^{65}Cu(n,n′γ) 1983Di04

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 202,59 (2025)	25-Feb-2025

Note that most of relative intensity values (normalized to Iγ=100 for 771γ) from 2000Ko51 are inconsistent with those in 1983Di04, probably due to different level populations at different beam energies. To preserve the intensity data in 2000Ko51 (less complete than 1983Di04), the evaluator has put data from 2000Ko51 in a separate dataset: ^{65}Cu(n,n′γ) E=fast.

1983Di04: E=0.7-6.0 MeV (mostly 4.85 MeV) neutron beams were produced via ^{2}H(d,n) reaction at the 5-MV Van de Graaff generator facility and the Oak Ridge Electron Linear Accelerator (ORELA) facility. γ rays were detected with a Ge(Li) detector on both measurements. Measured Eγ, Iγ, γ yields. Deduced levels, γ-ray branching ratios. Comparisons with available data.

1982De45, 1982El09: optical potential and deformation parameters from ^{65}Cu(n,n) and ^{65}Cu(n,n′).

Others: 1982Sh28, 1971Fr05, 1970Fe04, 1968Da14.

^{65}Cu Levels

E(level)†‡	Jπ#	E(level)†‡	Jπ#	E(level)†‡	Jπ#
0	3/2⁻	3173.1 *22*		4524.2 *29*	1/2⁺
770.66 *19*	1/2⁻	3239.9 *14*	(3/2,5/2⁺)	4540.2 *29*	
1115.52 *6*	5/2⁻	3263.1 *23*	(1/2⁻,5/2⁻,7/2⁻)	4566.2 *29*	
1481.81 *8*	7/2⁻	3274.1 *23*	3/2⁺,5/2⁺	4724.2 *30*	
1623.43 *8*	5/2⁻	3325.1 *23*	(3/2,5/2)	4759.2 *30*	
1724.91 *8*	3/2⁻	3337.8 *16*		4776.2 *30*	
2094.23 *29*	7/2⁻	3355.2 *8*	5/2⁺	4863.2 *31*	
2107.67 *31*	(5/2)⁻	3399.1 *23*	3/2⁺,5/2⁺	4892.2 *31*	
2212.4 *8*	(1/2)⁻	3457.1 *24*		4923.2 *31*	
2278.5 *6*	7/2⁻	3563.1 *24*		4932.2 *31*	
2327.4 *9*	3/2⁻	3631.1 *25*	(1/2⁺,3/2⁺)	5017.2 *32*	
2406.49 *40*	(5/2⁻,7/2⁻)	3713.7 *21*		5063.2 *32*	
2533.4 *12*	(1/2,3/2,5/2⁻)	3752.1 *25*	(7/2⁻)	5077.2 *32*	
2533.84 *43*	9/2⁺	3890.1 *25*	1/2⁺	5083.2 *32*	
2593.5 *9*	(5/2⁻)	3923.1 *26*		5100.2 *32*	
2645.0 *6*	(5/2⁻)	3955.1 *26*		5217.2 *33*	
2649.2 *5*	(5/2⁻)	3986.8 *22*		5230.2 *33*	
2668.9 *13*	(1/2⁻)	4049.1 *26*		5236.2 *33*	
2752.9 *12*	(5/2⁻,7/2⁻)	4084.1 *27*	(1/2⁺,3/2,5/2⁺)	5244.2 *33*	
2837.8 *14*	(7/2⁺)	4095.5 *18*	(1/2,3/2,5/2⁻)	5262.2 *33*	
2862.1 *21*	(1/2⁻)	4119.1 *27*		5296.2 *33*	
2867.3 *9*	(5/2⁻,7/2⁻)	4176.1 *27*		5305.2 *33*	
2874.5 *13*	(3/2⁻)	4184.1 *27*		5310.2 *33*	
2893.5 *10*	(3/2⁻)	4201.2 *27*	(9/2⁺)	5320.2 *33*	
2901.1 *21*	(5/2⁻)	4217.2 *27*		5335.2 *33*	
2947.6 *16*		4227.2 *27*		5384.2 *34*	
2972.3 *9*	(3/2⁻)	4237.2 *27*		5392.2 *34*	
2996.8 *14*	(11/2⁻)	4244.2 *27*		5424.2 *34*	
3032.1 *21*	(1/2⁻)	4266.2 *28*		5430.2 *34*	
3078.3 *12*	(3/2)⁺	4275.2 *28*		5447.3 *34*	
3116.1 *22*	(1/2⁻,3/2⁻)	4331.2 *28*		5526.3 *35*	
3120.2 *10*	(5/2⁻,7/2⁻)	4357.2 *28*		5603.3 *35*	
3126.7 *18*		4389.2 *28*		5618.5 *22*	
3132.1 *22*		4418.2 *28*	5/2⁻,7/2⁻	5632.3 *35*	
3143.1 *22*		4436.2 *28*		5779 *4*	
3159.5 *13*		4460.2 *29*			
3163.1 *22*		4483.2 *29*			

† Additional information 1.
‡ From a least-squares fit to γ-ray energies.
# From Adopted Levels.

