

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli		NDS 111,1093 (2010)	3-Mar-2009

$Q(\beta^-)=2641.0$ 10; $S(n)=7065.93$ 9; $S(p)=8421.8$ 8; $Q(\alpha)=-7259$ 19 [2012Wa38](#)

Note: Current evaluation has used the following Q record 2640.9 107065.93 98421.5 7-7251 20 [2009AuZZ](#).

$Q(\beta^-)=2641.2$ keV 10, $Q(\alpha)=-7252$ keV 20 ([2003Au03](#)).

[Additional information 1](#).

⁶⁶Cu Levels

Configuration: configurations used in the DWBA analysis of (α ,d) data.

Cross Reference (XREF) Flags

A	⁶⁶ Ni β^- decay	F	⁶⁵ Cu(α , ³ He), ⁶⁴ Ni(α ,d),
B	⁶⁵ Cu(n, γ) E=thermal	G	⁶⁶ Zn(t, ³ He)
C	⁶⁵ Cu(n, γ) E=2, 24 keV	H	⁶⁸ Zn(d, α)
D	⁶⁵ Cu(d,p)	I	⁶⁷ Zn(t, α)
E	⁶⁵ Cu(d,p γ)		

E(level) [†]	J ^π	T _{1/2}	XREF	Comments
0.0	1 ⁺ [‡]	5.120 min 14	ABCDEFGHI	$\% \beta^- = 100$ $\mu = -0.282$ 2 (1969Cu09 , 1989Ra17 , 2005St24) T _{1/2} : unweighted average of 5.05 min 5 (1946Me01), 5.18 min 10 (1950Ca01), 5.2 min 1 (1951Fr19), 5.17 min 7 (1951Ro22), 5.12 min 5 (1951Sc56), 5.07 min 2 (1953Ba48), 5.10 min 2 (1953Sa11), 5.20 min 5 (1954Ko07), 5.1 min 1 (1974Ar22), 5.13 min 3 (1974Ry01), 5.10 min 2 (1989Ab18), 5.063 min 20 (1990KaZW), 5.080 min 12 (1992KaZM). Others: 5.3 min 1 (1965Bo42), 5.40 min (1989Ah03). μ : From atomic-beam magnetic resonance.
185.953 15	2 ⁺ [‡]		BCDEFGHI	
237.822 11			BC E	
275.030 17	3 ⁺ [‡]		BCDE GHI	
385.782 10	(1 ⁺) [‡]		BCDE GHI	
465.165 10	2 ⁺ [‡]		BCDE GHI	
590.75 2	4 ⁺ [‡]		BCDEFGHI	
679			F I	
729.824 18	3 ⁺ [‡]		BCDE HI	
822.691 10	2 ⁺ [‡]		BCDE GHI	
884 7			G	
916			I	
1008.49 10			BC E	
1017.138 15	3 ⁺ [#]		BCDE GHI	
1052.082 17	1 ⁺ [‡]		BCDE HI	
1154.2 14	(6 ⁻) [‡]	600 ns 20	DEFghi	$\mu = +1.038$ 3 (1972B116 , 1989Ra17 , 2005St24) Configuration= $((\pi p_{3/2})(\nu g_{9/2}))6^-$ T _{1/2} : from delayed $\gamma\gamma$ coincidences in ⁶⁵ Cu(d,p γ). μ : From differential perturbed angular distribution of γ rays in ⁶⁵ Cu(d,p γ). J ^π : from primary γ in thermal-neutron capture assumed to be dipole to this level and γ 's to 2 ⁺ , 3 ⁺ , 4 ⁺ levels.
1158.09 4	(2 ⁺ , 3)		BC g	

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Adopted Levels, Gammas (continued) ^{66}Cu Levels (continued)

