

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 152, 331 (2018)	1-Apr-2018

Q(β^-)= -4.36×10^3 7; S(n)= 9.19×10^3 10; S(p)= 2.25×10^3 7; Q(α)= 1.63×10^3 7 2017Wa10
 S(2n)= 2.057×10^4 9, S(2p)= 7.22×10^3 7, Q(ϵ p)= 2.48×10^3 7 (2017Wa10).

¹³⁶Pm Levels

Cross Reference (XREF) Flags

- A ¹³⁶Sm ϵ decay
- B (HI,xn γ)
- C (HI,xn γ):highly deformed

E(level) [†]	J ^{π}	T _{1/2}	XREF	Comments
x ^f	(2)	300 s 50	A	$\% \epsilon + \% \beta^+ = 100$ J ^{π} : 2 ⁺ is suggested by 1989Vi04 based on observation of large population of 2 ⁺ and 3 ⁺ levels in $\epsilon + \beta^+$ decay to ¹³⁶ Nd; (2 ⁻ ,3) is suggested by 1988Ke03 based on observed feeding to 4 ⁺ levels and 2 ⁺ levels in $\epsilon + \beta^+$ decay to ¹³⁶ Nd. Since log ft values were not extracted, these assignments should be considered very tentative. The J=2 assignment is favored, assuming a spin difference of 3 or larger is necessary to produce the existence of two β decaying levels. T _{1/2} : from 1988Ke03 using 489 γ (t) and 862 γ (t); note that 1988Ke03 state that their value is poorly defined due to the short (75 s) collection time. Other: 1989Vi04 give 30 s < T _{1/2} < 150 s with lower limit based on 374 γ (t) and upper limit from estimated allowed β transitions to 2 ⁺ and 3 ⁺ levels in ¹³⁶ Nd. Additional information 1.
y ^{af}	(5 ⁻)	107 s 6	B	$\% \epsilon + \% \beta^+ = 100$ J ^{π} : level not seen in ϵ decay of ¹³⁶ Sm g.s. It decays with log ft of ≈ 6.2 and ≈ 6.5 to 6 ⁺ and 4 ⁺ states in ¹³⁶ Nd, respectively. Tentative negative parity from the assignment to the $\nu h_{11/2} \otimes \pi 5/2 [413]$ configuration by 1987Be50. The $\nu h_{11/2} \otimes \pi 1/2 [550]$ configuration is also possible, which would change the parity of the band to positive. T _{1/2} : from γ (t) in ¹³⁶ Pm β^+ decay (1973PaZV). Additional information 2.
27.3+y 2	(7 ⁻)		B	J ^{π} : proposed in (HI,xn γ) (2008Ri05) based on systematics of N=77 and N=75 odd-odd nuclei.
70.0+y [‡] 6	(8 ⁺)	1.5 μ s 1	B	T _{1/2} : from implant- γ (t) in (HI,xn γ) using the 42.7 γ . J ^{π} : from systematics of the $\pi h_{11/2} \nu h_{11/2}$ band in doubly-odd La, Pr, Pm and Eu nuclei (1996Li13).
114.42+x 13	1 ⁺		A	J ^{π} : allowed decay from 0 ⁺ parent.
123.35+x 19			A	
169.2+y [#] 5	(9 ⁺)		B	J ^{π} : D 99.2 γ to (8 ⁺), band assignment.
199.11+y ^a 20	(6 ⁻)		B	J ^{π} : 199 γ to (5 ⁻); band assignment.
221.1+x 4			A	
286.90+x 15	(1 ⁺)		A	J ^{π} : possible allowed decay of 0 ⁺ parent.
299.30+x 21			A	
306.51+x 20			A	
315.3+x 3			A	
337.0+y [‡] 5	(10 ⁺)		B	J ^{π} : D 168 γ to (9 ⁺); band assignment.
422.45+x 19			A	
427.95+x 18			A	
445.8+y ^a 4	(7 ⁻)		B	J ^{π} : 247 γ to (6 ⁻), 446 γ to (5 ⁻); band assignment.
485.30+x 16			A	

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Adopted Levels, Gammas (continued) ^{136}Pm Levels (continued)

