^{194}Pt(n,γ) E=thermal 1987Ca03,1982Wa20

History

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

Others: 1967Gr24, 1968Sa13, 1970Or05.
1987Ca03: ^{194}Pt(n,γ) E=thermal; measured E(ce), Ice; U(6/12) supersymmetry analyses.
1982Wa20: ^{194}Pt(n,γ) E=thermal, 2 keV, 24 keV; measured Eγ and Iγ with curved spectrometers and Ge(Li); comparison with multi-J supersymmetry in interacting boson-fermion approximation.
Measured neutron binding energy 6105.3 *5* (1982Wa20) is in good agreement with 6105.04 *12* recommended in 2003Au03.

^{195}Pt Levels

Spin and parity assignments from the av resonance capture data (1982Wa20):

I(2 keV)/I(24 keV)	J^π	Comments
ratio of reduced primary γ-ray intensities		
≥ 0.5	$1/2^-,3/2^-$	
0.3 - 0.5	1/2±,3/2±	
< 0.3	$1/2^+,3/2^+$	
0	$5/2^+,(5/2^-,1/2^+,3/2^+)$	for I(24 keV) > 30
0	5/2±	for I(24 keV) < 30

E(level)[†]	J^π[‡]	$T_{1/2}$[@]	I(2 keV)/I(24 keV)[b]	Comments
0.0[&]	$1/2^-$	stable	1.00	
98.8839[&] *16*	$3/2^-$		1.11	
129.782 *4*	$5/2^-$			
199.5337[&] *17*	$3/2^-$		1.61	
211.4064[&] *19*	$3/2^-$		1.18	
222.230[&] *4*	$1/2^-,3/2^-$[#]		0.62	
239.268 *4*	$5/2^-$			
259.075 *23*	$13/2^+$			
389.137 *3*	$5/2^-$			
419.704[&] *3*	$3/2^-$		2.72	
431.981 *23*	$9/2^+$			
455.276[a] *7*	$5/2^-$		0	
507.920 *8*	$5/2^-,7/2^-$			
524.851[&] *3*	$3/2^-$		0.92	
590.902[&] *4*	$1/2^-,3/2^-$[#]		1.06	
630.146[&] *7*	$1/2^-,3/2^-$[#]		1.12	
664.207 *6*	$5/2^-,7/2^-$			
739.548[&] *5*	$1/2^-,3/2^-$[#]		1.79	
821.785[a] *23*	$5/2^+$		0	J^π: $J^\pi=5/2^+,(5/2^-,1/2^+,3/2^+)$ from av resonance capture measurements.
926.89[&] *6*	$1/2^-,3/2^-$[#]		1.70	
1095.8 *4*	$1/2^-,3/2^-$[#]		0.70	
1122.596[a] *23*			0	J^π: $J^\pi=5/2^+,(5/2^-,1/2^+,3/2^+)$ from av resonance capture measurements.

Continued on next page (footnotes at end of table)

^{194}Pt(n,γ) E=thermal 1987Ca03,1982Wa20 (continued)

^{195}Pt Levels (continued)

E(level)[†]	J^{π}[‡]	I(2 keV)/I(24 keV)[b]	Comments
1132.402[&] 20	$1/2^-,3/2^-$[#]	2.38	
1160.390[&] 25	$1/2^-,3/2^-$[#]	0.61	
1166.4 6	$1/2^+,3/2^+$[#]	0.28	
1271.0 3	$1/2^-,3/2^-$[#]	0.68	
1287.7 4	$1/2^-,3/2^-$[#]	0.63	
1312.7 7	$1/2^+,3/2^+$[#]	0.18	
1320.8 7	$1/2^-,3/2^-$[#]	0.68	
1334.7 4	$1/2^-,3/2^-$[#]	0.74	
1346.9 6	1/2,3/2[#]	0.32	
1372.7 4	$1/2^-,3/2^-$[#]	0.61	
1411.1 5	$1/2^-,3/2^-$[#]	0.68	
1425.0 5	$1/2^-,3/2^-$[#]	0.68	
1438.3 4	1/2,3/2[#]	0.33	
1445.3 5	$1/2^-,3/2^-$[#]	0.54	
(6109.1 9)	$1/2^+$		E(level): thermal neutron binding energy deduced from thermal, 2- and 24-keV neutron capture measurements (1982Wa20), but no primary γ-rays from thermal neutron capture are given by 1982Wa20. J^{π}: from s-wave thermal neutron capture.

