^{190}Os(α,4nγ) 1976Cu02,1976Hj01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, [1] and Jun Chen[2]	NDS 169, 1 (2020)	15-Oct-2020

1976Cu02 (also 1975Pi02): E=30.9-50.3 MeV from the Michigan State University sector-focused cyclotron. Measured Eγ, Iγ, γγ, γγ(t), γ(t), γ(θ). Main data at Eα=45.5 MeV.

1976Hj01 (and 1975Fu04): E=48 MeV from the Stockholm 225-cm cyclotron. Measured Eγ, Iγ, γγ, γ(θ), ce. 1976Hj01 also report data on (α,2nγ).

Others:

1997Ka34: ^{186}W(^{16}O,4n2αγ) E=110 MeV. Measured Doppler shift for 688γ from 10^+ state.

1979Ri08: ^{176}Yb(^{18}O,4nγ) E=77-88 MeV, measured ce(t).

1978Ti02: E=49 MeV, measured ce(t).

1965La02: E=48 MeV. Measured Eγ, Iγ.

^{190}Pt Levels

E(level)	J$^{\pi}$#	$T_{1/2}$	Comments
0.0	0^+		
295.7 *1*	2^+		
597.5 *1*	2^+		
736.9 *2*	4^+		
916.5 *2*	3^+		
1128.3 *2*	4^+		
1287.6 *2*	6^+		
1353.1† *10*	3^-		
1449.6 *4*	5^+		
1464.6 *2*	5^-		
1631.2 *2*	7^-	0.79 ns *5*	$T_{1/2}$: from (ce for 167γ)(t). Weighted average of 0.77 ns *14* (1979Ri08), 0.80 ns *5* (1978Ti02). Other: ≈1.2 ns from γ(t) (1976Cu02).
1834.0 *5*	$(6)^-$		
1915.3 *3*	8^+		
2043.8† *5*			
2078.5 *3*	8^-		
2222.7 *3*	9^-		
2297.6 *4*	$(10)^-$	47 ns *6*	$T_{1/2}$: from 219.1γ(t) (1976Cu02).
2535.4 *4*	10^+		
2570.9 *4*	$(11)^-$		
2603.5 *5*	10^+		
2683.6 *5*	(10^-)		
2701.8 *5*	10^+		
2726.8 *4*	12^+	1.39 ns *12*	$T_{1/2}$: weighted average of 1.27 ns *9* (1978Ti02, ce(t) for 191γ) and 1.52 ns *9* (1979Ri08, ce(t) for 123γ and 191γ). Other: ≈1.5 ns from γ(t) (1976Cu02).
2761.0 *5*	11^-		
2820.7† *6*	(11^+)		
2821.9‡ *5*	(12^-)		
3024.8‡ *7*	(12^-)		
3069.4 *4*	14^+		
3111.9‡ *5*	(13^-)		
3344.7 *6*	(13^-)		
3415.0 *5*	(14^+)		
3576.6 *6*	16^+		
3666.2 *5*	(16^+)		
3808.0 *5*			

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^{190}Os(α,4nγ) 1976Cu02,1976Hj01 (continued)

^{190}Pt Levels (continued)

E(level)	J$^{\pi}$[#]
4083.3[‡] *6*	
4214.4[†] *8*	18^{+}

[†] Level proposed by 1976Hj01 only.
[‡] Level proposed by 1976Cu02 only.
[#] As proposed in 1976Cu01 and 1976Hj01 based on γ(θ) data and multipolarity assignments. See the Adopted Levels for detailed arguments.

γ(^{190}Pt)

Experimental conversion coefficients are from 1976Hj01. Uncertainty based on a general comment by 1976Hj01 that typical errors may be 30%. The authors used ce(K) data of 296γ, 441γ, 551γ and 628γ (all treated as E2) for normalization purposes.

