^{195}Pt(n,γ) E=2 keV: av res 1979Ci04

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

Data supersede author's earlier data in 1978Ci02.

Natural and enriched (97.28% in ^{195}Pt) target. $J^{\pi}(^{195}Pt)=1/2^{-}$. Used a scandium filter to yield a 2-keV neutron beam with an energy spread of 850 eV FWHM and reduced the variance of the reduced partial widths in the distribution of primary intensities by 20-25%. Measured Eγ, Iγ,Ge(Li) three-crystal pair spectrometer.

Additional information 1.

^{196}Pt Levels

Since the spins of capture states for s-wave capture are 0^{-} and 1^{-}, E1 primary transitions will populate low-lying 0^{+}, 1^{+} and 2^{+} levels. Only the 1^{+} levels can Be reached from both capture state spins, thus the primary transitions to them should, on the average, Be twice As intense As those to 0^{+} or 2^{+} levels. M1 transitions to negative-parity levels will, on the average, Be a factor of≈6 weaker In intensity.

The spin and parity assignments are based on the following criteria:

J^{π}	$I\gamma/E\gamma^5$ a
$1^+,(0^+,2^+)$ b	≥ 1.7
$0^+,1^+,2^+$	≥ 1.0 and < 1.7
$0^+,2^+,(1^+)$	≥ 0.8 and < 1.0
$0^+,2^+,(0^-,1^-,2^-)$	< 0.8

a relative reduced intensity of primary gamma-ray from 2-keV average resonance neutron capture states.
b possible doublet

E(level)†	J^π‡	Iγ/Eγ^5#	Comments
0.0	$0^+,2^+,(1^+)$	0.94	
355.3 *7*	$0^+,2^+,(1^+)$	0.97	
688.2 *7*	$0^+,1^+,2^+$	1.23	
1135.0 *8*	$0^+,2^+,(0^-,1^-,2^-)$	0.77	
1361.1 *8*	$0^+,1^+,2^+$	1.12	
1402.3 *8*	$0^+,2^+,(1^+)$	0.85	
1603.9 *8*	$0^+,2^+,(1^+)$	0.96	
1676.8 *8*	$0^+,2^+,(1^+)$	0.83	
1795.1 *10*	$0^+,2^+,(0^-,1^-,2^-)$	0.53	
1802.2 *9*	$0^+,1^+,2^+$	1.00	
1822.8 *8*	$0^+,1^+,2^+$	1.01	
1846.9 *9*	$0^+,1^+,2^+$	1.01	
1852.9 *10*	$0^+,2^+,(0^-,1^-,2^-)$	0.64	
1887.3 *8*	$1^+,(0^+,2^+)$	1.74	E(level): possible doublet.
1917.8 *9*	$0^+,2^+,(1^+)$	0.81	
1931.9 *8*	$0^+,1^+,2^+$	1.27	
1968.3 *8*	$1^+,(0^+,2^+)$	1.75	E(level): possible doublet.
1984.6 *8*	$0^+,1^+,2^+$	1.40	
2000.1 *10*	$0^+,2^+,(0^-,1^-,2^-)$	0.54	
2010.6 *10*	$0^+,2^+,(0^-,1^-,2^-)$	0.57	
2046.6 *8*	$1^+,(0^+,2^+)$	1.86	E(level): possible doublet.

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^{195}Pt(n,γ) E=2 keV: av res 1979Ci04 (continued)

^{196}Pt Levels (continued)

