^{198}Pt(α,6nγ) 1991Me06

History

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

1991Me06: E=78 MeV. 86% enriched ^{198}Pt. In-beam, six Compton- suppressed Ge-detectors placed at angles of 30°, 90° and 150°. Event-by-event coincidence. Measured Eγ, Iγ, DCO ratios.
2004Gu06: E=150 MeV, rsam with afrodite array.Measured Eγ.

^{196}Hg Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0#	0^+	2262.89# *20*	(8^+)	3311.0@ *4*	(13^-)	5350.4 *5*	(20)
426.00# *10*	2^+	2342.4# *5*	(10^+)	3507.5# *5*	(16^+)	5616.2 *5*	(21)
1061.49# *15*	4^+	2359.0 *4*	(8^-)	3697.2@ *4*	(15^-)	5846.3# *5*	(22^+)
1757.09@ *18*	5^-	2439.0# *5*	(12^+)	3791.6 *5*	(15^+)	5859.2 *5*	(22)
1785.29# *18*	(6^+)	2553.9& *5*	(10^-)	3976.1@ *5*	(17^-)	5958.2@ *5*	(23^-)
1841.5@ *4*	7^-	2620.7@ *4*	(11^-)	4321.2# *5*	(18^+)	6499.3# *6*	(24^+)
2058.6& *3*	$(6)^-$	2843.6# *5*	(14^+)	4388.1@ *5*	(19^-)	7325.8# *7*	(26^+)
2064.5@ *4*	9^-	2930.1& *5*	(10^-)	5038.5@ *5*	(21^-)		
2097.9& *4*	(8^-)	3236.6& *5*	(12^-)	5199.0# *5*	(20^+)		

† From least-squares fit to Eγ's.
‡ On the basis of directional correlation (DCO) ratios (Iγ(30°)/Iγ(90°)) determined from the coincidence spectra, and proposed band structure.
# Band(A): positive-parity g.s. collective rotation band.
@ Band(B): odd-spin negative-parity band built on 5^- level.
& Band(C): even-spin negative-parity band built on $(6)^-$ level.

γ(^{196}Hg)

Eγ	Iγ†	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.‡	α^f	I$_{(\gamma+ce)}$	Comments
(56)		1841.5	7^-	1785.29	(6^+)	[E1]	0.412		α(L)=0.316 *5*; α(M)=0.0745 *11*; α(N+..)=0.0214 *3* Eγ: an unobserved interband transition is required on the basis of the following observations: 724γ is seen in coincidence with 223γ, 386γ and 556γ; I(696γ) is found to be lower by about 15% than the 223γ, 556γ and 690γ in all coincidence spectra obtained by gating on the 386γ and higher-spin transition in the negative-parity band.
79.5		2342.4	(10^+)	2262.89	(8^+)	E2	14.55	≈400	ce(L)/(γ+ce)=0.700 *7*; ce(M)/(γ+ce)=0.183 *4*; ce(N+)/(γ+ce)=0.0528 *10* I$_{(\gamma+ce)}$: from Iγ(278γ)=19 and authors' statement that branching of 278γ from 2342 level is≈5%. Mult.: from band structure.
84.3		1841.5	7^-	1757.09	5^-	E2	11.55		α(K)=0.541 *8*; α(L)=8.23 *12*; α(M)=2.15 *3*; α(N+..)=0.622 *9* Mult.: from band structure.
96.7 *3*	57	2439.0	(12^+)	2342.4	(10^+)	(E2)	6.39 *13*		B(E2)(W.u.)=37.8 *16*

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^{198}Pt(α,6nγ) 1991Me06 (continued)