E(level) [†]	J ^π	XREF	Comments
1212.515 20	1 ⁺ ,2 ⁺ [#]	BCDE HI	
1247.152 24	4 ⁻ [‡]	BCDE GH	
1344.012 22	1 ⁺ [‡]	BCDE GHI	
1432.2 9	1 ⁺ [‡]	dE HI	
1439.408 25	(1 ⁺ ,2,3 ⁺)	BCd G	J ^π : γ's to 1 ⁺ and 3 ⁺ .
1498		I	
1547.39 4	1 ⁺ ,2 ⁺ ,3 ⁺	BCDE HI	J ^π : L(d,p)=L(t,α)=1.
1560.15 9	+&	BCD H	
1577.34 5	1 ⁺ ,2 ⁺ ,3 ⁺	BCD H	J ^π : L(d,p)=1 and γ to 3 ⁺ .
1630 25	1 ⁻ ,2 ⁻ &	D	
1678.00 3	1 ⁺ ,2 ⁺ [#]	BCD H	
1694.07 5	(1 ⁺)	BCD HI	J ^π : L(d,p)=1 and L(d,α)=(0)+(2).
1713.20 6	(1 ⁺)	BCD H	J ^π : L(d,p)=(1) and L(d,α)=(0)+(2).
1735.96 6	(4,5) ⁻	BCD FGH	J ^π : L(d,p)=4, L(d,α)=(5), and γ to 3 ⁺ .
1745.89 4	(1,2) [#]	BC	
1820.352 14	1 ⁺ [‡]	BCDE GHI	
1879 7		G	
1894 8	1 ⁻ ,2 ⁻ &	D HI	
1911.31 8		BC	
1927.19 5	1 ⁺ ,2 ⁺ [#]	BCD H	J ^π : assignment not consistent with L(d,α)=4+(2).
1971.18 5	2 ⁻	BCD GH	J ^π : L(d,p)=0+2 and γ to 4 ⁻ .
2018.36 3	1 ⁺ ,2 ⁺ ,3 ⁺ [#]	BCD HI	
2023.315 23	(1,2) [#]	BC	
2124.09 10	2 ⁻ &	BCD GHI	
2163.12 9	-&	BCD H	
2166.01 7	+b	BCD HI	
2195 9		D F H	J ^π : L(d,p)=2+(3,4) and L(d,α)=(0)+(2) indicate a probable doublet.
2260.66 9		BCD GHI	J ^π : L(d,p)=2 and L(d,α)=4+(2) indicate a probable doublet.
2329 9		D HI	J ^π : L(d,p)=2 and L(t,α)=(1)+3 indicate a probable doublet.
2347 7		G I	
2363.63 6		BCD H	J ^π : L(d,p)=2 and L(d,α)=4 indicate a probable doublet.
2394.93 11		BCD H	J ^π : L(d,p)=(1)+(3) and L(d,α)=(1) indicate a probable doublet.
2449.19 16		BCD H	J ^π : L(d,p)=2 and L(d,α)=0 indicate a probable doublet.
2453.05 5	(1 ⁺ ,2,3 ⁺)	BC I	J ^π : γ's to 1 ⁺ and 3 ⁺ .
2503.00 9	(2 ⁺ ,3 ⁺)	BCD H	J ^π : γ's to 1 ⁺ and 4 ⁺ .
2520.77 13	2 ⁻ ,3 ⁻ ,4 ⁻	BCD H	J ^π : L(d,p)=2 and γ to 4 ⁺ .
2537 10	0 ⁺ ,1 ⁺ ^a	H	
2560.43 16	2 ⁻	BCD H	J ^π : L(d,p)=0 and γ to 4 ⁻ .
2567 10	(5) ⁺ ^a	H	
2586.27 4		BCD HI	J ^π : L(d,p)=0 and L(t,α)=3 indicate a probable doublet.
2597.49 6		BCd h	J ^π : L(d,p)=0 and L(d,α)=0+(2) indicate a probable doublet.
2608.50 11		BCd h	J ^π : L(d,p)=0 and L(d,α)=0+(2) indicate a probable doublet.
2629.29 9	3 ⁺ ,4 ⁺	BCD H	J ^π : L(d,α)=4 and γ to 2 ⁺ .
2644 11	(1,2) ⁻ &	D H	
2664.44 6	1 ⁻ ,2 ⁻ &	BCD H	
2681.16 4	1 ⁺ [#]	BCd h	
2688.22 8	(1 ⁺) ^a	BCd h	
2707 11	3 ⁺ ,4 ⁺ ,5 ⁺ ^a	HI	
2739.16 7	2 ⁻ ,3 ⁻ ,4 ⁻ ^a	BCD H	
2767.86 12	(1) ⁺ ^a	BC H	

