^{133}Cs(α,3nγ) 1998Pr05

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	A. A. Sonzogni	NDS 103, 1 (2004)	31-Jul-2004

E=40 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma(\theta)$(DCO) using three HPGe detectors.

This data set and the ^{124}Sn(^{15}N,5nγ) (2001Ba75) deal with the same set of levels. The latter however, seems to cover a larger number of levels and, as a consequence, became the basis of the high-spin Adopted Levels. Several levels from this dataset were not adopted.

^{134}La Levels

E(level)	J^{π}[†]	Comments
0+y	5^-	Additional information 1.
53.4+y *5*	(6^-)	
211.7+y *5*	(7^-)	
241.0+y *5*	7^+	
518.7+y *6*	(8^-)	
668.7+y[#] *6*	8^+	
813.6+y[‡] *6*	9^+	
926.2+y[c] *8*	(9^+)	
954.9+y *6*	(9^-)	
976.4+y *6*	(9^-)	
1194.9+y[#] *6*	10^+	
1199.4+y[a] *8*	(9^-)	
1233.9+y *6*	(10^-)	
1412.0+y[@] *6*	(10^+)	
1532.8+y[‡] *6*	11^+	
1574.8+y *6*	11^+	
1710.4+y[@] *6*	(11^+)	
1796.1+y[a] *9*	(11^-)	
1798.6+y[b] *8*		
1813.1+y[c] *8*	(11^+)	
1886.4+y *12*		
1969.3+y[#] *6*	12^+	
2049.0+y *6*		
2051.1+y[@] *6*	(12^+)	
2132.9+y *6*	11^-	
2168.4+y[@] *8*		
2198.1+y[&] *7*	(11^-)	
2238.4+y *8*	(11^-)	
2369.1+y[&] *8*	(12^-)	
2381.6+y[b] *13*		
2397.7+y[a] *9*	(13^-)	
2403.3+y[‡] *6*	13^+	
2595.1+y[@] *6*		
2598.3+y[&] *8*	(13^-)	
2640.3+y *12*		
2779.1+y[@] *8*		
2828.1+y[c] *13*	(13^+)	
2848.9+y[#] *7*	14^+	
2874.7+y[&] *9*	(14^-)	
3081.8+y[a] *14*	(15^-)	

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^{133}Cs(α,3nγ) 1998Pr05 (continued)

^{134}La Levels (continued)

E(level)	J$^{\pi}$†	E(level)	J$^{\pi}$†	E(level)	J$^{\pi}$†
3176.0+y[b] *14*		3282.4+y[‡] *7*	(15)$^{+}$	3883.0+y[b] *17*	
3264.1+y[@] *12*		3689.8+y[&] *10*	(16^{-})	4197.8+y[&] *14*	(17^{-})
3281.3+y[&] *10*	(15^{-})	3772.9+y[#] *12*	(16)$^{+}$	4231.3+y[‡] *11*	(17)$^{+}$
				4714.4+y[&] *19*	(18^{-})

† As given by 1998Pr05 which are different from the adopted values.
‡ Band(A): πh11/2νh11/2, α=1 (Yrast).
# Band(a): πh11/2νh11/2, α=0 (Yrast).
@ Band(B): 10^{+} band.
& Band(C): π3/2[422]νh11/2.
a Band(D): Probable πh11/2ν1/2[400].
b Band(E): γ-sequence.
c Band(F): ν1/2[530]πh11/2 (tentative).

γ(^{134}La)

DCO gated on dipole transitions.