^{65}Cu(n,n′γ) 1983Di04 (continued)

γ(^{65}Cu)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Comments
255.0 *11*	11.6 *20*	2533.84	9/2$^+$	2278.5	7/2$^-$	
x272.0 *11*	1.1 *8*					
x293.0‡ *11*	1.3 *7*					
x303.0 *11*	1.4 *7*					
312.4 *4*	5.4 *7*	2406.49	(5/2$^-$,7/2$^-$)	2094.23	7/2$^-$	
x316.0 *11*	1.7 *7*					
x344.0 *11*	1.0 *6*					
366.3 *1*	38.7 *14*	1481.81	7/2$^-$	1115.52	5/2$^-$	
383.1 *5*	3.0 *8*	2107.67	(5/2)$^-$	1724.91	3/2$^-$	
x393.9 *5*	4.0 *8*					
x407.0 *11*	0.6 *5*					
x414.0 *11*	2.5 *7*					
439.7 *5*	32 *4*	2533.84	9/2$^+$	2094.23	7/2$^-$	Reported only by 1983Di04.
x470.0‡ *11*	6.2 *9*					E$_\gamma$: may include a weak 2094-1623 transition (1983Di04).
470c		2094.23	7/2$^-$	1623.43	5/2$^-$	Expected to be a weak transition, probably included in the relatively strong unplaced 470γ (1983Di04).
487.0#c *11*	2.0 *10*	2212.4	(1/2)$^-$	1724.91	3/2$^-$	
500.0#c *11*	11.6 *9*	2593.5	(5/2$^-$)	2094.23	7/2$^-$	
507.9 *1*	32 *7*	1623.43	5/2$^-$	1115.52	5/2$^-$	
x519.0 *12*	1.5 *8*					
x524.0 *12*	1.7 *8*					
550.0c *12*	2.0 *8*	2645.0	(5/2$^-$)	2094.23	7/2$^-$	Reported only by 1983Di04.
x562.4 *5*	9.1 *10*					
x592.0 *12*	5.7 *14*					
609.4 *1*	13.2 *12*	1724.91	3/2$^-$	1115.52	5/2$^-$	
612.7 *5*	16.4 *13*	2094.23	7/2$^-$	1481.81	7/2$^-$	
625.8 *5*	16.4 *10*	2107.67	(5/2)$^-$	1481.81	7/2$^-$	
x653.0‡ *12*	2.5 *10*					
x662.0 *12*	3.0 *10*					
x693.0 *12*	3.5 *10*					
x745.0 *12*	4.0 *15*					
x757.0‡ *12*	4.8 *11*					
x765.0 *12*	4.5 *15*					
770.6 *2*	100.0 *20*	770.66	1/2$^-$	0	3/2$^-$	
853.0‡ *12*	9.6 *10*	1623.43	5/2$^-$	770.66	1/2$^-$	
x865.0‡ *12*	6.7 *9*					
877.0#c *12*	2.5 *8*	2972.3	(3/2$^-$)	2094.23	7/2$^-$	
x895.0 *12*	3.2 *9*					
x914.0 *12*	1.9 *9*					
924.5b *7*	8.7b@	2406.49	(5/2$^-$,7/2$^-$)	1481.81	7/2$^-$	Member of a doublet.
924.5b *7*	8.7b@	2649.2	(5/2$^-$)	1724.91	3/2$^-$	Member of a doublet.
944.0 *13*	8.4 *10*	2668.9	(1/2$^-$)	1724.91	3/2$^-$	
952.0#c *13*	4.1 *9*	1724.91	3/2$^-$	770.66	1/2$^-$	
978.8 *7*	66.3 *18*	2094.23	7/2$^-$	1115.52	5/2$^-$	
x983.0 *13*	5.5 *20*					
991.5 *7*	18.6 *12*	2107.67	(5/2)$^-$	1115.52	5/2$^-$	
x995.0 *13*						
x1005.0 *13*	2.2 *8*					
1025.0 *13*	1.4 *8*	2649.2	(5/2$^-$)	1623.43	5/2$^-$	
x1038.0 *13*	1.9 *8*					
x1047.0 *13*	1.8 *13*					
1052.0 *7*	32.1 *14*	2533.84	9/2$^+$	1481.81	7/2$^-$	

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^{65}Cu(n,n′γ) 1983Di04 (continued)