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Adopted Levels, Gammas (continued) ^{66}Cu Levels (continued)

E(level) [†]	J ^π	XREF	Comments
2799.85 7	(2) ⁻	BCD HI	J ^π : L(d,p)=0+(2) and γ to 4 ⁻ .
2813.84 9	1 ⁻ ,2 ⁻ &	BCD H	
2844.72 10	1 ⁻ ,2 ⁻ &	BCD H	
2867.69 7	0 ⁺ ,1 ⁺ ^a	BCD H	
2903 12	(3) ⁺ ^a	D HI	
2943.33 14	(1 ⁻ ,2 ⁻)&	BCd h	
2948.76 8	(1 ⁻ ,2 ⁻)&	BCd h	
2953.35 9	(1,2) ⁻ &	BCD HI	
2987.96 21		BCD H	
3010.18 10	3 ⁺ ,4 ⁺ ,5 ⁺ ^a	BCD H	
3026.09 6	(1 ⁻ ,2 ⁻)&	BCd	
3045.95 13	(1 ⁻ ,2 ⁻)&	BCd I	
3048.82 11		BC	
3077.29 12	(1 ⁻ ,2 ⁻)&	BCd f	
3091.37 6	(1 ⁻ ,2 ⁻)&	BCd f	
3099.08 8	(2 ⁺ ,3,4 ⁺)	BCd f	J ^π : γ's to 2 ⁺ and 4 ⁺ .
3110.86 6		BCd f	
3141.74 15		BCd	
3151.97 9		BCd	
3165.77 7	(1,2,3) ⁺	BCd I	J ^π : γ's to 1 ⁺ and 3 ⁺ ; L(t,α)=3.
3208.95 8		BC	
3247.83 8		BCD	
3287.36 9	^{+b}	BCD F I	
3333.77 5	^{+b}	BCD I	
3342.06 11		BC	
3371.23 9		BC	
3397.63 11		BCD	
3432.37 13		BCD	
3479.48 12		BC	
3487.05 10	(2 ⁺ ,3 ⁺)	BCD	J ^π : γ's to 1 ⁺ and 4 ⁺ .
3508.84 11	(2 ⁺ ,3,4 ⁺)	BC	J ^π : γ's to 2 ⁺ and 4 ⁺ .
3535.49 7		BCD	
3559 8		D I	J ^π : L(d,p)=2 and L(t,α)=3 indicate a probable doublet.
3583.53 12		BCD	
3601.00 6		BC	
3636.56 7	1 ⁻ ,2 ⁻ &	BCD	
3672		I	
3705.08 11	2 ⁻ ,3 ⁻ ,4 ⁻	BCD	J ^π : L(d,p)=2 and γ to 4 ⁻ .
3710 30	(9 ⁺)@	F	Configuration=((π g _{9/2})(ν g _{9/2}))9 ⁺
3750.30 8		BCD	
3780.19 10		BCD	
3814.66 10	1 ⁻ ,2 ⁻ &	BCD	
3875		I	
3890 30	(7 ⁺)@	F	
3896.38 8	(2 ⁻)	BCD	J ^π : L(d,p)=(0) and γ to (4 ⁻).
3934.58 15	(1 ⁻ ,2 ⁻)&	BCD	
4013.69 12	(1 ⁺ ,2,3 ⁺)	BCD	J ^π : γ's to (1 ⁺) and 3 ⁺ .
4056.98 8	(1,2) ⁻ &	BCD	
4080		I	
4116.41 10		BCD	
4180 30	(7 ⁺)@	F	

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Adopted Levels, Gammas (continued) ^{66}Cu Levels (continued)

<u>E(level)[†]</u>	<u>J^π</u>	<u>XREF</u>
4250.25	(1,2) ⁻ &	D
4300.23		BCD
4462.7010	(1,2) ⁻ &	BCD
4527.919	(1,2) ⁻ &	BCD
4850.768		BC
5077.218		BC

[†] From thermal-neutron capture data.