E$_{\gamma}$[†]	I$_{\gamma}$[‡]	E$_i$(level)	J$^{\pi}_i$	E$_f$	J$^{\pi}_f$	Mult.[#]	α[c]	Comments
75.0[&] *5*	2.0 *6*	2297.6	(10)$^{-}$	2222.7	9^{-}	(M1)	2.73 *7*	α(L)=2.10 *5*; α(M)=0.486 *12* α(N)=0.120 *3*; α(O)=0.0216 *6*; α(P)=0.00146 *4* Mult.: from intensity balance, mult=M1 is more likely than E2. 1976Cu01 assigned M1.
123.2 *3*	0.7 *2*	2726.8	12^{+}	2603.5	10^{+}	[E2]	2.11 *4*	α(K)=0.517 *8*; α(L)=1.200 *22*; α(M)=0.310 *6* α(N)=0.0756 *14*; α(O)=0.01182 *22*; α(P)=5.22×10^{-5} *8* Eγ=123.2, Iγ=0.8 (1976Hj01).
141.8 *2*	1.4 *3*	3808.0		3666.2	(16^{+})			A$_2$=−0.06 *13* (1976Hj01) Eγ=141.8, Iγ=1.5 (1976Hj01).
166.6 *1*	21.6 *22*	1631.2	7^{-}	1464.6	5^{-}	E2	0.681	α(L)exp=0.30 *9* A$_2$=+0.28 *10*; A$_4$=−0.13 *10* (1976Cu02) A$_2$=+0.22 *2*; A$_4$=+0.04 *2* (1976Hj01) α(K)=0.267 *4*; α(L)=0.312 *5*; α(M)=0.0800 *12* α(N)=0.0196 *3*; α(O)=0.00309 *5*; α(P)=2.52×10^{-5} *4* Eγ=166.6, Iγ=24.5; ce(L)=7.4 (1976Hj01). Mult.: E2,M1 from α(L)exp.
191.4 *1*	11.9 *10*	2726.8	12^{+}	2535.4	10^{+}	E2	0.418	α(K)exp=0.23 *7*; α(L)exp=0.10 *3*; α(M)exp=0.04 *2* A$_2$=+0.31 *10*; A$_4$=−0.19 *10* (1976Cu02) A$_2$=+0.37 *2*; A$_4$=−0.04 *2* (1976Hj01) α(K)=0.190 *3*; α(L)=0.1717 *25*; α(M)=0.0439 *7* α(N)=0.01072 *16*; α(O)=0.001704 *25*; α(P)=1.80×10^{-5} *3* Eγ=191.4, Iγ=13.0; ce(K)≈3.0, ce(L)=1.3, ce(M)=0.5 (1976Hj01). δ(E2/M1)>2.
[x]≈196.5[a]	≈2.0[a]							From γγ (1976Hj01), the 196.5γ feeds the g.s. band at or above 2727, 12^{+} level.
[x]≈199[ab]	≈1.0[a]							A$_2$=−0.03 *10* (1976Hj01)
217.2 *3*	1.5 *2*	2820.7	(11^{+})	2603.5	10^{+}	(M1+E2)	0.51 *24*	A$_2$=−0.83 *30* (1976Cu02); A$_2$=−0.8 *2* (1976Hj01) α(K)exp≈0.10; α(L)exp=0.10 *3* α(K)=0.37 *24*; α(L)=0.1008 *16*; α(M)=0.0245

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^{190}Os(α,4nγ) 1976Cu02,1976Hj01 (continued)

γ(^{190}Pt) (continued)