E(level) [†]	J ^π	XREF	Comments
563.23+x 22		A	
622.4+y [#] 5	(11 ⁺)	B	J ^π : 285γ to (10 ⁺); band assignment.
732.1+y ^a 3	(8 ⁻)	B	J ^π : 286γ to (7 ⁻), 533γ to (6 ⁻); band assignment.
802.45+x 24		A	
862.13+x 20		A	
914.2+y [‡] 5	(12 ⁺)	B	J ^π : D 292γ to (11 ⁺); band assignment.
927.7+y ^{&} 8	(11 ⁺)	B	J ^π : 591γ to (10 ⁺), 759γ to (9 ⁺); band assignment.
1057.5+y ^a 5	(9 ⁻)	B	J ^π : 325γ to (8 ⁻), 612γ to (7 ⁻); band assignment.
1215.7+y [@] 8	(12 ⁺)	B	J ^π : M1 593γ to (11 ⁺), (E2) 878γ to (10 ⁺); band assignment.
1322.7+y [#] 5	(13 ⁺)	B	J ^π : (E2) 700γ to (11 ⁺); band assignment.
1352.6+y ^a 4	(10 ⁻)	B	J ^π : 295γ to (9 ⁻), 620.5γ to (8 ⁻); band assignment.
1579.9+y ^{&} 7	(13 ⁺)	B	J ^π : M1 364γ to (12 ⁺), 653γ to (11 ⁺); band assignment.
1679.1+y [‡] 5	(14 ⁺)	B	J ^π : (M1) 356γ to (13 ⁺), 765γ to (12 ⁺); band assignment.
1783.3+y ^a ? 11	(11 ⁻)	B	J ^π : 430γ to (10 ⁻), 725γ to (9 ⁻); band assignment.
2006.0+y [@] 8	(14 ⁺)	B	J ^π : M1 683γ to (13 ⁺), 790γ to (12 ⁺); band assignment.
2049.9+y ^a 4	(12 ⁻)	B	J ^π : (E2) 697γ to (10 ⁻); band assignment.
2157.5+y [#] 5	(15 ⁺)	B	J ^π : 478γ to (14 ⁺), 835γ to (13 ⁺); band assignment.
2239.3+y ^a 5	(13 ⁻)	B	J ^π : 189γ to (12 ⁻), 456γ to (11 ⁻); band assignment.
2430.1+y ^{&} 7	(15 ⁺)	B	J ^π : 424γ to (14 ⁺), 850γ to (13 ⁺); band assignment.
2450.5+y ^a 5	(14 ⁻)	B	J ^π : 211γ to (13 ⁻); band assignment.
2575.4+y [‡] 5	(16 ⁺)	B	J ^π : 418γ to (15 ⁺), 896.5γ to (14 ⁺); band assignment.
2696.2+y ^a 6	(15 ⁻)	B	J ^π : 246γ to (14 ⁻); band assignment.
2889.1+y [@] 9	(16 ⁺)	B	J ^π : 459γ to (15 ⁺), 883γ to (14 ⁺); band assignment.
2997.0+y ^a 6	(16 ⁻)	B	J ^π : 301γ to (15 ⁻); band assignment.
3081.4+y [#] 8	(17 ⁺)	B	J ^π : 506γ to (16 ⁺), 924γ to (15 ⁺); band assignment.
3324.0+y ^{&} 10	(17 ⁺)	B	J ^π : 435γ to (16 ⁺), 894γ to (15 ⁺); band assignment.
3350.4+y ^a 6	(17 ⁻)	B	J ^π : 353γ to (16 ⁻); band assignment.
3550.5+y [‡] 9	(18 ⁺)	B	J ^π : 469γ to (17 ⁺), 975γ to (16 ⁺); band assignment.
3724.3+y [@] 11	(18 ⁺)	B	J ^π : 400γ to (17 ⁺), 835γ to (16 ⁺); band assignment.
3748.8+y ^a 7	(18 ⁻)	B	J ^π : 398γ to (17 ⁻); band assignment.
4006.2+y [#] 10	(19 ⁺)	B	J ^π : 456γ to (18 ⁺), 925γ to (17 ⁺); band assignment.
4158.6+y ^{&} 12	(19 ⁺)	B	J ^π : 434γ to (18 ⁺), 835γ to (17 ⁺); band assignment.
4215+y ^a ? 11	(19 ⁻)	B	J ^π : 468γ to (18 ⁻); band assignment.
4448.1+y [‡] 11	(20 ⁺)	B	J ^π : 442γ to (19 ⁺), 897γ to (18 ⁺); band assignment.
4539.5+y [@] 13	(20 ⁺)	B	J ^π : 381γ to (19 ⁺), 815γ to (18 ⁺); band assignment.
4885.7+y [#] 13	(21 ⁺)	B	J ^π : 437γ to (20 ⁺), 880γ to (19 ⁺); band assignment.
4942.5+y ^{&} 14	(21 ⁺)	B	J ^π : 403γ to (20 ⁺), 784γ to (19 ⁺); band assignment.
\sqrt{b}	J	C	Additional information 3.
533.0+ \sqrt{b} 10	J+2	C	
1136.0+ \sqrt{b} 15	J+4	C	
1799.0+ \sqrt{b} 18	J+6	C	
2541.0+ \sqrt{b} 20	J+8	C	
3368.0+ \sqrt{b} 23	J+10	C	
4282.0+ \sqrt{b} 25	J+12	C	
5282+ \sqrt{b} 3	J+14	C	
6367+ \sqrt{b} 3	J+16	C	
7535+ \sqrt{b} 3	J+18	C	

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Adopted Levels, Gammas (continued) ^{136}Pm Levels (continued)

E(level) [†]	J ^π	XREF	Comments
8786+v ^b 4	J+20	C	
10116+v ^b 4	J+22	C	
11513+v ^b 4	J+24	C	
12955+v ^b 4	J+26	C	
w ^c	J1	C	Additional information 4.
675.0+w ^c 10	J1+2	C	
1386.0+w ^c 15	J1+4	C	
2161.0+w ^c 18	J1+6	C	
3019.0+w ^c 20	J1+8	C	
3957.0+w ^c 23	J1+10	C	
4974.0+w ^c 25	J1+12	C	
6066+w ^c 3	J1+14	C	
7232+w ^c 3	J1+16	C	
8469+w ^c 3	J1+18	C	
9779+w ^c 4	J1+20	C	
z ^d	J2	C	Additional information 5.
679.0+z ^d 10	J2+2	C	
1436.0+z ^d 15	J2+4	C	
2263.0+z ^d 18	J2+6	C	
3155.0+z ^d 20	J2+8	C	
4112.0+z ^d 23	J2+10	C	
5138.0+z ^d 25	J2+12	C	
6231+z ^d 3	J2+14	C	
7391+z ^d 3	J2+16	C	
8617+z ^d 3	J2+18	C	
9909+z ^d 4	J2+20	C	
11274+z ^d 4	J2+22	C	
12720+z ^d 4	J2+24	C	
u ^e	J3	C	Additional information 6.
41.0+u ^e 15	J3	C	
753.0+u ^e 10	J3+2	C	
1551.0+u ^e 15	J3+4	C	
2418.0+u ^e 18	J3+6	C	
3353.0+u ^e 20	J3+8	C	
4352.0+u ^e 23	J3+10	C	
5421.0+u ^e 25	J3+12	C	
6557+u ^e 3	J3+14	C	
7759+u ^e 3	J3+16	C	
9027+u ^e 3	J3+18	C	
10368+u ^e 4	J3+20	C	
11787+u ^e 4	J3+22	C	

[†] From least-squares fit to E γ , by evaluator, assuming $\Delta(E\gamma)=1$ keV when no uncertainty available.

[‡] Band(A): $\pi h_{11/2} \nu h_{11/2}$, $\alpha=0$.

[#] Band(a): $\pi h_{11/2} \nu h_{11/2}$, $\alpha=1$.

[@] Band(B): Chiral doublet structure of $\pi h_{11/2} \nu h_{11/2}$, $\alpha=0$.

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Adopted Levels, Gammas (continued)

^{136}Pm Levels (continued)

- & Band(b): Chiral doublet structure of $\pi h_{11/2} \nu h_{11/2}$, $\alpha=1$.
- ^a Band(C): $\nu h_{11/2} \otimes \pi 5/2[413]$ configuration. Assignment by [1987Be50](#). The $\nu h_{11/2} \otimes \pi 1/2[550]$ configuration is also possible, which would result in a positive parity band.
- ^b Band(D): highly-deformed band #1. $Q(\text{intrinsic})=5.2$ 3. Configuration= $\pi h_{11/2} \nu i_{13/2}$.
- ^c Band(E): highly-deformed band #2. $Q(\text{intrinsic})=5.2$ 4. Configuration= $\pi h_{11/2} \nu i_{13/2}$.
- ^d Band(F): highly-deformed band #3. $Q(\text{intrinsic})=5.7$ 6. Configuration= $\pi(d_{5/2} g_{7/2}) \nu i_{13/2}$.
- ^e Band(G): highly-deformed band #4. $Q(\text{intrinsic})=5.7$ 6. Configuration= $\pi(d_{5/2} g_{7/2}) \nu i_{13/2}$.
- ^f In a recent Penning-Trap experiment ([2000Be42](#)) the isomers could not be resolved and their energy difference is still unknown.

