$ (1987Be22) and $\gamma\gamma$ coin, γ(t) from 1988Mu22.
[‡] For E>0 $T_{1/2}$ are from γ(t) in (HI,xnγ) (1988Mu22).
[#] Band(A): Yrast band α=−1/2, [541]3/2$^-$.
[@] Band(B): possible one-quasiproton band.
[&] Band(C): π=+ sideband−1. Configuration=((π $g_{7/2}$)(π $h_{11/2}$)^2).
[a] Band(D): π=+ sideband−2. Configuration=((π $g_{7/2}$)(π $h_{11/2}$)^2).
[b] Band(E): π=+ sideband−3. possible configuration=((π $d_{5/2}$)(π $h_{11/2}$)^2).
[c] Band(F): π=+ sideband−4. possible configuration=((π $d_{5/2}$)(π $h_{11/2}$)^2). Authors suggest that the nature of these states is highly uncertain.

γ(^{137}Pm)

E$_i$(level)	J$_i^{\pi}$	E$_{\gamma}$	I$_{\gamma}$	E$_f$	J$_f^{\pi}$	Mult.	α[†]	Comments
163.7	(7/2)$^-$	163.7 *3*	100	0.0	11/2$^-$			
337.5	15/2$^-$	337.5 *1*	100	0.0	11/2$^-$	E2	0.0378	B(E2)(W.u.)=87 *6* α(K)=0.0301 *5*; α(L)=0.00602 *9*; α(M)=0.001325 *19*; α(N+..)=0.000337 *5* α(N)=0.000294 *5*; α(O)=4.13×10^{-5} *6*; α(P)=1.667×10^{-6} *24*
344.1		180.4 *3*	100	163.7	(7/2)$^-$			
380.5	(9/2)$^-$	216.7 *3*	36 *4*	163.7	(7/2)$^-$	M1	0.178	α(K)=0.1514 *22*; α(L)=0.0210 *3*; α(M)=0.00447 *7*; α(N+..)=0.001170 *17* α(N)=0.001008 *15*; α(O)=0.0001523 *22*; α(P)=9.68×10^{-6} *14*
		380.5 *3*	100 *10*	0.0	11/2$^-$	M1	0.0399	α(K)=0.0340 *5*; α(L)=0.00463 *7*; α(M)=0.000986 *14*; α(N+..)=0.000258 *4* α(N)=0.000222 *4*; α(O)=3.37×10^{-5} *5*; α(P)=2.16×10^{-6} *3*
559.0		559.0 *3*	100	0.0	11/2$^-$			
694.9		531.2 *3*	100	163.7	(7/2)$^-$			
789.0	(7/2,9/2,11/2)$^-$	408.3 *3*	100	380.5	(9/2)$^-$	M1	0.0333	α(K)=0.0284 *4*; α(L)=0.00385 *6*; α(M)=0.000820 *12*; α(N+..)=0.000215 *3* α(N)=0.000185 *3*; α(O)=2.80×10^{-5} *4*; α(P)=1.80×10^{-6} *3*
976.5	19/2$^-$	639.0 *1*	100	337.5	15/2$^-$	[E2]	0.00655	B(E2)(W.u.)=15.8 *20* α(K)=0.00548 *8*; α(L)=0.000844 *12*; α(M)=0.000182 *3*; α(N+..)=4.70×10^{-5} *7* α(N)=4.07×10^{-5} *6*; α(O)=5.96×10^{-6} *9*; α(P)=3.24×10^{-7} *5*