γ(^{65}Cu) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Comments
x1058.0 *13*	3.1 *10*					
1115.5 *1*	367 *9*	1115.52	5/2⁻	0	3/2⁻	
x1121.0 *13*	1.5 *10*					
x1127.0 *13*	6.5 *15*					
x1131.0 *13*	3.5 *10*					
x1157.0‡ *13*	6.5 *15*					
1162.6 *8*	24.1&	2278.5	7/2⁻	1115.52	5/2⁻	Member of a doublet.
1163.7 *8*	24.1&	2645.0	(5/2⁻)	1481.81	7/2⁻	Member of a doublet.
x1175.0 *13*	8.8 *11*					
x1188.0 *13*	6.5 *15*					
x1204.0 *13*						
1211.0 *13*	5.5 *15*	2327.4	3/2⁻	1115.52	5/2⁻	
x1224.0‡ *13*	2.0 *10*					
1244.0 *13*	3.2 *11*	2867.3	(5/2⁻,7/2⁻)	1623.43	5/2⁻	
x1257.0 *13*	4.7 *10*					
1261.0 *14*	6.2 *11*	3355.2	5/2⁺	2094.23	7/2⁻	
1271.0b *14*	3.4b@	2752.9	(5/2⁻,7/2⁻)	1481.81	7/2⁻	Member of a doublet.
1271.0b *14*	3.4b@	2893.5	(3/2⁻)	1623.43	5/2⁻	Member of a doublet.
x1278.0 *14*	1.7 *9*					
1290.0 *14*	8.4 *11*	2406.49	(5/2⁻,7/2⁻)	1115.52	5/2⁻	
x1314.0 *14*	2.0 *10*					
x1326.0 *14*						
1337.0‡ *14*	5.1 *12*	2107.67	(5/2)⁻	770.66	1/2⁻	
1356.0#c *14*		2837.8	(7/2⁺)	1481.81	7/2⁻	
x1369.0 *14*						
x1380.0‡ *14*	7.2 *11*					
1385.0 *14*	1.8 *7*	2867.3	(5/2⁻,7/2⁻)	1481.81	7/2⁻	
x1391.0‡ *14*	5.2 *9*					
x1395.0 *14*	1.3 *5*					
x1400.0 *14*	4.0 *8*					
x1404.0 *14*	1.0 *6*					
x1413.0‡ *14*	4.8 *9*					
1442.0‡ *14*	7.3 *12*	2212.4	(1/2)⁻	770.66	1/2⁻	
x1453.0‡ *14*	3.7 *12*					
x1459.0 *14*	5.8 *11*					
1481.8 *1*	167.8 *32*	1481.81	7/2⁻	0	3/2⁻	
1492.0#c *14*	1.2 *7*	2972.3	(3/2⁻)	1481.81	7/2⁻	
1497.0 *14*	1.5 *7*	3120.2	(5/2⁻,7/2⁻)	1623.43	5/2⁻	
1515.0 *14*	3.0 *15*	2996.8	(11/2⁻)	1481.81	7/2⁻	
1529.0 *14*	1.6 *7*	2645.0	(5/2⁻)	1115.52	5/2⁻	
1534.0 *14*	1.4 *7*	2649.2	(5/2⁻)	1115.52	5/2⁻	
1556.0 *14*	13.2 *11*	2327.4	3/2⁻	770.66	1/2⁻	
x1572.0 *15*	1.4 *7*					
x1583.0 *15*	3.2 *8*					
x1596.0 *15*	2.1 *8*					
x1602.0 *15*	1.4 *8*					
x1619.0 *15*	6.6 *12*					
1623.4 *1*	44.5 *18*	1623.43	5/2⁻	0	3/2⁻	
1630.0 *15*	1.2 *7*	3355.2	5/2⁺	1724.91	3/2⁻	Reported only by 1983Di04.
1638.0 *15*	10.6 *11*	3120.2	(5/2⁻,7/2⁻)	1481.81	7/2⁻	E_γ,I_γ: peak is very broad and may include the unplaced 1645γ (1983Di04).

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^{65}Cu(n,n′γ) 1983Di04 (continued)

γ(^{65}Cu) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Comments
x1645.0 15						
x1660.0 15	3.4 10					
x1691.0 15						
1724.9 1	44.6 16	1724.91	3/2−	0	3/2−	
1732.0 15	2.1 12	3355.2	5/2+	1623.43	5/2−	
x1753.0 15	2.0 12					
1763.0‡ 15	10.0 15	2533.4	(1/2,3/2,5/2−)	770.66	1/2−	
x1780.0 15	4.9 10					
x1798.0 16	5.0 15					
1821.0#c 16		2593.5	(5/2−)	770.66	1/2−	
1832.0 16		2947.6		1115.52	5/2−	
x1841.0 16	1.8 10					
1856.0 16	2.7 17	3337.8		1481.81	7/2−	
1878.0 16	11.9 15	2649.2	(5/2−)	770.66	1/2−	
x1893.0 16	5.2 11					
x1903.0 16	2.2 8					
x1918.0 16	2.0 9					
x1933.0 16						
x1946.0 16	1.2 5					
x1953.0 16	2.4 5					
1964.0‡c 16	3.8 11	3078.3	(3/2)+	1115.52	5/2−	
x1983.0 16	5.6 8					
x1997.0 16						
x2006.0 16	1.4 7					
x2032.0 17	3.4 7					
2041.0 17	2.1 7	3159.5		1115.52	5/2−	
x2085.0 17	1.4 10					
2094.0 17	35.9 16	2094.23	7/2−	0	3/2−	
x2100.0 17	3.5 20					
2104.0 17	4.0 15	2874.5	(3/2−)	770.66	1/2−	
2108.0 17	8.5 13	2107.67	(5/2)−	0	3/2−	
x2114.0 17	3.0 11					
2123.0bc 17	3.1b@	2893.5	(3/2−)	770.66	1/2−	Member of a doublet.
2123.0bc 17	3.1b@	3239.9	(3/2,5/2+)	1115.52	5/2−	Member of a doublet.
x2133.0 17	1.3 7					
x2153.0 17	4.2 10					
x2186.0 17	1.4 7					
x2194.0 17	1.4 7					
x2210.0 17	3.2 16					
2213.0 17	5.0 16	2212.4	(1/2)−	0	3/2−	
x2223.0 17	2.6 9					
x2250.0 18	0.8 4					
x2273.0 18	5.6 11					
2279.0c 18	1.1 4	2278.5	7/2−	0	3/2−	
x2298.0 18	6.0 9					
2306.0c 18	3.5 9	3078.3	(3/2)+	770.66	1/2−	
x2311.0 18	7.0 11					
x2320.0 18						
2330.0‡ 18	11.3 17	2327.4	3/2−	0	3/2−	
2356.0 18		3126.7		770.66	1/2−	
x2362.0 18	1.7 9					
2392.0#c 18	1.0 8	3159.5		770.66	1/2−	
x2412.0 23	1.5 4					

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^{65}Cu(n,n′γ) 1983Di04 (continued)