E_γ †	I_γ ‡	E_i(level)	J^π_i	E_f	J^π_f	Mult.#	δ@	α c	Comments
									14 α(N)=0.0060 *3*; α(O)=0.001020 *21*; α(P)=4.2×10^{-5} *29* Eγ=217.1, Iγ=3.0; ce(K)≈0.7, ce(L)=0.9 (1976Hj01). ce(K), ce(L), α(K)exp and α(L)exp for 217.2γ+219.1γ. Placement from 1976Hj01, unplaced in 1976Cu02.
219.1 *2*	4.7 *5*	2297.6	(10)$^-$	2078.5	8$^-$	(E2)		0.264	α(K)exp≈0.10; α(L)exp=0.10 *3* A$_2$=+0.32 *10* (1976Cu02) A$_2$=+0.17 *4*; A$_4$=+0.01 *3* (1976Hj01) α(K)=0.1349 *20*; α(L)=0.0976 *15*; α(M)=0.0248 *4* α(N)=0.00607 *9*; α(O)=0.000971 *14*; α(P)=1.303×10^{-5} *19* Eγ=219.1, Iγ=5.5; ce(K)≈0.7, ce(L)=0.9 (1976Hj01). ce(K), ce(L), α(K)exp and α(L)exp for 217.2γ+219.1γ.
^{x}227.3& *3*	1.2 *2*								
251.2 *2*	5.9 *5*	3666.2	(16$^+$)	3415.0	(14$^+$)	E2		0.1698	α(K)exp=0.11 *3* A$_2$=+0.36 *18*; A$_4$=−0.16 *15* (1976Cu02) A$_2$=+0.39 *2*; A$_4$=−0.02 *2* (1976Hj01) α(K)=0.0954 *14*; α(L)=0.0562 *8*; α(M)=0.01420 *21* α(N)=0.00347 *5*; α(O)=0.000560 *8*; α(P)=9.38×10^{-6} *14* Eγ=251.2, Iγ=7.2; ce(K)=0.8 (1976Hj01). δ(E2/M1)>2.5.
273.3 *2*	4.9 *4*	2570.9	(11)$^-$	2297.6	(10)$^-$	(M1+E2)	−0.2 *1*	0.384 *13*	α(K)=0.315 *12*; α(L)=0.0526 *10*; α(M)=0.01218 *20* α(N)=0.00301 *5*; α(O)=0.000541 *10*; α(P)=3.58×10^{-5} *14* A$_2$=−0.72 *12* (1976Cu02); A$_2$=−0.41 *11* (1976Hj01) Eγ=273.2, Iγ=6.0 (1976Hj01). δ: from γ(θ) (1976Hj01).
295.7 *1*	100.0	295.7	2$^+$	0.0	0$^+$	E2		0.1028	α(K)exp=0.063 *21*; α(L)exp=0.033 *10*; α(M)exp=0.012 *4* A$_2$=+0.24 *11*; A$_4$=−0.10 *9* (1976Cu02) A$_2$=+0.25 *1*; A$_4$=+0.03 *1* (1976Hj01) α(K)=0.0633 *9*; α(L)=0.0299 *5*; α(M)=0.00749 *11* α(N)=0.00183 *3*; α(O)=0.000298 *5*; α(P)=6.36×10^{-6} *9* Eγ=295.7, Iγ=100; ce(K)=6.3, ce(L)=3.3, ce(M)=1.2 (1976Hj01).
301.8 *1*	7.4 *6*	597.5	2$^+$	295.7	2$^+$				A$_2$=0.00 *6*; A$_4$=+0.11 *6* (1976Hj01) Eγ=301.8, Iγ=7.4 (1976Hj01).
303.3& *5*	1.5 *5*	3415.0	(14$^+$)	3111.9	(13$^-$)				

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^{190}Os(α,4nγ) 1976Cu02,1976Hj01 (continued)

γ(^{190}Pt) (continued)