$\gamma(^{196}Hg)$ (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[f]	Comments
								α(K)=0.624 *9*; α(L)=4.31 *9*; α(M)=1.127 *23*; α(N+..)=0.326 *7* Mult.: from DCO=1.02 *15*.
[x]156.7[d] *3*	5							
[x]178.5[d] *4*	7							
223.0 *1*	312	2064.5	9^-	1841.5	7^-	(E2)	0.271	B(E2)(W.u.)=33.6 *18* α(K)=0.1301 *19*; α(L)=0.1055 *15*; α(M)=0.0271 *4*; α(N+..)=0.00791 *12* Mult.: from DCO=1.00 *5*.
242.2 *4*	6	5859.2	(22)	5616.2	(21)	D		Mult.: DCO=0.40 *10*.
[x]256.4[gd] *1*	13[g]					(M1+E2)	0.36 *20*	α(K)=0.27 *19*; α(L)=0.068 *9*; α(M)=0.0165 *13*; α(N+..)=0.0049 *5* Mult.: DCO=0.47 *9*.
256.4[g] *1*	12[g]	2097.9	(8^-)	1841.5	7^-	(M1+E2)	0.36 *20*	α(K)=0.27 *19*; α(L)=0.068 *9*; α(M)=0.0165 *13*; α(N+..)=0.0049 *5* Mult.: from DCO=0.55 *7*.
261.1 *2*		2359.0	(8^-)	2097.9	(8^-)	(M1+E2)	0.35 *19*	α(K)=0.26 *18*; α(L)=0.064 *9*; α(M)=0.0156 *14*; α(N+..)=0.0046 *5* I_γ: Iγ(261+265)=9. Mult.: DCO=0.76 *15*.
265.7 *1*	9	5616.2	(21)	5350.4	(20)	D		I_γ: Iγ(261+265)=9, Iγ(265+273)=13. Mult.: DCO=0.46 *6*.
273.3 *3*		2058.6	$(6)^-$	1785.29	(6^+)			I_γ: Iγ(265+273)=13.
278.0 *5*	(19)[e]	2342.4	(10^+)	2064.5	9^-	(E1)	0.0332	B(E1)(W.u.)=1.91×10^{-6} *7* α(K)=0.0273 *4*; α(L)=0.00454 *7*; α(M)=0.001054 *16*; α(N+..)=0.000313 *5*
278.9 *1*	245	3976.1	(17^-)	3697.2	(15^-)	(E2)	0.1326	α(K)=0.0753 *11*; α(L)=0.0432 *6*; α(M)=0.01100 *16*; α(N+..)=0.00321 *5* Mult.: from DCO=1.00 *5*.
300.5 *3*	13	2359.0	(8^-)	2058.6	$(6)^-$			
301.5 *3*	23	2058.6	$(6)^-$	1757.09	5^-			
[x]342.4[c] *4*	10							
[x]345.5[#] *3*	6							
386.2 *1*	265	3697.2	(15^-)	3311.0	(13^-)	(E2)	0.0521	α(K)=0.0347 *5*; α(L)=0.01312 *19*; α(M)=0.00328 *5*; α(N+..)=0.000965 *14* Mult.: from DCO=0.97 *5*.
404.6 *1*	305	2843.6	(14^+)	2439.0	(12^+)	(E2)	0.0460	α(K)=0.0312 *5*; α(L)=0.01120 *16*; α(M)=0.00279 *4*; α(N+..)=0.000822 *12* Mult.: from DCO=0.98 *8*.
[x]408.3[c] *4*	14							
412.0 *1*	188	4388.1	(19^-)	3976.1	(17^-)	(E2)	0.0439	α(K)=0.0299 *5*; α(L)=0.01053 *15*; α(M)=0.00262 *4*; α(N+..)=0.000772 *11* Mult.: from DCO=1.00 *7*.
426.0 *1*	1000	426.00	2^+	0.0	0^+	E2	0.0402	B(E2)(W.u.)=38 *3* α(K)=0.0278 *4*; α(L)=0.00943 *14*; α(M)=0.00234 *4*; α(N+..)=0.000690 *10* Mult.: DCO=1.00 used As a normalization value.
[x]440.0[d] *2*	12					(M1+E2)	0.08 *5*	α(K)=0.07 *4*; α(L)=0.013 *5*; α(M)=0.0031 *10*; α(N+..)=0.0009 *3* Mult.: DCO=0.72 *10*.
456.0 *2*	22	2553.9	(10^-)	2097.9	(8^-)	(E2)	0.0338	α(K)=0.0238 *4*; α(L)=0.00755 *11*; α(M)=0.00187 *3*; α(N+..)=0.000551 *8* Mult.: from DCO=1.21 *20*.
468.5 *2*	21	3976.1	(17^-)	3507.5	(16^+)	(E1)	0.01021	α(K)=0.00847 *12*; α(L)=0.001341 *19*;