[‡] From tensor-analyzing power data in $^{68}\text{Zn}(\text{d},\alpha)$, $\text{L}(\text{d},\text{p})$ and $\text{L}(\text{d},\alpha)$.

From circular-polarization data for polarized neutron capture γ rays assumed to be pure E1 transitions combined with $\text{L}(\text{d},\text{p})$ and $\text{L}(\text{d},\alpha)$.

@ From DWBA analysis of (α,d) data.

& From L-transfer in $^{65}\text{Cu}(\text{d},\text{p})$.

^a From L-transfer in $^{68}\text{Zn}(\text{d},\alpha)$.

^b From L-transfer in $^{67}\text{Zn}(\text{t},\alpha)$.

 $\gamma(^{66}\text{Cu})$

<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_γ[†]</u>	<u>I_γ[‡]</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.</u>	<u>Comments</u>
185.953	2 ⁺	186.01 5	100.0	0.0	1 ⁺		
237.822		237.821 11	100.0	0.0	1 ⁺		
275.030	3 ⁺	89.18 4	100.00 24	185.953	2 ⁺		
		274.92 9	1.40 24	0.0	1 ⁺		
385.782	(1 ⁺)	199.90 7	3.2 5	185.953	2 ⁺		
		385.781 12	100.0 5	0.0	1 ⁺		
465.165	2 ⁺	190.10 3	3.8 5	275.030	3 ⁺		
		279.33 11	1.6 4	185.953	2 ⁺		
		465.152 12	100.0 6	0.0	1 ⁺		
590.75	4 ⁺	315.711 21	100.0	275.030	3 ⁺		
729.824	3 ⁺	454.8 5	10 5	275.030	3 ⁺		
		543.852 13	100 5	185.953	2 ⁺		
822.691	2 ⁺	357.561 21	12.2 9	465.165	2 ⁺		
		436.912 12	47.2 19	385.782	(1 ⁺)		
		636.68 3	7.3 4	185.953	2 ⁺		
		822.676 16	100.0 17	0.0	1 ⁺		
1008.49		622.69 10	100.0	385.782	(1 ⁺)		
1017.138	3 ⁺	194.47 3	28.2 25	822.691	2 ⁺		
		426.372 21	20.7 10	590.75	4 ⁺		
		551.953 22	18.0 9	465.165	2 ⁺		
		831.196 16	100.0 22	185.953	2 ⁺		
1052.082	1 ⁺	586.79 5	16.7 10	465.165	2 ⁺		
		814.27 4	39.3 16	237.822			
		1052.19 3	100.0 18	0.0	1 ⁺		
1154.2	(6) ⁻	563.34	100	590.75	4 ⁺	[M2]	B(M2)(W.u.)=0.0558 20 Mult.: from J ^π of initial and final levels.
1158.09	(2 ⁺ ,3)	335.73 11	69 7	822.691	2 ⁺		
		567.35 9	46 4	590.75	4 ⁺		
		883.03 4	100 5	275.030	3 ⁺		
1212.515	1 ⁺ ,2 ⁺	937.507 17	63.9 15	275.030	3 ⁺		
		1212.52 4	100.0 15	0.0	1 ⁺		
1247.152	4 ⁻	972.108 18	100.0	275.030	3 ⁺		
1344.012	1 ⁺	878.816 24	100 3	465.165	2 ⁺		