[†] From authors′ values: E(level) values for the 129- and 1095-levels and the levels above 1160 are from 2- and 24-keV average resonance neutron capture measurements.

[‡] From Adopted Levels, except as noted.

[#] From average resonance neutron capture measurements: ratio of reduced primary intensities observed in 2 and 24 keV.

[@] From Adopted Levels.

[&] Populated also in the average resonance capture (E=2, 24 keV).

[a] From 24-keV average resonance neutron capture only.

[b] Ratio of reduced primary γ intensities observed in 2- and 24-keV average resonance neutron capture. The intensity of γ ray was divided by the fifth power of the γ energy.

γ(^{195}Pt)

E_γ[†]	I_γ[‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	δ[&]	α[a]	Comments
98.886 *2*	599 *60*	98.8839	3/2⁻	0.0	1/2⁻	M1(+E2)	<0.17	6.86	α(L1)exp=1.16 *11*; α(L2)exp=0.15 *15* (1987Ca03) α(K)=5.59 *11*; α(L)=0.98 *4*; α(M)=0.227 *10*; α(N+..)=0.067 *3*
100.652 *3*	131 *13*	199.5337	3/2⁻	98.8839	3/2⁻	M1(+E2)	<0.17	6.52	α(L1)exp=1.09 *14*; α(M1)exp=0.25 *23* (1987Ca03) α(K)=5.31 *10*; α(L)=0.93 *4*; α(M)=0.215 *9*; α(N+..)=0.0634 *25*
123.337 *10*	130 *13*	222.230	1/2⁻,3/2⁻	98.8839	3/2⁻	M1(+E2)	<0.32	3.59 *9*	α(L1)exp=0.42 *16* (1987Ca03) α(K)=2.89 *13*; α(L)=0.53 *4*; α(M)=0.124 *10*; α(N+..)=0.036 *3*
140.385 *9*	115 *16*	239.268	5/2⁻	98.8839	3/2⁻	M1(+E2)	<0.62	2.36 *18*	α(L1)exp=0.32 *28*; α(L2)exp=0.30 *24* (1987Ca03) α(K)=1.85 *24*; α(L)=0.39 *5*; α(M)=0.092 *13*; α(N+..)=0.027 *4*
172.906 *3*	505 *51*	431.981	9/2⁺	259.075	13/2⁺	E2		0.596	α(K)exp=0.22 *16*; α(L1)exp=0.054 *21*; α(L2)exp=0.19 *12* (1987Ca03) α(K)=0.244 *4*; α(L)=0.265 *4*; α(M)=0.0680 *10*; α(N+..)=0.0193 *3* Mult.: M=E2(+M1) with δ>2.0 (1987Ca03). But γ to 13/2⁺ rules out (M1) component (evaluator). δ: δ>2.24 (1987Ca03).
197.479 *14*	50 *9*	419.704	3/2⁻	222.230	1/2⁻,3/2⁻	M1(+E2)	<1.9	0.74 *24*	α(K)exp=0.60 *51* (1987Ca03) α(K)=0.55 *25*; α(L)=0.139 *8*; α(M)=0.033 *4*; α(N+..)=0.0097 *8*
199.533 *2*	265 *26*	199.5337	3/2⁻	0.0	1/2⁻	M1(+E2)	<0.40	0.90 *5*	α(K)exp=0.82 *11*; α(L1)exp=0.13 *17* (1987Ca03) α(K)=0.73 *5*; α(L)=0.1285 *22*; α(M)=0.0299 *7*; α(N+..)=0.00880 *18*
211.407 *2*	1000	211.4064	3/2⁻	0.0	1/2⁻	M1+E2	0.38 *3*	0.737 *14*	α(K)exp=0.614 *5* (1987Ca03) α(K)=0.595 *13*; α(L)=0.1089 *16*; α(M)=0.0255 *4*; α(N+..)=0.00749 *11* δ: from β⁻ decay. Other: M1+(12%E2) (1987Ca03).
216.012 *9*	52 *6*	455.276	5/2⁻	239.268	5/2⁻	M1(+E2)	<0.6	0.69 *7*	α(K)exp=0.61 *25* (1987Ca03) α(K)=0.56 *7*; α(L)=0.1022 *15*; α(M)=0.0239 *5*; α(N+..)=0.00702 *12*
222.230 *5*	64 *8*	222.230	1/2⁻,3/2⁻	0.0	1/2⁻	M1(+E2)	<0.54	0.65 *5*	α(K)exp=0.57 *20* (1987Ca03) α(K)=0.52 *5*; α(L)=0.0940 *14*; α(M)=0.0220 *4*; α(N+..)=0.00645 *10*
239.261 *5*	215 *22*	239.268	5/2⁻	0.0	1/2⁻	E2		0.198	α(K)exp=0.13 *22* (1987Ca03) α(K)=0.1080 *16*; α(L)=0.0682 *10*; α(M)=0.01729 *25*; α(N+..)=0.00492 *7* δ: E2(⁺ (6 *+10−6*)%M1). Mult.: E2(+M1) with δ>2.3, but ΔJ=2 rules out M1 (evaluator).
243.855 *14*	45 *5*	455.276	5/2⁻	211.4064	3/2⁻	M1(+E2)	0.37 *+54−37*	0.50 *12*	α(K)exp=0.40 *25* (1987Ca03) α(K)=0.40 *12*; α(L)=0.072 *4*; α(M)=0.0167 *4*;