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^{198}Pt(α,6nγ) 1991Me06 (continued)

$\gamma(^{196}Hg)$ (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[f]	Comments
								α(M)=0.000310 *5*; α(N+..)=9.24×10^{-5} *13* Mult.: DCO=0.58 *11*.
477.6 *1*	465	2262.89	(8$^+$)	1785.29	(6$^+$)	(E2)	0.0301	α(K)=0.0215 *3*; α(L)=0.00652 *10*; α(M)=0.001607 *23*; α(N+..)=0.000475 *7* Mult.: from DCO=0.98 *4*.
489.3 *3*	11	2553.9	(10$^-$)	2064.5	9$^-$	(M1+E2)	0.06 *4*	α(K)=0.05 *4*; α(L)=0.010 *4*; α(M)=0.0023 *9*; α(N+..)=0.0007 *3* Mult.: from DCO=0.77 *40*.
x509.0[d] *4*	29							
517.5 *3*	18	2359.0	(8$^-$)	1841.5	7$^-$	(M1+E2)	0.05 *3*	α(K)=0.04 *3*; α(L)=0.008 *4*; α(M)=0.0019 *7*; α(N+..)=0.00058 *22* Mult.: DCO=0.78 *22*.
x548.4[@] *2*	14					(E2)	0.0216	α(K)=0.01598 *23*; α(L)=0.00428 *6*; α(M)=0.001046 *15*; α(N+..)=0.000310 *5* Mult.: DCO=1.0 *3*.
556.2 *1*	335	2620.7	(11$^-$)	2064.5	9$^-$	(E2)	0.0209	α(K)=0.01551 *22*; α(L)=0.00411 *6*; α(M)=0.001002 *14*; α(N+..)=0.000297 *5* Mult.: from DCO=0.97 *5*.
x558.6[@] *1*	21					(M1+E2)	0.045 *24*	α(K)=0.036 *21*; α(L)=0.007 *3*; α(M)=0.0016 *6*; α(N+..)=0.00047 *18* Mult.: DCO=0.78 *21*.
x571.1[cg] *2*	23[g]					(M1+E2)	0.042 *23*	α(K)=0.034 *20*; α(L)=0.0063 *25*; α(M)=0.0015 *6*; α(N+..)=0.00044 *17* Mult.: DCO=0.73 *17*.
571.1[g] *2*	12[g]	2930.1	(10$^-$)	2359.0	(8$^-$)			
x575.2[&] *3*	11							
x618.0[#] *3*	14							
635.5 *1*	968	1061.49	4$^+$	426.00	2$^+$	(E2)	0.01546	α(K)=0.01176 *17*; α(L)=0.00281 *4*; α(M)=0.000680 *10*; α(N+..)=0.000202 *3* Mult.: from DCO=1.02 *5*.
647.3 *2*	19	5846.3	(22$^+$)	5199.0	(20$^+$)	(E2)	0.01484	α(K)=0.01133 *16*; α(L)=0.00268 *4*; α(M)=0.000646 *9*; α(N+..)=0.000192 *3* Mult.: from DCO=0.97 *10*.
650.5 *1*	66	5038.5	(21$^-$)	4388.1	(19$^-$)	(E2)	0.01468	α(K)=0.01122 *16*; α(L)=0.00264 *4*; α(M)=0.000637 *9*; α(N+..)=0.000190 *3* Mult.: from DCO=1.26 *18*.
653.0 *2*	8	6499.3	(24$^+$)	5846.3	(22$^+$)	(E2)	0.01456	α(K)=0.01113 *16*; α(L)=0.00261 *4*; α(M)=0.000631 *9*; α(N+..)=0.000188 *3* Mult.: from DCO=1.15 *13*.
663.8 *1*	123	3507.5	(16$^+$)	2843.6	(14$^+$)	(E2)	0.01405	α(K)=0.01077 *15*; α(L)=0.00250 *4*; α(M)=0.000603 *9*; α(N+..)=0.000179 *3* Mult.: from DCO=1.12 *5*.
x668.0[d] *4*	16							
682.7 *2*	18	3236.6	(12$^-$)	2553.9	(10$^-$)	(E2)	0.01322	α(K)=0.01017 *15*; α(L)=0.00232 *4*; α(M)=0.000558 *8*; α(N+..)=0.0001660 *24* Mult.: from DCO=0.87 *18*.
690.3 *1*	296	3311.0	(13$^-$)	2620.7	(11$^-$)	(E2)	0.01290	α(K)=0.00995 *14*; α(L)=0.00225 *4*; α(M)=0.000541 *8*; α(N+..)=0.0001612 *23* Mult.: from DCO=0.99 *5*.
x693.5[@] *4*	14							
695.6 *1*	467	1757.09	5$^-$	1061.49	4$^+$	(E1)	0.00456	B(E1)(W.u.)=1.07×10^{-6} *4* α(K)=0.00380 *6*; α(L)=0.000582 *9*; α(M)=0.0001339 *19*; α(N+..)=4.01×10^{-5} *6* Mult.: from DCO=0.53 *3*.