Eγ[†]	Iγ[‡]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[#]	δ[@]	α[c]	Comments
x306.6[&] 3	2.3 2								
319.0 3	2.7 3	916.5	3+	597.5	2+				A2=+0.44 16 (1976Cu02); A2=+0.01 18 (1976Hj01) Eγ=318.9, Iγ=3.0 (1976Hj01).
336.4 2	4.9 5	1464.6	5−	1128.3	4+	D			A2=−0.19 9 (1976Cu02) A2=+0.01 4; A4=+0.09 6 (1976Hj01) Eγ=336.4, Iγ=4.4 (1976Hj01).
342.6 3	11.4 11	3069.4	14+	2726.8	12+	(E2)		0.0670	α(K)exp=0.08 2; α(L)exp=0.013 4 A2=+0.51 18 (1976Cu02); A2=+0.30 19 (1976Hj01) α(K)=0.0441 7; α(L)=0.01737 25; α(M)=0.00432 7 α(N)=0.001059 16; α(O)=0.0001740 25; α(P)=4.51×10^{-6} 7 Eγ=342.4, Iγ=11.5; ce(K)=2.3, ce(L)=0.4 (1976Hj01). ce(K), ce(L), α(K)exp and α(L)exp for 342.6γ+343.5γ+345.7γ.
343.5 3	14.2 12	1631.2	7−	1287.6	6+	(E1)		0.0190	α(K)exp=0.08 2; α(L)exp=0.013 4 A2=−0.10 8 (1976Cu02) A2=−0.10 8; A2=+0.07 8 (1976Hj01) α(K)=0.01575 23; α(L)=0.00251 4; α(M)=0.000576 9 α(N)=0.0001414 20; α(O)=2.48×10^{-5} 4; α(P)=1.459×10^{-6} 21 Eγ=343.4, Iγ=16.5; ce(K)=2.3, ce(L)=0.4 (1976Hj01). ce(K), ce(L), α(K)exp and α(L)exp for 342.6γ+343.5γ+345.7γ.
345.7 3	2.7 3	3415.0	(14+)	3069.4	14+	(M1,E2)		0.137 72	α(K)exp=0.08 2; α(L)exp=0.013 4 A2=+0.42 16 (1976Cu02); A2=+0.51 17 (1976Hj01) α(K)=0.107 65; α(L)=0.022 6; α(M)=0.0053 12 α(N)=0.0013 3; α(O)=2.28×10^{-4} 60; α(P)=1.19×10^{-5} 76 Eγ=345.6, Iγ=3.0; ce(K)=2.3, ce(L)=0.4 (1976Hj01). ce(K), ce(L), α(K)exp and α(L)exp for 342.6γ+343.5γ+345.7γ.
369.4 4	1.7 2	1834.0	(6)−	1464.6	5−	(M1+E2)	+0.3 1	0.164 7	α(K)=0.135 7; α(L)=0.0225 7; α(M)=0.00521 14 α(N)=0.00129 4; α(O)=0.000231 7; α(P)=1.52×10^{-5} 8 A2=+0.10 9 (1976Hj01) Eγ=369.3, Iγ=1.4 (1976Hj01). δ: from γ(θ) (1976Hj01), but note that positive A2 is inconsistent with ΔJ=1, dipole transition.
x376.5[&] 4	2.1 2								A2=+0.49 18 (1976Cu02)
391.8 4	2.0 2	1128.3	4+	736.9	4+				Eγ=390.9, Iγ=1.7 (1976Hj01).
412.6 4	1.6 2	2043.8		1631.2	7−				A2=+0.14 17 (1976Hj01) Eγ=412.7, Iγ=1.8 (1976Hj01).

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$^{190}Os(\alpha,4n\gamma)$ 1976Cu02,1976Hj01 (continued)