γ(^{65}Cu) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π
x2426.0 *18*	2.4 *8*				
x2460.0 *19*	1.0 *7*				
x2466.0 *19*	5.3 *12*				
x2471.0 *19*	1.3 *7*				
x2479.0 *19*	1.9 *9*				
x2485.0 *19*					
x2489.0 *19*					
x2506.0‡ *19*	1.6 *12*				
x2517.0 *19*	3.5 *14*				
x2529.0 *19*	2.8 *13*				
2533.0 *19*	4.2 *13*	2533.4	(1/2,3/2,5/2$^-$)	0	3/2$^-$
x2547.0 *19*	1.7 *6*				
x2560.0‡ *19*	1.4 *6*				
x2568.0 *19*	0.7 *5*				
x2577.0‡ *19*	3.0 *9*				
2594.0‡ *19*	1.9 *10*	2593.5	(5/2$^-$)	0	3/2$^-$
x2623.0 *19*	3.4 *9*				
2649.0c *19*	2.1 *8*	2649.2	(5/2$^-$)	0	3/2$^-$
x2669.0 *20*	0.7 *5*				
x2690.0 *20*	1.3 *6*				
x2713.0‡ *20*	3.3 *8*				
2753.0c *20*	1.0 *8*	2752.9	(5/2$^-$,7/2$^-$)	0	3/2$^-$
x2798.0 *20*	1.3 *7*				
2862.0 *21*	7.9 *7*	2862.1	(1/2$^-$)	0	3/2$^-$
2868.0 *21*	9.8 *7*	2867.3	(5/2$^-$,7/2$^-$)	0	3/2$^-$
2874.0 *21*	7.5 *7*	2874.5	(3/2$^-$)	0	3/2$^-$
2891.0 *21*	2.0 *6*	2893.5	(3/2$^-$)	0	3/2$^-$
x2895.0 *21*	1.4 *9*				
2901.0 *21*	5.0 *6*	2901.1	(5/2$^-$)	0	3/2$^-$
x2905.0 *21*	5.7 *7*				
x2935.0 *21*	3.0 *7*				
2943.0 *21*	2.2 *7*	3713.7		770.66	1/2$^-$
x2968.0‡ *21*	4.2 *8*				
x2976.0 *21*	2.0 *10*				
x2981.0 *21*	3.2 *9*				
x3016.0 *21*	1.2 *9*				
3032.0#c *21*	2.9 *11*	3032.1	(1/2$^-$)	0	3/2$^-$
x3039.0 *21*	2.3 *7*				
x3045.0 *21*	1.6 *8*				
3116.0‡ *22*	1.9 *11*	3116.1	(1/2$^-$,3/2$^-$)	0	3/2$^-$
x3126.0 *22*					
3132.0 *22*		3132.1		0	3/2$^-$
3143.0 *22*		3143.1		0	3/2$^-$
x3158.0 *22*	4.2 *11*				
3163.0 *22*		3163.1		0	3/2$^-$
3173.0 *22*	2.3 *9*	3173.1		0	3/2$^-$
x3179.0 *22*					
x3194.0 *22*	0.9 *5*				
3216.0 *22*	2.0 *6*	3986.8		770.66	1/2$^-$
x3223.0 *22*					
3242.0 *22*		3239.9	(3/2,5/2$^+$)	0	3/2$^-$
x3256.0 *23*					

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^{65}Cu(n,n′γ) 1983Di04 (continued)

γ(^{65}Cu) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π
3263.0 *23*	5.5 *6*	3263.1	(1/2$^-$,5/2$^-$,7/2$^-$)	0	3/2$^-$
3274.0 *23*	1.3 *5*	3274.1	3/2$^+$,5/2$^+$	0	3/2$^-$
x3305.0 *23*					
3325.0[a] *23*	2.4[a] *8*	3325.1	(3/2,5/2)	0	3/2$^-$
3325.0[a] *23*	2.4[a] *8*	4095.5	(1/2,3/2,5/2$^-$)	770.66	1/2$^-$
x3337.0 *23*					
x3346.0 *23*	2.0 *7*				
3355.0‡ *23*	5.3 *8*	3355.2	5/2$^+$	0	3/2$^-$
x3392.0 *23*	0.7 *4*				
3399.0 *23*		3399.1	3/2$^+$,5/2$^+$	0	3/2$^-$
x3448.0 *24*	1.9 *4*				
3457.0‡ *24*	2.4 *5*	3457.1		0	3/2$^-$
x3478.0‡ *24*	2.2 *5*				
x3498.0‡ *24*	3.4 *5*				
3563.0‡ *24*	6.5 *8*	3563.1		0	3/2$^-$
x3581.0 *24*					
x3626.0 *25*					
3631.0 *25*	3.1 *11*	3631.1	(1/2$^+$,3/2$^+$)	0	3/2$^-$
x3646.0 *25*	0.6 *3*				
x3722.0 *25*	1.8 *5*				
x3729.0 *25*	1.4 *6*				
3752.0[c] *25*	2.4 *9*	3752.1	(7/2$^-$)	0	3/2$^-$
x3761.0 *25*	0.4 *2*				
x3807.0 *25*	0.8 *4*				
x3820.0‡ *25*	1.8 *6*				
x3842.0 *25*	0.9 *3*				
x3879.0‡ *25*	1.1 *7*				
3890.0‡ *25*	3.1 *9*	3890.1	1/2$^+$	0	3/2$^-$
x3914.0 *26*	1.1 *5*				
3923.0 *26*	1.7 *5*	3923.1		0	3/2$^-$
3955.0‡ *26*	7.5 *10*	3955.1		0	3/2$^-$
x3972.0 *26*					
x3982.0 *26*	1.1 *3*				
x3991.0 *26*	0.6 *3*				
x4002.0‡ *26*	2.1 *3*				
x4040.0 *26*	1.0 *3*				
4049.0 *26*	2.9 *4*	4049.1		0	3/2$^-$
x4062.0 *26*					
4084.0 *27*	1.7 *6*	4084.1	(1/2$^+$,3/2,5/2$^+$)	0	3/2$^-$
4095.0 *27*	3.4 *6*	4095.5	(1/2,3/2,5/2$^-$)	0	3/2$^-$
4119.0 *27*	2.4 *4*	4119.1		0	3/2$^-$
x4126.0 *27*					
x4135.0 *27*	3.6 *4*				
x4141.0 *27*					
4176.0 *27*	0.6 *3*	4176.1		0	3/2$^-$
4184.0 *27*	0.7 *3*	4184.1		0	3/2$^-$
4201.0 *27*	0.4 *2*	4201.2	(9/2$^+$)	0	3/2$^-$
4217.0 *27*	0.3 *2*	4217.2		0	3/2$^-$
4227.0 *27*	1.0 *3*	4227.2		0	3/2$^-$
4237.0 *27*	1.0 *3*	4237.2		0	3/2$^-$
x4241.0 *27*					
4244.0 *27*	0.9 *3*	4244.2		0	3/2$^-$