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^{198}Pt(α,6nγ) 1991Me06 (continued)

$\gamma(^{196}Hg)$ (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[f]	Comments
[x]702.3[@] *4*	8							
[x]714.3[#] *3*	12							
723.8 *1*	451	1785.29	(6^+)	1061.49	4^+	(E2)	0.01166	α(K)=0.00905 *13*; α(L)=0.00199 *3*; α(M)=0.000477 *7*; α(N+..)=0.0001420 *20* Mult.: from DCO=0.96 *6*.
[x]760.6[#] *2*	17							
[x]770.8[c] *3*	14					(E2)	0.01021	α(K)=0.00799 *12*; α(L)=0.001692 *24*; α(M)=0.000404 *6*; α(N+..)=0.0001206 *17* Mult.: DCO=1.4 *4*.
[x]795.6[@] *2*	12							
813.7 *1*	61	4321.2	(18^+)	3507.5	(16^+)	(E2)	0.00913	α(K)=0.00719 *10*; α(L)=0.001478 *21*; α(M)=0.000352 *5*; α(N+..)=0.0001051 *15* Mult.: from DCO=0.97 *4*.
820.7 *1*	15	5859.2	(22)	5038.5	(21^-)	D		Mult.: DCO=0.56 *7*.
826.5 *4*	3	7325.8	(26^+)	6499.3	(24^+)	(E2)	0.00884	α(K)=0.00698 *10*; α(L)=0.001423 *20*; α(M)=0.000339 *5*; α(N+..)=0.0001011 *15* Mult.: from DCO=1.0 *3*.
[x]840.9[@] *3*	18							
[x]842.8[a] *4*	14							
[x]846.5[b] *4*	12							
853.6 *1*	42	3697.2	(15^-)	2843.6	(14^+)	(E1)	0.00308	α(K)=0.00258 *4*; α(L)=0.000389 *6*; α(M)=8.93×10^{-5} *13*; α(N+..)=2.68×10^{-5} *4* Mult.: DCO=0.55 *5*.
877.8 *1*	35	5199.0	(20^+)	4321.2	(18^+)	(E2)	0.00782	α(K)=0.00621 *9*; α(L)=0.001230 *18*; α(M)=0.000292 *4*; α(N+..)=8.72×10^{-5} *13* Mult.: from DCO=0.92 *20*.
919.7 *2*	20	5958.2	(23^-)	5038.5	(21^-)	(E2)	0.00712	α(K)=0.00568 *8*; α(L)=0.001101 *16*; α(M)=0.000261 *4*; α(N+..)=7.80×10^{-5} *11* Mult.: from DCO=0.92 *10*.
948.0 *2*	20	3791.6	(15^+)	2843.6	(14^+)	(M1+E2)	0.012 *6*	α(K)=0.010 *5*; α(L)=0.0017 *7*; α(M)=0.00039 *15*; α(N+..)=0.00012 *5* Mult.: DCO=0.40 *16*.
962.3 *1*	25	5350.4	(20)	4388.1	(19^-)	D		Mult.: DCO=0.44.5.