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

γ(^{195}Pt) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	δ[&]	α[a]	Comments
									α(N+..)=0.00491 *16* δ: M1(+ (14 +*29*−*14*)%E2).
255.741 *30*	39 *5*	455.276	5/2⁻	199.5337	3/2⁻				
259.351 *6*	105 *12*	389.137	5/2⁻	129.782	5/2⁻	M1(+E2)	<0.5	0.42 *3*	α(K)exp=0.41 *23* (1987Ca03) α(K)=0.35 *3*; α(L)=0.0602 *15*; α(M)=0.0140 *3*; α(N+..)=0.00412 *9*
285.578 *4*	60 *7*	524.851	3/2⁻	239.268	5/2⁻	(M1+E2)	<0.72	0.31 *4*	α(K)=0.25 *4*; α(L)=0.0448 *23*; α(M)=0.0105 *5*; α(N+..)=0.00308 *14* α(K)exp=0.30 *32* (1987Ca03) Mult.: α(K)exp also allows mult=E1; but decay scheme requires Δπ=no.
ˣ287.822 *15*	37 *4*								
290.254 *3*	290 *29*	389.137	5/2⁻	98.8839	3/2⁻	M1(+E2)	<0.54	0.31 *3*	α(K)exp=0.27 *14* (1987Ca03) α(K)=0.252 *24*; α(L)=0.0435 *16*; α(M)=0.0101 *3*; α(N+..)=0.00298 *10*
ˣ299.114 *12*	37 *4*								
300.811 *2*	232 *23*	1122.596		821.785	5/2⁺	E2(+M1)	2.1 +*17*−*4*	0.136 *25*	α(K)exp=0.11 *19* (1987Ca03) α(K)=0.096 *23*; α(L)=0.0304 *16*; α(M)=0.0075 *3*; α(N+..)=0.00215 *10*
313.449 *6*	33 *4*	524.851	3/2⁻	211.4064	3/2⁻				
ˣ319.313 *4*	82[#] *9*					M1(+E2)	<0.57	0.236 *22*	α(K)exp=0.22 *25* (1987Ca03) α(K)=0.193 *20*; α(L)=0.0332 *16*; α(M)=0.0077 *4*; α(N+..)=0.00227 *10*
319.843 *4*	73[#] *9*	739.548	1/2⁻,3/2⁻	419.704	3/2⁻	E2(+M1)	≥1.23	0.12 *4*	α(K)exp=0.11 *51* (1987Ca03) α(K)=0.08 *4*; α(L)=0.0247 *25*; α(M)=0.0060 *5*; α(N+..)=0.00174 *16*
320.819 *3*	79[#] *9*	419.704	3/2⁻	98.8839	3/2⁻	M1(+E2)	<0.58	0.233 *23*	α(K)exp=0.22 *26* (1987Ca03) α(K)=0.190 *21*; α(L)=0.0327 *16*; α(M)=0.0076 *4*; α(N+..)=0.00224 *10*
ˣ325.404 *8*	90 *12*								
ˣ328.471 *10*	28 *4*								
356.395 *14*	66[@] *12*	455.276	5/2⁻	98.8839	3/2⁻				
368.671 *3*	146 *15*	590.902	1/2⁻,3/2⁻	222.230	1/2⁻,3/2⁻	M1(+E2)	<0.14	0.174 *3*	α(K)=0.1435 *23*; α(L)=0.0234 *4*; α(M)=0.00539 *8*; α(N+..)=0.001591 *24*
ˣ373.459 *9*	27 *3*								
378.129 *9*	47 *6*	507.920	5/2⁻,7/2⁻	129.782	5/2⁻				
379.503 *8*	46 *6*	590.902	1/2⁻,3/2⁻	211.4064	3/2⁻				
ˣ388.10 *3*	26 *4*								
389.803 *4*	309 *31*	821.785	5/2⁺	431.981	9/2⁺	E2		0.0469	α(K)exp=0.058 *24* (1987Ca03) α(K)=0.0323 *5*; α(L)=0.01106 *16*; α(M)=0.00273 *4*; α(N+..)=0.000784 *11* Mult.: M=E2(+M1) (1987Ca03). But γ to 9/2⁺ rules