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Adopted Levels, Gammas (continued) $\gamma(^{66}\text{Cu})$ (continued)

$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\ddagger$	E_f	J_f^π
1344.012	1^+	958.25 9	35.6 24	385.782	(1^+)
		1343.4 8	3.3 18	0.0	1^+
1439.408	$(1^+, 2, 3^+)$	422.01 12	5.2 8	1017.138	3^+
		1439.37 3	100.0 8	0.0	1^+
1547.39	$1^+, 2^+, 3^+$	956.74 6	84 4	590.75	4^+
		1161.63 16	17.7 19	385.782	(1^+)
		1272.32 4	100 4	275.030	3^+
1560.15	$+$	217.0 5	15 8	1344.012	1^+
		1322.16 14	100 8	237.822	
1577.34	$1^+, 2^+, 3^+$	847.42 5	100.0	729.824	3^+
1678.00	$1^+, 2^+$	100.15 23	19 6	1577.34	$1^+, 2^+, 3^+$
		334.03 16	21 4	1344.012	1^+
		948.09 3	48.9 25	729.824	3^+
		1678.19 4	100 5	0.0	1^+
1694.07	$(1)^+$	482.69 10	100	1212.515	$1^+, 2^+$
1713.20	(1^+)	661.22 9	56 5	1052.082	1^+
		983.21 8	100 5	729.824	3^+
1735.96	$(4, 5)^-$	1006.19 6	100.0	729.824	3^+
1745.89	$(1, 2)$	1471.05 8	13.4 10	275.030	3^+
		1559.86 6	100 3	185.953	2^+
		1746.2 3	19 3	0.0	1^+
1820.352	1^+	768.305 23	44.4 13	1052.082	1^+
		997.648 18	65.0 16	822.691	2^+
		1355.18 4	100 4	465.165	2^+
		1582.51 3	71 3	237.822	
		1820.21 6	41.2 23	0.0	1^+
1911.31		1088.64 10	100 7	822.691	2^+
		1180.8 3	28 7	729.824	3^+
1927.19	$1^+, 2^+$	714.66 19	10.1 19	1212.515	$1^+, 2^+$
		909.99 22	6.0 12	1017.138	3^+
		1197.21 7	100.0 21	729.824	3^+
1971.18	2^-	723.99 5	100.0 23	1247.152	4^-
		758.83 9	31.8 23	1212.515	$1^+, 2^+$
2018.36	$1^+, 2^+, 3^+$	1288.63 21	3.3 7	729.824	3^+
		1743.40 5	100 3	275.030	3^+
		1832.39 3	52.3 25	185.953	2^+
2023.315	$(1, 2)$	111.93 13	6.7 14	1911.31	
		583.62 8	8.7 9	1439.408	$(1^+, 2, 3^+)$
		679.30 5	7.0 6	1344.012	1^+
		810.47 19	11.0 16	1212.515	$1^+, 2^+$
		1293.71 7	17.0 14	729.824	3^+
		1557.4 7	18 7	465.165	2^+
		1637.49 4	100 6	385.782	(1^+)
		1748.0 3	25 7	275.030	3^+
		1837.44 4	30.2 23	185.953	2^+
2124.09	2^-	1849.4 3	100 10	275.030	3^+
		2123.95 19	92 10	0.0	1^+
2163.12	$-$	2163.22 11	100.0	0.0	1^+
2166.01	$+$	1980.01 8	100.0	185.953	2^+
2260.66		1208.8 9	20 11	1052.082	1^+
		1874.41 20	36 5	385.782	(1^+)
		1985.73 14	100 10	275.030	3^+
2363.63		1633.89 6	100.0	729.824	3^+
2394.93		2120.25 25	100.0	275.030	3^+
2449.19		2448.7 4	100.0	0.0	1^+

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Adopted Levels, Gammas (continued)