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult.^\ddagger	$\gamma(^{136}\text{Pm})$	Comments
70.0+y	(8 ⁺)	42.7 2	100	27.3+y	(7 ⁻)	(E1)		Mult.: M2, and higher multiplicities are excluded based on comparison to RUL. Systematics of odd-odd N=77 nuclei exhibit $J^\pi=8^+$ isomers decaying by E1 transitions. Similarly in the N=73 odd-odd nucleus ^{134}Pm , the long-lived μs isomer decays by an E1 transition (2008Ri05).
114.42+x	1 ⁺	114.4 [#] 2	100	x	(2)			
123.35+x		123.4 [#] 3	100	x	(2)			
169.2+y	(9 ⁺)	99.2 2	100	70.0+y	(8 ⁺)	(M1) [@]		
199.11+y	(6 ⁻)	199.1 2	100	y	(5 ⁻)			
221.1+x		221.2 [#] 5	100	x	(2)			
286.90+x	(1 ⁺)	163.3 [#] 4	12.5 [#] 25	123.35+x				
		172.4 [#] 3	19 [#] 5	114.42+x	1 ⁺			
		286.8 [#] 2	100 [#] 25	x	(2)			
299.30+x		185.0 [#] 3	32 [#] 8	114.42+x	1 ⁺			
		299.3 [#] 4	100 [#] 17	x	(2)			
306.51+x		183.2 [#] 3	100 [#] 24	123.35+x				
		192.0 [#] 4	86 [#] 19	114.42+x	1 ⁺			
		306.6 [#] 4	76 [#] 15	x	(2)			
315.3+x		192.0 [#] 4	100 [#] 22	123.35+x				
		200.7 [#] 5	78 [#] 11	114.42+x	1 ⁺			
337.0+y	(10 ⁺)	167.8 2	100	169.2+y	(9 ⁺)	(M1) [@]		
		267		70.0+y	(8 ⁺)			
422.45+x		116.1 [#] 4	46 [#] 21	306.51+x				
		299.3 [#] 4	≈83 [#]	123.35+x				
		422.6 [#] 3	100 [#] 13	x	(2)			
427.95+x		128.8 [#] 5	4.6 [#] 16	299.30+x				
		140.6 [#] 3	≈8 [#]	286.90+x	(1 ⁺)			
		206.9 [#] 5	12 [#] 4	221.1+x				
		313.6 [#] 2	100 [#] 23	114.42+x	1 ⁺			
445.8+y	(7 ⁻)	247 1		199.11+y	(6 ⁻)			
		446 1		y	(5 ⁻)			
485.30+x		170.0 [#] 5	4.3 [#] 8	315.3+x				
		186.1 [#] 4	4.3 [#] 8	299.30+x				
		371.0 [#] 5	13 [#] 4	114.42+x	1 ⁺			
		485.3 [#] 2	100 [#] 22	x	(2)			

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Adopted Levels, Gammas (continued)

$\gamma(^{136}\text{Pm})$ (continued)							
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. [‡]	Comments
563.23+x		134.9 [#] 4	52 [#] 8	427.95+x			
		141.4 [#] 4	44 [#] 19	422.45+x			
		276.3 [#] 5	30 [#] 8	286.90+x (1 ⁺)			
		448.7 [#] 3	100 [#] 12	114.42+x 1 ⁺			
622.4+y	(11 ⁺)	285.4 2	100 8	337.0+y (10 ⁺)		(M1)	
		452.9 7	6.5 19	169.2+y (9 ⁺)			
732.1+y	(8 ⁻)	286.3 2		445.8+y (7 ⁻)			
		533.0 2		199.11+y (6 ⁻)			
802.45+x		380.0 [#] 3	29 [#] 5	422.45+x			
		515.6 [#] 5	5.7 [#] 15	286.90+x (1 ⁺)			
		802.4 [#] 4	1.0×10 ² [#] 3	x (2)			
862.13+x		377.0 [#] 4	17 [#] 4	485.30+x			
		555.5 [#] 4	12 [#] 3	306.51+x			
		747.7 [#] 2	100 [#] 14	114.42+x 1 ⁺			
914.2+y	(12 ⁺)	291.8 2	100 6	622.4+y (11 ⁺)		(M1)	
		577.2 3	41 3	337.0+y (10 ⁺)			
927.7+y	(11 ⁺)	591		337.0+y (10 ⁺)			
		759		169.2+y (9 ⁺)			
1057.5+y	(9 ⁻)	325 ^{&}		732.1+y (8 ⁻)			
		611.7 3	100	445.8+y (7 ⁻)			
1215.7+y	(12 ⁺)	288		927.7+y (11 ⁺)			
		593		622.4+y (11 ⁺)		M1	Mult.: from R(DCO) and $\gamma(\text{lin pol})$ in (HI,xn γ).
		878		337.0+y (10 ⁺)		(E2)	Mult.: Q from R(DCO) in (HI,xn γ), E2 from $\Delta\pi=\text{no}$ from level scheme.
1322.7+y	(13 ⁺)	408.5 2	100 10	914.2+y (12 ⁺)			
		700.3 2	40 5	622.4+y (11 ⁺)		(E2)	Mult.: Q from R(DCO) in (HI,xn γ), E2 from assumed band structure.
1352.6+y	(10 ⁻)	295 ^{&} 1		1057.5+y (9 ⁻)			
		620.5 2	100	732.1+y (8 ⁻)			
1579.9+y	(13 ⁺)	364		1215.7+y (12 ⁺)		M1	Mult.: from R(DCO) and $\gamma(\text{lin pol})$ in (HI,xn γ).
		653		927.7+y (11 ⁺)			
		665		914.2+y (12 ⁺)			
1679.1+y	(14 ⁺)	356.4 2	96 8	1322.7+y (13 ⁺)		(M1) [@]	
		764.9 2	100 12	914.2+y (12 ⁺)			
1783.3+y?	(11 ⁻)	430 ^{&} 1		1352.6+y (10 ⁻)			
		725 ^{&} 1		1057.5+y (9 ⁻)			
2006.0+y	(14 ⁺)	426		1579.9+y (13 ⁺)			
		683		1322.7+y (13 ⁺)		M1	Mult.: from R(DCO) and $\gamma(\text{lin pol})$ in (HI,xn γ).
		790		1215.7+y (12 ⁺)			
		1092 ^{&}		914.2+y (12 ⁺)			
2049.9+y	(12 ⁻)	268 ^{&} 1		1783.3+y? (11 ⁻)			
		697.3 2	89 12	1352.6+y (10 ⁻)		(E2)	Mult.: Q from R(DCO) in (HI,xn γ), E2 from assumed band structure.
		1135.7 2	100 23	914.2+y (12 ⁺)		(E1) [@]	Mult.: D from $\gamma(\theta)$ in (HI,xn γ), $\Delta\pi=\text{yes}$ from level scheme.
2157.5+y	(15 ⁺)	478.2 3	63 13	1679.1+y (14 ⁺)			
		834.8 3	100 19	1322.7+y (13 ⁺)			
2239.3+y	(13 ⁻)	189.3 2	100 12	2049.9+y (12 ⁻)			
		456 1		1783.3+y? (11 ⁻)			
		916.6 2	53 12	1322.7+y (13 ⁺)		(E1)	Mult.: D from $\gamma(\theta)$ in (HI,xn γ), $\Delta\pi=\text{yes}$ from level scheme.