$\gamma(^{190}Pt)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[c]	Comments
417.1[&] 3	3.2 3	4083.3		3666.2	(16$^+$)				
^{x}420.0[&] 4	1.7 2								
^{x}422.6[ab]	1.2[a]								
441.2 1	93.1 56	736.9	4$^+$	295.7	2$^+$	E2		0.0339	α(K)exp=0.026 8; α(L)exp=0.0075 23; α(M)exp=0.0026 8 A_2=+0.30 12; A_4=−0.08 10 (1976Cu02) A_2=+0.28 1; A_4=+0.02 2 (1976Hj01) α(K)=0.0242 4; α(L)=0.00733 11; α(M)=0.00179 3 α(N)=0.000440 7; α(O)=7.37×10^{-5} 11; α(P)=2.53×10^{-6} 4 Eγ=441.2, Iγ=90.0; ce(K)=2.3, ce(L)=0.67, ce(M)=0.23 (1976Hj01).
447.4 2	13.8 11	2078.5	8$^-$	1631.2	7$^-$	M1+E2	+0.56 16	0.087 8	α(K)exp=0.10 3; α(L)exp=0.023 7 A_2=+0.58 24; A_4=+0.04 24 (1976Cu02) A_2=+0.38 6; A_4=+0.17 5 (1976Hj01) α(K)=0.071 7; α(L)=0.0123 8; α(M)=0.00286 16 α(N)=0.00071 4; α(O)=0.000126 8; α(P)=8.0×10^{-6} 8 Eγ=447.3, Iγ=12.0; ce(K)=1.2, ce(L)=0.27 (1976Hj01). δ: from γ(θ) (1976Hj01).
453.9[&] 5	1.8 4	3024.8	(12$^-$)	2570.9	(11)$^-$	D+Q			A_2=−1.32 35 (1976Cu02)
^{x}460.1[ab] 3	2.6[a]								A_2=+0.25 10 (1976Hj01)
507.2 4	3.8 7	3576.6	16$^+$	3069.4	14$^+$				A_2=+0.14 17 (1976Hj01) Eγ=507.3, Iγ=5.5 (1976Hj01).
524.3[&] 3	3.4 4	2821.9	(12$^-$)	2297.6	(10)$^-$				A_2=+0.34 12 (1976Cu02)
530.7 3	6.1 6	1128.3	4$^+$	597.5	2$^+$				A_2=+0.39 10 (1976Cu02) A_2=+0.18 6; A_4=+0.09 9 (1976Hj01) Eγ=530.6, Iγ=4.7 (1976Hj01).
533.1 3	2.8 3	1449.6	5$^+$	916.5	3$^+$				Eγ=533.1, Iγ=2.0 (1976Hj01).
538.3 3	5.6 6	2761.0	11$^-$	2222.7	9$^-$	Q			A_2=+0.23 10 (1976Cu02) A_2=+0.38 6; A_4=−0.15 9 (1976Hj01) Eγ=538.3, Iγ=5.7 (1976Hj01).
541.0[&] 3	4.2 5	3111.9	(13$^-$)	2570.9	(11)$^-$				A_2=+0.35 12 (1976Cu02)
550.7 2	56.6 40	1287.6	6$^+$	736.9	4$^+$	E2		0.0196	α(K)exp=0.014 5; α(L)exp=0.0034 10 A_2=+0.37 11; A_4=−0.10 9 (1976Cu02) A_2=+0.32 1; A_4=−0.01 2 (1976Hj01) α(K)=0.01479 21; α(L)=0.00370 6; α(M)=0.000893 13 α(N)=0.000220 3;

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^{190}Os(α,4nγ) 1976Cu02,1976Hj01 (continued)

