Coulomb excitation

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huang Xiaolong and Kang Mengxiao	NDS 121,395 (2014)	1-Mar-2014

E(p)=4.5 MeV (1971Mi08,1972Mi10), 4-5.5 MeV (1982Ku22).
Eα=5.5-6.5 MeV (1985Br31,1984BrZW), 16 MeV (1978Ba38), 10 MeV (1970Br26), 3.0-5.3 MeV (1959Mc69).
E(^{16}O)=43.75 MeV (1972Mi10), 41 MeV (1970Br26), 36 MeV (1966Gr20), 35 MeV (1969Ku06), 36 MeV (1972Sp03).
E(^{32}S)=125 MeV (1986Ma57).
Others: 1958Ba37, 1965Ro09.

^{195}Pt Levels

X,$\gamma(\theta)$ measurements (1959Mc69,1982Ku22)

E(level),keV	Eγ,keV	A_2	spin sequence	δ
98.9	98.9	-0.230 *10*	3/2(d,Q)1/2	+0.022 *11*
199.3	199.3	+0.450 *40*	3/2(d,Q)1/2	+1.1 *2* or (+3.3 *6*)
211.2	211.2	+0.090 *04*	3/2(d,Q)1/2	+0.39 *1* or (-5.8 *0.2*)
239.2	140.2	-0.330 *30*	5/2(d,Q)3/2	-0.13 *3*
239.2	239.2	+0.301 *18*	5/2(Q)1/2	
389.6	290.9	-0.033 *22*	5/2(d,Q)3/2	-0.12 *2* or 2.2 I4
449.6	319.9	+0.319 *32*	5/2(d,Q)5/2	+0.04 *20* or 1.1 I2
793.0	793.0	+0.437 *80*	3/2(d,Q)1/2	+1.0 *4* or (3.6 *14*)

E(level)[†]	J$^\pi$[#]	$T_{1/2}$	Comments
0.0	1/2$^-$ [@a]	stable	configuration=J^π<σ_1,σ_2,σ_3>-(τ_1, τ_2)=1/2−<7,0,0>-(0,0)(1986Ma57).
98.9 *3*	3/2$^-$ [@a]	0.163 ns *2*	B(E2)↑=0.072 *12* $T_{1/2}$: from 1974Ru03 (Moss). Other: 0.16 ns *3* if av B(E2)=0.15 *3* from 0.19 *4* (1959Mc69), 0.11 *4* (1966Gr20); $T_{1/2}$=0.34 ns *6* from adopted B(E2). B(E2)↑: From B(E2)=0.076 *12* (1985Br31) after correcting α=7.6 to 7.1. Earlier values are incorrect since feeding from 199 level was not corrected for. configuration=J^π<σ_1,σ_2,σ_3>-(τ_1, τ_2)=3/2−<6,1,0>-(1,0) (1986Ma57).
129.71 *10*	5/2$^-$ [a]	0.67 ns *3*	$T_{1/2}$: others: 0.61 ns *7* if B(E2)↑=0.19 *2*. B(E2): 0.19 *2* (1970Br26), 0.17 *5* (1966Gr20), 0.39 *13* (1959Mc69), 0.198 *12* (1985Br31). configuration=J^π<σ_1,σ_2,σ_3>-(τ_1, τ_2)=5/2−<6,1,0>-(1,0) (1986Ma57).
199.31 *20*	(3/2)$^-$ [a]	5.0 ns *14*	B(E2)↑=0.058 *9* $T_{1/2}$: from B(E2)↑. B(E2)↑: Weighted average of 0.098 *14* (1970Br26), 0.076 *12* (1971Mi08), 0.082 *12* (1982Ku22), and 0.054 *5* (1985Br31). These data have been corrected for adopted decay branching. configuration=J^π<σ_1,σ_2,σ_3>-(τ_1, τ_2)=3/2−<6,1,0>-(1,1) (1986Ma57).
211.2 *3*	3/2$^-$ [a]	49 ps *8*	B(E2)↑=0.39 *2* $T_{1/2}$: from B(E2)↑. Others: 53 ps *9* (1971NoZT) recoil distance, 67 ps *5* (1965Bl10) pulsed beam, microwave. B(E2)↑: From weighted average of 0.43 *5* (1959Mc69), 0.40 *3* (1971Mi08) 0.35 *4* (1966Gr20), 0.40 *2* (1970Br26), 0.442 *26* (1982Ku22), 0.38 *2* (1985Br31). γ: +0.104 *21* (1972Va16), +0.166 *54* (1969Ku06). configuration=J^π<σ_1,σ_2,σ_3>-(τ_1, τ_2)=3/2−<7,0,0>-(1,0)(1986Ma57).
222[‡]	(1/2$^-$)[&a]		configuration=J^π<σ_1,σ_2,σ_3>-(τ_1, τ_2)=1/2−<6,1,0>-(1,1)(1986Ma57).
239.1 *4*	5/2$^-$ [a]	70 ps *5*	B(E2)↑=0.70 *3* $T_{1/2}$: from B(E2)↑. Other: 80 ps *4* (1971NoZT) recoil distance. B(E2)↑: Weighted average of 0.66 *5* (1970Br26), 0.71 *9* (1959Mc69), 0.73 *5* (1982Ku22). Values are all corrected for adopted decay branching. Other: 0.51 *3*