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Adopted Levels, Gammas (continued) $\gamma(^{136}\text{Pm})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. [‡]
2430.1+y	(15 ⁺)	424		2006.0+y	(14 ⁺)	
		751		1679.1+y	(14 ⁺)	
		850		1579.9+y	(13 ⁺)	
		1108		1322.7+y	(13 ⁺)	
2450.5+y	(14 ⁻)	211.3	2	2239.3+y	(13 ⁻)	(M1) [@]
2575.4+y	(16 ⁺)	417.7	4	2157.5+y	(15 ⁺)	
		896.5	3	1679.1+y	(14 ⁺)	
2696.2+y	(15 ⁻)	245.6	2	2450.5+y	(14 ⁻)	
2889.1+y	(16 ⁺)	459	100	2430.1+y	(15 ⁺)	
		883		2006.0+y	(14 ⁺)	
2997.0+y	(16 ⁻)	300.8	2	2696.2+y	(15 ⁻)	
3081.4+y	(17 ⁺)	506		2575.4+y	(16 ⁺)	
		924		2157.5+y	(15 ⁺)	
3324.0+y	(17 ⁺)	435		2889.1+y	(16 ⁺)	
		894		2430.1+y	(15 ⁺)	
3350.4+y	(17 ⁻)	353.4	2	2997.0+y	(16 ⁻)	
3550.5+y	(18 ⁺)	469		3081.4+y	(17 ⁺)	
		975		2575.4+y	(16 ⁺)	
3724.3+y	(18 ⁺)	400		3324.0+y	(17 ⁺)	
		835		2889.1+y	(16 ⁺)	
3748.8+y	(18 ⁻)	398.4	2	3350.4+y	(17 ⁻)	
4006.2+y	(19 ⁺)	456		3550.5+y	(18 ⁺)	
		925		3081.4+y	(17 ⁺)	
4158.6+y	(19 ⁺)	434		3724.3+y	(18 ⁺)	
		835		3324.0+y	(17 ⁺)	
4215+y?	(19 ⁻)	468	& 1	3748.8+y	(18 ⁻)	
4448.1+y	(20 ⁺)	442		4006.2+y	(19 ⁺)	
		897		3550.5+y	(18 ⁺)	
4539.5+y	(20 ⁺)	381		4158.6+y	(19 ⁺)	
		815		3724.3+y	(18 ⁺)	
4885.7+y	(21 ⁺)	437		4448.1+y	(20 ⁺)	
		880		4006.2+y	(19 ⁺)	
4942.5+y	(21 ⁺)	403		4539.5+y	(20 ⁺)	
		784		4158.6+y	(19 ⁺)	
533.0+v	J+2	533	100	v	J	
1136.0+v	J+4	603	100	533.0+v	J+2	
1799.0+v	J+6	663	100	1136.0+v	J+4	
2541.0+v	J+8	742	100	1799.0+v	J+6	
3368.0+v	J+10	827	100	2541.0+v	J+8	
4282.0+v	J+12	914	100	3368.0+v	J+10	
5282+v	J+14	1000	100	4282.0+v	J+12	
6367+v	J+16	1085	100	5282+v	J+14	
7535+v	J+18	1168	100	6367+v	J+16	
8786+v	J+20	1251	100	7535+v	J+18	
10116+v	J+22	1330	100	8786+v	J+20	
11513+v	J+24	1397	100	10116+v	J+22	
12955+v	J+26	1442	100	11513+v	J+24	
675.0+w	J1+2	675	100	w	J1	
1386.0+w	J1+4	711	100	675.0+w	J1+2	
2161.0+w	J1+6	775	100	1386.0+w	J1+4	
3019.0+w	J1+8	858	100	2161.0+w	J1+6	
3957.0+w	J1+10	938	100	3019.0+w	J1+8	
4974.0+w	J1+12	1017	100	3957.0+w	J1+10	
6066+w	J1+14	1092	100	4974.0+w	J1+12	
7232+w	J1+16	1166	100	6066+w	J1+14	
8469+w	J1+18	1237	100	7232+w	J1+16	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued) $\gamma(^{136}\text{Pm})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π
9779+w	J1+20	1310	100	8469+w	J1+18	753.0+u	J3+2	712		41.0+u	J3
679.0+z	J2+2	679	100	z	J2			753		u	J3
1436.0+z	J2+4	757	100	679.0+z	J2+2	1551.0+u	J3+4	798	100	753.0+u	J3+2
2263.0+z	J2+6	827	100	1436.0+z	J2+4	2418.0+u	J3+6	867	100	1551.0+u	J3+4
3155.0+z	J2+8	892	100	2263.0+z	J2+6	3353.0+u	J3+8	935	100	2418.0+u	J3+6
4112.0+z	J2+10	957	100	3155.0+z	J2+8	4352.0+u	J3+10	999	100	3353.0+u	J3+8
5138.0+z	J2+12	1026	100	4112.0+z	J2+10	5421.0+u	J3+12	1069	100	4352.0+u	J3+10
6231+z	J2+14	1093	100	5138.0+z	J2+12	6557+u	J3+14	1136	100	5421.0+u	J3+12
7391+z	J2+16	1160	100	6231+z	J2+14	7759+u	J3+16	1202	100	6557+u	J3+14
8617+z	J2+18	1226	100	7391+z	J2+16	9027+u	J3+18	1268	100	7759+u	J3+16
9909+z	J2+20	1292	100	8617+z	J2+18	10368+u	J3+20	1341	100	9027+u	J3+18
11274+z	J2+22	1365	100	9909+z	J2+20	11787+u	J3+22	1419	100	10368+u	J3+20
12720+z	J2+24	1446	100	11274+z	J2+22						

† From (HI,xn γ), except where noted.