E(level)†	Jπ‡	Iγ/Eγ5#	Comments
2068.9 *8*	0+,1+,2+	1.47	
2091.9 *8*	1+,(0+,2+)	2.25	E(level): possible doublet.
2126.8 *9*	0+,1+,2+	1.25	
2160.8 *8*	0+,1+,2+	1.70	E(level): possible doublet.
2173.6 *9*	0+,2+,(0−,1−,2−)	0.76	
2182.7 *8*	0+,1+,2+	1.52	
2199.0 *11*	0+,2+,(1+)	0.81	
2203.8 *11*	0+,2+,(1+)	0.87	
2229.1 *8*	0+,1+,2+	1.54	
2245.0 *8*	1+,(0+,2+)	1.71	E(level): possible doublet.
2262.2 *9*	0+,2+,(1+)	0.86	
2270.1 *9*	0+,1+,2+	1.23	
2309.2 *9*	0+,1+,2+	1.38	
2323.7 *9*	0+,1+,2+	1.18	
2344.4 *9*	0+,1+,2+	1.20	
2366.3 *9*	0+,1+,2+	1.50	
2373.8 *9*	0+,1+,2+	1.39	
2382.4 *9*	0+,1+,2+	1.17	
2400.1 *9*	0+,2+,(1+)	0.99	
2421.1 *9*	0+,1+,2+	1.53	
2443.0 *9*	0+,2+,(1+)	0.99	
2459.0 *9*	0+,1+,2+	1.00	
2469.4 *9*	0+,1+,2+	1.47	
2487.4 *10*	0+,1+,2+	1.03	
2493.2 *10*	0+,1+,2+	1.12	
2503.8 *10*	0+,2+,(0−,1−,2−)	0.69	
2527.9 *8*	1+,(0+,2+)	2.10	E(level): av res capture feeds a possible doublet with another member having E=2529.3 *3*.
2529.3 *3*	1+,(0+,2+)	2.10	E(level): av res capture feeds a possible doublet with another member having E=2527.831 *34*.
2553.3 *10*	0+,2+,(0−,1−,2−)	0.67	
2570.8 *9*	0+,1+,2+	1.23	
2586.9 *9*	0+,1+,2+	1.20	
2599.1 *11*	0+,2+,(0−,1−,2−)	0.58	
2606.8 *10*	0+,2+,(1+)	0.99	
2614.4 *9*	0+,1+,2+	1.04	
2629.9 *10*	0+,2+,(0−,1−,2−)	0.72	
2658.3 *9*	0+,1+,2+	1.56	
2665.9 *9*	0+,1+,2+	1.37	
7923.2 *5*	0−,1−		Jπ: from s-wave neutron capture.

† From primary gammas by using least-squares fit to Eγ′s.

‡ Capture by s-wave neutrons in ^{195}Pt can lead to a Jπ=0−, 1− level. E1 deexcitation from a 1− level can populate 0+, 1+, 2+ levels; E1 deexcitation from a 0− level will primarily populate 1+ levels. M1 to negative-parity levels will be ≈6 weaker in intensity. From reduced intensities I=Iγ/Eγ5 convention: I≥1.7, Jπ=1+,(0+,2+), possible doublet (D); 1.0≤I<1.7, Jπ=0+,1+,2+; 0.8≤I<1.0, Jπ=0+, 2+, (1+); I<0.8, Jπ=0+,2+,(0−,1−,2−).

Relative reduced intensity of primary γ-ray from 2-keV average resonance neutron capture states.

^{195}Pt(n,γ) E=2 keV: av res 1979Ci04 (continued)

γ(^{196}Pt)

Only given the primary gammas.

