(HI,xnγ) 1995Be31,1998CiZY,1999Ta03

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Huang Xiaolong	NDS 108, 1093 (2007)	1-Jan-2006

1995Be31: ^{172}Yb(^{28}Si,4nγ) E=141, 145 MeV; measured Eγ, Iγ $\gamma\gamma$-coin, and $\gamma\gamma(\theta)$ by using 12Ge(Li) detectors with BGO.
1998CiZY: ^{172}Yb(^{28}Si,4nγ) E=143 MeV; measured Eγ, Iγ, $\gamma\gamma$-coin by the Jurosphere array of Compton-suppressed Ge detectors coupled to the gas-filled recoil separator ritu.
1999Ta03: ^{166}Er(^{36}Ar,4nγ) E=175 MeV, measured Eγ, Iγ, $\gamma\gamma$-coin by the Jurosphere array of 24 Compton-suppressed Ge detectors coupled to the gas-filled recoil separator ritu.

^{196}Po Levels

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$[&]	Comments
0.0[#]	0$^+$	5.8 s *2*	
463.04[#] *9*	2$^+$		
859.12 *14*	2$^+$	<12 ns	T$_{1/2}$: from time-difference spectra, 2σ upper limit.
890.89[#] *12*	4$^+$		
1387.75 *13*	4$^+$		
1390.10[#] *5*	6$^+$		
1525.2 *5*			
1802.17[@] *23*	5$^-$		
1907.0 *5*			
1940.1[#] *5*	8$^+$		
1974.4 *5*	8$^+$		
2039.52[@] *25*	7$^-$		
2293.0[@] *5*	9$^-$		
2304.7 *9*			
2493.9[@] *4*	11$^-$	856 ns *17*	T$_{1/2}$: From RITU (1998CiZY).
2591.3 *5*	10$^+$		
2650.8 *9*			
2778.7 *5*	(10$^+$)		
2979.6 *9*	11$^{(-)}$		
3083.1 *10*			
3344.0 *5*	(12$^+$)		
3609.1 *14*			
3647.3 *9*	13$^{(-)}$		

† From least-squares fit to Eγ's.
‡ Deduced from $\gamma\gamma(\theta)$ (1995Be31), lifetime information, and systematic comparisons to even-Po isotopes.
\# Band(A): K$^{\pi}$=0$^+$ ground-state band. Involving the low energy Configuration=(π h$_{9/2}$)$^{+2}$ as well as neutron-hole pair admixtures.
@ Band(B): negative-parity collective rotational band built on an Intruder 4p2h quasiparticle configuration, involving a neutron (i13/2) hole coupled to a proton (h9/2) or f neutron hole.
& From Adopted Levels, except as noted.

γ(^{196}Po)

E$_{\gamma}$[†]	I$_{\gamma}$[bc]	E$_i$(level)	J$^{\pi}_i$	E$_f$	J$^{\pi}_f$	Mult.[‡]	α[d]	Comments
133.8[a]		2039.52	7$^-$	1907.0				
198[a]		2493.9	11$^-$	2293.0	9$^-$			
237.36 *9*	29.0 *4*	2039.52	7$^-$	1802.17	5$^-$	E2	0.263	α(K)=0.1138 *16*; α(L)=0.1110 *16*; α(M)=0.0292 *5*; α(N+..)=0.00906 *13*

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(HI,xnγ) 1995Be31,1998CiZY,1999Ta03 (continued)

γ(^{196}Po) (continued)

