^{196}Pt(n,n′γ) 1993Di05,2002Ta14

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

1993Di05: E(n)=3.3 MeV. Neutrons generated by ^{3}H(p,n)^{3}He reaction. 97.51% enriched ^{196}Pt sample, BGO Compton suppressed HPGE detector, DSA. Measured Eγ, Iγ, excitation functions, γ(θ), $T_{1/2}$. Observed 107 states, no other detail information.

2002Ta14: E=1-8 MeV. Measured Eγ, Iγ, γγ, and γ(θ) using the GEANIE(Ge array for neutron-induced excitations) spectrometer consisting of 26 Ge detectors of which 20 had BGO escaped-suppression elements, and 11 had NaI nose-cone escaped-suppression elements.

2002Ta14 reported observing 92 transitions, but list data for 29 transitions in table I. The other transitions are presumed to be consistent with γ transitions already known.

^{196}Pt Levels

J(α),E(α) From Adopted Levels.

E(level)†	Jπ‡	$T_{1/2}$#	Comments
0	0^+		
355.6843 *20*	2^+		
688.669 *24*	2^+		
876.860 *6*	4^+		
1015.019 *24*	3^+		
1270.206 *9*	5^-		
1293.287 *25*	4^+		
1361.571 *25*	2^+		
1608.82 *22*	(5^+)		Jπ: From Adopted Levels.
1804.78 *11*	(3^+),4^+		Jπ: E2 γ to 2^+. 3,4^+ in figure 2 of 2002Ta14.
1831.97 *13*	3^+		Jπ: M1+E2 γ to 2^+,3^+,4^+.
1883.34 *9*	3^+,4^+		Jπ: M1+E2 γ to 2^+,4^+.$3^{(+)}$ in table 1 of 2002Ta14.
1901.89 *10*	5,6,7		Jπ: From excitation functions. (5),6,7 in figure 2 of 2002Ta14.
1957.25 *20*	(4),5^+,6^+		Jπ: From excitation functions. (4),5,6 in figure 2 of 2002Ta14.
1985.3 *3*	1^+,2^+		Jπ: From Adopted Levels.
1991.7 *4*	3,4^+		Jπ: γ to 2^+, ARC in 1979Ci04, large uncertainties of A_2 and A_4 in 2002Ta14. 3 in figure 2 of 2002Ta14.
2002.36 *20*	(3^+),4^+		Jπ: M1+E2 γ to 4^+.
2005.88 *9*	(4^+)		Jπ: From Adopted Levels. A_2>0 inconsistent with the known spin assignment.
2007.82 *11*	6^+		Jπ: From Adopted Levels.
2029.8 *3*	3^+		Jπ: M1+E2 γ to 2^+.
2067.06 *11*	5^-,6		Jπ: From γ(θ) and excitation functions in 2002Ta14. 5,6,7 in figure 2 of 2002Ta14.
2084.30 *11*	4^-,5,6^-		Jπ: From γ(θ) and excitation functions in 2002Ta14. (5) in figure 2 of 2002Ta14.
2170.73 *19*	(5),$6^{(-)}$		Jπ: From γ(θ) and excitation functions in 2002Ta14. 6^-,7^- in figure 2 of 2002Ta14.
2236.32 *21*	(5),6^-,7^-		Jπ: From excitation functions. (5),6,7 in figure 2 of 2002Ta14.
2244.57 *20*	3^+,4,5^+		Jπ: γ to 4^+, γ(θ) and excitation functions in 2004Ta14. 3^+,4^+,5^+,(6^+) in figure 2 of 2002Ta14.
2271.2 *4*	2^+		Jπ: M1+E2 γ to 2^+.
2420.38 *11*	$(2,3,4^+)$	68 fs	$T_{1/2}$: $\Delta T_{1/2}$=+400-37.
2423.41 *8*	$(1^+,2^+,3)$	67 fs *+58−24*	
2429.8 *3*	(2,3,4,6)	>166 fs	
2433.70 *20*	(0,1,2,3,4)	17 fs *+12−7*	
2437.92 *7*	$(1^+,2,3,4^+)$	53 fs *+37−17*	
2603.13 *11*	(1,2,3,4,5)	>66 fs	
2606.07 *10*	(2,3,4,5)	>111 fs	