$\gamma(^{66}\text{Cu})$ (continued)					
$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\ddagger$	E_f	J_f^π
2453.05	$(1^+, 2, 3^+)$	632.67 6	84 6	1820.352	1^+
		1723.07 12	100 7	729.824	3^+
		2177.87 15	99 9	275.030	3^+
2503.00	$(2^+, 3^+)$	1450.6 3	100 10	1052.082	1^+
		1912.13 17	96 10	590.75	4^+
2520.77	$2^-, 3^-, 4^-$	1929.63 22	100.0	590.75	4^+
2560.43	2^-	1313.29 17	100 13	1247.152	4^-
		2561.3 6	52 13	0.0	1^+
2586.27		1146.79 7	25.7 16	1439.408	$(1^+, 2, 3^+)$
		1428.18 5	100 4	1158.09	$(2^+, 3)$
		2400.0 3	21 4	185.953	2^+
2597.49		234.26 14	53 9	2363.63	
		1253.28 8	51 4	1344.012	1^+
		2411.58 12	100 7	185.953	2^+
2608.50		2608.5 3	100.0	0.0	1^+
2629.29	$3^+, 4^+$	1081.95 12	100 8	1547.39	$1^+, 2^+, 3^+$
		1806.57 17	89 8	822.691	2^+
2664.44	$1^-, 2^-$	1506.57 15	58 5	1158.09	$(2^+, 3)$
		1647.33 7	100 6	1017.138	3^+
		2389.3 4	26 6	275.030	3^+
		2664.17 16	86 7	0.0	1^+
2681.16	1^+	753.91 4	90 4	1927.19	$1^+, 2^+$
		860.85 10	27 3	1820.352	1^+
		987.18 3	100 4	1694.07	$(1)^+$
		1468.56 12	100 7	1212.515	$1^+, 2^+$
		1523.0 4	10 3	1158.09	$(2^+, 3)$
		1629.2 3	34 6	1052.082	1^+
		2680.38 13	91 6	0.0	1^+
2688.22	(1^+)	2450.91 23	56 7	237.822	
		2687.88 12	100 7	0.0	1^+
2739.16	$2^-, 3^-, 4^-$	1394.90 9	100 7	1344.012	1^+
		2553.1 3	54 7	185.953	2^+
2767.86	$(1)^+$	1220.4 6	54 16	1547.39	$1^+, 2^+, 3^+$
		1944.97 24	100 16	822.691	2^+
2799.85	$(2)^-$	1053.88 20	81 13	1745.89	$(1, 2)$
		1553.1 3	100 13	1247.152	4^-
		2615.2 8	32 11	185.953	2^+
2813.84	$1^-, 2^-$	993.48 17	36 5	1820.352	1^+
		1374.41 14	100 7	1439.408	$(1^+, 2, 3^+)$
		1761.6 6	26 9	1052.082	1^+
2844.72	$1^-, 2^-$	2114.78 20	89 8	729.824	3^+
		2569.26 21	100 8	275.030	3^+
2867.69	$0^+, 1^+$	2402.83 24	32 4	465.165	2^+
		2629.61 12	100 4	237.822	
2943.33	$(1^-, 2^-)$	2557.8 5	64 15	385.782	(1^+)
		2758.8 5	100 15	185.953	2^+
2948.76	$(1^-, 2^-)$	340.19 12	50 7	2608.50	
		1401.26 21	23 4	1547.39	$1^+, 2^+, 3^+$
		1509.64 18	55 6	1439.408	$(1^+, 2, 3^+)$
		2673.42 16	100 7	275.030	3^+
2953.35	$(1, 2)^-$	289.2 3	17 7	2664.44	$1^-, 2^-$
		1901.52 16	46 6	1052.082	1^+
		2131.25 22	34 6	822.691	2^+
		2488.4 4	73 14	465.165	2^+
		2952.64 21	100 11	0.0	1^+

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Adopted Levels, Gammas (continued)