‡ From $\gamma(\theta)$ and R(DCO) in (HI,xn γ), except where noted. Stretched Q transitions assigned to rotational bands are assumed E2 in character.

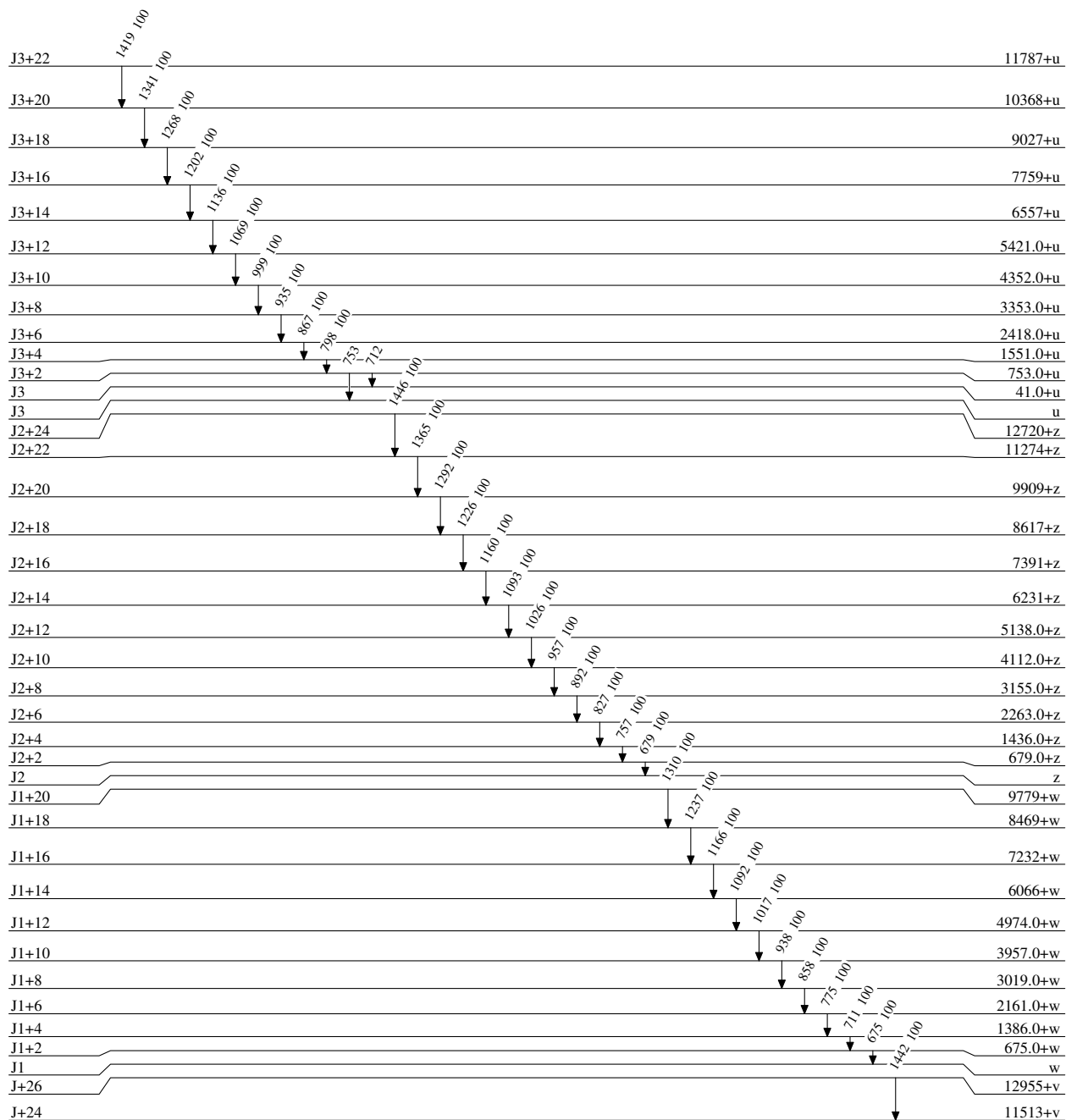
$\#$ From ^{136}Sm ε decay.

$@$ D from $\gamma(\theta)$ and R(DCO) in (HI,xn γ), M1 from assignment to rotational band.

$\&$ Placement of transition in the level scheme is uncertain.