Continued on next page (footnotes at end of table)

Coulomb excitation (continued)

^{195}Pt Levels (continued)

E(level)[†]	Jπ[#]	$T_{1/2}$	Comments
			(1985Br31) but branching used by authors is not specified. g: 0.21 *2* (1974Ga31), 0.22 *3* (1972Va16) if $T_{1/2}$=80 ps. Other g: 1969Ku06, 1972Sp03. configuration=J^π<$\sigma_1,\sigma_2,\sigma_3$>-($\tau_1$, τ_2)=5/2−<7,0,0>-(1,0)(1986Ma57).
389.4 *4*	5/2−[a]	9 ps *4*	B(E2)↑=0.025 *2* $T_{1/2}$: from B(E2)↑. configuration=J^π<$\sigma_1,\sigma_2,\sigma_3$>-($\tau_1$, τ_2)=5/2−<6,1,0>-(1,1)(1986Ma57). B(E2)↑: weighted average of 0.021 *3* (1985Br31), 0.0264 *19* (1982Ku22).
420.0 *6*	3/2−[a]		B(E2)↑=0.030 *2* (1985Br21) configuration=J^π<$\sigma_1,\sigma_2,\sigma_3$>-($\tau_1$, τ_2)=3/2−<6,1,0>-(2,0)(1986Ma57).
449.6? *8*	(7/2−)[&]		B(E2)↑=0.18 *3* (1982Ku22) E(level): evaluator considers authors′ evidence for this level to be tentative. configuration=J^π<$\sigma_1,\sigma_2,\sigma_3$>-($\tau_1$, τ_2)=7/2−<6,1,0>-(1,1)(1986Ma57).
455.3[‡] *10*	5/2−[&a]		B(E2)↑<12×10^{-5} (1985Br31) E(level): excited via a two-step process (1986Ma57). configuration=J^π<$\sigma_1,\sigma_2,\sigma_3$>-($\tau_1$, τ_2)=5/2−<6,1,0>-(2,0)(1986Ma57). E(level): 449.6 (1982Ku22) may correspond to this level.
507.5[‡] *8*	7/2−[&a]	9.5 ps *22*	B(E2)(99-508)=0.48 *10* (1986Ma57). $T_{1/2}$: from B(E2) for branching (409γ)=0.46 *5*. configuration=J^π<$\sigma_1,\sigma_2,\sigma_3$>-($\tau_1$, τ_2)=7/2−<6,1,0>-(2,0)(1986Ma57).
525.2 *4*	3/2−[a]		B(E2)↑=0.034 *2* (1985Br31) configuration=J^π<$\sigma_1,\sigma_2,\sigma_3$>-($\tau_1$, τ_2)=3/2−<7,0,0>-(2,0)(1986Ma57). B(E2)↑: other: 0.030 (1986Ma57).
544.2 *5*	5/2−[&a]		B(E2)(130-563)=0.024 *12* (1986Ma57). configuration=J^π<$\sigma_1,\sigma_2,\sigma_3$>-($\tau_1$, τ_2)=5/2−<7,0,0>-(2,0) (1986Ma57).