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^{196}Pt(n,n′γ) 1993Di05,2002Ta14 (continued)

^{196}Pt Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	Comments
2608.00 *10*	(1,2,3)	31 fs *+12−8*	
2626.44 *10*	(1,2,3)	83 fs	$T_{1/2}$: $\Delta T_{1/2}$=+527-42.
2631.10 *20*	(2+,3,4+)	24 fs *+14−8*	
2692.2 *6*			
2710.94 *8*	(0,1,2,3,4)	>55 fs	

[†] From least-squares fit to Eγ′s.
[‡] From data on γ(θ), excitation functions, decay patterns and $T_{1/2}$ except as noted.
[#] From DSA in 1993Di05.

γ(^{196}Pt)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[b]	Comments
355.6843	2+	355.684[#] *2*		0	0+		B(E2)↓=0.274 *1* (2002Ta14)
688.669	2+	332.983[#] *24*		355.6843	2+		B(E2)↓=0.368 *9* (2002Ta14)
876.860	4+	521.175[#] *5*		355.6843	2+		B(E2)↓=0.405 *6* (2002Ta14)
1015.019	3+	326.349[#] *4*		688.669	2+		
1270.206	5−	393.346[#] *7*		876.860	4+		
1293.287	4+	604.616[#] *7*		688.669	2+		B(E2)↓=0.20 *6* (2002Ta14)
1361.571	2+	672.900[#] *7*		688.669	2+		
1608.82	(5+)	593.80[†] *21*	100[†]	1015.019	3+		
1804.78	(3+),4+	443.21[†] *10*	100[†]	1361.571	2+	E2	A_2=+0.24 *6*,A_4=−0.17 *9*.
1831.97	3+	816.94[†] *14*	71.9[†] *24*	1015.019	3+	M1+E2	A_2=+0.18 *7*,A_4=−0.04 *11*.
		955.5[†] *5*	5.0[†] *15*	876.860	4+	M1+E2	A_2=−0.40 *15*,A_4=−0.05 *23*.
		1143.2[†] *3*	23.1[†] *20*	688.669	2+	M1+E2	A_2=+0.46 *9*, A_4=−0.10 *13*.
		1476.01[@†]	[†]	355.6843	2+	M1+E2	A_2=−0.11 *7*,A_4=+0.17 *11*.
1883.34	3+,4+	589.99[†] *11*	[†]	1293.287	4+	M1+E2	A_2=+0.36 *8*,A_4=−0.00 *13*.
		868.22[†] *19*	68.0[†] *16*	1015.019	3+		
		1195.0[†] *2*	32.0[†] *16*	688.669	2+	M1+E2	A_2=+0.39 *7*,A_4=+0.06 *10*.
		1527.56[@†]	[†]	355.6843	2+		A_2=−0.36 *7*,A_4=+0.18 *9*.
1901.89	5,6,7	631.68[†] *10*	100[†]	1270.206	5−		A_2=+0.14 *23*,A_4=0.0 *3*.
1957.25	(4),5+,6+	1080.39[†] *20*	100[†]	876.860	4+		B(E2)↓=0.49 *6* (2002Ta14) A_2=+0.17 *5*,A_4=−0.04 *8*.
1985.3	1+,2+	1296.6[†] *3*	100[†]	688.669	2+		A_2=+0.04 *7*,A_4=+0.10 *10*.
1991.7	3,4+	1303.0[†] *4*	100[†]	688.669	2+		A_2=−0.13 *13*,A_4=+0.10 *19*.
2002.36	(3+),4+	1125.5[†] *2*	100[†]	876.860	4+	M1+E2	A_2=+0.45 *10*,A_4=+0.06 *15*.
2005.88	(4+)	735.67[†] *9*	100[†]	1270.206	5−		A_2=+0.29 *7*,A_4=−0.02 *9*.
2007.82	6+	714.53[†] *10*	100[†]	1293.287	4+		
2029.8	3+	1014.25[c]		1015.019	3+		E_γ: tentative placement from γγ coin.
		1341.4[†] *3*	45[†] *4*	688.669	2+	M1+E2	A_2=+0.42 *10*,A_4=+0.13 *16*.
		1672.7[†] *7*	55[†] *4*	355.6843	2+	M1+E2	A_2=−0.41 *9*,A_4=−0.03 *12*.
2067.06	5−,6	796.85[†] *11*	100[†]	1270.206	5−		A_2=−0.36 *8*,A_4=−0.22 *12*.
2084.30	4−,5,6−	814.09[†] *11*	100[†]	1270.206	5−		A_2=+0.31 *5*,A_4=−0.06 *8*.
2170.73	(5),6(−)	900.52[†] *19*	100[†]	1270.206	5−		A_2=+0.21 *11*,A_4=−0.14 *16*.