E_γ [†]	I_γ [bc]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α [d]	Comments
								DCO ratio=1.26 *35* (1995Be31). I_γ: Other: 20 3(1999Ta03).
253.8 *4*	30.8 *4*	2293.0	9^-	2039.52	7^-	E2	0.212	α(K)=0.0978 *15*; α(L)=0.0847 *13*; α(M)=0.0222 *4*; α(N+..)=0.00690 *11* DCO ratio=1.16 *39* (1995Be31). I_γ: Other: 17 1(1999Ta03).
265 [@]		2304.7		2039.52	7^-			
277.8 [&] *5*	11 [&] *3*	1802.17	5^-	1525.2				
283.8 [&] *4*	15 [&] *4*	2778.7	(10^+)	2493.9	11^-			
346 [@]		2650.8		2304.7				
358 [@]		2650.8		2293.0	9^-			
388.3 *7*	46.8 *6*	2979.6	$11^{(-)}$	2591.3	10^+	(E1)	0.0176	α(K)=0.01440 *21*; α(L)=0.00243 *4*; α(M)=0.000569 *9*; α(N+..)=0.000179 *3* DCO ratio=0.75 *25* (1995Be31). I_γ: Other: 20 5(1999Ta03).
396.3 *5*	13.1 *4*	859.12	2^+	463.04	2^+	[M1+E2]	0.15 *9*	α(K)=0.11 *8*; α(L)=0.025 *9*; α(M)=0.0060 *19*; α(N+..)=0.0019 *7* DCO ratio=1.44 *31* (1995Be31). I_γ: Other: 17 4(1999Ta03).
[x]404.8 *6*	14 *4*							
414.1 *3*	44.8 *8*	1802.17	5^-	1387.75	4^+	E1	0.01528	α(K)=0.01254 *18*; α(L)=0.00210 *3*; α(M)=0.000492 *7*; α(N+..)=0.0001547 *22* DCO ratio=0.88 *33* (1995Be31). I_γ: Other: 31 5(1999Ta03).
427.82 *9*	94.7 *10*	890.89	4^+	463.04	2^+	E2	0.0472	α(K)=0.0307 *5*; α(L)=0.01236 *18*; α(M)=0.00314 *5*; α(N+..)=0.000983 *14* DCO ratio=1.24 *15* (1995Be31). I_γ: Other: 86 10(1999Ta03).
432.3 [&] *3*	15 [&] *4*	3083.1		2650.8				
463.02 *9*	100	463.04	2^+	0.0	0^+	E2	0.0387	α(K)=0.0260 *4*; α(L)=0.00954 *14*; α(M)=0.00241 *4*; α(N+..)=0.000756 *11* DCO ratio=1.41 *14* (1995Be31).
485.79 [@] *10*	18.9 *4*	2778.7	(10^+)	2293.0	9^-	(E1)	0.01090	α(K)=0.00897 *13*; α(L)=0.001477 *21*; α(M)=0.000345 *5*; α(N+..)=0.0001088 *16* DCO ratio=0.82 *60* (1995Be31).
496.74 [@] *10*	18.5 *4*	1387.75	4^+	890.89	4^+	[M1+E2]	0.08 *5*	α(K)=0.06 *5*; α(L)=0.013 *6*; α(M)=0.0031 *12*; α(N+..)=0.0010 *4*
498.6 *5*	69.7 *7*	1390.10	6^+	890.89	4^+	E2	0.0323	α(K)=0.0223 *4*; α(L)=0.00755 *11*; α(M)=0.00190 *3*; α(N+..)=0.000595 *9* DCO ratio=1.48 *26* (1995Be31). I_γ: Other: 67 9(1999Ta03).
516.1		1907.0		1387.75	4^+			
517.6 [&] *4*	9 [&] *3*	1907.0		1390.10	6^+			
526 [@]		3609.1		3083.1				
528.55 *9*	15.2 *6*	1387.75	4^+	859.12	2^+	E2	0.0282	α(K)=0.0198 *3*; α(L)=0.00631 *9*; α(M)=0.001579 *23*; α(N+..)=0.000496 *7* DCO ratio=1.44 *36* (1995Be31). I_γ: Other: 17 5(1999Ta03).
550.29 [@] *11*	20.9 *21*	1940.1	8^+	1390.10	6^+	E2	0.0256	α(K)=0.0182 *3*; α(L)=0.00559 *8*; α(M)=0.001395 *20*; α(N+..)=0.000438 *7* DCO ratio=1.39 *51* (1995Be31).
552 [#]		2493.9	11^-	1940.1	8^+	E3	0.0809	α(K)=0.0444 *7*; α(L)=0.0272 *4*; α(M)=0.00710 *10*; α(N+..)=0.00223 *4*