562.9[‡] *8*	9/2−[&a]	14 ps *3*	B(E2)↑=0.40 *7* (1986Ma57) $T_{1/2}$: from B(E2). configuration=J^π<$\sigma_1,\sigma_2,\sigma_3$>-($\tau_1$, τ_2)=9/2−<6,1,0>-(2,0)(1986Ma57).
589.9[‡] *10*	3/2−[&a]		B(E2)↑<0.0008 (1985Br31) configuration=J^π<$\sigma_1,\sigma_2,\sigma_3$>-($\tau_1$, τ_2)=3/2−<6,1,0>-(2,1) (1986Ma57).
612.7[‡] *7*	7/2−[&a]	6 ps *3*	B(E2)(211-613)=0.34 *14* (1986Ma57). $T_{1/2}$: from B(E2). configuration=J^π<$\sigma_1,\sigma_2,\sigma_3$>-($\tau_1$,$\tau_2$)= 7/2−<7,0,0>-(2,0) (1986Ma57).
631.9[‡] *6*	1/2−,3/2−[&a]		configuration=J^π<$\sigma_1,\sigma_2,\sigma_3$>-($\tau_1$,$\tau_2$)= 1/2−<6,1,0>-(2,1)(1986Ma57).
666.9[‡] *8*	(9/2−)[&a]		B(E2)(239-667)=0.33 *7* (1986Ma57). configuration=J^π<$\sigma_1,\sigma_2,\sigma_3$>-($\tau_1$,$\tau_2$)= 9/2−<7,0,0>-(2,0)(1986Ma57).
678.1[‡] *11*			
793.0 *10*	3/2−[a]		B(E2)↑=0.0149 *24* (1982Ku22)
927?[‡]	1/2−,3/2−[&a]		configuration=J^π<$\sigma_1,\sigma_2,\sigma_3$>-($\tau_1$,$\tau_2$)= 1/2−<5,0,0>-(0,0)(1986Ma57).
1092.5[‡] *9*	(5/2 to 13/2)[&a]		
1132?[‡]	1/2−,3/2−[&a]		configuration=J^π<$\sigma_1,\sigma_2,\sigma_3$>-($\tau_1$,$\tau_2$)= 3/2−<5,0,0>-(1,0)(1986Ma57).
1155.8?[‡] *5*	(5/2−)[&a]		configuration=J^π<$\sigma_1,\sigma_2,\sigma_3$>-($\tau_1$,$\tau_2$)= 5/2−<5,0,0>-(1,0)(1986Ma57).

[†] From scheme and Eγ using least-squares fit to data.
[‡] From 1986Ma57.
[#] From γ(θ) and ce measurements (1982Ku22,1985Br31), except as noted.
[@] From Adopted Levels.
[&] From 1986Ma57. Based on ^{32}S,γ(θ) measurements and U(6/12) multi-J supersymmetry scheme of the interacting boson-fermion model.
[a] Analyzed by using multi-J supersymmetry scheme of interacting boson-fermion model (1986Ma57).