From ENSDF

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

γ(^{195}Pt) (continued)

E$_\gamma$[†]	I$_\gamma$[‡]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.[&]	δ[&]	α[a]	Comments
									out (M1) component (evaluator). δ: δ=1.9 +11−4 (1987Ca03).
391.377 10	26[#] 4	590.902	1/2⁻,3/2⁻	199.5337	3/2⁻	M1(+E2)	<0.14	0.1481 23	α(K)exp=0.18 17 (1987Ca03) α(K)=0.1223 20; α(L)=0.0199 3; α(M)=0.00459 7; α(N+..)=0.001353 20
392.860 19	18[#] 4	1132.402	1/2⁻,3/2⁻	739.548	1/2⁻,3/2⁻				
395.071 3	134 15	524.851	3/2⁻	129.782	5/2⁻	M1(+E2)	0.49 +60−49	0.13 4	α(K)= 0.11 4; α(L)= 0.018 4; α(M)= 0.0042 7; α(N+..)=0.00132 23 α(K)exp=0.10 32 (1987Ca03)
407.910 12	60[#] 7	630.146	1/2⁻,3/2⁻	222.230	1/2⁻,3/2⁻				
409.049 11	54[#] 6	507.920	5/2⁻,7/2⁻	98.8839	3/2⁻				
[x]409.716 21	54[#] 7								
[x]414.327 6	120 12								
418.741 8	66 10	630.146	1/2⁻,3/2⁻	211.4064	3/2⁻				
419.705 4	485 49	419.704	3/2⁻	0.0	1/2⁻	M1(+E2)	<0.46	0.116 8	α(K)exp=0.11 18 (1987Ca03) α(K)=0.096 7; α(L)=0.0159 8; α(M)=0.00367 16; α(N+..)=0.00108 5
420.71 6	14 6	1160.390	1/2⁻,3/2⁻	739.548	1/2⁻,3/2⁻				
424.944 18	18 5	664.207	5/2⁻,7/2⁻	239.268	5/2⁻				
425.978 7	72 8	524.851	3/2⁻	98.8839	3/2⁻				
[x]430.620 10	63 7								
[x]432.408 11	108[#] 16								
432.647 22	48[#] 13	821.785	5/2⁺	389.137	5/2⁻				
452.799 16	40 5	664.207	5/2⁻,7/2⁻	211.4064	3/2⁻				
464.674 7	60 7	664.207	5/2⁻,7/2⁻	199.5337	3/2⁻				
[x]472.217 20	53[@] 12								
524.846 4	186 19	524.851	3/2⁻	0.0	1/2⁻				
531.263 23	40[#] 12	630.146	1/2⁻,3/2⁻	98.8839	3/2⁻				
[x]533.252 19	52[#] 8								
534.418 15	46[#] 9	664.207	5/2⁻,7/2⁻	129.782	5/2⁻				
[x]544.126 15	40 5								
590.895 7	159 16	590.902	1/2⁻,3/2⁻	0.0	1/2⁻	M1(+E2)	<0.32	0.0488 17	α(K)exp=0.05 21 (1987Ca03) α(K)=0.0404 15; α(L)=0.00651 20; α(M)=0.00150 5; α(N+..)=0.000442 13
[x]594.26 4	46[@] 10								
[x]612.870 21	70 8								
[x]617.71 14	21 4								
629.86 25	11 3	630.146	1/2⁻,3/2⁻	0.0	1/2⁻				
635.59 3	39 5	1160.390	1/2⁻,3/2⁻	524.851	3/2⁻				
640.33 16	20 3	739.548	1/2⁻,3/2⁻	98.8839	3/2⁻				
[x]647.485 12	75 8								