γ(^{190}Pt) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	α [c]	Comments
								α(O)=3.74×10^{-5} 6; α(P)=1.562×10^{-6} 22 Eγ=550.6, Iγ=59.0; ce(K)=0.8, ce(L)=0.2 (1976Hj01). δ(E2/M1)>3.
583.7 3	4.9 5	3344.7	(13$^-$)	2761.0	11$^-$	(E2)	0.01715	α(K)exp=0.020 7 A$_2$=+0.37 6; A$_4$=−0.02 9 (1976Hj01) α(K)=0.01305 19; α(L)=0.00313 5; α(M)=0.000752 11 α(N)=0.000185 3; α(O)=3.16×10^{-5} 5; α(P)=1.380×10^{-6} 20 Eγ=583.5, Iγ=4.5; ce(K)=0.12 (1976Hj01). Additional information 1. δ(E2/M1)>1.
591.5 2	19.9 18	2222.7	9$^-$	1631.2	7$^-$	E2	0.01663	α(K)exp=0.010 3 A$_2$=+0.26 12; A$_4$=−0.16 10 (1976Cu02) A$_2$=+0.25 3; A$_4$=+0.03 3 (1976Hj01) α(K)=0.01269 18; α(L)=0.00301 5; α(M)=0.000724 11 α(N)=0.0001781 25; α(O)=3.04×10^{-5} 5; α(P)=1.342×10^{-6} 19 Eγ=591.4, Iγ=20.5; ce(K)=0.20 (1976Hj01).
597.6 4	3.9 4	597.5	2$^+$	0.0	0$^+$			A$_2$=+0.28 14 (1976Hj01) Eγ=597.6, Iγ=4.8 (1976Hj01). Iγ(598γ)/Iγ(302γ)=0.53 is high by ≈25% as compared to the adopted branching ratios (see the Adopted Gammas).
605.1 4	4.1 5	2683.6	(10$^-$)	2078.5	8$^-$			A$_2$=+0.20 6 (1976Hj01) Eγ=605.0, Iγ=4.0 (1976Hj01).
^{x}612.8 [&] 5	1.5 3							
620.0 2	25.5 23	2535.4	10$^+$	1915.3	8$^+$	E2	0.01494	α(K)exp=0.011 3 A$_2$=+0.35 9; A$_4$=−0.14 7 (1976Cu02) A$_2$=+0.36 2; A$_4$=−0.01 3 (1976Hj01) α(K)=0.01149 17; α(L)=0.00264 4; α(M)=0.000633 9 α(N)=0.0001557 22; α(O)=2.67×10^{-5} 4; α(P)=1.216×10^{-6} 17 Eγ=620.0, Iγ=29.0; ce(K)=0.33 (1976Hj01). α(K)exp for 620.0γ+620.7γ.
620.7 [a] 3	≈2.0 [a]	916.5	3$^+$	295.7	2$^+$			
627.7 2	37.7 34	1915.3	8$^+$	1287.6	6$^+$	E2	0.01453	α(K)exp=0.011 3; α(L)exp=0.0026 8 A$_2$=+0.39 8; A$_4$=−0.10 6 (1976Cu02) A$_2$=+0.35 1; A$_4$=−0.02 2 (1976Hj01) α(K)=0.01119 16; α(L)=0.00255 4; α(M)=0.000611 9 α(N)=0.0001503 21; α(O)=2.58×10^{-5} 4; α(P)=1.185×10^{-6} 17 Eγ=627.6, Iγ=42.5; ce(K)=0.48, ce(L)=0.11 (1976Hj01). δ(E2/M1)>3.
637.8 5	1.2 3	4214.4	18$^+$	3576.6	16$^+$			A$_2$=+0.62 20 (1976Hj01) Eγ=638.0, Iγ=1.3 (1976Hj01).
^{x}654.4 [&] 4	1.7 3							
688.1 [d] 6	≈6.5 [d]	2603.5	10$^+$	1915.3	8$^+$			α(K)exp=0.011 3 A$_2$=+0.16 4; A$_4$=−0.02 6 (1976Hj01) Eγ=687.8; ce(K)=0.12 for doublet (1976Hj01).

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^{190}Os(α,4nγ) 1976Cu02,1976Hj01 (continued)

γ(^{190}Pt) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	α[c]	Comments
								I_γ: from 1976Hj01. Total intensity of doublet=10.3 *11* (1976Cu02), 11.5 (1976Hj01). α(K)exp, A_2 and A_4 for doublet.
688.1[d] *6*	≈5.0[d]	3415.0	(14^+)	2726.8	12^+			Eγ=687.8 (1976Hj01). I_γ: from 1976Hj01.
727.6 *2*	29.1 *30*	1464.6	5^-	736.9	4^+	E1	0.00385	α(K)exp=0.0028 *8* A_2=−0.25 *12*; A_4=−0.06 *10* (1976Cu02) A_2=−0.15 *3*; A_4=+0.07 *2* (1976Hj01) α(K)=0.00323 *5*; α(L)=0.000484 *7*; α(M)=0.0001104 *16* α(N)=2.72×10^{-5} *4*; α(O)=4.84×10^{-6} *7*; α(P)=3.13×10^{-7} *5* Eγ=727.5, Iγ=29.0; ce(K)=0.08 (1976Hj01).
786.5 *3*	5.1 *6*	2701.8	10^+	1915.3	8^+	E2	0.00892	α(K)exp=0.0074 *22* A_2=+0.27 *20*; A_4=−0.09 *19* (1976Hj01) A_2=+0.26 *3*; A_4=0.03 *4* (1976Hj01) α(K)=0.00707 *10*; α(L)=0.001413 *20*; α(M)=0.000334 *5* α(N)=8.23×10^{-5} *12*; α(O)=1.432×10^{-5} *20*; α(P)=7.48×10^{-7} *11* Eγ=786.6, Iγ=5.8; ce(K)=0.04 (1976Hj01). δ(E2/M1)>2.
1057.4[a]	1.1[a]	1353.1	3^-	295.7	2^+			