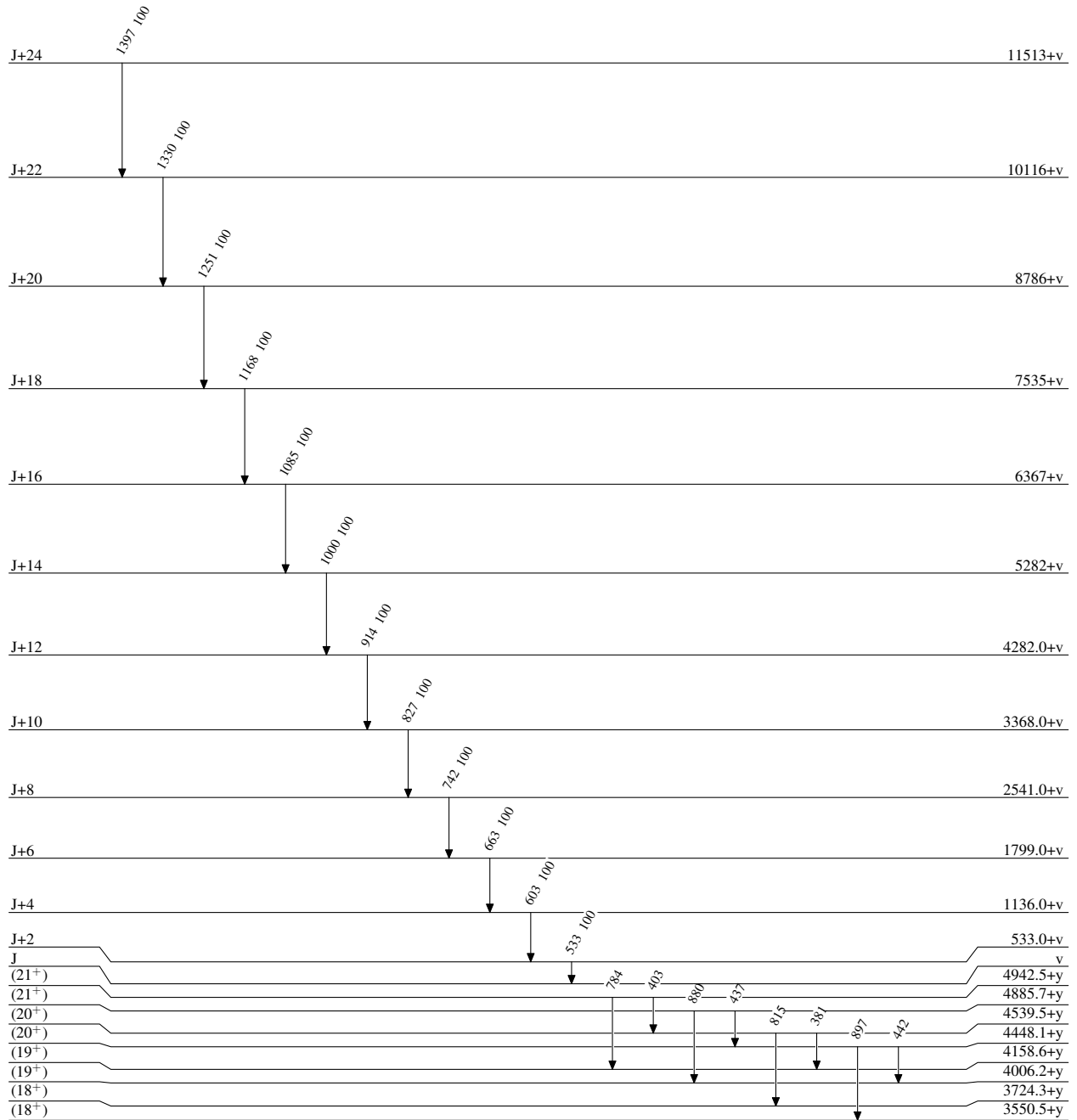
Adopted Levels, GammasLevel Scheme

Intensities: Relative photon branching from each level

 $^{136}_{61}\text{Pm}_{75}$

Adopted Levels, GammasLevel Scheme (continued)