E$_{\gamma}$	I$_{\gamma}$†	E$_i$(level)	J$_i^{\pi}$	E$_f$	J$_f^{\pi}$	Comments
53.4 *5*	24.4‡	53.4+y	(6^{-})	0+y	5^{-}	
130.8 *5*	3.4‡	2369.1+y	(12^{-})	2238.4+y	(11^{-})	DCO=0.85 *23*.
145.0 *1*	77.5	813.6+y	9^{+}	668.7+y	8^{+}	−0.02≤δ(Q/D)≤+0.1. DCO=1.21 *1*. A$_2$=−0.12 *8*, A$_4$=+0.06 *9*.
150.0 *1*	8.4	668.7+y	8^{+}	518.7+y	(8^{-})	
158.3 *1*	88.2	211.7+y	(7^{-})	53.4+y	(6^{-})	−0.08≤δ(Q/D)≤+0.04. DCO=1.25 *1*. A$_2$=−0.33 *8*, A$_4$=−0.09 *9*.
163.0 *5*	6.4‡	976.4+y	(9^{-})	813.6+y	9^{+}	DCO=1.42 *22*.
170.9 *5*	4.7‡	2369.1+y	(12^{-})	2198.1+y	(11^{-})	DCO=1.22 *28*.
187.7 *1*	100	241.0+y	7^{+}	53.4+y	(6^{-})	−0.02≤δ(Q/D)≤+0.04. DCO=1.18 *1*. A$_2$=−0.25 *6*, A$_4$=−0.02 *6*.
188		2238.4+y	(11^{-})	2051.1+y	(12^{+})	E$_{\gamma}$: From Figure 2 of 1998Pr05.
229.2 *1*	9.8	2598.3+y	(13^{-})	2369.1+y	(12^{-})	+0.01≤δ(Q/D)≤+0.08. DCO=1.43 *6*. A$_2$=−0.14 *9*, A$_4$=−0.01 *8*.
257.6 *5*	21.3	1233.9+y	(10^{-})	976.4+y	(9^{-})	−0.02≤δ(Q/D)≤+0.1. I$_{\gamma}$: For 257.6+258. DCO=0.96 *4*. A$_2$=−0.12 *8*, A$_4$=+0.06 *9*.
x258 *1*	21.3					I$_{\gamma}$: For 257.6+258.
276.4 *5*	26.1	2874.7+y	(14^{-})	2598.3+y	(13^{-})	I$_{\gamma}$: For 276.4+277.5+278.7. DCO=1.05 *5*.
277.5 *5*	26.1	518.7+y	(8^{-})	241.0+y	7^{+}	I$_{\gamma}$: For 276.4+277.5+278.7. DCO=1.13 *21*.
278.7 *5*	26.1	1233.9+y	(10^{-})	954.9+y	(9^{-})	I$_{\gamma}$: For 276.4+277.5+278.7.

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^{133}Cs(α,3nγ) 1998Pr05 (continued)