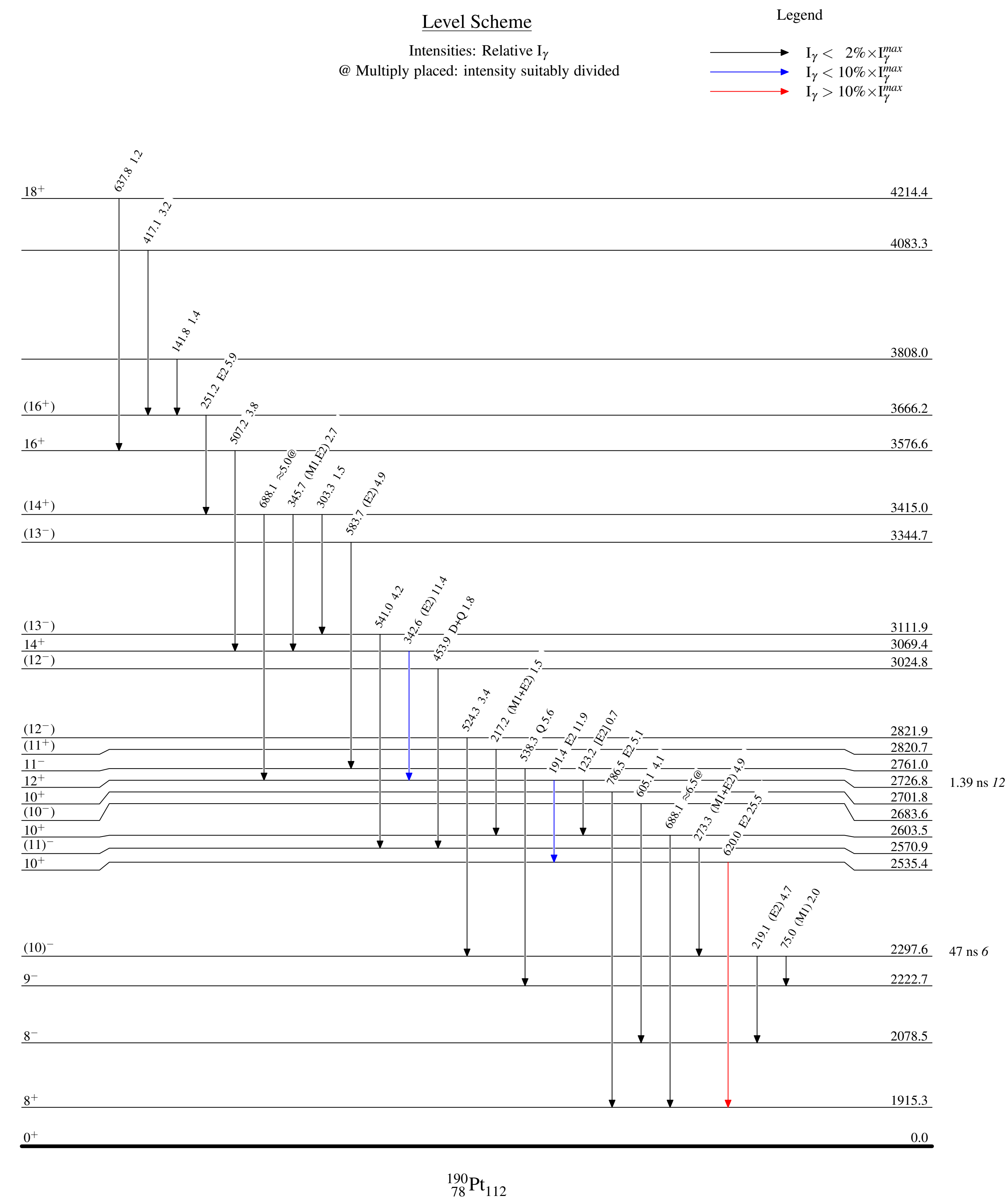
[†] From 1976Cu02, unless otherwise stated. Values from 1976Hj01 are given under comments, where uncertainties are 0.1-0.3 keV.
[‡] From ^{190}Os(α,4nγ),E=45.5 MeV (1976Cu02). Values from 1976Hj01 at E=48 MeV and with uncertainty of 5-30% are given under comments.
[#] From ce data (1976Hj01) and/or $\gamma(\theta)$ data (1976Cu02,1976Hj01).
[@] From $\gamma(\theta)$ and ce data (1976Hj01).
[&] γ reported by 1976Cu02 only.
[a] γ reported by 1976Hj01 only.
[b] Uncertain assignment to ^{190}Pt (1976Hj01).
[c] 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.
[d] Multiply placed with intensity suitably divided.
[x] γ ray not placed in level scheme.