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^{196}Pt(n,n′γ) 1993Di05,2002Ta14 (continued)

γ(^{196}Pt) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[b]	Comments
2236.32	(5),6$^-$,7$^-$	966.11[†] *21*	100[†]	1270.206	5$^-$		A_2=+0.45 *5*,A_4=+0.14 *8*.
2244.57	3$^+$,4,5$^+$	1367.7[†] *2*	100[†]	876.860	4$^+$		A_2=+0.4 *1* ,A_4=+0.05 *15*.
2271.2	2$^+$	1582.5 *4*	100	688.669	2$^+$	M1+E2	A_2=+0.21 *14*,A_4=+0.60 *24*.
2420.38	(2,3,4$^+$)	1731.7[‡] *1*	100[‡]	688.669	2$^+$		
2423.41	(1$^+$,2$^+$,3)	1408.4[‡] *1*	15[‡] *4*	1015.019	3$^+$		
		2067.7[‡] *1*	85[‡] *4*	355.6843	2$^+$		
2429.8	(2,3,4,6)	1552.9[‡] *3*	100[‡]	876.860	4$^+$		
2433.70	(0,1,2,3,4)	2078.0[‡] *2*	100[‡]	355.6843	2$^+$		
2437.92	(1$^+$,2,3,4$^+$)	1076.4[‡] *1*	29[‡] *4*	1361.571	2$^+$		
		1422.9[‡] *1*	52[‡] *5*	1015.019	3$^+$		
		1749.0[‡] *2*	19[‡] *6*	688.669	2$^+$		
2603.13	(1,2,3,4,5)	1588.1[‡] *1*	100[‡]	1015.019	3$^+$		E_γ: from level scheme deduced by evaluators, Eγ=1558.1 keV from fig. 2 and table 1 of 1993Di05 may be a misprint.
2606.07	(2,3,4,5)	1729.2[‡] *1*	100[‡]	876.860	4$^+$		
2608.00	(1,2,3)	2252.3 *1*	100	355.6843	2$^+$		
2626.44	(1,2,3)	1264.8[‡] *1*	73[‡] *4*	1361.571	2$^+$		
		1938.3[‡] *3*	27[‡] *4*	688.669	2$^+$		ΔE: Given by evaluators, ΔE=0.1 keV from 1993Di05.
2631.10	(2$^+$,3,4$^+$)	2275.4[‡] *2*	100[‡]	355.6843	2$^+$		
2692.2		2336.5[‡] *6*	100[‡]	355.6843	2$^+$		
2710.94	(0,1,2,3,4)	2022.2[‡] *1*	63[‡] *5*	688.669	2$^+$		
		2355.3[‡] *1*	37[‡] *5*	355.6843	2$^+$		

[†] From 2002Ta14. An 80eV systematic uncertainty is included in Eγ. A possible ≤15% angular distribution effect is not included in the relative intensities.
[‡] From 1993Di05.
[#] From adopted gammas.
[@] From level-energy difference, since 1476γ and 1527γ form an unresolved doublet.
[&] From excitation function, this γ deexcites a ≤2500−keV level.
[a] From excitation function, this γ deexcites a ≤3000−keV level.
[b] From γ(θ) in 2002Ta14.
[c] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