$\gamma(^{134}La)$ (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Comments
298.4 *1*	2.1	1710.4+y	(11^+)	1412.0+y	(10^+)	
307.0 *1*	46.4	518.7+y	(8^-)	211.7+y	(7^-)	−0.04≤δ(Q/D)≤+0.01. DCO=1.20 *8*. A_2=−0.26 *5*, A_4=−0.02 *5*.
338.0 *1*	18.3	1532.8+y	11^+	1194.9+y	10^+	−0.04≤δ(Q/D)≤+0.08. DCO=1.46 *18*. A_2=−0.25 *4*. A_4 term not included.
340.7 *1*	7.9	2051.1+y	(12^+)	1710.4+y	(11^+)	DCO=1.3 *4*.
[x]346.2 *5*						
380		1574.8+y	11^+	1194.9+y	10^+	E_γ: From Figure 2 of 1998Pr05.
381.3 *1*	52.6	1194.9+y	10^+	813.6+y	9^+	−0.1≤δ(Q/D)≤−0.02. DCO=1.28 *5*. A_2=−0.28 *4*, A_4=+0.03 *4*.
[x]386.6 *5*	1.9[‡]					
406.6 *1*	6.6	3281.3+y	(15^-)	2874.7+y	(14^-)	
408.5 *1*	4.3	3689.8+y	(16^-)	3281.3+y	(15^-)	
427.6 *1*	64.2	668.7+y	8^+	241.0+y	7^+	DCO=1.28 *5*. A_2=−0.16 *4*, A_4=+0.05 *5*.
433 *1*	9.5	3282.4+y	$(15)^+$	2848.9+y	14^+	I_γ: For 433+434.5.
434.5 *5*	9.5	2403.3+y	13^+	1969.3+y	12^+	I_γ: For 433+434.5.
436.5 *1*	18.0	1969.3+y	12^+	1532.8+y	11^+	0.0≤δ(Q/D)≤+0.08. DCO=1.35 *9*. A_2=−0.14 *3*, A_4=+0.21 *4*.
445.1 *5*	2.8[‡]	2848.9+y	14^+	2403.3+y	13^+	DCO=1.20 *30*.
457.2 *5*	51.0	668.7+y	8^+	211.7+y	(7^-)	0.0≤δ(Q/D)≤+0.08. I_γ: For 457.2+457.7+458.0. DCO=1.65 *9*. A_2=−0.06 *7*, A_4=+0.06 *8*.
457.7 *5*	51.1	976.4+y	(9^-)	518.7+y	(8^-)	I_γ: For 457.2+457.7+458.0.
458.0 *5*	51.0	2168.4+y		1710.4+y	(11^+)	I_γ: For 457.2+457.7+458.0.
459[#] *1*		4231.3+y	$(17)^+$	3772.9+y	$(16)^+$	
[x]470 *1*						
474.2 *1*	4.1	2049.0+y		1574.8+y	11^+	
476.4 *5*	4.1[‡]	1710.4+y	(11^+)	1233.9+y	(10^-)	DCO=1.1 *4*.
490[#] *1*		3772.9+y	$(16)^+$	3282.4+y	$(15)^+$	
508 *1*		4197.8+y	(17^-)	3689.8+y	(16^-)	
515.3 *5*	20.9[‡]	1710.4+y	(11^+)	1194.9+y	10^+	DCO=1.43 *11*.
517[#] *1*	3.3[‡]	4714.4+y	(18^-)	4197.8+y	(17^-)	I_γ: For 517+518.0.
518.0 *5*	3.3	2051.1+y	(12^+)	1532.8+y	11^+	I_γ: For 517+518.0.
[x]525 *1*						
[x]533 *1*						
544.0 *1*	2.2	2595.1+y		2051.1+y	(12^+)	
[x]571 *1*						
583 *1*	2.7	2381.6+y		1798.6+y		
596.6 *5*	4.1[‡]	1796.1+y	(11^-)	1199.4+y	(9^-)	DCO=1.85 *33*.
598.6 *1*	16.2	1412.0+y	(10^+)	813.6+y	9^+	−0.08≤δ(Q/D)≤0.0. DCO=0.90 *18*. A_2=−0.34 *5*. A_4 term not included.
601.7 *1*	11.0	2397.7+y	(13^-)	1796.1+y	(11^-)	DCO=3.2 *6*.
603.8 *5*	16.1[‡]	1798.6+y		1194.9+y	10^+	DCO=1.2 *6*.
610.7 *1*	2.4	2779.1+y		2168.4+y		
669 *1*	4.2	3264.1+y		2595.1+y		I_γ: For 669+671.
671 *1*	4.2	2640.3+y		1969.3+y	12^+	I_γ: For 671+669.

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^{133}Cs(α,3nγ) 1998Pr05 (continued)

$\gamma(^{134}La)$ (continued)