Continued on next page (footnotes at end of table)

^{65}Cu(n,n′γ) 1983Di04 (continued)

γ(^{65}Cu) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π
x4252.0 *27*					
4266.0 *28*	1.9 *3*	4266.2		0	3/2⁻
4275.0 *28*	0.9 *2*	4275.2		0	3/2⁻
x4283.0 *28*					
x4296.0 *28*					
x4321.0 *28*					
4331.0‡ *28*	1.5 *3*	4331.2		0	3/2⁻
x4335.0 *28*					
4357.0 *28*	0.5 *2*	4357.2		0	3/2⁻
x4367.0‡ *28*	1.4 *4*				
x4377.0 *28*					
4389.0 *28*	2.2 *4*	4389.2		0	3/2⁻
x4394.0 *28*					
x4400.0 *28*					
x4403.0 *28*					
4418.0c *28*	2.1 *5*	4418.2	5/2⁻,7/2⁻	0	3/2⁻
x4424.0 *28*					
4436.0 *28*	0.3 *2*	4436.2		0	3/2⁻
x4448.0‡ *29*	1.2 *3*				
4460.0 *29*	0.6 *2*	4460.2		0	3/2⁻
x4476.0 *29*					
4483.0 *29*	0.5 *2*	4483.2		0	3/2⁻
4503.0c *29*		5618.5		1115.52	5/2⁻
x4512.0 *29*					
4524.0‡c *29*	2.5 *4*	4524.2	1/2⁺	0	3/2⁻
x4532.0‡ *29*					
4540.0‡c *29*	0.6 *3*	4540.2		0	3/2⁻
x4556.0 *29*					
4566.0c *29*	0.6 *3*	4566.2		0	3/2⁻
x4577.0 *29*					
x4610.0 *29*					
x4679.0 *30*					
x4689.0 *30*					
4724.0 *30*		4724.2		0	3/2⁻
x4738.0 *30*					
4759.0 *30*		4759.2		0	3/2⁻
x4771.0 *30*					
4776.0‡ *30*		4776.2		0	3/2⁻
x4815.0 *31*					
x4840.0 *31*					
4863.0 *31*		4863.2		0	3/2⁻
4892.0 *31*		4892.2		0	3/2⁻
4923.0 *31*		4923.2		0	3/2⁻
x4927.0 *31*					
4932.0 *31*		4932.2		0	3/2⁻
x4977.0‡ *31*					
x5001.0 *32*					
5017.0 *32*		5017.2		0	3/2⁻
x5022.0 *32*					
x5028.0 *32*					
x5050.0 *32*					
5063.0 *32*		5063.2		0	3/2⁻
5077.0 *32*		5077.2		0	3/2⁻

Continued on next page (footnotes at end of table)

^{65}Cu(n,n′γ) 1983Di04 (continued)

γ(^{65}Cu) (continued)

E_γ †	E_i(level)	E_f	J^π_f	E_γ †	E_i(level)	E_f	J^π_f	E_γ †	E_i(level)	E_f	J^π_f
5083.0 *32*	5083.2	0	$3/2^-$	5236.0 *33*	5236.2	0	$3/2^-$	5424.0 *34*	5424.2	0	$3/2^-$
5100.0 *32*	5100.2	0	$3/2^-$	5244.0 *33*	5244.2	0	$3/2^-$	5430.0 *34*	5430.2	0	$3/2^-$
[x]5124.0 *32*				5262.0 *33*	5262.2	0	$3/2^-$	5447.0 *34*	5447.3	0	$3/2^-$
[x]5133.0 *32*				5296.0 *33*	5296.2	0	$3/2^-$	5526.0 *35*	5526.3	0	$3/2^-$
[x]5143.0 *32*				5305.0 *33*	5305.2	0	$3/2^-$	5603.0 *35*	5603.3	0	$3/2^-$
[x]5162.0 *33*				5310.0 *33*	5310.2	0	$3/2^-$	5618.0 *35*	5618.5	0	$3/2^-$
[x]5170.0 *33*				5320.0 *33*	5320.2	0	$3/2^-$	5632.0 *35*	5632.3	0	$3/2^-$
5217.0 *33*	5217.2	0	$3/2^-$	5335.0 *33*	5335.2	0	$3/2^-$	5779 *4*	5779	0	$3/2^-$
[x]5224.0 *33*				5384.0 *34*	5384.2	0	$3/2^-$				
5230.0 *33*	5230.2	0	$3/2^-$	5392.0 *34*	5392.2	0	$3/2^-$				

† From 1983Di04, unless otherwise noted. Intensities are relative to Iγ(770.7γ)=100. Values from 1983Di04 are measured at E(n)=4.85 MeV, θ=125° and absolute values of cross sections are determined by multiplying relative Iγ values by 0.20 *4* mb/sr (1983Di04).

‡ Possible multiplet (1983Di04).