Coulomb excitation (continued)

$\gamma(^{195}Pt)$

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α[b]	Comments
(28)		239.1	5/2$^-$	211.2	3/2$^-$				α(L)= 39.7; α(M)= 9.17
(30.8[@])		129.71	5/2$^-$	98.9	3/2$^-$	M1+E2[@]	−0.021[@] *4*	37.9	α(L)=29.2 *5*; α(M)=6.76 *11*; α(N+..)=1.99 *3*
98.9 *5*		98.9	3/2$^-$	0.0	1/2$^-$	M1+E2	−0.130 *4*	6.85 *14*	α(K)=5.57 *12*; α(L)=0.981 *21*; α(M)=0.228 *5*; α(N+..)=0.0672 *14* B(M1)(W.u.)=0.0175 *5*; B(E2)(W.u.)=11.6 *8* E_γ: from 1965Ro09. δ: from L-subshell ratios (^{195}Au decay), sign from 1972Ba22, 1965Ca12. Other δ=+0.129 *26* p,$\gamma(\theta)$ (1966As02); +0.022 *11* (1959Mc69). α(K)exp=5.8 *15* from K x ray/Iγ (1959Mc69) is in agreement with δ=0.13.
100.7[&]		199.31	(3/2)$^-$	98.9	3/2$^-$	M1+E2[&]	+0.02[&] *23*	6.53 *14*	α(K)=5.4 *3*; α(L)=0.90 *13*; α(M)=0.21 *4*; α(N+..)=0.061 *10*
129.7 *1*		129.71	5/2$^-$	0.0	1/2$^-$	E2		1.732	α(K)=0.468 *7*; α(L)=0.950 *14*; α(M)=0.245 *4*; α(N+..)=0.0692 *10* E_γ: from 1973Ja10 (^{195}Ir decay).
140.2[#] *6*	46[‡] *4*	239.1	5/2$^-$	98.9	3/2$^-$	M1+E2	−0.19 *6*	2.50 *6*	α(K)=2.03 *6*; α(L)=0.357 *11*; α(M)=0.083 *3*; α(N+..)=0.0245 *8* B(M1)(W.u.)=0.0180 *24*; B(E2)(W.u.)=13 *8* I_γ: 38 *8* (1966Gr20). δ: av: −0.13 *3* (1959Mc69) a,$\gamma(\theta)$, −0.21 *3* (1966As02) p,$\gamma(\theta)$, −0.24 *4* (1982Ku22).
150[#] *1*		389.4	5/2$^-$	239.1	5/2$^-$				α(K)= 1.781; α(L)= 0.296; α(M)= 0.0682; α(N+..)=0.02150
199.3 *2*		199.31	(3/2)$^-$	0.0	1/2$^-$	M1+E2	+1.2 *2*	0.60 *6*	α(K)=0.42 *6*; α(L)=0.138 *3*; α(M)=0.0339 *9*; α(N+..)=0.00976 *22* E_γ: from 1970Br26. δ: from α(K)exp (1972HsZX). Others: +0.55 *+31−20* (1970Br26) a,$\gamma(\theta)$, +0.10 *5* (1985Br31), +1.1 *2* (1982Ku22).
211.2[#] *3*		211.2	3/2$^-$	0.0	1/2$^-$	M1+E2	+0.38 *3*	0.739 *14*	α(K)=0.596 *13*; α(L)=0.1093 *16*; α(M)=0.0256 *4*; α(N+..)=0.00751 *11* B(M1)(W.u.)=0.024 *4*; B(E2)(W.u.)=30 *7* δ: from 1969Ku06 ^{16}O,$\gamma(\theta)$. Others: +0.36 *+3−4* (1970Br26), +0.37 *2* (1959Mc69) a,$\gamma(\theta)$, +0.30 *3* (1985Br31) a,$\gamma(\theta)$, +0.39 *1* (1982Ku22).
239.2[#] *6*	100[‡]	239.1	5/2$^-$	0.0	1/2$^-$	E2		0.199 *4*	α(K)=0.1080 *17*; α(L)=0.0683 *12*; α(M)=0.0173 *3*; α(N+..)=0.00492 *9* B(E2)(W.u.)=55 *5* Mult.: E2 from a,$\gamma(\theta)$: 1959Mc69, 1970Br26.
259.7[#] *6*	1.48[‡] *15*	389.4	5/2$^-$	129.71	5/2$^-$	(M1+E2)	+0.01[&] *3*	0.453	B(E2)↓<0.014 (1985Br31) α(K)=0.374 *6*; α(L)=0.0611 *10*; α(M)=0.01412 *22*;

