^{65}Cu(n,n′γ) 1983Di04,2000Ko51

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 111, 2425 (2010)	1-Aug-2009

Target J^{π}=3/2$^-$.

2000Ko51: E(n)=reactor neutrons. Target: Enriched metallic ^{65}Cu. Measured γ rays at θ=90° and 146°. Measured levels half-lives using the Doppler Shift Attenuation Method.

1983Di04: E(n)=0.7-6.0 MeV (mostly 4.85 MeV); Eγ, Iγ and γ yields; Ge(Li) detector.

1987DoZX: E(n)=reactor fast neutrons; $T_{1/2}$ by DSAM.

All data are from 1983Di04, unless indicated otherwise.

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

Other: 1968Da14.

^{65}Cu Levels

The 2527-kev (J^{π}=9/2$^+$) level from ^{65}Cu(p,p′γ) was not confirmed here because the 1044-keV gamma ray was not detected (2000Ko51).

E(level)†	J^{π}‡	$T_{1/2}$#	Comments
0	3/2$^-$		
770.42 *6*	1/2$^-$	0.11 ps *+7−4*	
1115.44 *6*	5/2$^-$	0.280 ps *7*	
1481.77 *6*	7/2$^-$	0.4 ps *+4−2*	$T_{1/2}$: Other value: 0.28 ps *3* (Deduced using results from 2000Ko51 and 1976Sw01).
1623.28 *7*	5/2$^-$		
1724.75 *7*	3/2$^-$	0.12 ps *+8−4*	$T_{1/2}$: Other value: 0.09 ps *1* (Deduced using results from 2000Ko51 and 1976Sw01).
2094.12 *7*	(7/2)$^-$		
2107.39 *7*	(5/2)$^-$	0.17 ps *+7−5*	
2212.43 *8*	(1/2)$^-$	0.11 ps *+7−4*	
2278.06 *12*	(7/2)$^-$		
2328.18 *24*	3/2$^-$	0.021 ps *7*	$T_{1/2}$: Other value: 0.017 ps *2* (Deduced using results from 2000Ko51 and 1976Sw01).
2405.85 *17*	(7/2$^-$)		
2533.0 *4*	(1/2$^-$)		
2533.87 *12*	(7/2$^+$,9/2$^+$)		
2593.8 *3*	(5/2$^-$)		
2643.9 *6*	(7/2$^-$)		
2648.68 *10*	(5/2$^-$)	0.008 ps *+4−3*	
2668.8 *17*		0.004 ps *3*	
2753.36 *21*	(7/2$^+$,9/2$^+$)	0.03 ps *1*	
2839.29 *21*	(9/2$^+$)	0.018 ps *+8−6*	
2862.07 *20*		0.019 ps *2*	
2866.0 *3*	3/2$^-$,5/2,7/2$^-$	0.012 ps *+4−3*	
2871.7 *3*	(3/2$^-$)	0.012 ps *2*	
2892.80 *17*	1/2$^-$,3/2,5/2$^-$	0.050 ps *7*	
2902.02 *18*		0.097 ps *20*	
2945.5 *10*			
2974.16 *20*	(3/2$^-$)		
2996.74 *19*	(9/2$^-$)	0.009 ps *4*	
3032.48 *20*	(1/2$^-$)		
3080.15 *12*	(3/2$^+$,5/2$^-$)	0.083 ps *+55−42*	
3113.08 *20*	(1/2$^-$,3/2$^-$)	0.21 ps *+28−7*	
3119.35 *21*			
3126 *3*			

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^{65}Cu(n,n′γ) 1983Di04,2000Ko51 (continued)

^{65}Cu Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$#	E(level)†
3132 *3*			4436 *4*
3143 *3*			4460 *4*
3160.14 *21*			4483 *4*
3163 *3*			4524 *4*
3173 *3*			4540 *4*
3240.66 *21*	(1/2+,3/2,5/2+)		4566 *4*
3260.78 *15*	(1/2−,5/2−,7/2−)	0.21 ps *2*	4724 *4*
3274 *3*			4759 *4*
3325 *3*	(3/2,5/2)		4776 *4*
3337.8 *20*			4863 *4*
3355.14 *20*			4892 *4*
3399 *3*			4923 *4*
3427.89 *21*	1/2−	0.05 ps *1*	4932 *4*
3457 *3*			5017 *4*
3563 *4*			5063 *4*
3632 *4*	(1/2+,3/2+)		5077 *4*
3713 *4*			5083 *4*
3753 *4*			5100 *4*
3892 *4*	1/2+		5217 *5*
3923 *4*			5230 *5*
3955 *4*			5236 *5*
3987 *3*			5244 *5*
4049 *4*			5262 *5*
4084 *4*	(1/2+,3/2,5/2+)		5296 *5*
4095.4 *24*			5305 *5*
4119 *4*			5310 *5*
4176 *4*			5320 *5*
4184 *4*			5335 *5*
4201 *4*			5384 *5*
4217 *4*			5392 *5*
4227 *4*			5424 *5*
4237 *4*			5430 *5*
4244 *4*			5447 *5*
4266 *4*			5526 *5*
4275 *4*			5603 *5*
4331 *4*			5618 *4*
4357 *4*			5632 *5*
4389 *4*			5779 *5*
4418 *4*	5/2−,7/2−		

† From least-squares fit to Eγ data.
‡ From Adopted Levels.
# From 2000Ko51 by Doppler Shift Attenuation method.