$^{190}Os(\alpha,4n\gamma)$ 1976Cu02,1976Hj01

Level Scheme

Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided

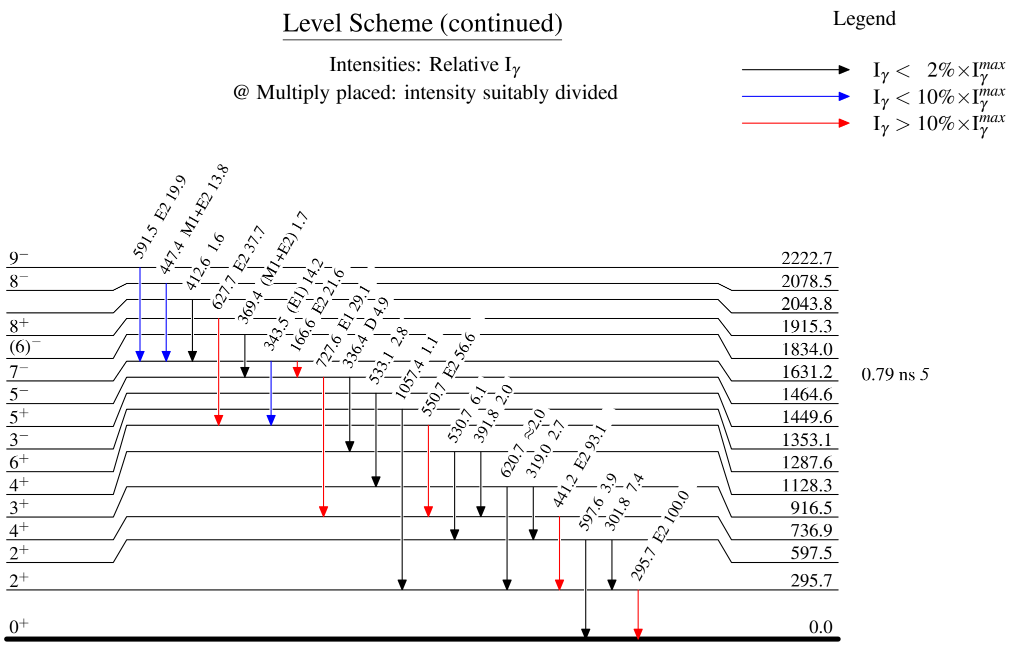


$^{190}Os(\alpha,4n\gamma)$ 1976Cu02,1976Hj01

Level Scheme (continued)

Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided



$^{190}_{78}Pt_{112}$