$\gamma(^{66}\text{Cu})$ (continued)					
$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\ddagger$	E_f	J_f^π
2987.96		1017.1 3	100 17	1971.18	2 ⁻
		2986.9 6	85 17	0.0	1 ⁺
3010.18	3 ⁺ , 4 ⁺ , 5 ⁺	1666.15 13	100 13	1344.012	1 ⁺
		2545.2 5	48 13	465.165	2 ⁺
		2824.8 6	70 16	185.953	2 ⁺
3026.09	(1 ⁻ , 2 ⁻)	1280.20 7	48 3	1745.89	(1, 2)
		3025.77 12	100 3	0.0	1 ⁺
3045.95	(1 ⁻ , 2 ⁻)	2315.7 3	100 14	729.824	3 ⁺
		2770.7 8	35 14	275.030	3 ⁺
3048.82		2862.63 13	100.0	185.953	2 ⁺
3077.29	(1 ⁻ , 2 ⁻)	556.46 22	21 5	2520.77	2 ⁻ , 3 ⁻ , 4 ⁻
		2059.9 3	25 5	1017.138	3 ⁺
		2254.5 9	32 16	822.691	2 ⁺
		2612.1 4	100 14	465.165	2 ⁺
		2890.6 3	48 9	185.953	2 ⁺
3091.37	(1 ⁻ , 2 ⁻)	1652.01 6	100 5	1439.408	(1 ⁺ , 2, 3 ⁺)
		2039.33 25	15.5 24	1052.082	1 ⁺
		3090.95 25	30 4	0.0	1 ⁺
3099.08	(2 ⁺ , 3, 4 ⁺)	2082.6 3	44 12	1017.138	3 ⁺
		2508.3 7	72 23	590.75	4 ⁺
		2713.3 5	61 17	385.782	(1 ⁺)
		2912.57 18	100 14	185.953	2 ⁺
3110.86		1139.65 4	100 5	1971.18	2 ⁻
		3111.4 4	23 5	0.0	1 ⁺
3141.74		2866.61 15	100.0	275.030	3 ⁺
3151.97		788.42 8	92 8	2363.63	
		2876.19 21	100 8	275.030	3 ⁺
3165.77	(1, 2, 3) ⁺	2436.7 4	19 5	729.824	3 ⁺
		2700.26 10	100 5	465.165	2 ⁺
		3165.8 3	30 4	0.0	1 ⁺
3208.95		1042.86 11	100 6	2166.01	⁺
		3208.1 3	35 6	0.0	1 ⁺
3247.83		1670.32 11	100.0	1577.34	1 ⁺ , 2 ⁺ , 3 ⁺
3287.36	+	2821.76 13	100 3	465.165	2 ⁺
		2901.2 3	16 3	385.782	(1 ⁺)
3333.77	+	533.96 7	31.1 25	2799.85	(2) ⁻
		747.48 3	100.0 25	2586.27	
3342.06		3067.2 3	100.0	275.030	3 ⁺
3371.23		741.94 3	100 6	2629.29	3 ⁺ , 4 ⁺
		2641.3 3	52 6	729.824	3 ⁺
3397.63		2806.9 3	100 15	590.75	4 ⁺
		3121.3 5	79 15	275.030	3 ⁺
3432.37		1408.4 3	20 5	2023.315	(1, 2)
		2380.34 18	100 5	1052.082	1 ⁺
3479.48		665.60 9	67 10	2813.84	1 ⁻ , 2 ⁻
		3241.9 4	100 10	237.822	
3487.05	(2 ⁺ , 3 ⁺)	1515.3 4	25 9	1971.18	2 ⁻
		2478.2 5	78 17	1008.49	
		2896.9 4	39 9	590.75	4 ⁺
		3021.72 21	100 12	465.165	2 ⁺
		3486.2 6	36 9	0.0	1 ⁺
3508.84	(2 ⁺ , 3, 4 ⁺)	2492.0 8	19 8	1017.138	3 ⁺
		2918.0 4	11.6 25	590.75	4 ⁺
		3270.78 14	100 8	237.822	
		3322.2 6	13 5	185.953	2 ⁺