γ(^{65}Cu)

E_γ	I_γ†	E_i(level)	J^π_i	E_f	J^π_f
255@ *1*	0.9‡ *1*	2533.87	(7/2+,9/2+)	2278.06	(7/2)−
x272.0 *13*	1.1 *8*				
x293.0& *13*	1.3 *7*				
x303.0 *13*	1.4 *7*				
311.5@ *5*	1.0‡ *2*	2405.85	(7/2−)	2094.12	(7/2)−

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^{65}Cu(n,n′γ) 1983Di04,2000Ko51 (continued)

γ(^{65}Cu) (continued)

E_γ	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.	δ[#]	Comments
[x]316.0 *13*	1.7 *7*							
[x]344.0 *13*	1.0 *6*							
366.2[@] *1*	9.9[‡] *5*	1481.77	7/2⁻	1115.44	5/2⁻	M1+E2	−0.03 *1*	
382.4[@] *2*	0.5[‡] *2*	2107.39	(5/2)⁻	1724.75	3/2⁻			
[x]393.9 *7*	4.0 *8*							
[x]407.0 *14*	0.6 *5*							
[x]414.0 *14*	2.5 *7*							
439.7 *7*		2533.87	(7/2⁺,9/2⁺)	2094.12	(7/2)⁻			Reported only by 1983Di04.
[x]470.0[&c] *14*	6.2 *9*							
471.0[@] *2*	0.8[‡] *3*	2094.12	(7/2)⁻	1623.28	5/2⁻			
[x]487.0 *14*	2.0 *10*							
487[@] *1*	0.2[‡] *1*	2212.43	(1/2)⁻	1724.75	3/2⁻			
499.8[@] *3*	2.2[‡] *4*	2593.8	(5/2⁻)	2094.12	(7/2)⁻			
[x]500.0 *14*	11.6 *9*							
507[@] *1*	4.5[‡] *5*	1623.28	5/2⁻	1115.44	5/2⁻			
[x]519.0 *14*	1.5 *8*							
[x]524.0 *14*	1.7 *8*							
550.0[b] *15*		2643.9	(7/2⁻)	2094.12	(7/2)⁻			Reported only by 1983Di04.
[x]562.4 *8*	9.1 *10*							
[x]592.0 *15*	5.7 *14*							
609.7[@] *1*	6.2[‡] *3*	1724.75	3/2⁻	1115.44	5/2⁻			
612.7[@] *1*	1.8[‡] *3*	2094.12	(7/2)⁻	1481.77	7/2⁻			
624.9[@] *1*	2.7[‡] *1*	2107.39	(5/2)⁻	1481.77	7/2⁻			
[x]653.0[&] *15*	2.5 *10*							
659 *1*	0.4 *1*	2753.36	(7/2⁺,9/2⁺)	2094.12	(7/2)⁻			
[x]662.0 *15*	3.0 *10*							
[x]693.0 *15*	3.5 *10*							
732 *1*	0.5 *1*	2839.29	(9/2⁺)	2107.39	(5/2)⁻			
[x]745.0 *16*	4.0 *15*							
[x]757.0[&] *16*	4.8 *11*							
[x]765.0 *16*	4.5 *15*							
770.7[@] *1*	45[‡] *2*	770.42	1/2⁻	0	3/2⁻			
785.6 *4*	0.5 *1*	2892.80	1/2⁻,3/2,5/2⁻	2107.39	(5/2)⁻			
794.6 *2*	1.8 *2*	2902.02		2107.39	(5/2)⁻			
852.5[@&] *1*	3.2[‡] *1*	1623.28	5/2⁻	770.42	1/2⁻			
[x]865.0[&] *16*	6.7 *9*							
[x]877.0 *17*	2.5 *8*							
879.9[@] *2*	0.9[‡] *1*	2974.16	(3/2⁻)	2094.12	(7/2)⁻			
[x]895.0 *17*	3.2 *9*							
902.0[@] *4*	0.8[‡] *2*	2996.74	(9/2⁻)	2094.12	(7/2)⁻			
[x]914.0 *17*	1.9 *9*							
924.2[@] *2*	2.0[‡] *2*	2405.85	(7/2⁻)	1481.77	7/2⁻			Member of a doublet.
924.8[@] *3*	0.8[‡] *1*	2648.68	(5/2⁻)	1724.75	3/2⁻			Member of a doublet.
944.0 *17*	8.4 *10*	2668.8		1724.75	3/2⁻			
[x]952.0 *17*	4.1 *9*							
954.0[@] *1*	1.1[‡] *1*	1724.75	3/2⁻	770.42	1/2⁻			
978.8[@] *1*	7.0[‡] *2*	2094.12	(7/2)⁻	1115.44	5/2⁻			
[x]983.0 *17*	5.5 *20*							
991.8[@] *1*	3.0[‡] *1*	2107.39	(5/2)⁻	1115.44	5/2⁻	M1+E2	0.32 *10*	δ: or δ=0.86 *15* (2000KoZX).
[x]995.0 *17*								
[x]1005.0 *17*	2.2 *8*							

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^{65}Cu(n,n′γ) 1983Di04,2000Ko51 (continued)

γ(^{65}Cu) (continued)