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

γ(^{137}Pm) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	α†	Comments
977.0		188.0 *3*	100	789.0	(7/2,9/2,11/2)$^-$			
1057.1	(15/2$^+$)	719.6	100	337.5	15/2$^-$			
1507.6	(17/2$^+$)	451.2	100 *50*	1057.1	(15/2$^+$)			
		1170.3	75 *25*	337.5	15/2$^-$			
1790.8	(19/2$^+$)	734.3	60 *20*	1057.1	(15/2$^+$)			
		814.3	100 *20*	976.5	19/2$^-$			
1812.0	(19/2$^+$)	835.5 *1*	100	976.5	19/2$^-$	[E1]	1.39×10^{-3}	B(E1)(W.u.)=0.00017 *4* α(K)=0.001194 *17*; α(L)=0.0001533 *22*; α(M)=3.24×10^{-5} *5*; α(N+..)=8.45×10^{-6} *12* α(N)=7.29×10^{-6} *11*; α(O)=1.097×10^{-6} *16*; α(P)=6.97×10^{-8} *10*
1832.3	23/2$^-$	855.8 *1*	100	976.5	19/2$^-$	[E2]	0.00331	B(E2)(W.u.)=29 *6* α(K)=0.00280 *4*; α(L)=0.000402 *6*; α(M)=8.59×10^{-5} *12*; α(N+..)=2.23×10^{-5} *4* α(N)=1.93×10^{-5} *3*; α(O)=2.86×10^{-6} *4*; α(P)=1.675×10^{-7} *24*
1991.7		1015.2	100	976.5	19/2$^-$			
2087.5	(21/2$^+$)	1111.0 *1*	100	976.5	19/2$^-$	[E1]	8.11×10^{-4}	B(E1)(W.u.)=5.6×10^{-5} *11* α(K)=0.000696 *10*; α(L)=8.85×10^{-5} *13*; α(M)=1.87×10^{-5} *3*; α(N+..)=8.01×10^{-6} *12* α(N)=4.20×10^{-6} *6*; α(O)=6.34×10^{-7} *9*; α(P)=4.08×10^{-8} *6*; α(IPF)=3.13×10^{-6} *5*
2270.6	(21/2$^+$)	762.8	100	1507.6	(17/2$^+$)			
2286.8	(23/2$^+$)	199.0‡ *5*		2087.5	(21/2$^+$)			
		454.4 *1*	100 *11*	1832.3	23/2$^-$	D+Q		
		474.7 *1*	89 *11*	1812.0	(19/2$^+$)	E2	0.01414	B(E2)(W.u.)=19 *5* α(K)=0.01162 *17*; α(L)=0.00198 *3*; α(M)=0.000431 *6*; α(N+..)=0.0001105 *16* α(N)=9.60×10^{-5} *14*; α(O)=1.384×10^{-5} *20*; α(P)=6.71×10^{-7} *10*
2491.7	(25/2$^+$)	205.5‡ *5*		2286.8	(23/2$^+$)			
		404.2 *1*	50 *22*	2087.5	(21/2$^+$)	E2	0.0222	B(E2)(W.u.)=7.E1 4 α(K)=0.0180 *3*; α(L)=0.00329 *5*; α(M)=0.000719 *10*; α(N+..)=0.000184 *3* α(N)=0.0001598 *23*; α(O)=2.28×10^{-5} *4*; α(P)=1.022×10^{-6} *15*
		659.9 *1*	100 *22*	1832.3	23/2$^-$			
2711.9	(23/2$^+$)	921.1	100	1790.8	(19/2$^+$)			

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

γ(^{137}Pm) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	α†	Comments
2799.5	27/2⁻	967.2 *1*	100	1832.3	23/2⁻	E2	0.00254	B(E2)(W.u.)>11 α(K)=0.00215 *3*; α(L)=0.000301 *5*; α(M)=6.43×10^{-5} *9*; α(N+..)=1.673×10^{-5} *24* α(N)=1.445×10^{-5} *21*; α(O)=2.16×10^{-6} *3*; α(P)=1.290×10^{-7} *18*
2819.0	(27/2⁺)	326.0‡ *5*		2491.7	(25/2⁺)			
		532.2 *1*	100	2286.8	(23/2⁺)	E2	0.01042	B(E2)(W.u.)=42 *6* α(K)=0.00862 *12*; α(L)=0.001410 *20*; α(M)=0.000305 *5*; α(N+..)=7.85×10^{-5} *11* α(N)=6.81×10^{-5} *10*; α(O)=9.89×10^{-6} *14*; α(P)=5.03×10^{-7} *7*
3054.6	(29/2⁺)	236.0‡ *5*		2819.0	(27/2⁺)			
		562.9 *1*	100	2491.7	(25/2⁺)	E2	0.00901	B(E2)(W.u.)=36 *5* α(K)=0.00748 *11*; α(L)=0.001199 *17*; α(M)=0.000259 *4*; α(N+..)=6.68×10^{-5} *10* α(N)=5.79×10^{-5} *9*; α(O)=8.43×10^{-6} *12*; α(P)=4.39×10^{-7} *7*
3083.8		1251.5	100	1832.3	23/2⁻			
3233.6?	(25/2⁺)	963.0‡		2270.6	(21/2⁺)			
		1403.1‡		1832.3	23/2⁻			
3544.0	(31/2⁺)	489.0‡ *6*		3054.6	(29/2⁺)			
		725.0 *2*	100	2819.0	(27/2⁺)			
3697.1	31/2⁻	897.6 *2*	100	2799.5	27/2⁻	Q		
3732.9	(27/2⁺)	1021.0	100	2711.9	(23/2⁺)			
3843.6	(31/2⁻)	1044.1 *2*	100	2799.5	27/2⁻			
3859.0	(33/2⁺)	315‡ *1*		3544.0	(31/2⁺)			
		804.4 *2*	100	3054.6	(29/2⁺)	E2	0.00380	B(E2)(W.u.)>29 α(K)=0.00321 *5*; α(L)=0.000467 *7*; α(M)=0.0001000 *14*; α(N+..)=2.59×10^{-5} *4* α(N)=2.24×10^{-5} *4*; α(O)=3.32×10^{-6} *5*; α(P)=1.92×10^{-7} *3*
4222.4?	(29/2⁺)	988.8‡	100	3233.6?	(25/2⁺)			
4430.4	(35/2⁺)	886.3 *4*	100	3544.0	(31/2⁺)			
4456.9	35/2⁻	759.9 *2*	100	3697.1	31/2⁻			
4772.4	(35/2⁻)	929.8	100	3843.6	(31/2⁻)			
4841.9?	(31/2⁺)	1109.0‡	100	3732.9	(27/2⁺)			
4906.5	(37/2⁺)	1047.5	100	3859.0	(33/2⁺)			
5336.7	39/2⁻	879.8 *4*	100	4456.9	35/2⁻			
6283.8?	43/2⁻	947.1‡	100	5336.7	39/2⁻			

† Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

‡ Placement of transition in the level scheme is uncertain.

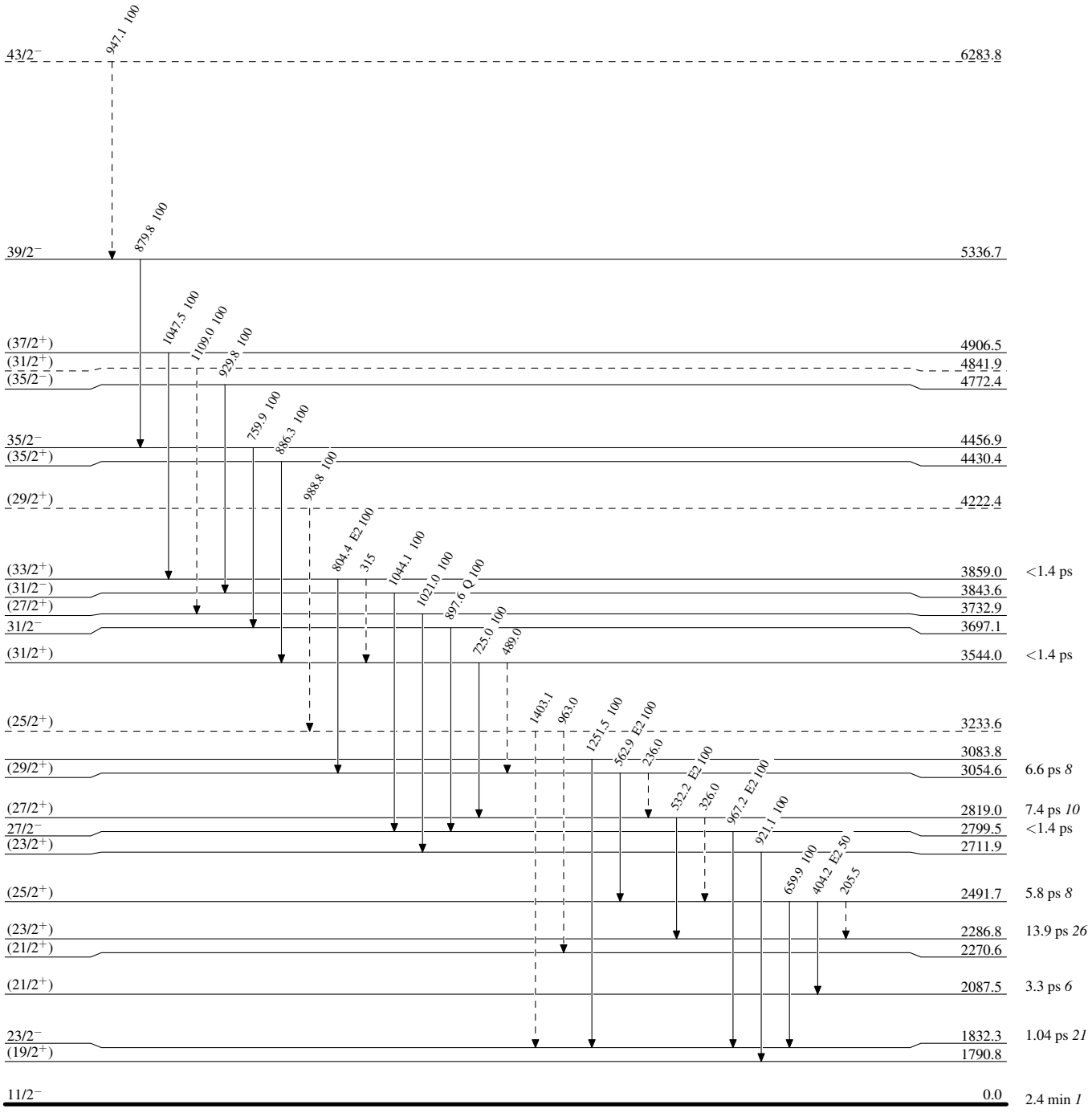
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{137}_{61}Pm_{76}$