^{194}Pt(n,γ) E=thermal 1987Ca03,1982Wa20 (continued)

γ(^{195}Pt) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J^π_i	E_f	J^π_f
687.69 *6*	44 *8*	926.89	1/2⁻,3/2⁻	239.268	5/2⁻
[x]688.96 *24*	30 *8*				
705.07 *13*	31 *5*	1160.390	1/2⁻,3/2⁻	455.276	5/2⁻
715.11 *14*	26 *4*	926.89	1/2⁻,3/2⁻	211.4064	3/2⁻
[x]738.27 *2*	30 *6*				
739.74 *16*	41 *6*	739.548	1/2⁻,3/2⁻	0.0	1/2⁻
[x]758.5 *3*	17 *5*				
[x]776.71 *5*	29 *4*				
[x]864.2 *4*	19 *7*				
892.57 *26*	19 *5*	1132.402	1/2⁻,3/2⁻	239.268	5/2⁻
[x]913.9 *4*	27 *11*				
[x]915.3 *4*	37 *10*				
[x]917.1 *3*	27 *7*				
926.85 *23*	25 *7*	926.89	1/2⁻,3/2⁻	0.0	1/2⁻
[x]929.1 *4*	25 *8*				
[x]930.7 *5*	22 *7*				
948.70 *15*	38 *6*	1160.390	1/2⁻,3/2⁻	211.4064	3/2⁻
[x]1005.60 *8*	101 *11*				
[x]1024.91 *19*	28 *5*				
1030.60 *22*	27 *6*	1160.390	1/2⁻,3/2⁻	129.782	5/2⁻
1033.13 *22*	29 *6*	1132.402	1/2⁻,3/2⁻	98.8839	3/2⁻
[x]1046.93 *9*	113 *12*				
[x]1049.09 *20*	37 *6*				
1061.45 *10*	86 *10*	1160.390	1/2⁻,3/2⁻	98.8839	3/2⁻
[x]1064.8 *5*	14 *6*				
[x]1066.77 *23*	34 *6*				
[x]1076.04 *21*	33 *7*				
[x]1091.27 *8*	126 *14*				

[†] From 1982Wa20. Secondary Eγ observed with γ spectrometer and Ge(Li) at thermal neutron energies. Absolute calibration error is not included.

[‡] Relative photon intensity obtained from Ge(Li) and normalized to Iγ(Eγ=211 keV)=1000, except as noted. Values are from 1982Wa20.