E_γ	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.	δ[#]
1024.9[@] *1*	0.24[‡] *4*	2648.68	(5/2⁻)	1623.28	5/2⁻		
[x]1038.0 *17*	1.9 *8*						
[x]1047.0 *18*	1.8 *13*						
1052.1[@] *1*	2.6[‡] *1*	2533.87	(7/2⁺,9/2⁺)	1481.77	7/2⁻		
[x]1058.0 *18*	3.1 *10*						
1115.6[@] *1*	100[‡] *5*	1115.44	5/2⁻	0	3/2⁻	M1+E2	−0.50 *15*
[x]1121.0 *18*	1.5 *10*						
[x]1127.0 *18*	6.5 *15*						
[x]1131.0 *18*	3.5 *10*						
[x]1157.0[&] *18*	6.5 *15*						
1162.6[@] *1*	5.7[‡] *2*	2278.06	(7/2)⁻	1115.44	5/2⁻		
1163[@] *1*	2.3[‡] *4*	2643.9	(7/2⁻)	1481.77	7/2⁻		
[x]1175.0 *18*	8.8 *11*						
[x]1188.0 *18*	6.5 *15*						
[x]1204.0 *18*							
1212.7[@] *4*	1.2[‡] *1*	2328.18	3/2⁻	1115.44	5/2⁻		
[x]1224.0[&] *19*	2.0 *10*						
1245 *1*	0.60 *5*	2866.0	3/2⁻,5/2,7/2⁻	1623.28	5/2⁻		
[x]1257.0 *19*	4.7 *10*						
1261.0[@] *2*	1.0[‡] *1*	3355.14		2094.12	(7/2)⁻		
1271.9 *3*	1.2 *1*	2753.36	(7/2⁺,9/2⁺)	1481.77	7/2⁻		
[x]1278.0 *19*	1.7 *9*						
1290.2[@] *3*	1.2[‡] *2*	2405.85	(7/2⁻)	1115.44	5/2⁻		
[x]1314.0 *19*	2.0 *10*						
[x]1326.0 *19*							
1337.9[@&] *1*	0.7[‡] *2*	2107.39	(5/2)⁻	770.42	1/2⁻		
[x]1356.0 *19*							
1357.5 *2*	1.61 *11*	2839.29	(9/2⁺)	1481.77	7/2⁻		
[x]1369.0 *19*							
[x]1380[&] *2*	7.2 *11*						
1384 *1*	0.30 *5*	2866.0	3/2⁻,5/2,7/2⁻	1481.77	7/2⁻		
[x]1391[&] *2*	5.2 *9*						
[x]1395 *2*	1.3 *5*						
[x]1400 *2*	4.0 *8*						
[x]1404 *2*	1.0 *6*						
[x]1413[&] *2*	4.8 *9*						
1441.9[@&] *1*	1.4[‡] *3*	2212.43	(1/2)⁻	770.42	1/2⁻		
[x]1453[&] *2*	3.7 *12*						
[x]1459 *2*	5.8 *11*						
1481.7[@] *1*	30[‡] *1*	1481.77	7/2⁻	0	3/2⁻		
[x]1492 *2*	1.2 *7*						
1493.2[@] *5*	0.3[‡] *1*	2974.16	(3/2⁻)	1481.77	7/2⁻		
1495[@] *1*	0.15[‡] *5*	3119.35		1623.28	5/2⁻		
1515.1[@] *2*	1.53[‡] *5*	2996.74	(9/2⁻)	1481.77	7/2⁻		
1529[@] *1*	0.1[‡]	2643.9	(7/2⁻)	1115.44	5/2⁻		
1534[@] *1*	0.1[‡]	2648.68	(5/2⁻)	1115.44	5/2⁻		
1557.2[@] *4*	1.3[‡] *2*	2328.18	3/2⁻	770.42	1/2⁻		
[x]1572 *2*	1.4 *7*						
[x]1583 *2*	3.2 *8*						
[x]1596 *2*	2.1 *8*						
[x]1602 *2*	1.4 *8*						

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^{65}Cu(n,n′γ) 1983Di04,2000Ko51 (continued)

γ(^{65}Cu) (continued)

E_γ	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.	δ[#]	Comments
[x]1619 *2*	6.6 *12*							
1623.2[@] *1*	10.5[‡] *3*	1623.28	5/2⁻	0	3/2⁻	M1+E2	1.75 *50*	
1630 *2*		3355.14		1724.75	3/2⁻			Reported only by 1983Di04.
1637.6[@] *2*	1.24[‡] *9*	3119.35		1481.77	7/2⁻			
[x]1645 *2*								
[x]1660 *2*	3.4 *10*							
[x]1691 *2*								
1724.7[@] *1*	9.5[‡] *1*	1724.75	3/2⁻	0	3/2⁻	M1+E2	0.32 *5*	
1732[@] *1*	0.17[‡] *5*	3355.14		1623.28	5/2⁻			
[x]1753 *2*	2.0 *12*							
1762.2[@&a] *5*	0.7[‡] *2*	2533.0	(1/2⁻)	770.42	1/2⁻			
[x]1780 *2*	4.9 *10*							
[x]1798 *2*	5.0 *15*							
1805[@] *1*	0.20[‡] *5*	3427.89	1/2⁻	1623.28	5/2⁻			
[x]1809 *2*	1.7 *8*							
[x]1821 *2*								
1821[@] *2*	0.2[‡] *1*	2593.8	(5/2⁻)	770.42	1/2⁻			
1830[@] *1*	0.21[‡] *5*	2945.5		1115.44	5/2⁻			
[x]1841 *3*	1.8 *10*							
1856 *2*	2.7 *17*	3337.8		1481.77	7/2⁻			
1872[@] *1*	0.5[‡] *1*	2643.9	(7/2⁻)	770.42	1/2⁻			
1879.1[@] *2*	1.1[‡] *2*	2648.68	(5/2⁻)	770.42	1/2⁻			
[x]1893 *3*	5.2 *11*							
[x]1903 *3*	2.2 *8*							
[x]1918 *3*	2.0 *9*							
[x]1933 *3*								
[x]1946 *3*	1.2 *5*							
[x]1953 *3*	2.4 *5*							
1964[@&b] *1*	0.3[‡] *1*	3080.15	(3/2⁺,5/2⁻)	1115.44	5/2⁻			
[x]1983 *3*	5.6 *8*							
[x]1997 *3*								
[x]2006 *3*	1.4 *7*							
[x]2032 *3*	3.4 *7*							
2044.7[@] *2*	0.35[‡] *5*	3160.14		1115.44	5/2⁻			
[x]2085 *3*	1.4 *10*							
2093.5[@] *1*	3.9[‡] *2*	2094.12	(7/2)⁻	0	3/2⁻			
[x]2100 *3*	3.5 *20*							
2102 *2*	0.6 *1*	2871.7	(3/2⁻)	770.42	1/2⁻			
2106.5[@] *5*	0.7[‡] *2*	2107.39	(5/2)⁻	0	3/2⁻			
[x]2114 *3*	3.0 *11*							
2122.2[&] *3*	0.15 *5*	2892.80	1/2⁻,3/2,5/2⁻	770.42	1/2⁻			
2125.2[&@] *2*	0.30[‡] *6*	3240.66	(1/2⁺,3/2,5/2⁺)	1115.44	5/2⁻			
[x]2133 *3*	1.3 *7*							
2145.2[@] *2*	0.10[‡] *2*	3260.78	(1/2⁻,5/2⁻,7/2⁻)	1115.44	5/2⁻			
[x]2153 *3*	4.2 *10*							
[x]2186 *3*	1.4 *7*							
[x]2194 *3*	1.4 *7*							
[x]2210 *3*	3.2 *16*							
2212.5[@] *1*	0.9[‡] *1*	2212.43	(1/2)⁻	0	3/2⁻			
[x]2223 *3*	2.6 *9*							
[x]2250 *3*	0.8 *4*							
[x]2273 *3*	5.6 *11*							