E_γ	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Comments
680.8 *5*	8.6[‡]	1199.4+y	(9^-)	518.7+y	(8^-)	DCO=1.25 *24*. A_2=−0.35 *17*, A_4=+0.15 *15*.
684.0[#] *5*	11.2	3081.8+y	(15^-)	2397.7+y	(13^-)	I_γ: For 684.0+685.1.
685.1 *5*	11.2	926.2+y	(9^+)	241.0+y	7^+	I_γ: For 685.1+684.0. DCO=1.65 *33* for doublet. A_2=+0.40 *1*, A_4=−0.17 *18* for doublet.
707 *1*	≈1	3883.0+y		3176.0+y		
715.2 *1*	18.6	1233.9+y	(10^-)	518.7+y	(8^-)	DCO=2.6 *6*. A_2=+0.53 *6*, A_4=+0.18 *8*.
719.2 *1*	10.6	1532.8+y	11^+	813.6+y	9^+	DCO=2.5 *5*. A_2=+0.44 *10*, A_4=−0.04 *11*.
743.3 *1*	10.2	954.9+y	(9^-)	211.7+y	(7^-)	
743.3 *1*	10.2	1412.0+y	(10^+)	668.7+y	8^+	
761.3 *1*	6.9	1574.8+y	11^+	813.6+y	9^+	DCO=1.8 *5*.
764.7 *1*	10.4	976.4+y	(9^-)	211.7+y	(7^-)	DCO=2.2 *6*. A_2=+0.36 *6*. A_4 term not included.
774.4 *1*	1.6	1969.3+y	12^+	1194.9+y	10^+	
794.4 *5*	4.3[‡]	3176.0+y		2381.6+y		
870.5 *1*	6.1	2403.3+y	13^+	1532.8+y	11^+	DCO=3.8 *11*. A_2=+0.73 *10*, A_4=+0.31 *12*.
879.2 *5*	2.8	3282.4+y	$(15)^+$	2403.3+y	13^+	I_γ: For 879.2+880.0.
880.0 *5*	2.8	2848.9+y	14^+	1969.3+y	12^+	I_γ: For 880.0+879.2.
886.9 *1*	6.4	1813.1+y	(11^+)	926.2+y	(9^+)	DCO=3.2 *11*. A_2=+0.36 *21*, A_4=−0.16 *10*.
899.0 *1*	6.5	2132.9+y	11^-	1233.9+y	(10^-)	DCO=1.3 *6*.
910 *1*	3.7[‡]	1886.4+y		976.4+y	(9^-)	
924 *1*	4.0[‡]	3772.9+y	$(16)^+$	2848.9+y	14^+	
949[#] *1*	1.8[‡]	4231.3+y	$(17)^+$	3282.4+y	$(15)^+$	
964.2 *5*	7.0[‡]	2198.1+y	(11^-)	1233.9+y	(10^-)	−0.25≤δ(Q/D)≤+0.02. DCO=1.14 *3*. A_2=−0.26 *20*, A_4=+0.15 *20*.
1004 *1*	4.0[‡]	2238.4+y	(11^-)	1233.9+y	(10^-)	
1015 *1*	≈1	2828.1+y	(13^+)	1813.1+y	(11^+)	

[†] Δ(Iγ)=5-30%.
[‡] Line contaminated. Intensity from $\gamma\gamma$ coin.
[#] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