Intensities: Relative photon branching from each level

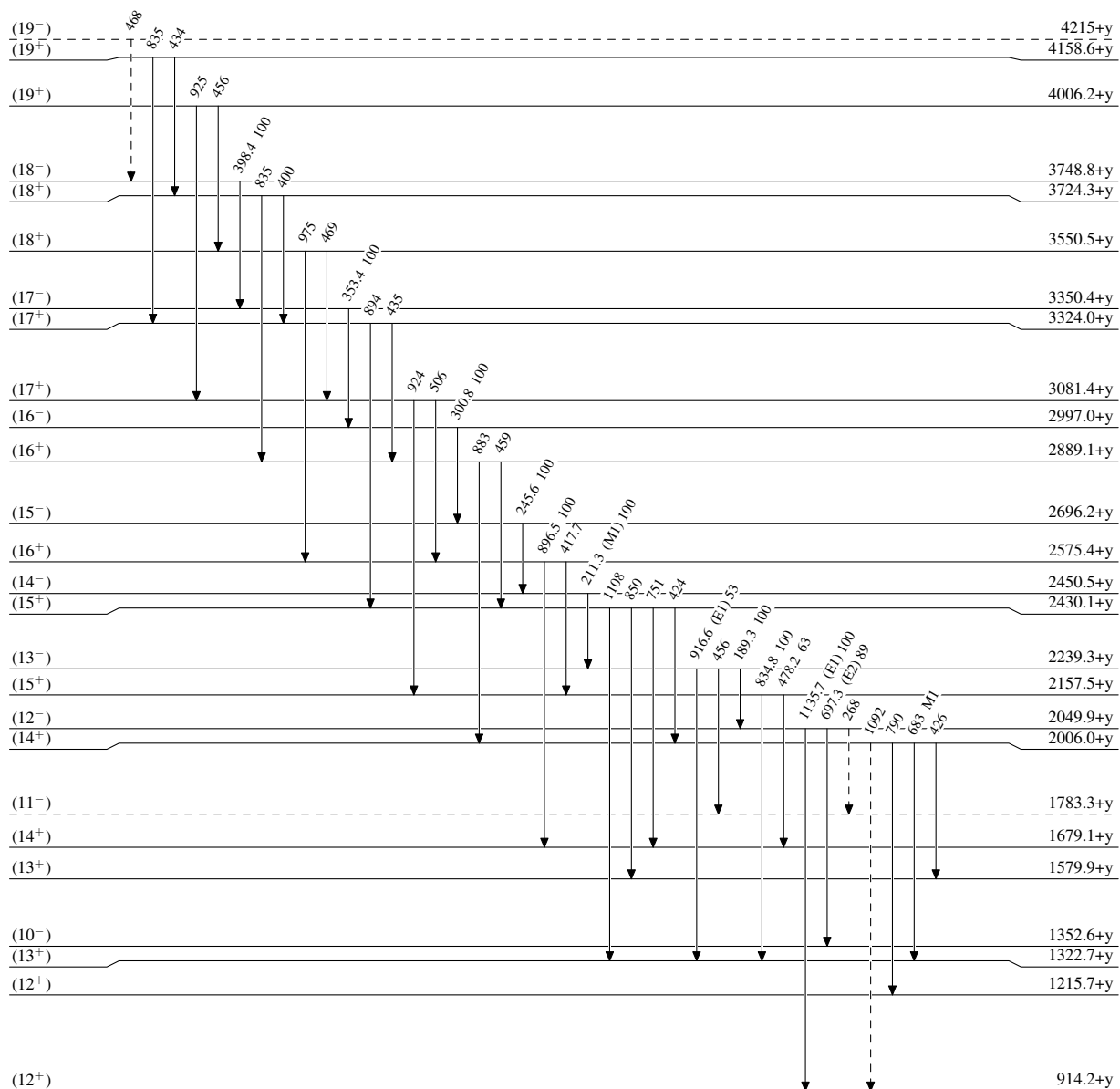
 $^{136}_{61}\text{Pm}_{75}$

Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

-----► γ Decay (Uncertain) $^{136}_{61}\text{Pm}_{75}$

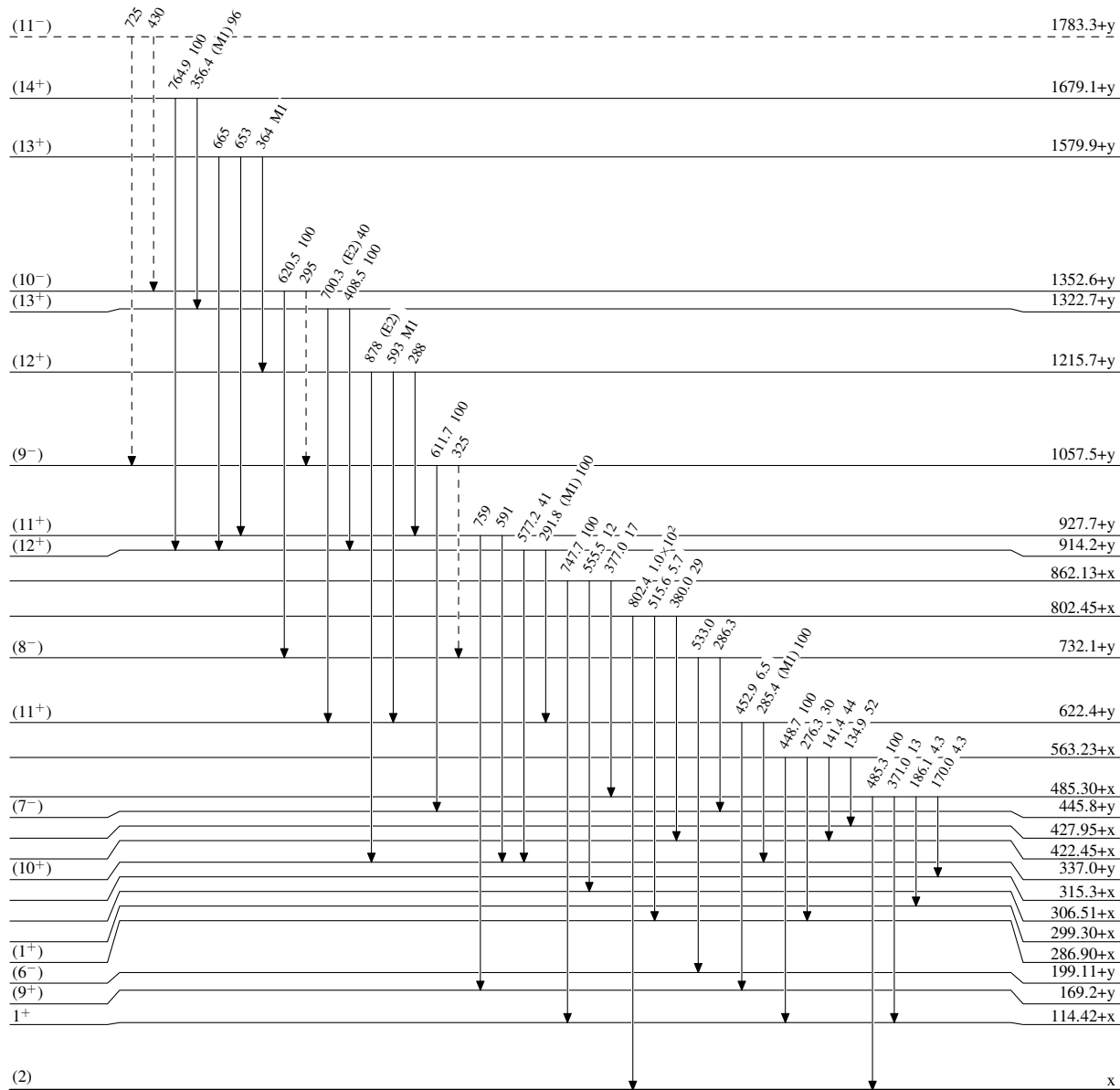
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

-----▶ γ Decay (Uncertain)