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^{65}Cu(n,n′γ) 1983Di04,2000Ko51 (continued)

γ(^{65}Cu) (continued)

E_γ	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.	δ[#]
2279[@b] 3	0.2[‡] 1	2278.06	(7/2)⁻	0	3/2⁻		
x2298 3	6.0 9						
2309.7[@b] 1	0.9[‡] 2	3080.15	(3/2⁺,5/2⁻)	770.42	1/2⁻		
x2311 3	7.0 11						
x2320 3							
2328.7[@&] 4	1.4[‡] 2	2328.18	3/2⁻	0	3/2⁻	M1+E2	−1.25 30
2356 3		3126		770.42	1/2⁻		
x2362 3	1.7 9						
2389[@] 1	0.12[‡] 3	3160.14		770.42	1/2⁻		
x2392 3	1.0 8						
x2426 3	2.4 8						
x2460 3	1.0 7						
x2466 3	5.3 12						
x2471 3	1.3 7						
x2479 3	1.9 9						
x2485 3							
x2489 3							
x2506[&] 3	1.6 12						
x2517 3	3.5 14						
x2529 3	2.8 13						
2533.2[@] 4	0.7[‡] 2	2533.0	(1/2⁻)	0	3/2⁻		
x2547 3	1.7 6						
x2560[&] 3	1.4 6						
x2568 3	0.7 5						
x2577[&] 3	3.0 9						
2593.7[@&] 5	0.5[‡] 1	2593.8	(5/2⁻)	0	3/2⁻		
x2623 3	3.4 9						
2650.1[@b] 3	0.35[‡] 5	2648.68	(5/2⁻)	0	3/2⁻		
2657.4[@] 2	0.15[‡] 5	3427.89	1/2⁻	770.42	1/2⁻		
x2669 3	0.7 5						
x2690 3	1.3 6						
x2713[&] 3	3.3 8						
x2753 3	1.0 8						
2753.0 3	1.0 1	2753.36	(7/2⁺,9/2⁺)	0	3/2⁻		
x2798 3	1.3 7						
2862.0 2	0.8 1	2862.07		0	3/2⁻		
2865.7 3	1.1 1	2866.0	3/2⁻,5/2,7/2⁻	0	3/2⁻		
2871.6 3	0.9 1	2871.7	(3/2⁻)	0	3/2⁻		
2892.8 2	0.8 1	2892.80	1/2⁻,3/2,5/2⁻	0	3/2⁻		
x2895 3	1.4 9						
2902.0 3	1.2 1	2902.02		0	3/2⁻		
x2905 3	5.7 7						
x2935 3	3.0 7						
2943 4	2.2 7	3713		770.42	1/2⁻		
x2968[&] 3	4.2 8						
x2976 3	2.0 10						
x2981 3	3.2 9						
x3016 3	1.2 9						
x3032 3	2.9 11						
3032.4[@] 2	0.67[‡] 7	3032.48	(1/2⁻)	0	3/2⁻		
x3039 3	2.3 7						
x3045 3	1.6 8						
3113.0[@&] 2	0.5[‡] 2	3113.08	(1/2⁻,3/2⁻)	0	3/2⁻		

Continued on next page (footnotes at end of table)

^{65}Cu(n,n′γ) 1983Di04,2000Ko51 (continued)

γ(^{65}Cu) (continued)