E_γ	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Comments
5257.3 *7*	19 *3*	7923.2	0⁻,1⁻	2665.9	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.37.
5264.9 *7*	22 *3*	7923.2	0⁻,1⁻	2658.3	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.56.
5293.3 *8*	10 *2*	7923.2	0⁻,1⁻	2629.9	0⁺,2⁺,(0⁻,1⁻,2⁻)	Iγ/Eγ^5=0.72.
5308.8 *7*	15 *2*	7923.2	0⁻,1⁻	2614.4	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.04.
5316.4 *8*	14 *2*	7923.2	0⁻,1⁻	2606.8	0⁺,2⁺,(1⁺)	Iγ/Eγ^5=0.99.
5324.1 *9*	9 *2*	7923.2	0⁻,1⁻	2599.1	0⁺,2⁺,(0⁻,1⁻,2⁻)	Iγ/Eγ^5=0.58.
5336.3 *7*	18 *2*	7923.2	0⁻,1⁻	2586.9	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.20.
5352.4 *7*	18 *3*	7923.2	0⁻,1⁻	2570.8	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.23.
5369.9 *8*	10 *2*	7923.2	0⁻,1⁻	2553.3	0⁺,2⁺,(0⁻,1⁻,2⁻)	Iγ/Eγ^5=0.67.
5395.3 *6*	33 *4*	7923.2	0⁻,1⁻	2527.9	1⁺,(0⁺,2⁺)	Iγ/Eγ^5=2.10.
5419.4 *8*	11 *3*	7923.2	0⁻,1⁻	2503.8	0⁺,2⁺,(0⁻,1⁻,2⁻)	Iγ/Eγ^5=0.69.
5430.0 *8*	18 *3*	7923.2	0⁻,1⁻	2493.2	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.12.
5435.8 *8*	17 *3*	7923.2	0⁻,1⁻	2487.4	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.03.
5453.8 *7*	24 *3*	7923.2	0⁻,1⁻	2469.4	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.47.
5464.2 *7*	17 *3*	7923.2	0⁻,1⁻	2459.0	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.00.
5480.2 *7*	17 *3*	7923.2	0⁻,1⁻	2443.0	0⁺,2⁺,(1⁺)	Iγ/Eγ^5=0.99.
5502.1 *7*	26 *3*	7923.2	0⁻,1⁻	2421.1	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.53.
5523.1 *7*	17 *2*	7923.2	0⁻,1⁻	2400.1	0⁺,2⁺,(1⁺)	Iγ/Eγ^5=0.99.
5540.8 *7*	21 *3*	7923.2	0⁻,1⁻	2382.4	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.17.
5549.4 *7*	25 *3*	7923.2	0⁻,1⁻	2373.8	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.39.
5556.9 *7*	27 *3*	7923.2	0⁻,1⁻	2366.3	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.50.
5578.7 *7*	22 *3*	7923.2	0⁻,1⁻	2344.4	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.20.
5599.5 *7*	22 *3*	7923.2	0⁻,1⁻	2323.7	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.18.
5614.0 *7*	26 *3*	7923.2	0⁻,1⁻	2309.2	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.38.
5653.0 *7*	24 *3*	7923.2	0⁻,1⁻	2270.1	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.23.
5661.0 *7*	17 *3*	7923.2	0⁻,1⁻	2262.2	0⁺,2⁺,(1⁺)	Iγ/Eγ^5=0.86.
5678.1 *6*	34 *4*	7923.2	0⁻,1⁻	2245.0	1⁺,(0⁺,2⁺)	Iγ/Eγ^5=1.71.
5694.0 *6*	31 *4*	7923.2	0⁻,1⁻	2229.1	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.54.
5719.3 *9*	18 *4*	7923.2	0⁻,1⁻	2203.8	0⁺,2⁺,(1⁺)	Iγ/Eγ^5=0.87.
5724.2 *9*	17 *4*	7923.2	0⁻,1⁻	2199.0	0⁺,2⁺,(1⁺)	Iγ/Eγ^5=0.81.
5740.5 *6*	32 *4*	7923.2	0⁻,1⁻	2182.7	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.52.
5749.5 *7*	16 *3*	7923.2	0⁻,1⁻	2173.6	0⁺,2⁺,(0⁻,1⁻,2⁻)	Iγ/Eγ^5=0.76.
5762.3 *6*	37 *4*	7923.2	0⁻,1⁻	2160.8	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.70.
5796.3 *7*	28 *3*	7923.2	0⁻,1⁻	2126.8	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.25.
5831.2 *6*	52 *5*	7923.2	0⁻,1⁻	2091.9	1⁺,(0⁺,2⁺)	Iγ/Eγ^5=2.25.
5854.2 *6*	34 *4*	7923.2	0⁻,1⁻	2068.9	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.47.
5876.6 *6*	44 *4*	7923.2	0⁻,1⁻	2046.6	1⁺,(0⁺,2⁺)	Iγ/Eγ^5=1.86.
5912.5 *8*	14 *3*	7923.2	0⁻,1⁻	2010.6	0⁺,2⁺,(0⁻,1⁻,2⁻)	Iγ/Eγ^5=0.57.
5923.1 *8*	13 *3*	7923.2	0⁻,1⁻	2000.1	0⁺,2⁺,(0⁻,1⁻,2⁻)	Iγ/Eγ^5=0.54.
5938.5 *6*	35 *4*	7923.2	0⁻,1⁻	1984.6	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.40.
5954.8 *6*	45 *4*	7923.2	0⁻,1⁻	1968.3	1⁺,(0⁺,2⁺)	Iγ/Eγ^5=1.75.
5991.2 *6*	33 *4*	7923.2	0⁻,1⁻	1931.9	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.27.
6005.3 *7*	22 *3*	7923.2	0⁻,1⁻	1917.8	0⁺,2⁺,(1⁺)	Iγ/Eγ^5=0.81.
6035.8 *6*	47 *5*	7923.2	0⁻,1⁻	1887.3	1⁺,(0⁺,2⁺)	Iγ/Eγ^5=1.74.
6070.2 *8*	18 *3*	7923.2	0⁻,1⁻	1852.9	0⁺,2⁺,(0⁻,1⁻,2⁻)	Iγ/Eγ^5=0.64.
6076.2 *7*	29 *4*	7923.2	0⁻,1⁻	1846.9	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.01.
6100.3 *6*	29 *3*	7923.2	0⁻,1⁻	1822.8	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.01.
6120.9 *7*	29 *3*	7923.2	0⁻,1⁻	1802.2	0⁺,1⁺,2⁺	Iγ/Eγ^5=1.00.
6128.0 *8*	16 *3*	7923.2	0⁻,1⁻	1795.1	0⁺,2⁺,(0⁻,1⁻,2⁻)	Iγ/Eγ^5=0.53.
6246.3 *6*	27 *3*	7923.2	0⁻,1⁻	1676.8	0⁺,2⁺,(1⁺)	Iγ/Eγ^5=0.83.