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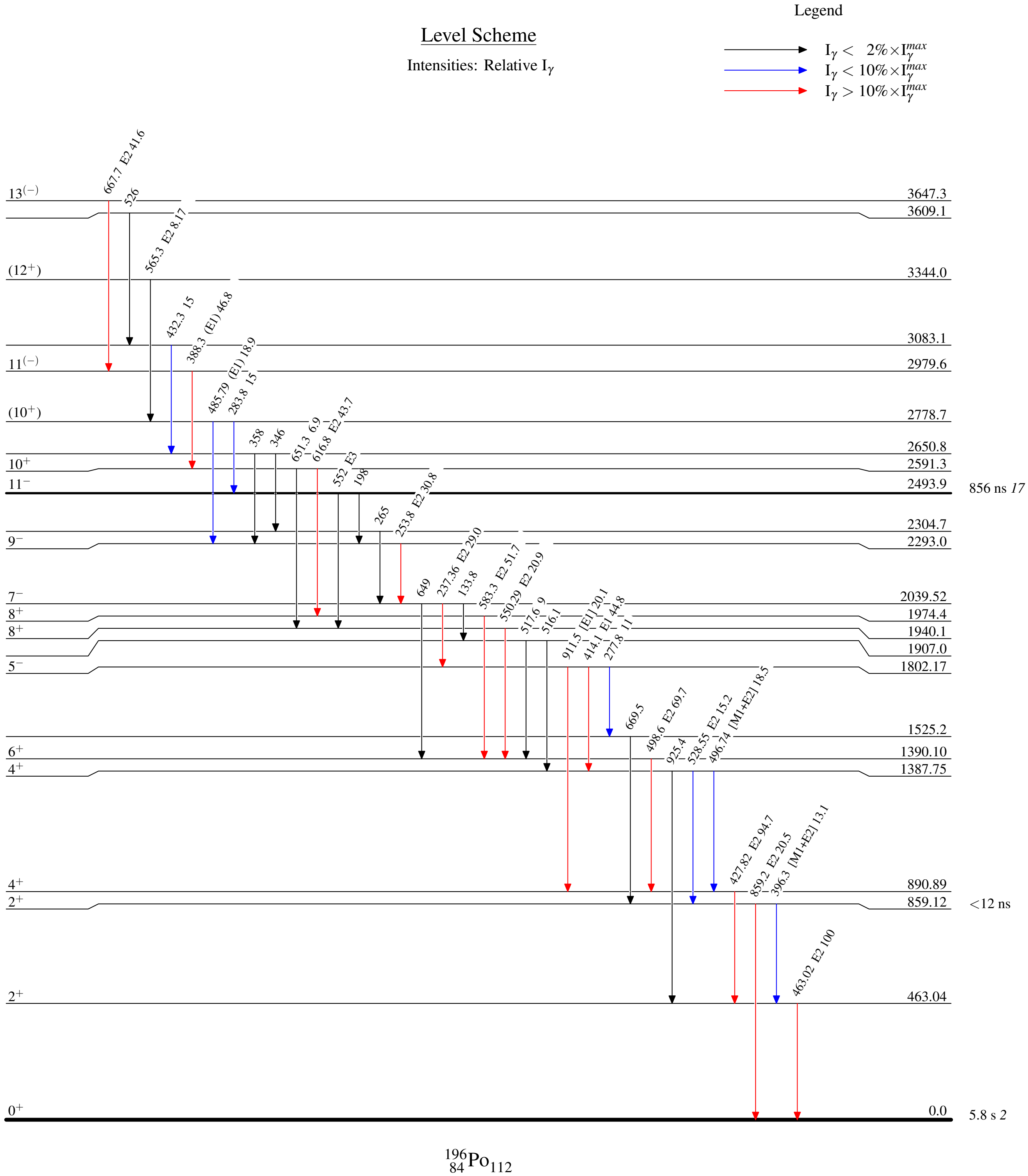
(HI,xnγ) 1995Be31,1998CiZY,1999Ta03 (continued)

γ(^{196}Po) (continued)