E_γ	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f
[x]3126 *3*					
3132 *3*		3132		0	3/2⁻
3143 *3*		3143		0	3/2⁻
[x]3158 *3*	4.2 *11*				
3163 *3*		3163		0	3/2⁻
3173 *3*	2.3 *9*	3173		0	3/2⁻
[x]3179 *3*					
[x]3194 *3*	0.9 *5*				
3216 *3*	2.0 *6*	3987		770.42	1/2⁻
[x]3223 *3*					
3239[@] *2*	0.15[‡] *3*	3240.66	(1/2⁺,3/2,5/2⁺)	0	3/2⁻
[x]3256 *3*					
3260.8[@] *2*	1.1[‡] *2*	3260.78	(1/2⁻,5/2⁻,7/2⁻)	0	3/2⁻
3274 *3*	1.3 *5*	3274		0	3/2⁻
[x]3305 *3*					
3325[d] *3*	2.4[d] *8*	3325	(3/2,5/2)	0	3/2⁻
3325[d] *3*	2.4[d] *8*	4095.4		770.42	1/2⁻
[x]3337 *3*					
[x]3346 *3*	2.0 *7*				
3355[@&] *1*	0.10[‡] *5*	3355.14		0	3/2⁻
[x]3392 *3*	0.7 *4*				
3399 *3*		3399		0	3/2⁻
[x]3412 *3*	1.5 *4*				
[x]3448 *3*	1.9 *4*				
3457[&] *3*	2.4 *5*	3457		0	3/2⁻
[x]3478[&] *3*	2.2 *5*				
[x]3498[&] *3*	3.4 *5*				
3563[&] *4*	6.5 *8*	3563		0	3/2⁻
[x]3581 *4*					
[x]3626 *4*					
3632 *4*	3.1 *11*	3632	(1/2⁺,3/2⁺)	0	3/2⁻
[x]3646 *4*	0.6 *3*				
[x]3722 *4*	1.8 *5*				
[x]3729 *4*	1.4 *6*				
3753[b] *4*	2.4 *9*	3753		0	3/2⁻
[x]3756[e] *4*					
[x]3761 *4*	0.4 *2*				
[x]3807 *4*	0.8 *4*				
[x]3820[&] *4*	1.8 *6*				
[x]3842 *4*	0.9 *3*				
[x]3879[&] *4*	1.1 *7*				
3892[&] *4*	3.1 *9*	3892	1/2⁺	0	3/2⁻
[x]3914 *4*	1.1 *5*				
3923 *4*	1.7 *5*	3923		0	3/2⁻
3955[&] *4*	7.5 *10*	3955		0	3/2⁻
[x]3972 *4*					
[x]3982 *4*	1.1 *3*				
[x]3991 *4*	0.6 *3*				
[x]4002[&] *4*	2.1 *3*				
[x]4040 *4*	1.0 *3*				
4049 *4*	2.9 *4*	4049		0	3/2⁻
[x]4062 *4*					

Continued on next page (footnotes at end of table)

^{65}Cu(n,n′γ) 1983Di04,2000Ko51 (continued)

γ(^{65}Cu) (continued)

E_γ	I_γ †	E_i(level)	J^π_i	E_f	J^π_f
4084 *4*	1.7 *6*	4084	(1/2+,3/2,5/2+)	0	3/2−
4095 *4*	3.4 *6*	4095.4		0	3/2−
4119 *4*	2.4 *4*	4119		0	3/2−
x4126 *4*					
x4135 *4*	3.6 *4*				
x4141 *4*					
4176 *4*	0.6 *3*	4176		0	3/2−
4184 *4*	0.7 *3*	4184		0	3/2−
4201 *4*	0.4 *2*	4201		0	3/2−
4217 *4*	0.3 *2*	4217		0	3/2−
4227 *4*	1.0 *3*	4227		0	3/2−
4237 *4*	1.0 *3*	4237		0	3/2−
x4241 *4*					
4244 *4*	0.9 *3*	4244		0	3/2−
x4252 *4*					
4266 *4*	1.9 *3*	4266		0	3/2−
4275 *4*	0.9 *2*	4275		0	3/2−
x4283 *4*					
x4296 *4*					
x4321 *4*					
4331[&] *4*	1.5 *3*	4331		0	3/2−
x4335 *4*					
4357 *4*	0.5 *2*	4357		0	3/2−
x4367[&] *4*	1.4 *4*				
x4377 *4*					
4389 *4*	2.2 *4*	4389		0	3/2−
x4394 *4*					
x4400 *4*					
x4403 *4*					
4418[b] *4*	2.1 *5*	4418	5/2−,7/2−	0	3/2−
x4424 *4*					
4436 *4*	0.3 *2*	4436		0	3/2−
x4448[&] *4*	1.2 *3*				
4460 *4*	0.6 *2*	4460		0	3/2−
x4476 *4*					
4483 *4*	0.5 *2*	4483		0	3/2−
4503[b] *4*		5618		1115.44	5/2−
x4512 *4*					
4524[&b] *4*	2.5 *4*	4524		0	3/2−
x4532[&] *4*					
4540[&b] *4*	0.6 *3*	4540		0	3/2−
x4556 *4*					
4566[b] *4*	0.6 *3*	4566		0	3/2−
x4577 *4*					
x4610 *4*					
x4679 *4*					
x4689 *4*					
4724 *4*		4724		0	3/2−
x4738 *4*					
4759 *4*		4759		0	3/2−
x4771 *4*					
4776[&] *4*		4776		0	3/2−
x4815 *4*					
x4840 *4*					

Continued on next page (footnotes at end of table)

^{65}Cu(n,n′γ) 1983Di04,2000Ko51 (continued)

γ(^{65}Cu) (continued)

E_γ	E_i(level)	J^π_i	E_f	J^π_f	E_γ	E_i(level)	J^π_i	E_f	J^π_f	E_γ	E_i(level)	J^π_i	E_f	J^π_f
4863 *4*	4863		0	3/2−	5100 *4*	5100		0	3/2−	5310 *5*	5310		0	3/2−
4892 *4*	4892		0	3/2−	[x]5124 *4*					5320 *5*	5320		0	3/2−
4923 *4*	4923		0	3/2−	[x]5133 *4*					5335 *5*	5335		0	3/2−
[x]4927 *4*					[x]5143 *4*					5384 *5*	5384		0	3/2−
4932 *4*	4932		0	3/2−	[x]5162 *4*					5392 *5*	5392		0	3/2−
[x]4977[&] *4*					[x]5170 *4*					5424 *5*	5424		0	3/2−
[x]5001 *4*					5217 *5*	5217		0	3/2−	5430 *5*	5430		0	3/2−
5017 *4*	5017		0	3/2−	[x]5224 *5*					5447 *5*	5447		0	3/2−
[x]5022 *4*					5230 *5*	5230		0	3/2−	5526 *5*	5526		0	3/2−
[x]5028 *4*					5236 *5*	5236		0	3/2−	5603 *5*	5603		0	3/2−
[x]5050 *4*					5244 *5*	5244		0	3/2−	5618 *5*	5618		0	3/2−
5063 *4*	5063		0	3/2−	5262 *5*	5262		0	3/2−	5632 *5*	5632		0	3/2−
5077 *4*	5077		0	3/2−	5296 *5*	5296		0	3/2−	5779 *5*	5779		0	3/2−
5083 *4*	5083		0	3/2−	5305 *5*	5305		0	3/2−					