[†] Relative intensities normalized to the 426γ as 1000; uncertainties range from 5% to 20%.
[‡] From DCO ratios (Iγ(30°)/Iγ(90°)) which are normalized to the average ratios for known pure E2 transitions in ^{196}Hg, and the assumption that Q is (E2), D is (E1), D+Q is (M1+E2).
[#] Placed above 2263-keV level.
[@] Placed above 2844-keV level.
[&] Placed above 3792-keV level.
[a] Placed above 3697-keV level.
[b] Placed above 2621-keV level.
[c] Placed above 3976-keV level.
[d] Placed above 4388-keV level.
[e] With≈5% branching in the spectra in coincidence with the 664γ and other transition from higher-spin levels.
[f] 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.
[g] Multiply placed with intensity suitably divided.
[x] γ ray not placed in level scheme.

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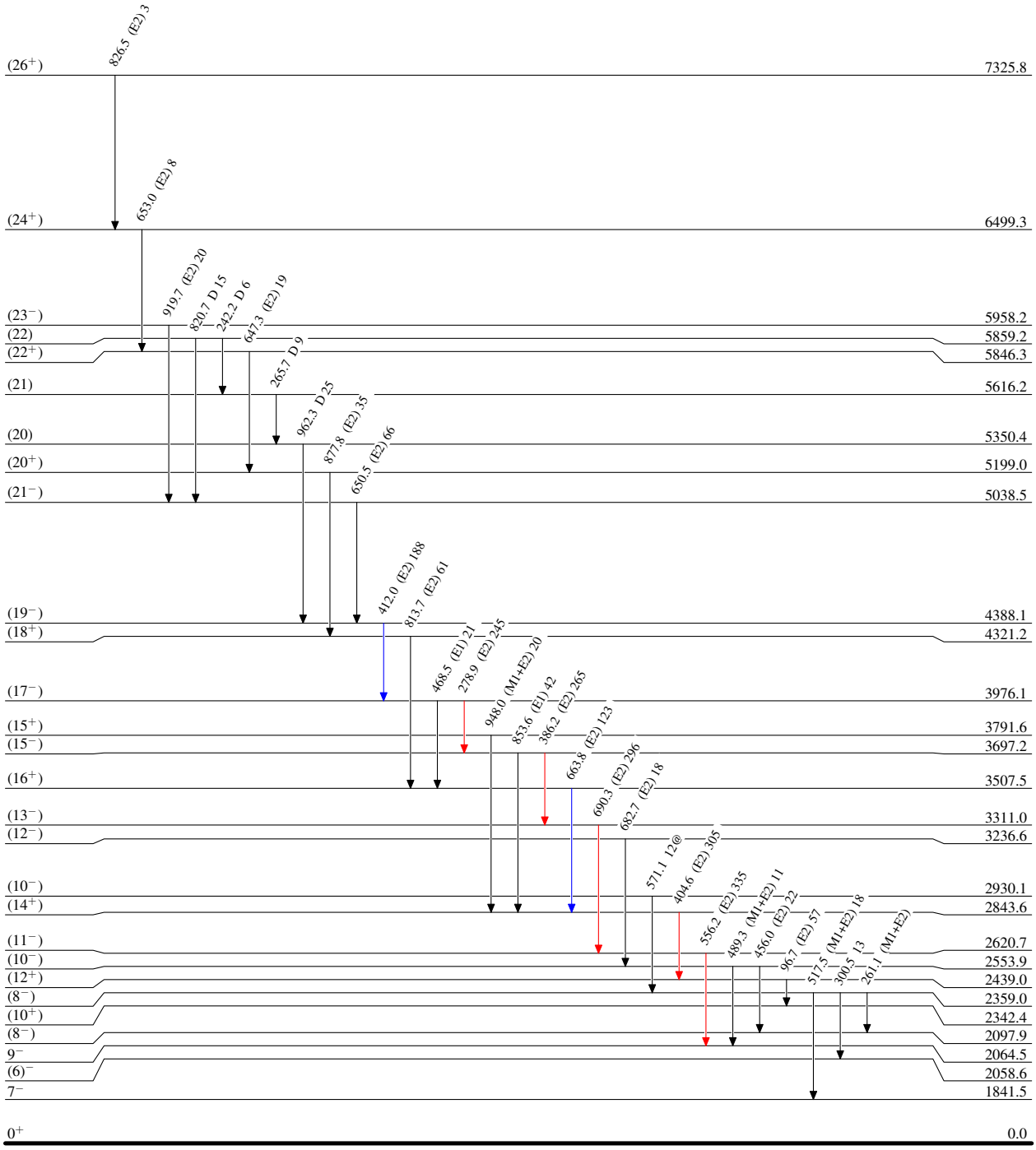
Level Scheme