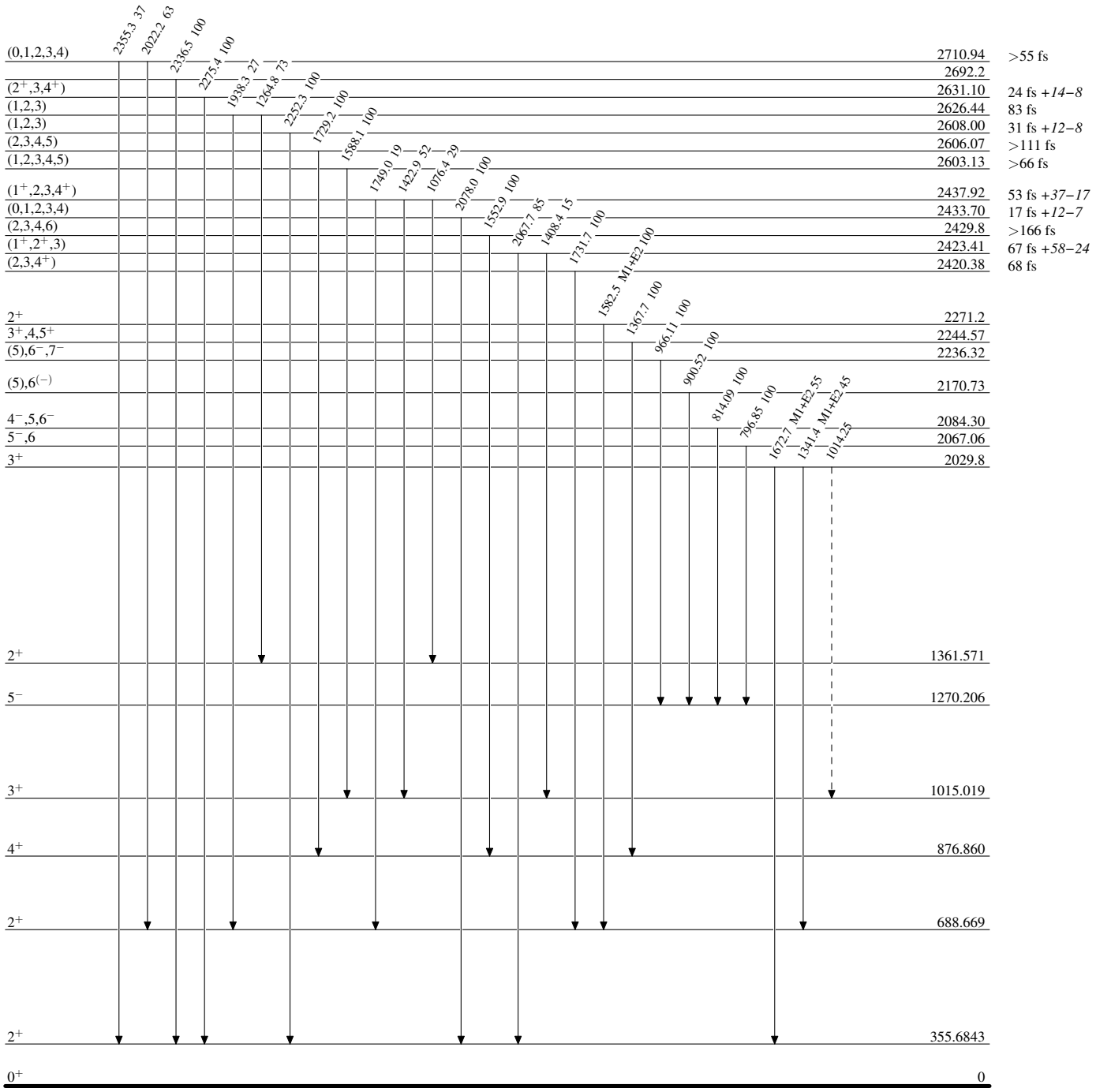
^{196}Pt(n,n′γ) 1993Di05,2002Ta14

Legend

Level Scheme

Intensities: % photon branching from each level

- - - - - - ► γ Decay (Uncertain)