Transition unplaced in 1983Di04; tentatively placed by the evaluator based on the placement of a similar γ in 2000Ko51.

@ From the branching ratios shown in Fig.6 of 1983Di04 of the two placements of each of 924.5γ, 1271.0γ and 2123.0γ, it seems that the authors have split the total Iγ(924.5γ)=17.4 *12*, Iγ(1271.0γ)=6.0 *11* and Iγ(2123.0γ)=6.1 *11* in half.

& From the branching ratios shown in Fig.6 of 1983Di04 of 1262.6γ and 1163.7γ, it seems that the authors have split Iγ(1262.6γ)=48.2 *17* listed in Table 2 in half, assigned to each component of this γ doublet.

[a] Multiply placed with undivided intensity.

[b] Multiply placed with intensity suitably divided.

[c] Placement of transition in the level scheme is uncertain.

[x] γ ray not placed in level scheme.

^{65}Cu(n,n′γ) 1983Di04

Level Scheme

Intensities: Relative I_γ

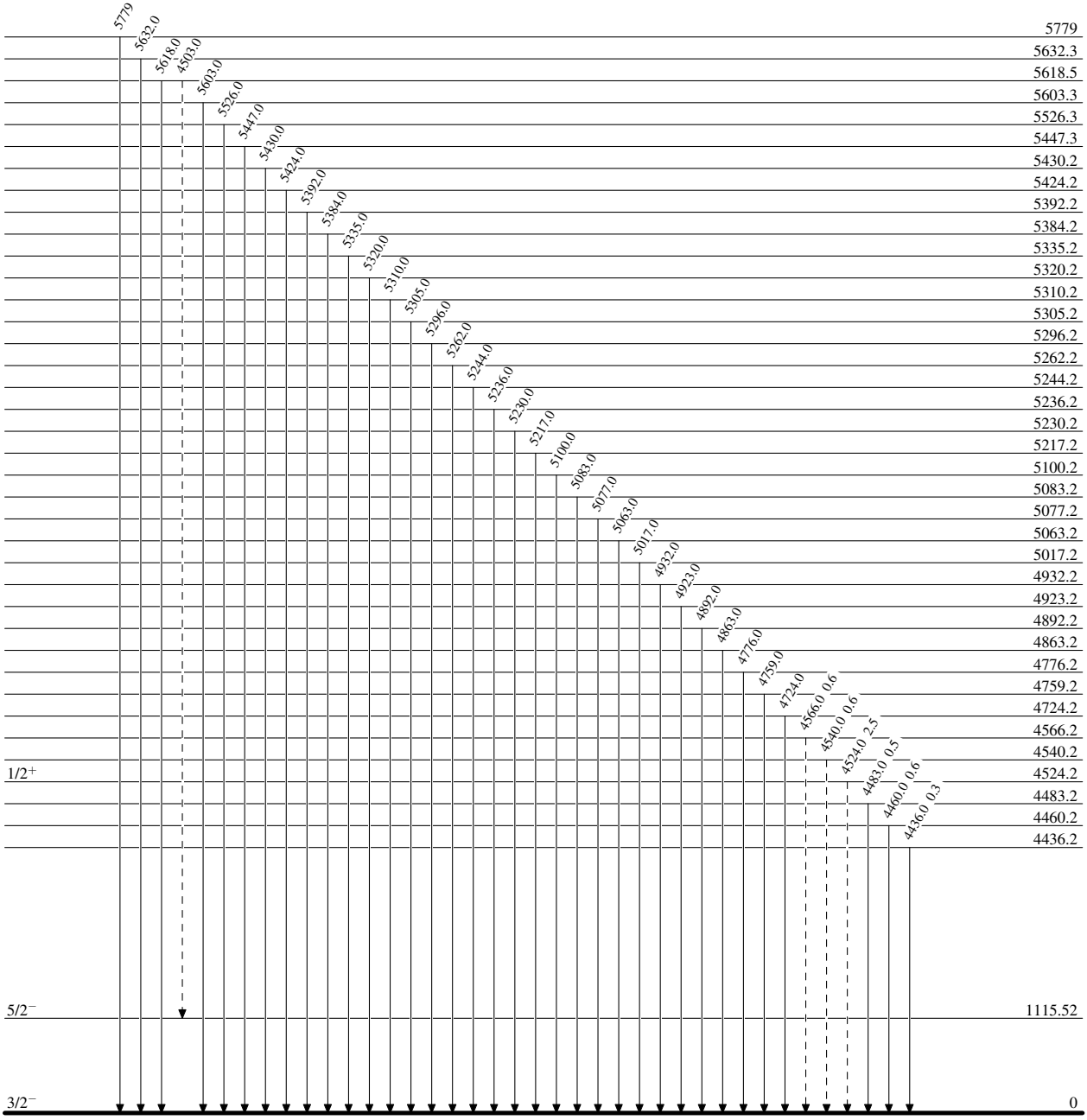
Legend

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

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

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

γ Decay (Uncertain)