From ENSDF

$^{195}_{78}Pt_{117}$-3

Coulomb excitation (continued)

γ(^{195}Pt) (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α[b]	Comments
									α(N+..)=0.00417 *7* B(M1)(W.u.)=0.030 *14*; B(E2)(W.u.)=0.017 *+104−17* Mult.: from α(K)exp (3.8-h ^{195}Ir decay).
285.8[#] *6*	1.38[‡] *17*	525.2	3/2⁻	239.1	5/2⁻	M1+E2	+0.14[&] *14*	0.344 *14*	α(K)=0.283 *13*; α(L)=0.0467 *10*; α(M)=0.01080 *21*; α(N+..)=0.00318 *7*
290.9[#] *6*	3.55[‡] *30*	389.4	5/2⁻	98.9	3/2⁻	M1(+E2)	−0.47[&] *7*	0.292 *11*	α(K)=0.236 *10*; α(L)=0.0424 *9*; α(M)=0.00990 *19*; α(N+..)=0.00291 *6* B(M1)(W.u.)=0.042 *20*; B(E2)(W.u.)=42 *22* Mult.: from α(K)exp (3.8-h ^{195}Ir decay). δ: other: −0.12 *2* (1982Ku22).
296[a]		507.5	7/2⁻	211.2	3/2⁻				Iγ/Iγ(409γ)=0.046 *10* (1986Ma57).
305[a]		544.2	5/2⁻	239.1	5/2⁻				
319.9[c]	75 *7*	449.6?	(7/2⁻)	129.71	5/2⁻	M1+E2		0.17 *9*	α(K)=0.13 *8*; α(L)=0.028 *7*; α(M)=0.0068 *12*; α(N+..)=0.0020 *4* α(K)= 0.219 *9*; α(L)= 0.0357 *7*; α(M)=0.00820 *14*; α(N+..)=0.00256 *5* δ: 0.20 *4* or 1.1 *2* (1982Ku22).
320.8[&]		420.0	3/2⁻	98.9	3/2⁻	M1+E2[&]	−0.12[&] *5*	0.252 *5*	α(K)=0.208 *4*; α(L)=0.0341 *5*; α(M)=0.00787 *12*; α(N+..)=0.00232 *4*
324[a]		562.9	9/2⁻	239.1	5/2⁻				Iγ/Iγ(433γ)=0.089 *11* (1986Ma57).
333[a]		544.2	5/2⁻	211.2	3/2⁻				
350.9[c]	9	449.6?	(7/2⁻)	98.9	3/2⁻				
374[a]		612.7	7/2⁻	239.1	5/2⁻				
389[a] *1*	0.096 *43*	389.4	5/2⁻	0.0	1/2⁻	E2[&]		0.0471 *8*	α(K)=0.0325 *5*; α(L)=0.01113 *19*; α(M)=0.00275 *5*; α(N+..)=0.000789 *14* B(E2)(W.u.)=1.5 *10* I_γ: from Iγ(389γ)/Iγ(290γ)=0.027 *12* deduced from B(E2) ratio and δ(290γ) (1985Br31).
392.8[a] *5*		631.9	1/2⁻,3/2⁻	239.1	5/2⁻				
395.5[#] *6*	1.57[‡] *17*	525.2	3/2⁻	129.71	5/2⁻	M1+E2	+0.35[&] *6*	0.134 *4*	α(K)=0.110 *4*; α(L)=0.0184 *4*; α(M)=0.00427 *9*; α(N+..)=0.00126 *3*
402[a]		612.7	7/2⁻	211.2	3/2⁻				
409[a]		507.5	7/2⁻	98.9	3/2⁻	E2[a]		0.0412	α(K)=0.0289 *4*; α(L)=0.00940 *14*; α(M)=0.00231 *4*; α(N+..)=0.000665 *10*
414[a]		544.2	5/2⁻	129.71	5/2⁻				
[x]415.0[#] *6*	2.47[‡] *20*								
420.1[#] *6*		420.0	3/2⁻	0.0	1/2⁻	M1+E2[&]	+0.17[&] *2*	0.1211 *19*	α(K)=0.1000 *16*; α(L)=0.01628 *25*; α(M)=0.00376 *6*; α(N+..)=0.001108 *17*
426.5[#] *6*	0.89[‡] *18*	525.2	3/2⁻	98.9	3/2⁻	M1+E2	−3.3[&] *28*	0.04 *6*	α(K)=0.03 *6*; α(L)=0.009 *6*; α(M)=0.0021 *12*; α(N+..)=0.0006 *4* MR=−0.44 to −6.1 (1985Br31).