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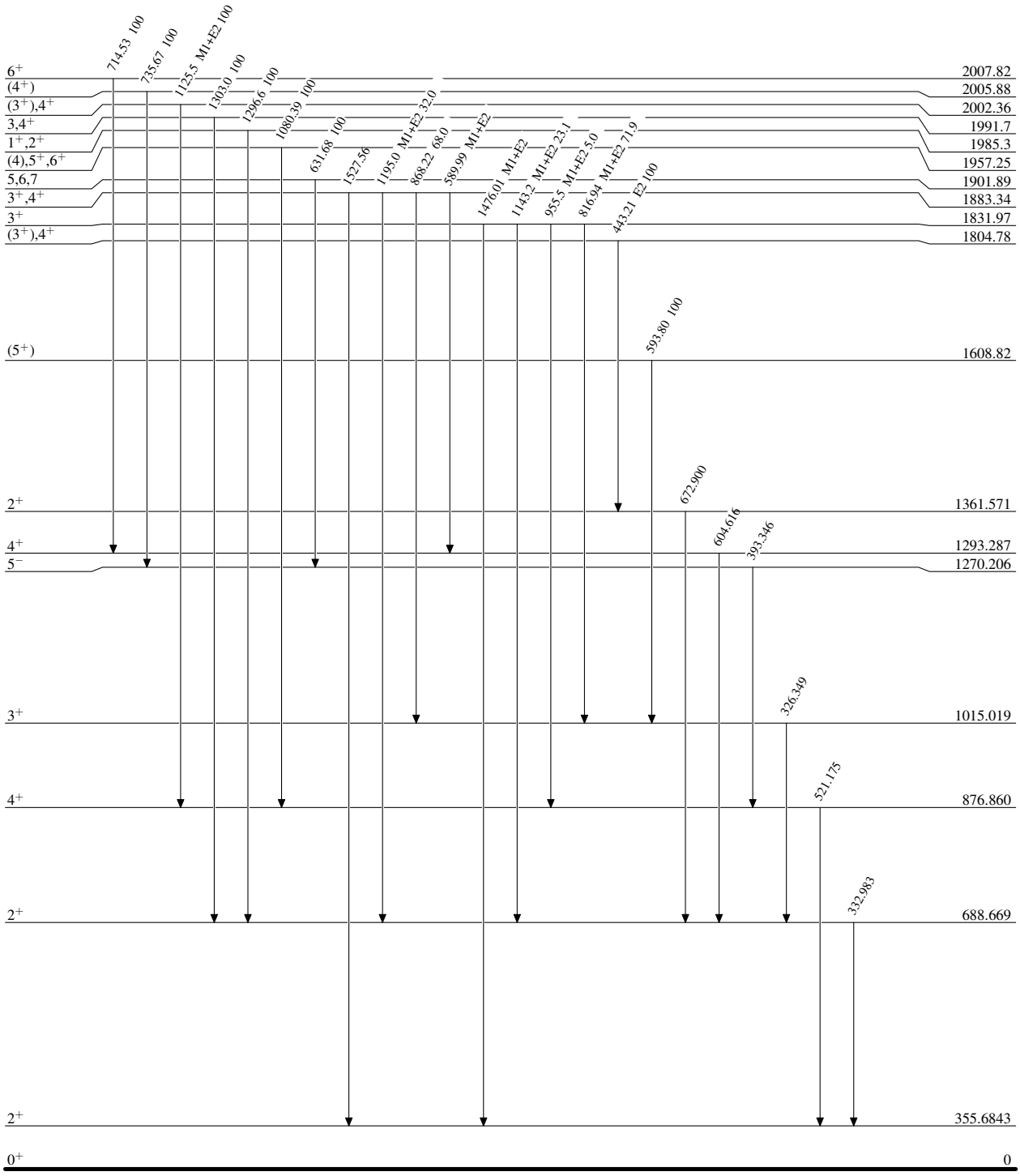
^{196}Pt(n,n′γ) 1993Di05,2002Ta14

Level Scheme (continued)

Intensities: % photon branching from each level



$^{196}_{78}Pt_{118}$