6319.2 *6*	33 *4*	7923.2	$0^-,1^-$	1603.9	$0^+,2^+,(1^+)$	$I\gamma/E\gamma^5$=0.96.
6520.8 *6*	34 *4*	7923.2	$0^-,1^-$	1402.3	$0^+,2^+,(1^+)$	$I\gamma/E\gamma^5$=0.85.

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^{195}Pt(n,γ) E=2 keV: av res 1979Ci04 (continued)

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

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Comments
6562.0 *6*	46 *4*	7923.2	$0^-,1^-$	1361.1	$0^+,1^+,2^+$	$I\gamma/E\gamma^5$=1.12.
6788.1 *6*	38 *4*	7923.2	$0^-,1^-$	1135.0	$0^+,2^+,(0^-,1^-,2^-)$	$I\gamma/E\gamma^5$=0.77.
7234.9 *5*	83 *7*	7923.2	$0^-,1^-$	688.2	$0^+,1^+,2^+$	$I\gamma/E\gamma^5$=1.23.
7567.8 *5*	83 *7*	7923.2	$0^-,1^-$	355.3	$0^+,2^+,(1^+)$	$I\gamma/E\gamma^5$=0.97.
7923.2 *5*	100	7923.2	$0^-,1^-$	0.0	$0^+,2^+,(1^+)$	$I\gamma/E\gamma^5$=0.94.

[†] Relative intensity from 2 keV spectrum normalized to 100 for 7923-keV γ. Reduced intensities are given in arbitrary units.