From ENSDF

$^{195}_{78}Pt_{117}$-4

Coulomb excitation (continued)

γ(^{195}Pt) (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α[b]	Comments
428[a]		666.9	(9/2⁻)	239.1	5/2⁻	(E2)		0.0366	α(K)=0.0260 *4*; α(L)=0.00809 *12*; α(M)=0.00198 *3*; α(N+..)=0.000571 *8*
433[a]		562.9	9/2⁻	129.71	5/2⁻	(E2)		0.0355	α(K)=0.0253 *4*; α(L)=0.00779 *11*; α(M)=0.00191 *3*; α(N+..)=0.000550 *8*
439[a]		678.1		239.1	5/2⁻				
445[#] *1*		544.2	5/2⁻	98.9	3/2⁻				
455.3[&]		455.3	5/2⁻	0.0	1/2⁻				
513[a]		612.7	7/2⁻	98.9	3/2⁻				Iγ/Iγ(402γ)=0.10 *3* (1986Ma57).
525[#] *1*		525.2	3/2⁻	0.0	1/2⁻	M1+E2	+2.2[&] *12*	0.030 *16*	α(K)=0.023 *14*; α(L)=0.0051 *16*; α(M)=0.0012 *4*; α(N+..)=0.00035 *11* MR=+1.1 to +3.4 (1985Br31).
529.6[a] *5*		1092.5	(5/2 to 13/2)	562.9	9/2⁻				
537[a]		666.9	(9/2⁻)	129.71	5/2⁻				Iγ/Iγ(428γ)=0.19 *3* (1986Ma57) from B(E2)(537γ)/B(E2)(428γ)=0.06 *1*.
545[#] *1*		544.2	5/2⁻	0.0	1/2⁻				
589.9[&]		589.9	3/2⁻	0.0	1/2⁻				
793	100[‡]	793.0	3/2⁻	0.0	1/2⁻	M1+E2		0.016 *8*	α(K)=0.013 *7*; α(L)=0.0022 *9*; α(M)=0.00052 *20*; α(N+..)=0.00015 *6* δ: +1.0 *4* or 3.6 *14* (1982Ku22).