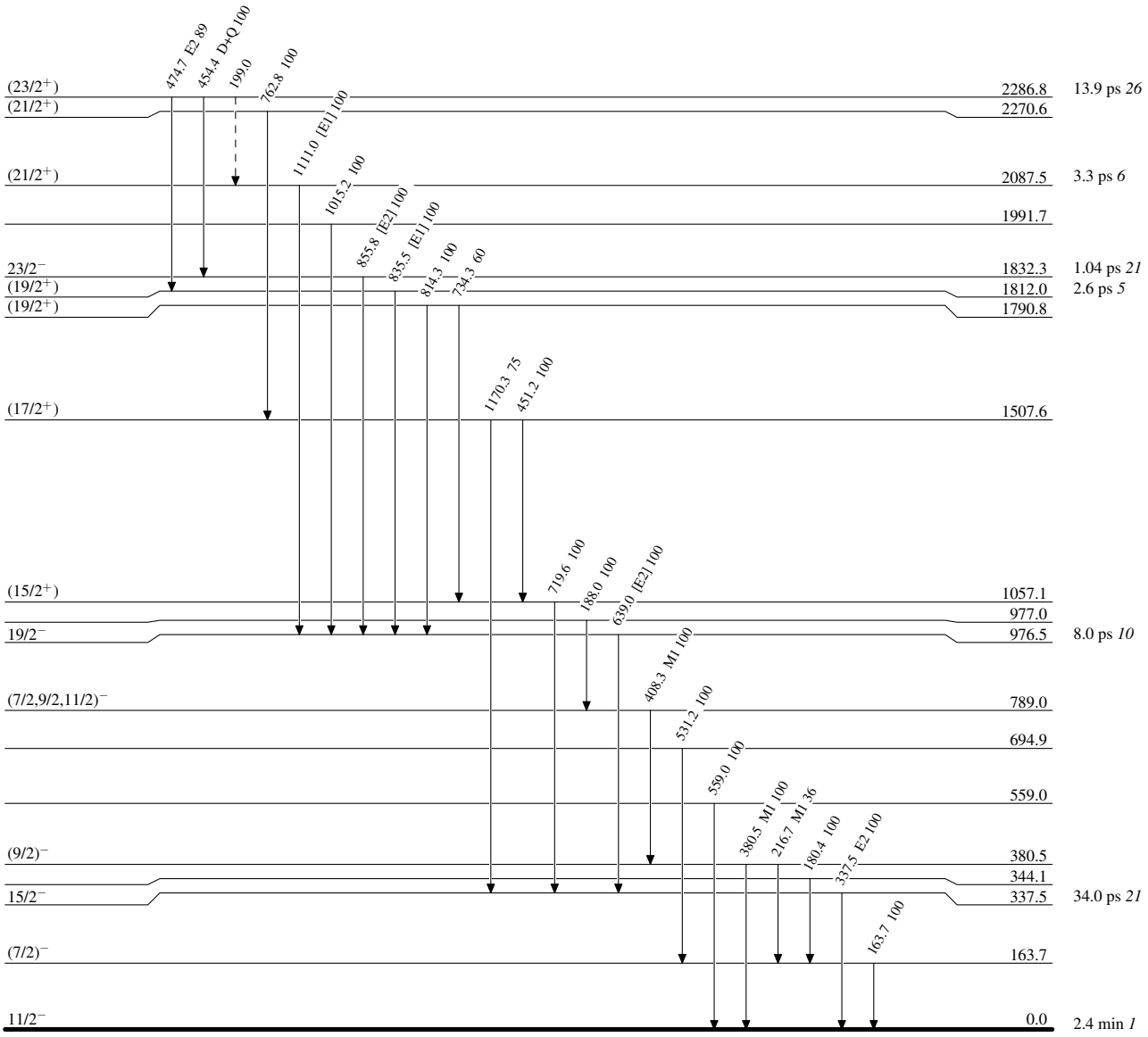
Adopted Levels, Gammas

Legend

Level Scheme (continued)