E_γ[†]	I_γ[bc]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	α[d]	Comments
565.3[@] *2*	8.17 *24*	3344.0	(12$^+$)	2778.7	(10$^+$)	E2	0.0241	α(K)=0.01726 *25*; α(L)=0.00516 *8*; α(M)=0.001286 *18*; α(N+..)=0.000404 *6* DCO ratio=1.34 *41* (1995Be31).
583.3 *7*	51.7 *7*	1974.4	8$^+$	1390.10	6$^+$	E2	0.0225	α(K)=0.01622 *23*; α(L)=0.00471 *7*; α(M)=0.001171 *17*; α(N+..)=0.000368 *6* DCO ratio=1.96 *54* (1995Be31). I_γ: Other: 35 6(1999Ta03).
616.8 *2*	43.7 *8*	2591.3	10$^+$	1974.4	8$^+$	E2	0.0198	α(K)=0.01452 *21*; α(L)=0.00402 *6*; α(M)=0.000994 *14*; α(N+..)=0.000313 *5* DCO ratio=1.68 *24* (1995Be31). I_γ: Other: 21 6(1999Ta03).
649[@]		2039.52	7$^-$	1390.10	6$^+$			
651.3[@] *2*	6.9 *8*	2591.3	10$^+$	1940.1	8$^+$			
667.7[@] *2*	41.6 *10*	3647.3	13$^{(-)}$	2979.6	11$^{(-)}$	E2	0.01670	α(K)=0.01243 *18*; α(L)=0.00322 *5*; α(M)=0.000794 *12*; α(N+..)=0.000250 *4* DCO ratio=1.70 *41* (1995Be31).
669.5[a]		1525.2		859.12	2$^+$			
859.2[@] *2*	20.5 *7*	859.12	2$^+$	0.0	0$^+$	E2	0.00991	α(K)=0.00769 *11*; α(L)=0.001685 *24*; α(M)=0.000408 *6*; α(N+..)=0.0001289 *18* DCO ratio=1.33 *60* (1995Be31).
911.5[@] *3*	20.1 *6*	1802.17	5$^-$	890.89	4$^+$	[E1]	0.00321	α(K)=0.00267 *4*; α(L)=0.000417 *6*; α(M)=9.68×10^{-5} *14*; α(N+..)=3.06×10^{-5} *5*
925.4[a]		1387.75	4$^+$	463.04	2$^+$			

[†] Weighted average of 1995Be31 and 1999Ta03, except as noted.
[‡] From DCO ratios and rough total conversion coefficients (1995Be31).
[#] From 1991Al15. Not seen by 1995Be31.
[@] From 1995Be31.
[&] From 1999Ta03.
[a] From 1998CiZY.
[b] From 1995Be31 and normalized to Iγ(463γ)=100,except as noted.
[c] Absolute intensity per 100 decays.
[d] 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.
[x] γ ray not placed in level scheme.

(HI,xnγ) 1995Be31,1998CiZY,1999Ta03



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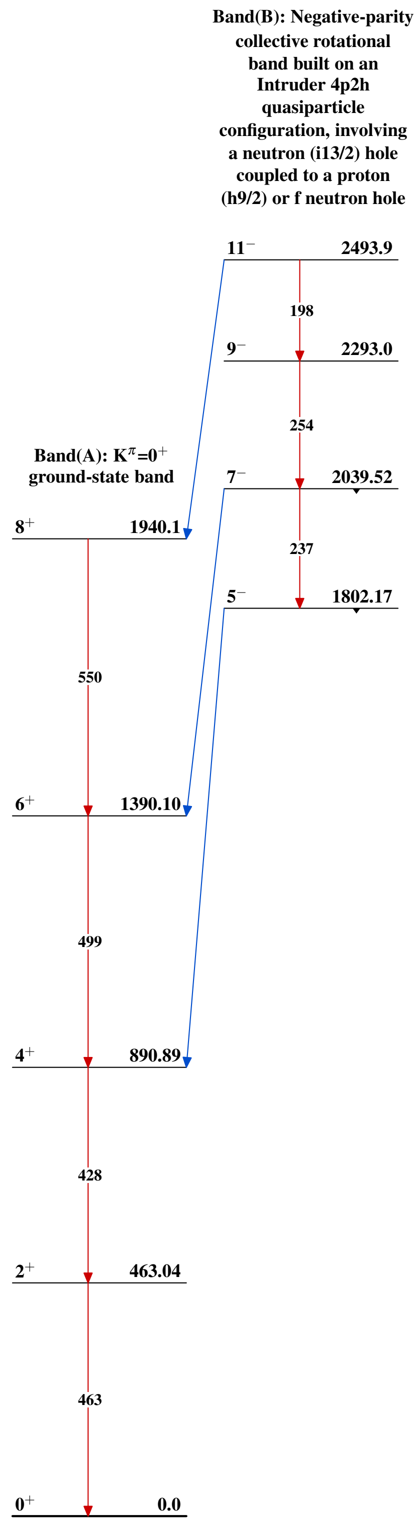

$^{196}_{84}Po_{112}$