^{133}Cs(α,3nγ) **1998Pr05**

Level Scheme

Intensities: Relative I_γ

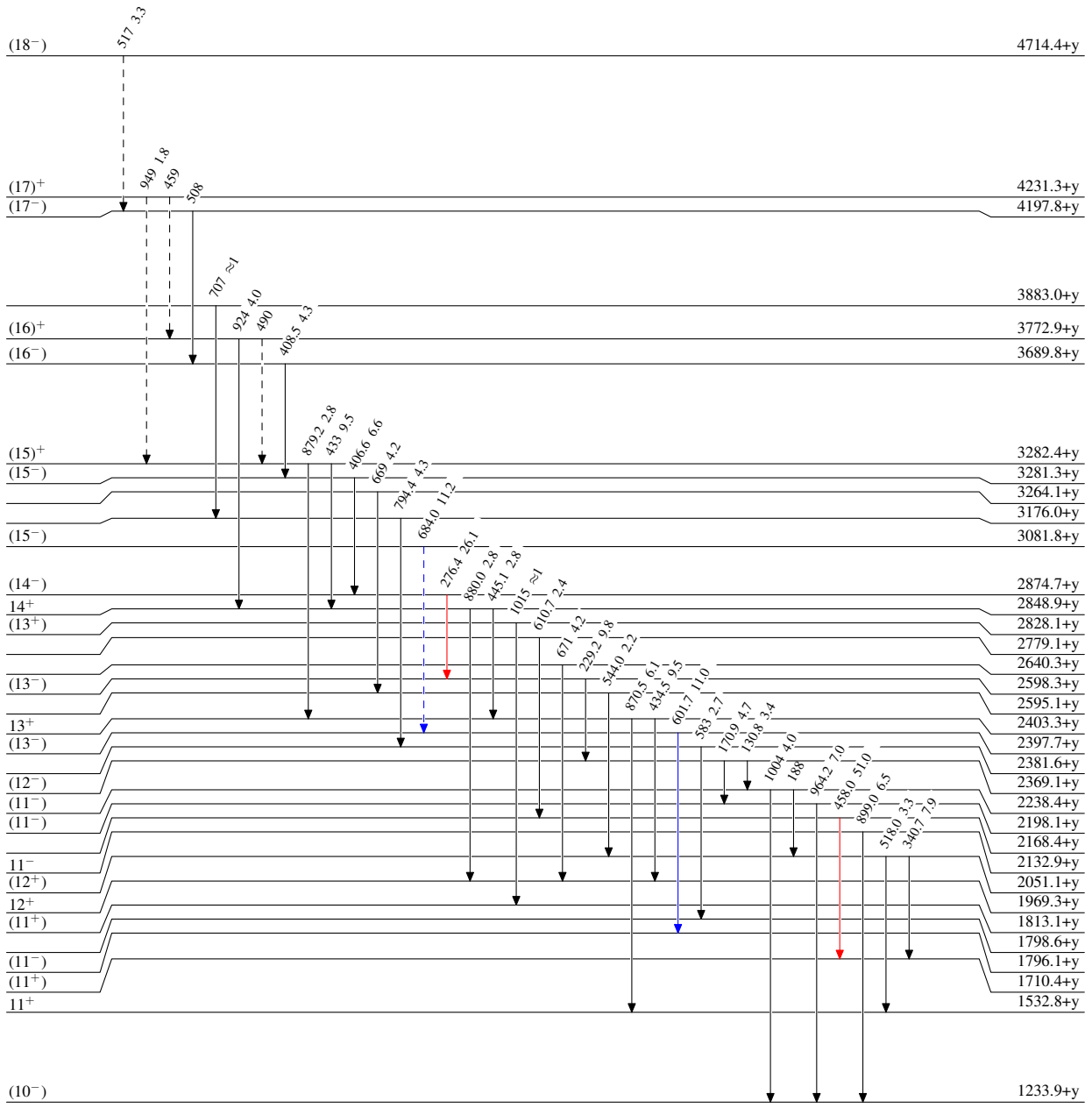
Legend

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

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

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

γ Decay (Uncertain)