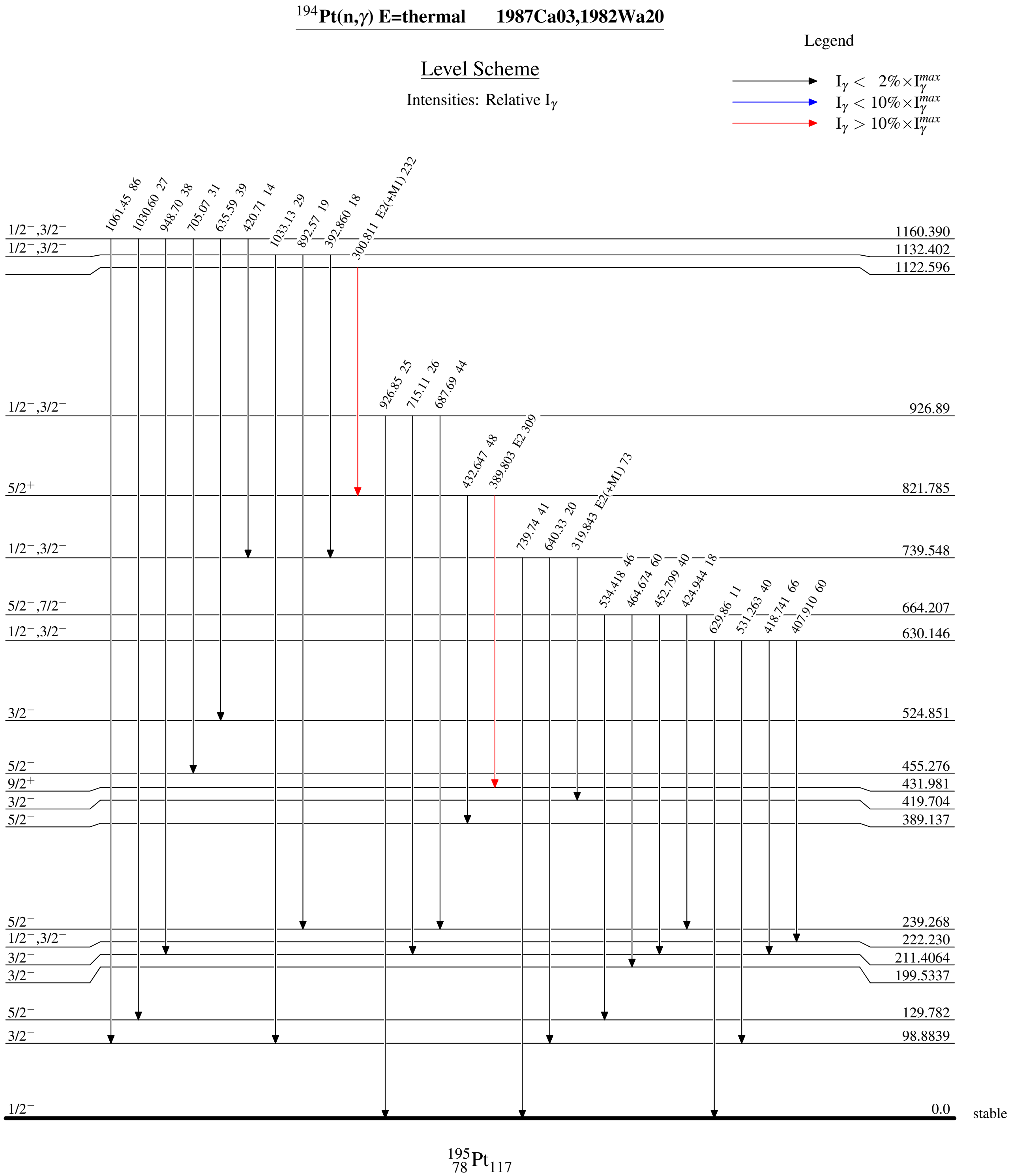
[#] Total intensity of the multiplet was taken from the Ge(Li) data, while relative intensities of the individual components were obtained from the cryst measurements.

[@] The γ ray was obscured in the Ge(Li) measurements by a contaminant. The intensity was obtained from the ratio to neighboring lines in the cryst measurements.

[&] From α(exp) measurements (1987Ca03), except as noted. Normalized so that α(K)(211γ)=0.614 *5* from δ(211γ)=0.37, taken by the authors from 1973Ca10.

[a] 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.



^{194}Pt(n,γ) E=thermal 1987Ca03,1982Wa20
Level Scheme
Intensities: Relative I_γ
Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
1061.45 86
1030.60 27
948.70 38
705.07 31
635.59 39
420.71 14
1033.13 29
892.57 19
392.860 18
300.811 E2(+M1) 232
926.85 25
715.11 26
687.69 44
432.647 48
389.803 E2 309
739.74 41
640.33 20
319.843 E2(+M1) 73
534.418 46
464.674 60
452.799 40
424.944 18
629.86 11
531.263 40
418.741 66
407.910 60
1/2⁻,3/2⁻ 1160.390
1/2⁻,3/2⁻ 1132.402
1122.596
1/2⁻,3/2⁻ 926.89
5/2⁺ 821.785
1/2⁻,3/2⁻ 739.548
5/2⁻,7/2⁻ 664.207
1/2⁻,3/2⁻ 630.146
3/2⁻ 524.851
5/2⁻ 455.276
9/2⁺ 431.981
3/2⁻ 419.704
5/2⁻ 389.137
5/2⁻ 239.268
1/2⁻,3/2⁻ 222.230
3/2⁻ 211.4064
3/2⁻ 199.5337
5/2⁻ 129.782
3/2⁻ 98.8839
1/2⁻ 0.0 stable
$^{195}_{78}Pt_{117}$