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

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



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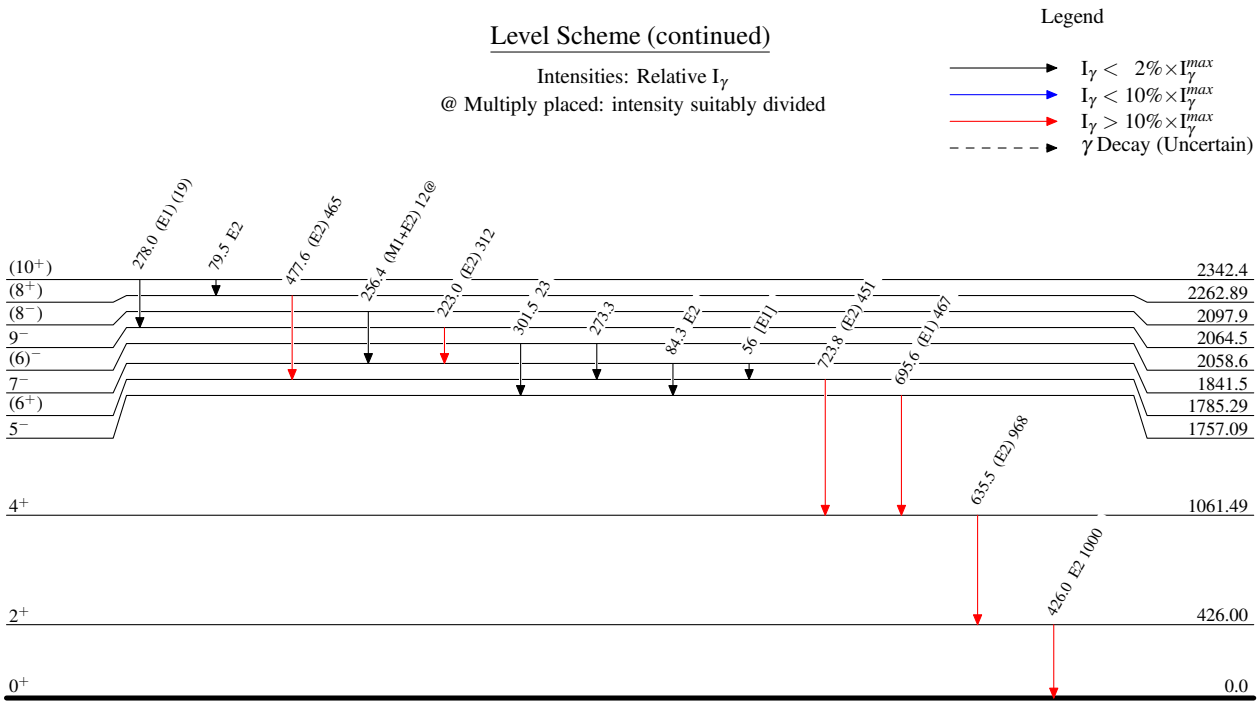
Level Scheme (continued)