$^{134}_{57}La_{77}$

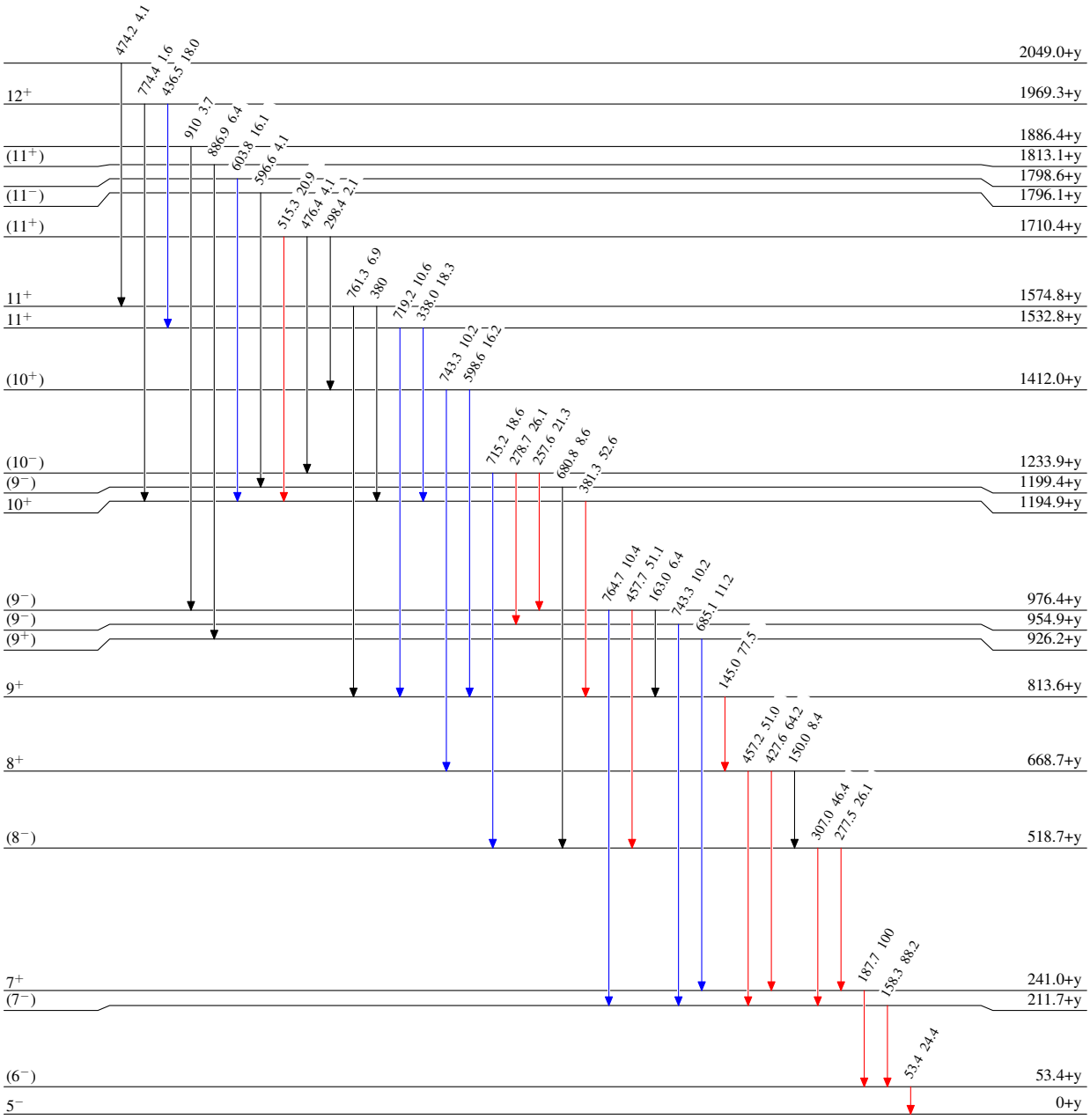
^{133}Cs(α,3nγ) **1998Pr05**

Level Scheme (continued)