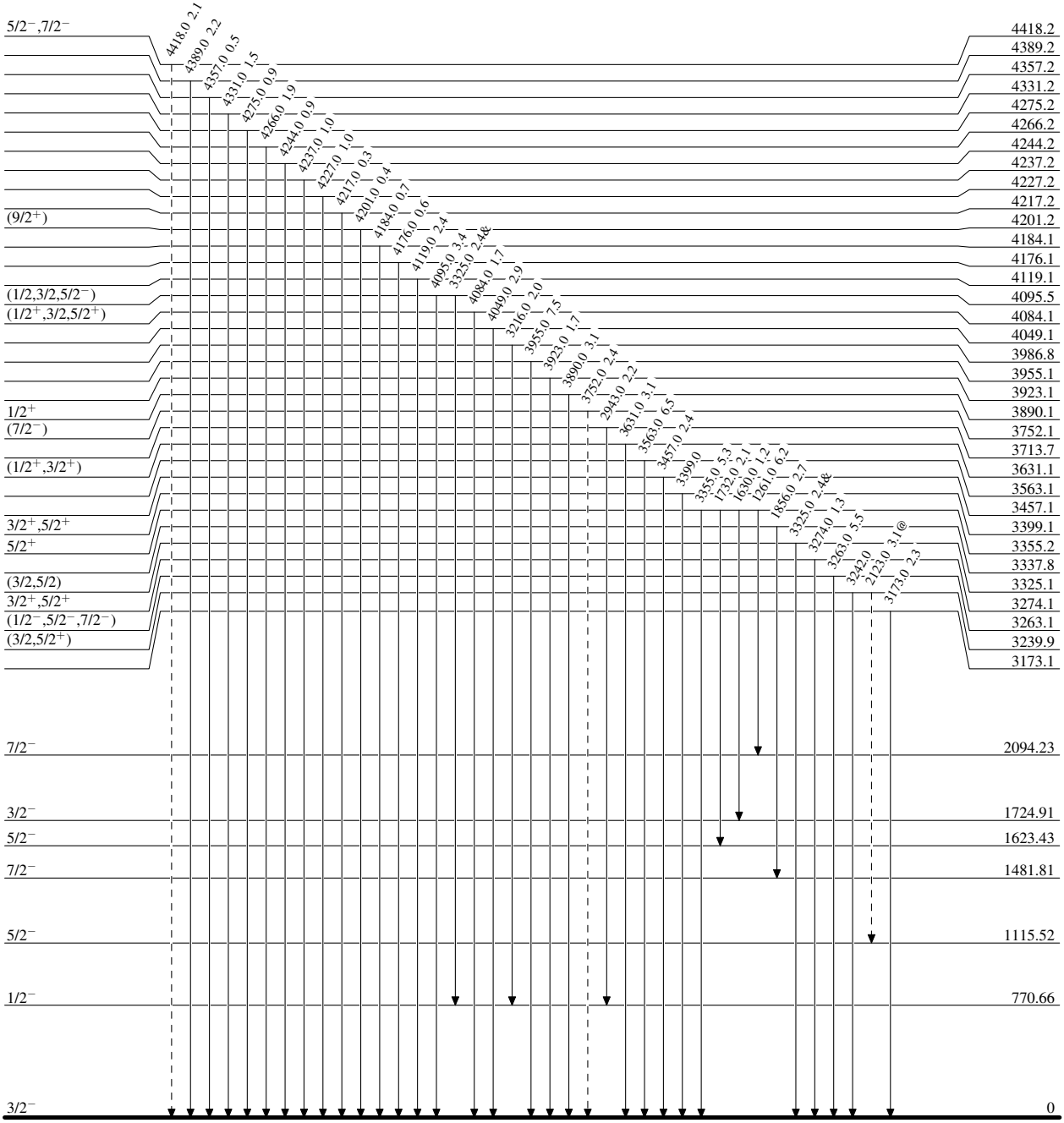
$^{65}_{29}Cu_{36}$

^{65}Cu(n,n′γ) 1983Di04

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



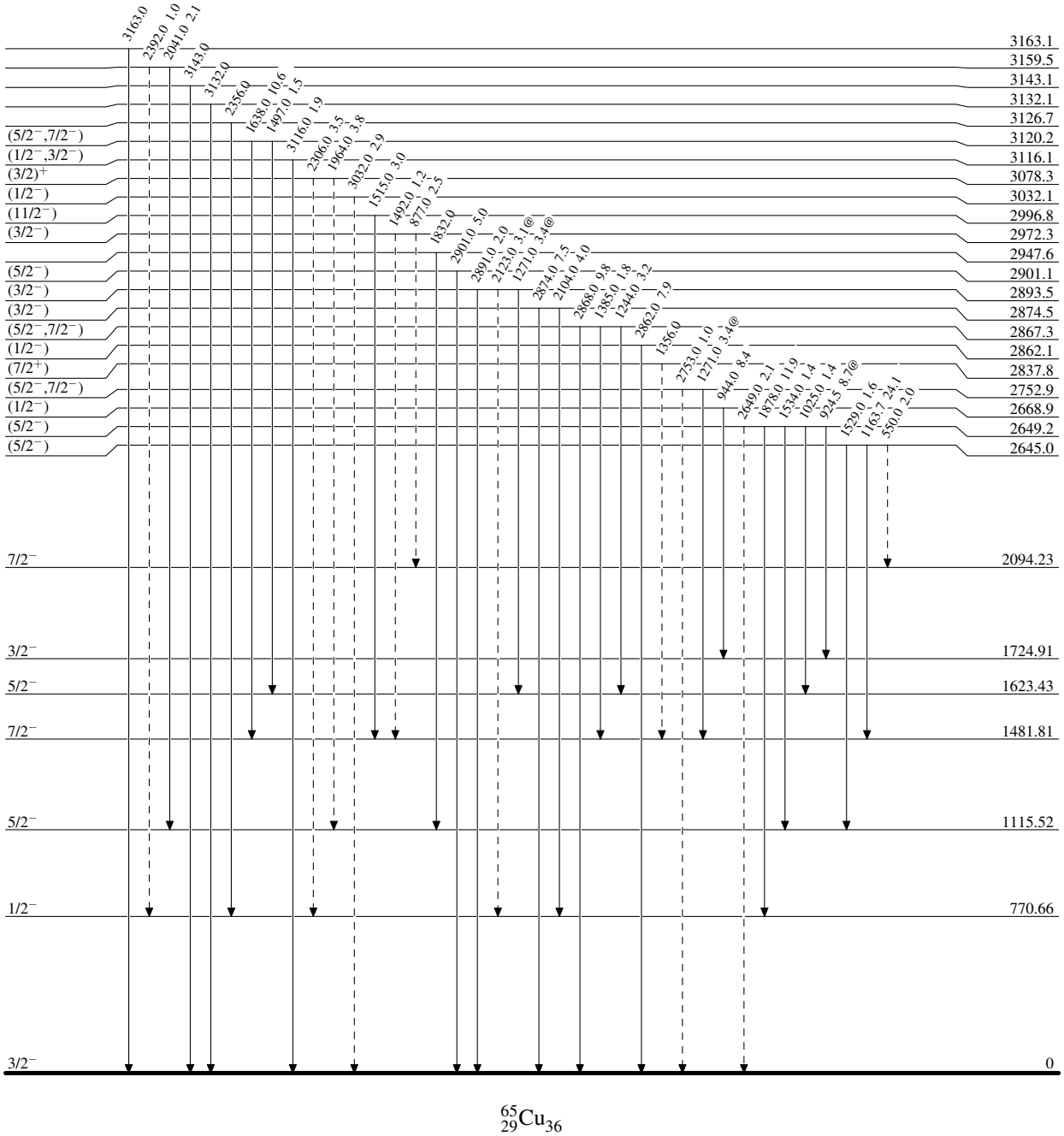
$^{65}_{29}Cu_{36}$

^{65}Cu(n,n′γ) 1983Di04