[†] Relative intensity; measured at E(n)=4.85 MeV, θ=125°, unless otherwise specified. Where not given, Iγ is reported as too small to be expected at E(n)=4.85 MeV (1983Di04).
[‡] From 2000Ko51, relative to Iγ(1115γ)=100.
[#] From γγ(θ) in ^{65}Cu(n,n′γ) (2000KoZX).
[@] From 2000Ko51.
[&] Possible multiplet (1983Di04).
[a] Evaluators reassigned to 2533 level as its placement from 2534 level is unlikely due to large spin change.
[b] Placement uncertain (1983Di04).
[c] May include a weak 2094-1623 transition.
[d] Multiply placed with undivided intensity.
[e] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

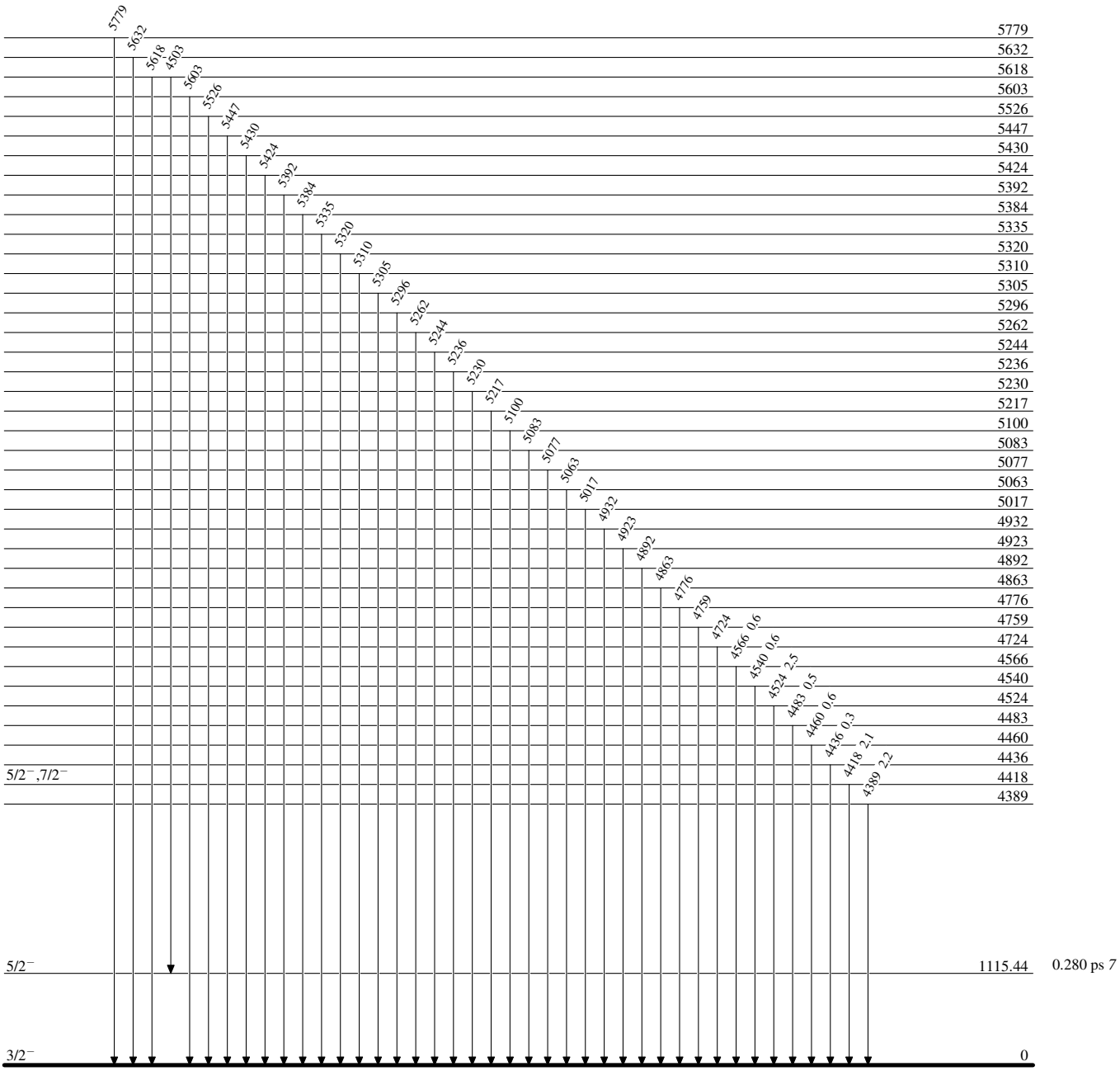
^{65}Cu(n,n′γ) 1983Di04,2000Ko51

Level Scheme

Intensities: Relative I_γ

Legend

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



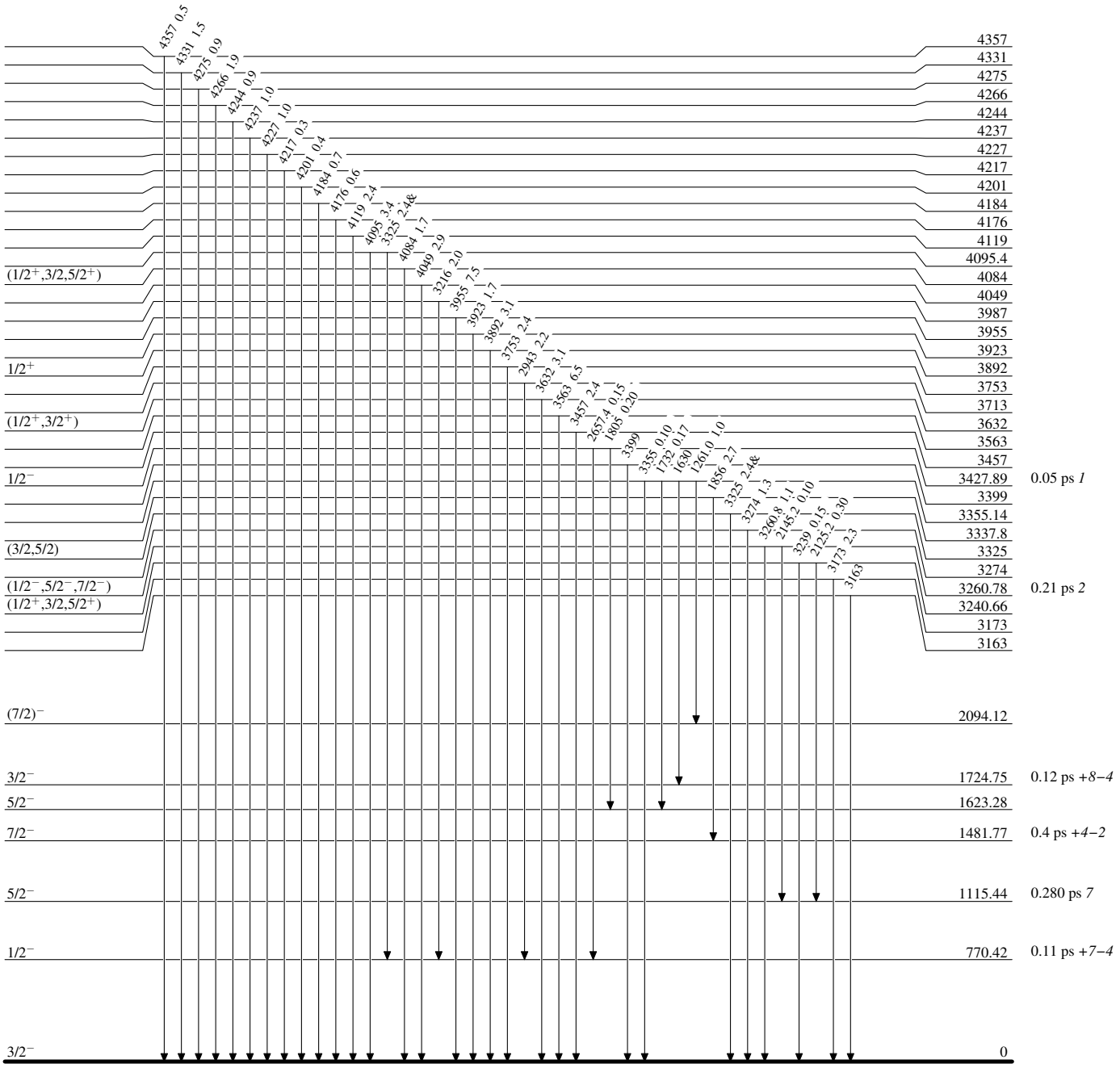
$^{65}_{29}Cu_{36}$

^{65}Cu(n,n′γ) 1983Di04,2000Ko51

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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