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Level Scheme

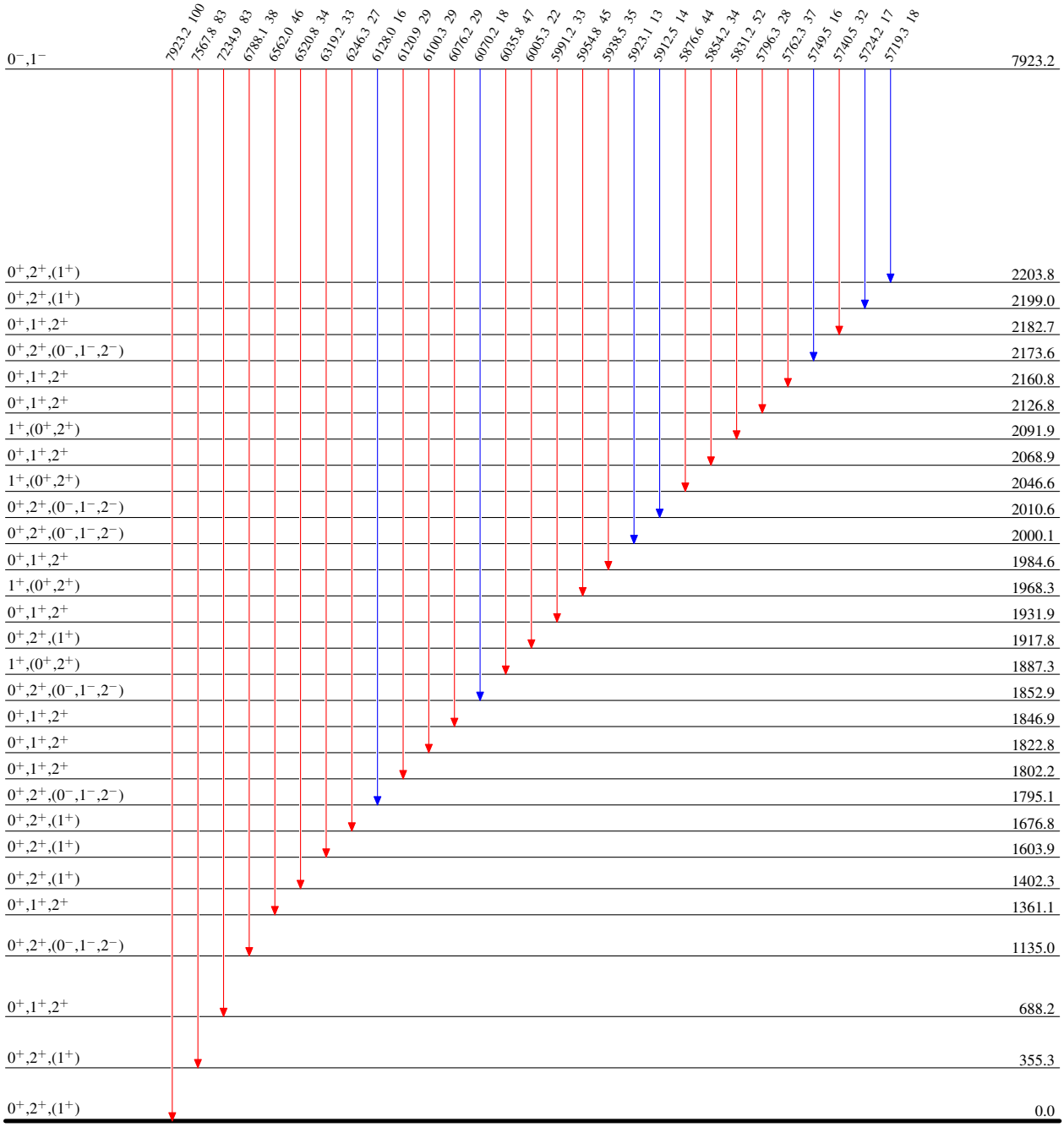
Intensities: Relative I_γ

Legend

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

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