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



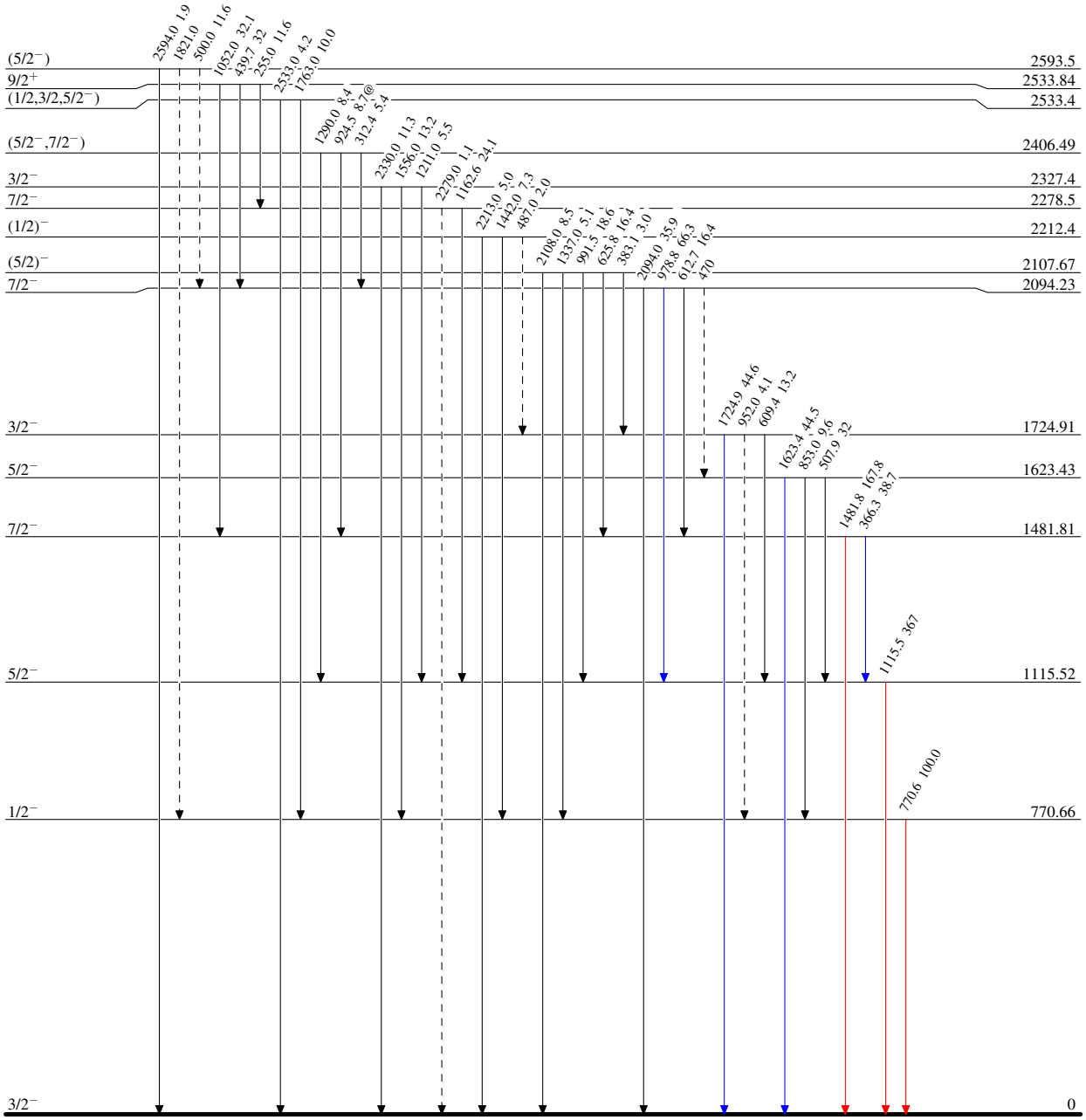
$^{65}_{29}Cu_{36}$

^{65}Cu(n,n′γ) 1983Di04

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{65}_{29}Cu_{36}$