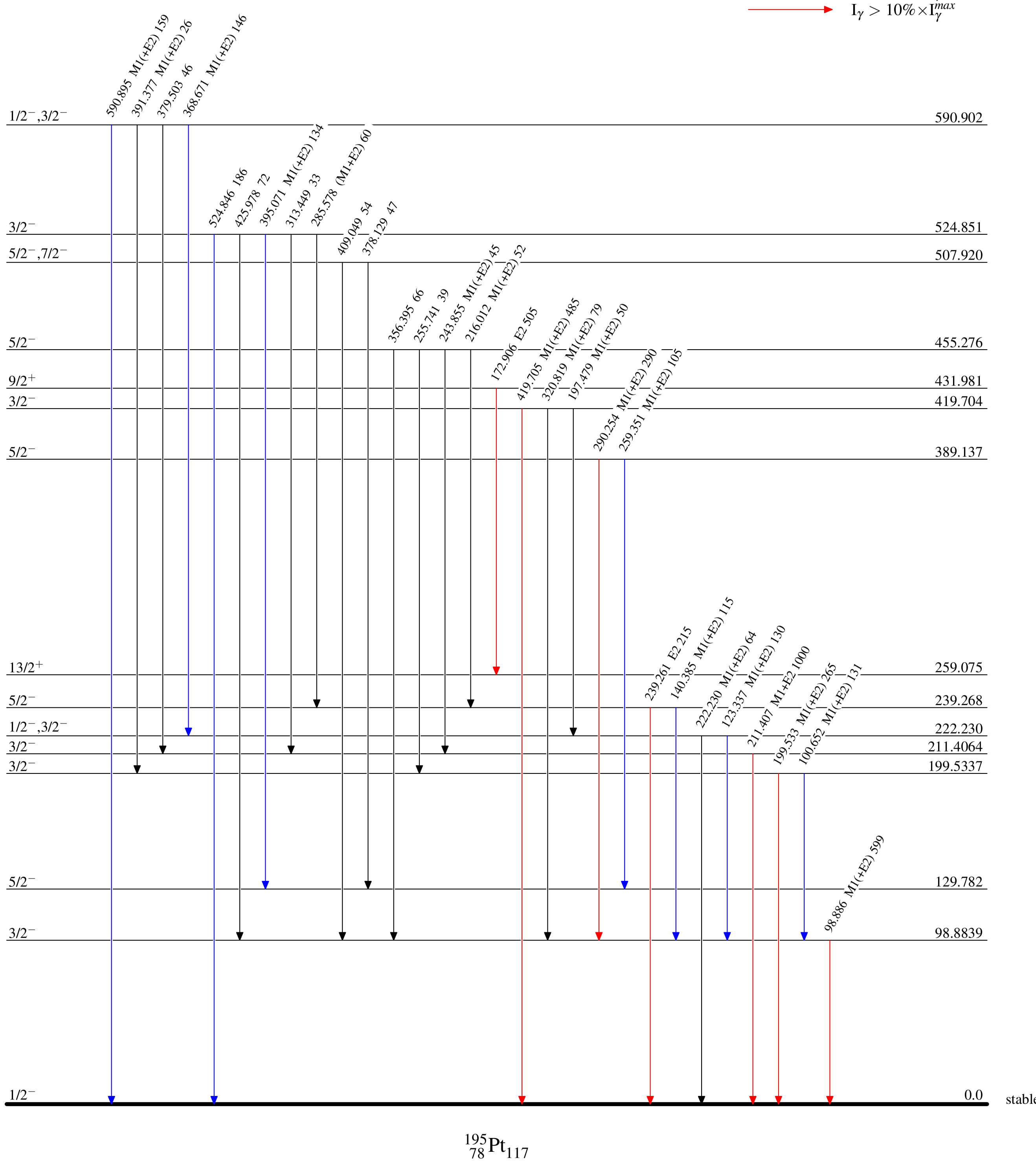
^{194}Pt(n,γ) E=thermal 1987Ca03,1982Wa20

Level Scheme (continued)

Intensities: Relative I_γ

Legend

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



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