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

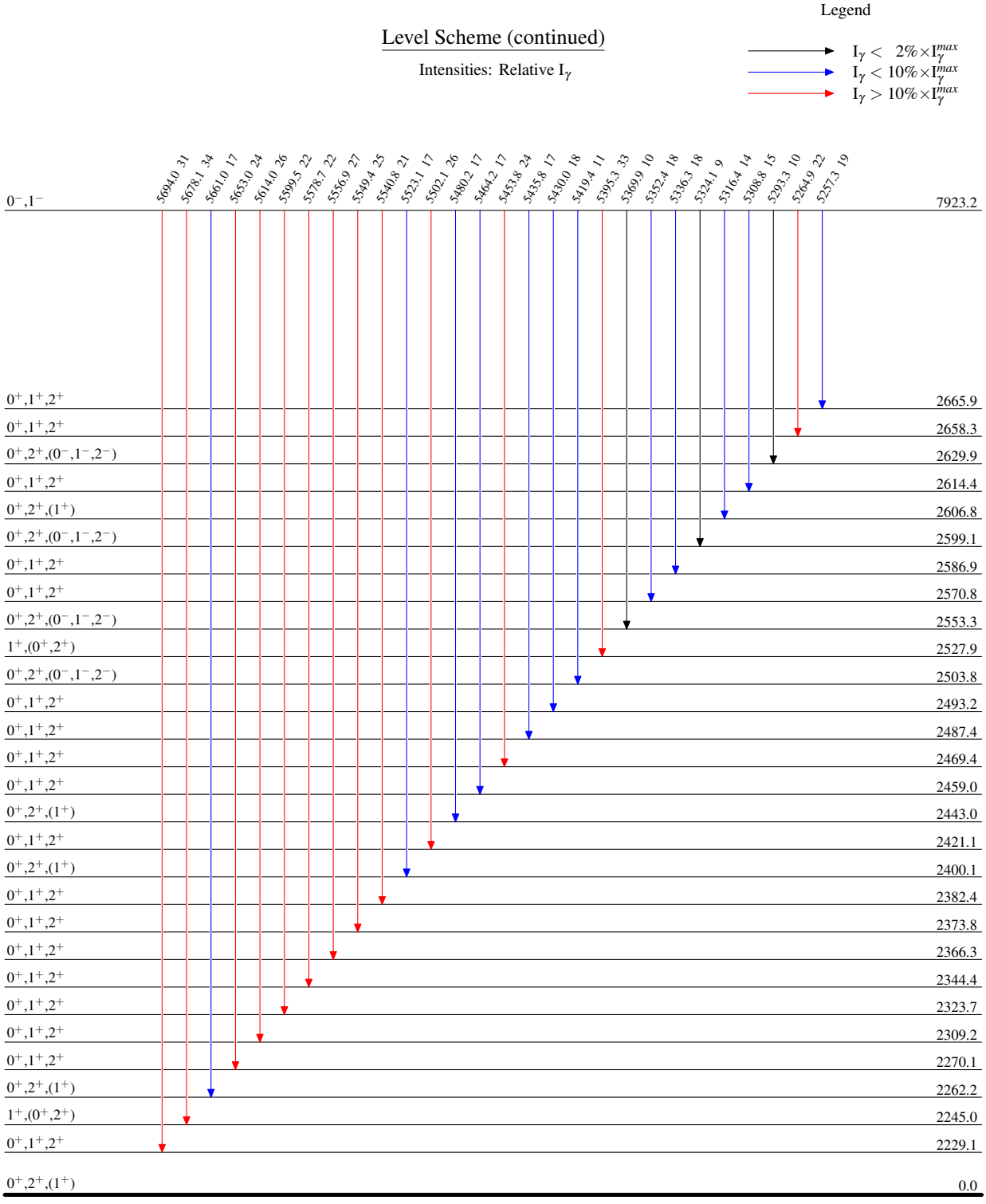


$^{196}_{78}Pt_{118}$

^{195}Pt(n,γ) E=2 keV: av res 1979Ci04

Level Scheme (continued)

Intensities: Relative I_γ



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