Intensities: Relative I_γ

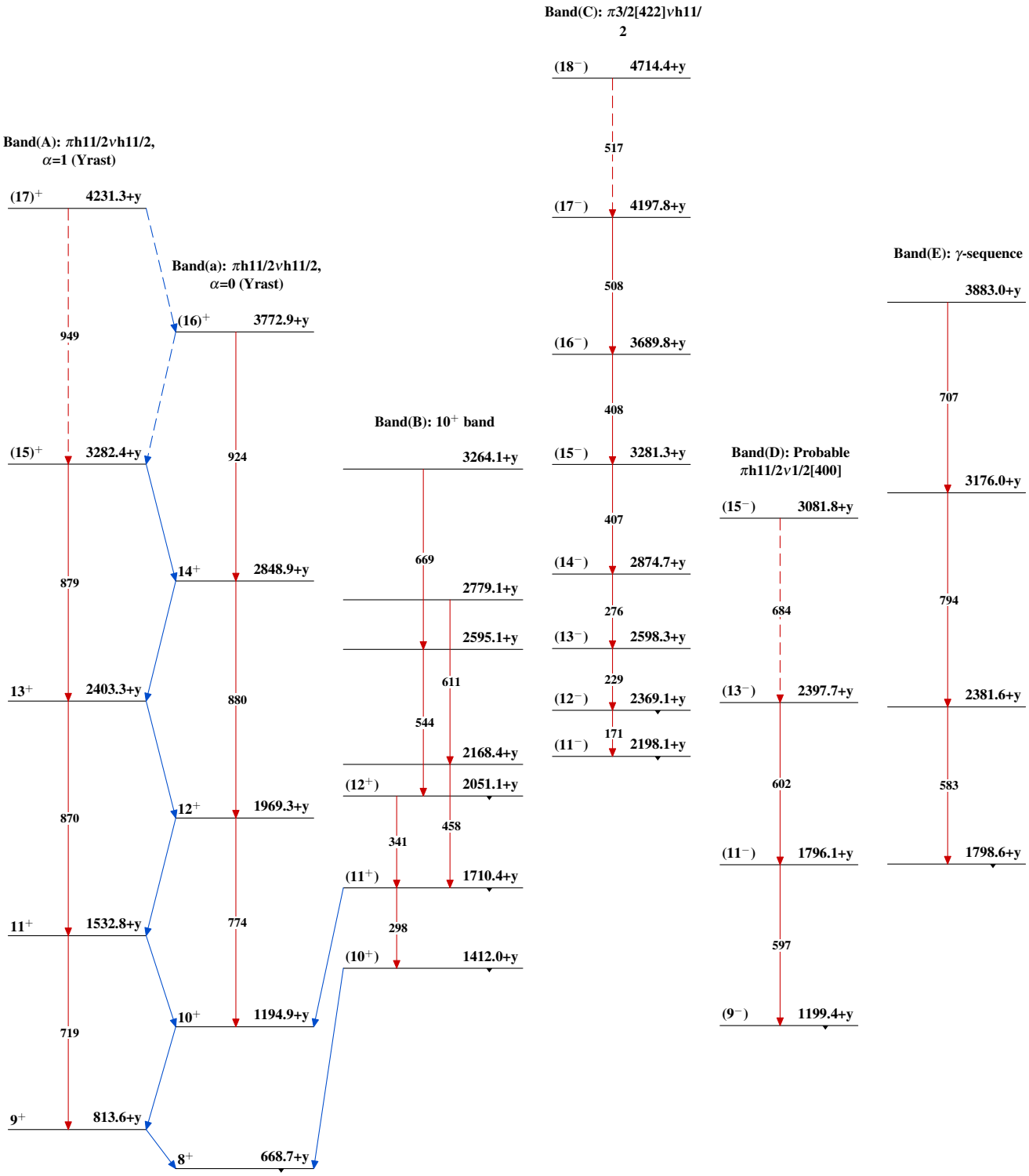
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



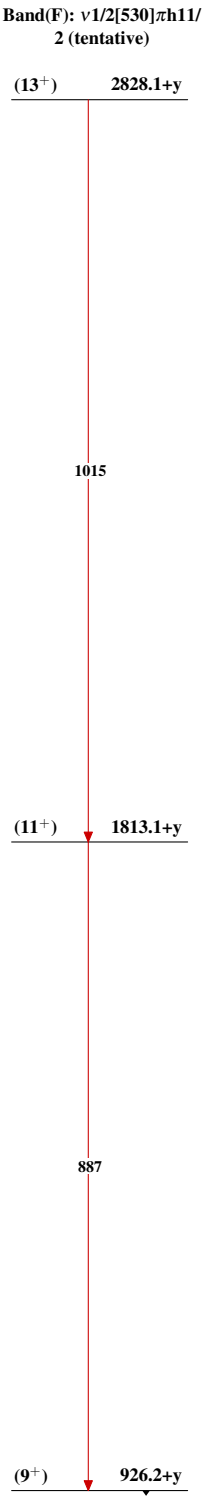
$^{134}_{57}La_{77}$

$^{133}Cs(\alpha,3n\gamma)$ 1998Pr05



$^{134}_{57}La_{77}$

^{133}Cs(α,3nγ) 1998Pr05 (continued)



$^{134}_{57}La_{77}$