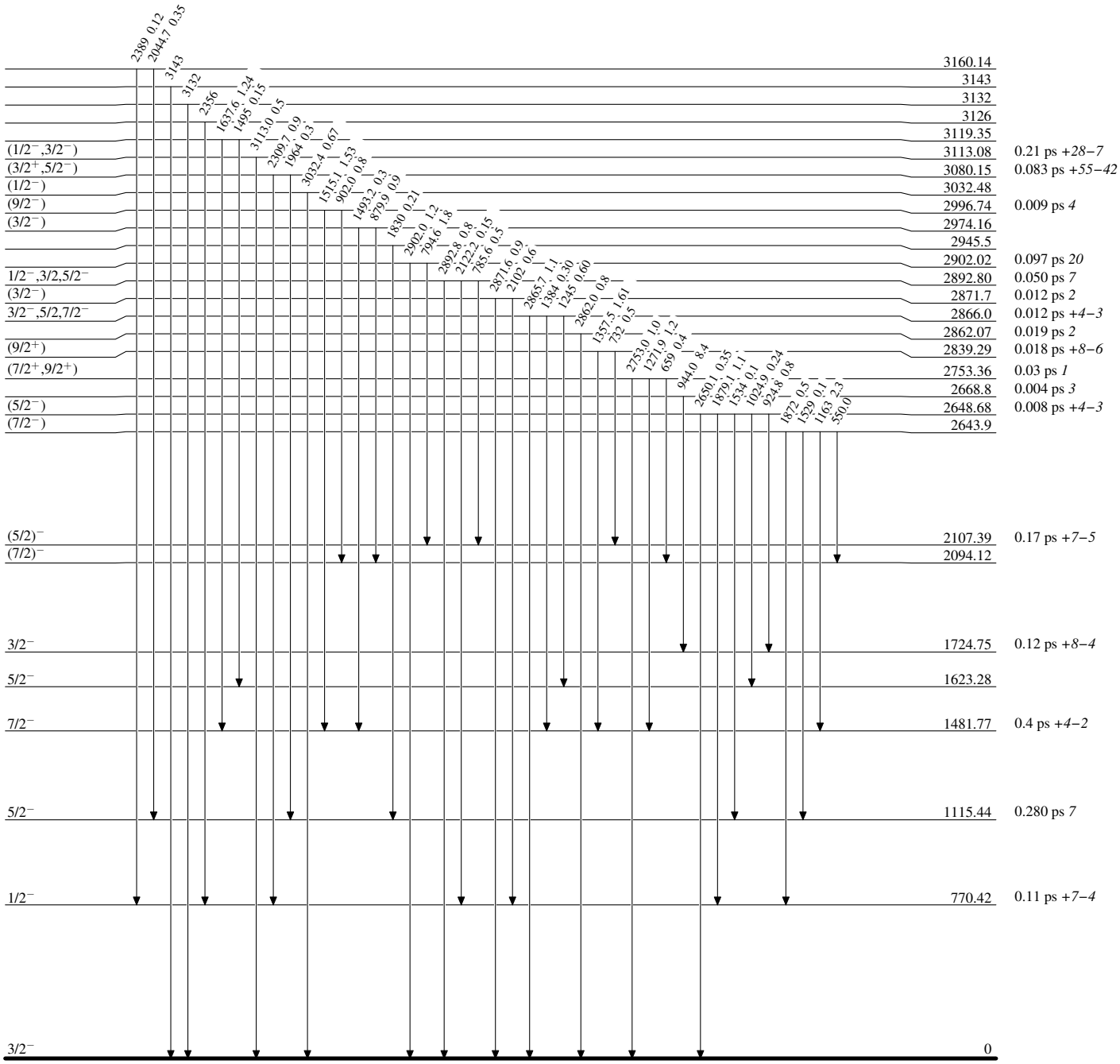
$^{65}_{29}Cu_{36}$

^{65}Cu(n,n′γ) 1983Di04,2000Ko51

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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



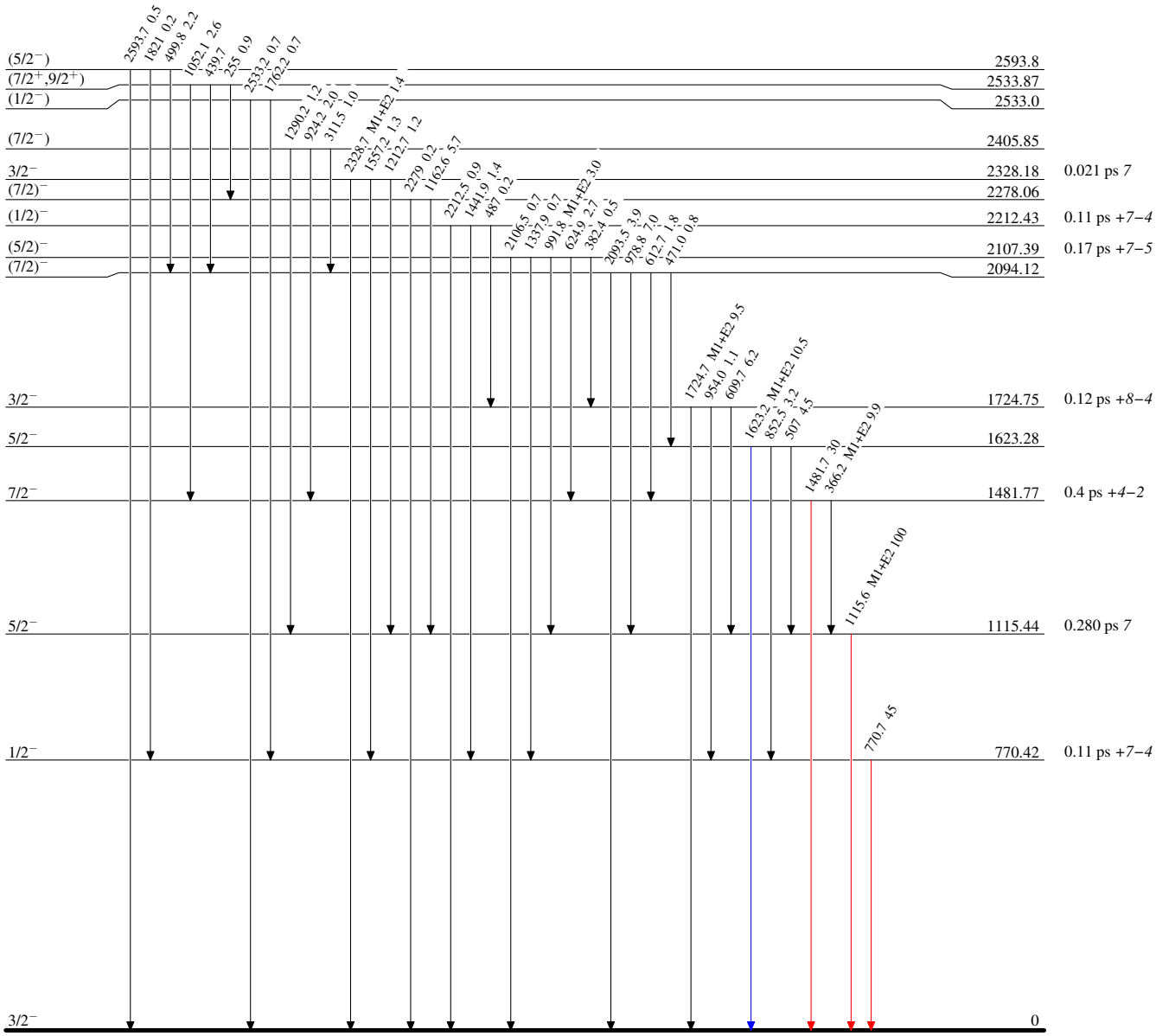
$^{65}_{29}Cu_{36}$

^{65}Cu(n,n′γ) 1983Di04,2000Ko51

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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



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