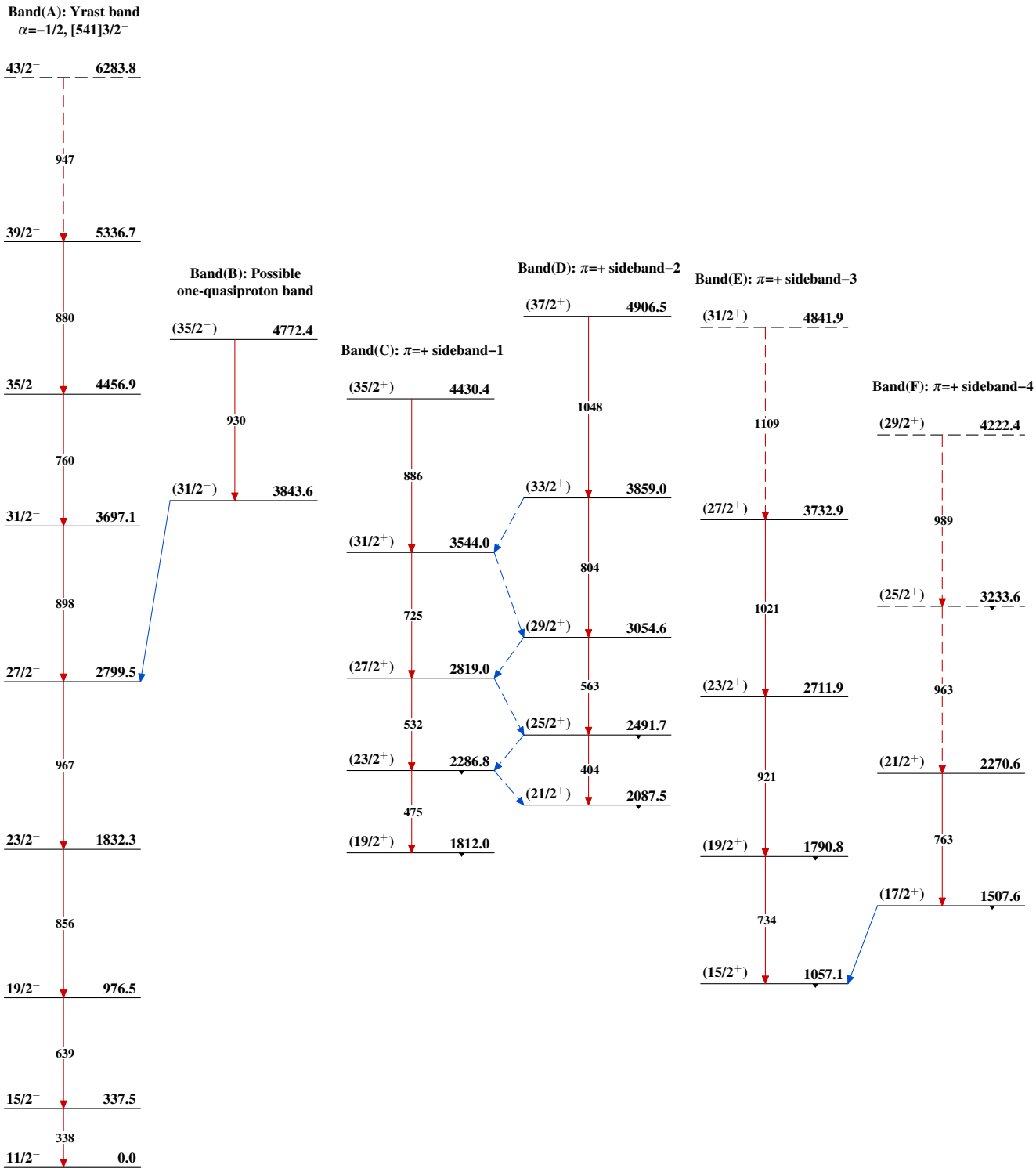
Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{137}_{61}Pm_{76}$

Adopted Levels, Gammas



$^{137}_{61}Pm_{76}$