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided



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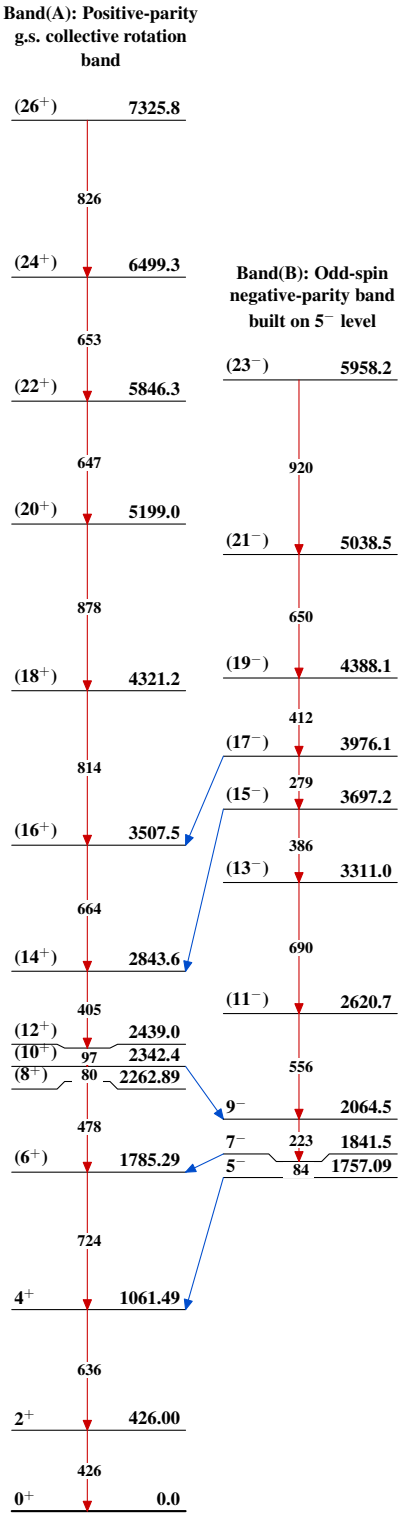

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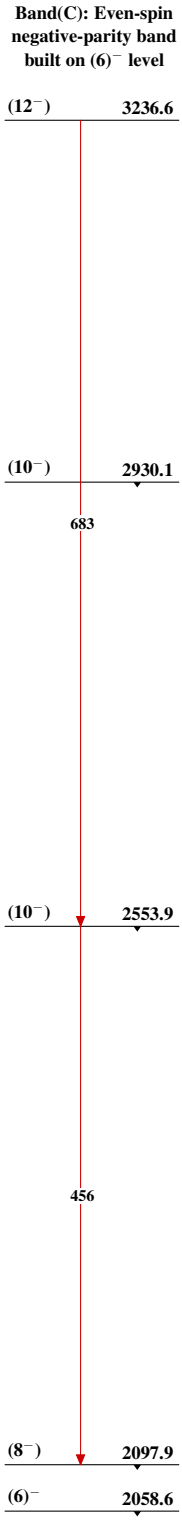
^{198}Pt(α,6nγ) 1991Me06 (continued)



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