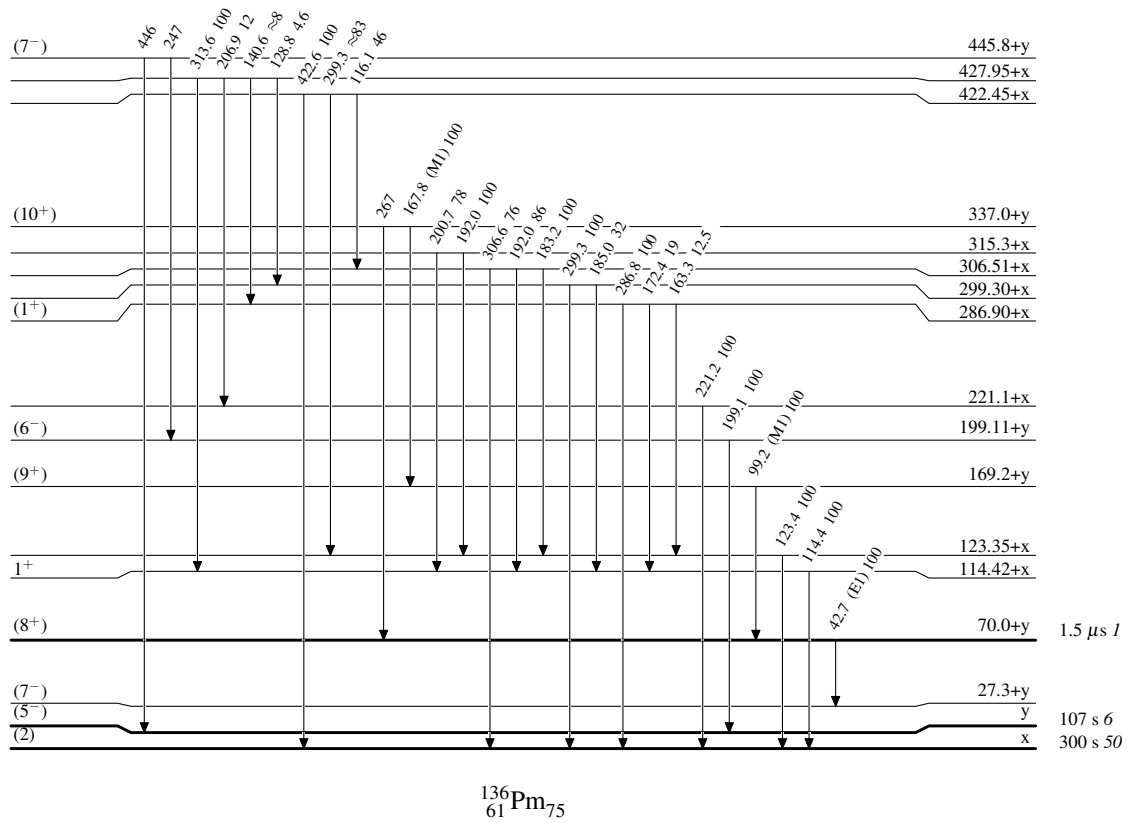


¹³⁶Pm₇₅

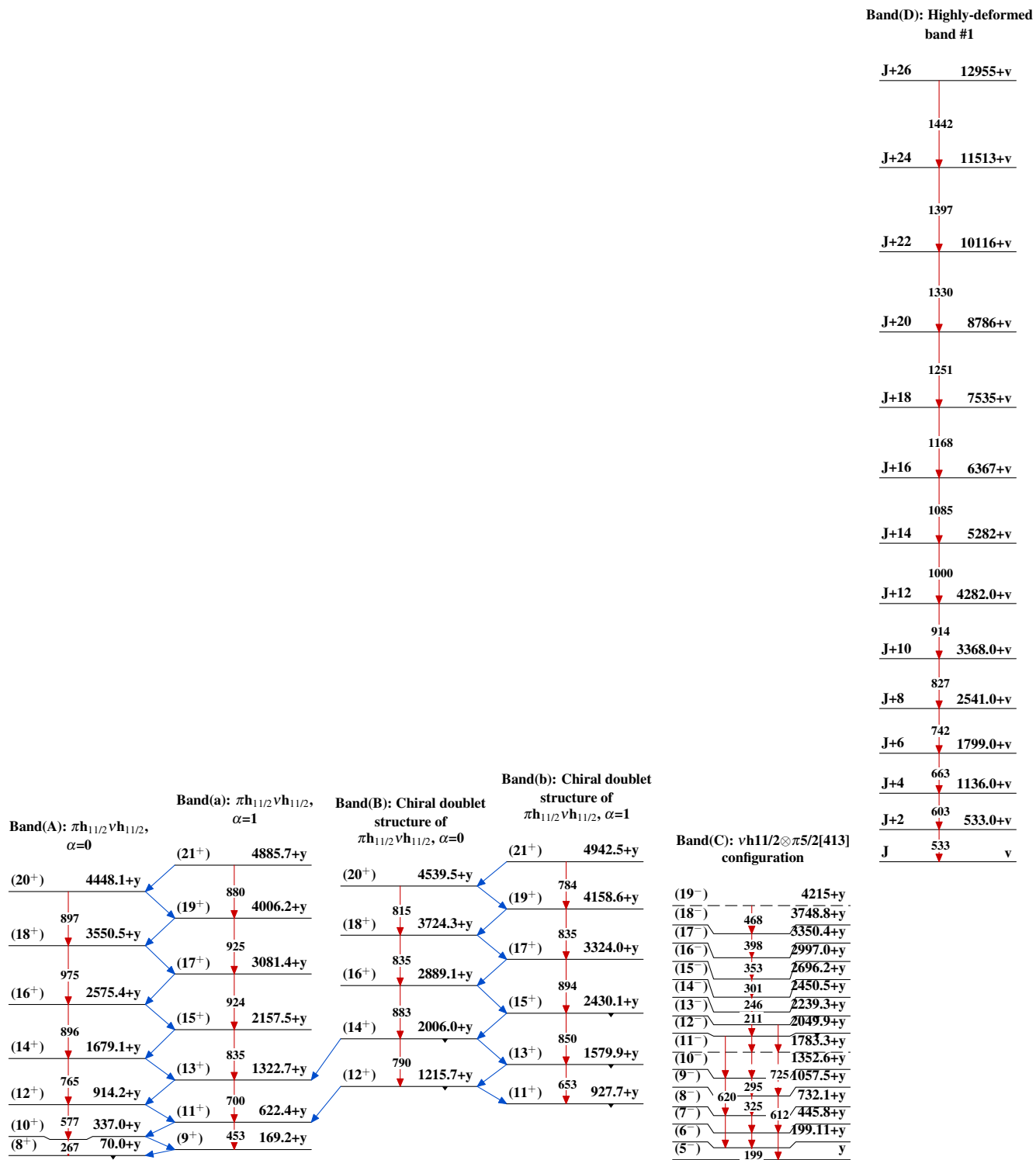
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Adopted Levels, Gammas**Level Scheme (continued)**

Intensities: Relative photon branching from each level



Adopted Levels, Gammas



Adopted Levels, Gammas (continued)

		Band(G): Highly-deformed band #4	
		J3+22	11787+u
		↓ 1419	
		J3+20	10368+u
		↓ 1341	
		J3+18	9027+u
		↓ 1268	
		J3+16	7759+u
		↓ 1202	
		J3+14	6557+u
		↓ 1136	
		J3+12	5421.0+u
		↓ 1069	
		J3+10	4352.0+u
		↓ 999	
		J3+8	3353.0+u
		↓ 935	
		J3+6	2418.0+u
		↓ 867	
		J3+4	1551.0+u
		↓ 798	
		J3+2	753.0+u
		↓	
		J3	41.0+u
		↓	
		J3	u
		Band(F): Highly-deformed band #3	
	J2+24	12720+z	
		↓ 1446	
	J2+22	11274+z	
		↓ 1365	
	J2+20	9909+z	
		↓ 1292	
	J2+18	8617+z	
		↓ 1226	
	J2+16	7391+z	
		↓ 1160	
	J2+14	6231+z	
		↓ 1093	
	J2+12	5138.0+z	
		↓ 1026	
	J2+10	4112.0+z	
		↓ 957	
	J2+8	3155.0+z	
		↓ 892	
	J2+6	2263.0+z	
		↓ 827	
	J2+4	1436.0+z	
		↓ 757	
	J2+2	679.0+z	
		↓ 679	
	J2	z	
		Band(E): Highly-deformed band #2	
	J1+20	9779+w	
		↓ 1310	
	J1+18	8469+w	
		↓ 1237	
	J1+16	7232+w	
		↓ 1166	
	J1+14	6066+w	
		↓ 1092	
	J1+12	4974.0+w	
		↓ 1017	
	J1+10	3957.0+w	
		↓ 938	
	J1+8	3019.0+w	
		↓ 858	
	J1+6	2161.0+w	
		↓ 775	
	J1+4	1386.0+w	
		↓ 711	
	J1+2	675.0+w	
		↓ 675	
	J1	w	