[†] Relative photon branching intensities, except as noted.
[‡] Relative photon intensity normalized to Iγ(Eγ=239 keV)=100. Values are from 1972Mi10.
[#] From 1972Mi10.
[@] From adopted γ radiations.
[&] From 1985Br31.
[a] From 1986Ma57.
[b] 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.
[c] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

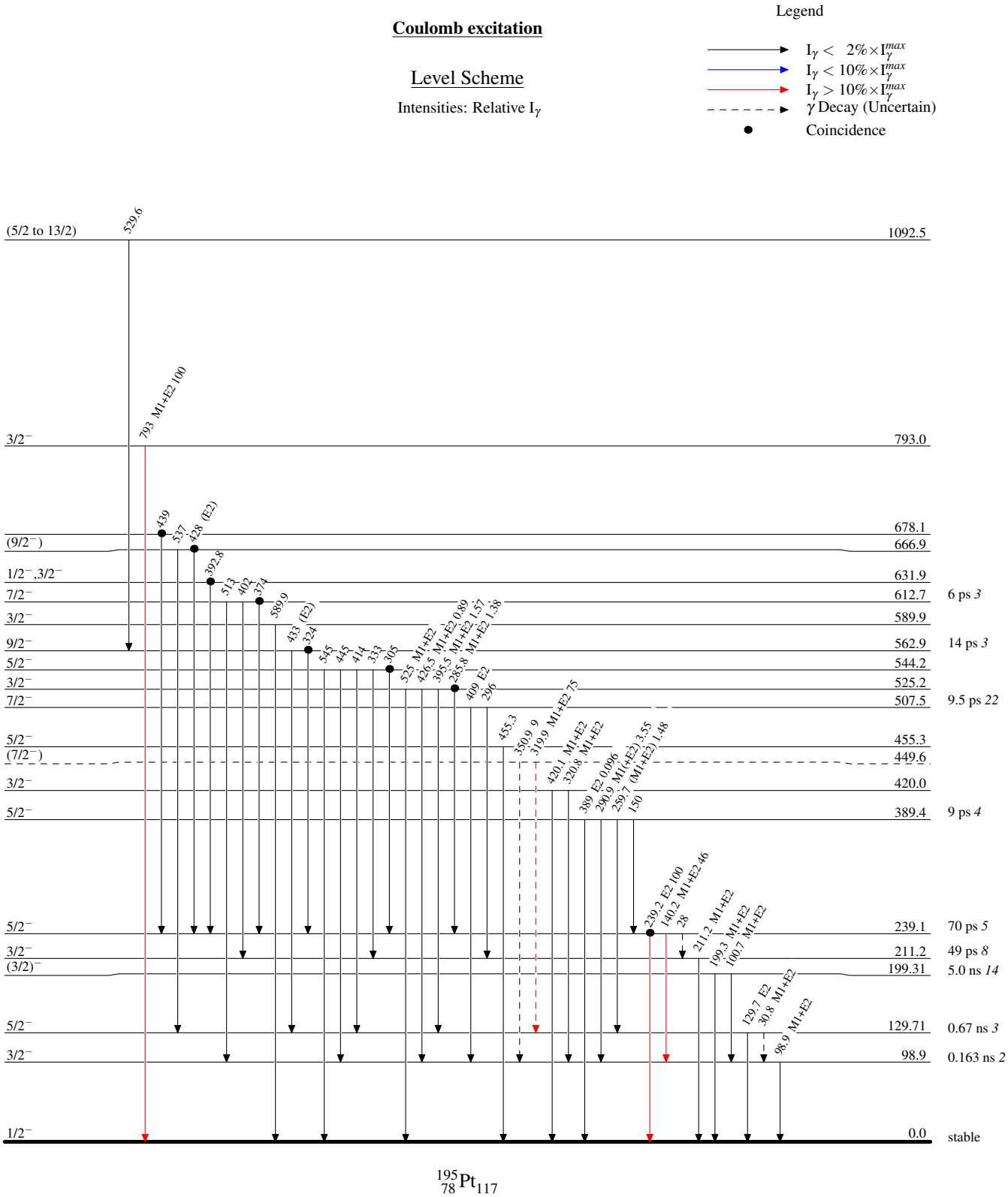
From ENSDF

$^{195}_{78}Pt_{117}$-5

Coulomb excitation

Level Scheme

Intensities: Relative I_γ



$^{195}_{78}Pt_{117}$