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued) $\gamma(^{66}\text{Cu})$ (continued)

$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\ddagger$	E_f	J_f^π
3535.49		457.6 5	1.0×10^2 3	3077.29	$(1^-, 2^-)$
		1799.84 14	36 8	1735.96	$(4, 5)^-$
		1975.26 12	48 12	1560.15	+
		2095.76 13	52 12	1439.408	$(1^+, 2, 3^+)$
3583.53		537.55 8	57 9	3045.95	$(1^-, 2^-)$
		2144.22 24	100 12	1439.408	$(1^+, 2, 3^+)$
		2371.4 4	69 18	1212.515	$1^+, 2^+$
		3307.4 6	57 15	275.030	3^+
3601.00		114.36 16	23 5	3487.05	$(2^+, 3^+)$
		1854.3 4	12 3	1745.89	$(1, 2)$
		2023.55 6	100 6	1577.34	$1^+, 2^+, 3^+$
		2870.7 5	17 5	729.824	3^+
3636.56	$1^-, 2^-$	1115.48 23	35 6	2520.77	$2^-, 3^-, 4^-$
		1890.61 18	50 6	1745.89	$(1, 2)$
		2423.94 18	68 8	1212.515	$1^+, 2^+$
		2584.3 4	32 8	1052.082	1^+
		2619.14 24	100 12	1017.138	3^+
		3045.46 23	81 9	590.75	4^+
		3450.3 3	33 6	185.953	2^+
3705.08	$2^-, 3^-, 4^-$	1682.00 17	79 8	2023.315	$(1, 2)$
		2457.66 18	100 8	1247.152	4^-
3750.30		651.10 13	35 5	3099.08	$(2^+, 3, 4^+)$
		1120.8 4	23 6	2629.29	$3^+, 4^+$
		1732.27 17	51 6	2018.36	$1^+, 2^+, 3^+$
		2004.42 10	100 8	1745.89	$(1, 2)$
		3563.7 4	49 8	185.953	2^+
3780.19		770.64 25	72 9	3010.18	$3^+, 4^+, 5^+$
		1416.38 11	100 9	2363.63	
3814.66	$1^-, 2^-$	417.03 6	93 9	3397.63	
		1843.71 14	100 10	1971.18	2^-
		2991.1 4	84 16	822.691	2^+
		3348.5 3	78 10	465.165	2^+
		3814.2 4	45 8	0.0	1^+
3896.38	(2^-)	1298.87 6	100 5	2597.49	
		2160.4 3	26 5	1735.96	$(4, 5)^-$
		3896.3 4	22 3	0.0	1^+
3934.58	$(1^-, 2^-)$	1916.35 22	82 9	2018.36	$1^+, 2^+, 3^+$
		3548.6 3	100 9	385.782	(1^+)
4013.69	$(1^+, 2, 3^+)$	2996.78 16	100 4	1017.138	3^+
		3627.9 3	33 4	385.782	(1^+)
4056.98	$(1, 2)^-$	1607.34 18	25 3	2449.19	
		3782.18 17	66 4	275.030	3^+
		3871.04 11	100 4	185.953	2^+
4116.41		1303.03 22	20 4	2813.84	$1^-, 2^-$
		3293.49 11	100 4	822.691	2^+
4300.2		3476.9 5	100 17	822.691	2^+
		3835.8 5	48 13	465.165	2^+
		4024.9 7	60 17	275.030	3^+
4462.70	$(1, 2)^-$	4276.58 10	100.0	185.953	2^+
4527.91	$(1, 2)^-$	1728.01 6	100 7	2799.85	$(2)^-$
		2708.2 4	28 5	1820.352	1^+
		2968.8 4	26 5	1560.15	+
4850.76		1773.5 3	15 3	3077.29	$(1^-, 2^-)$
		3137.18 17	41 4	1713.20	(1^+)
		3172.95 11	100 4	1678.00	$1^+, 2^+$

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{66}\text{Cu})$ (continued)

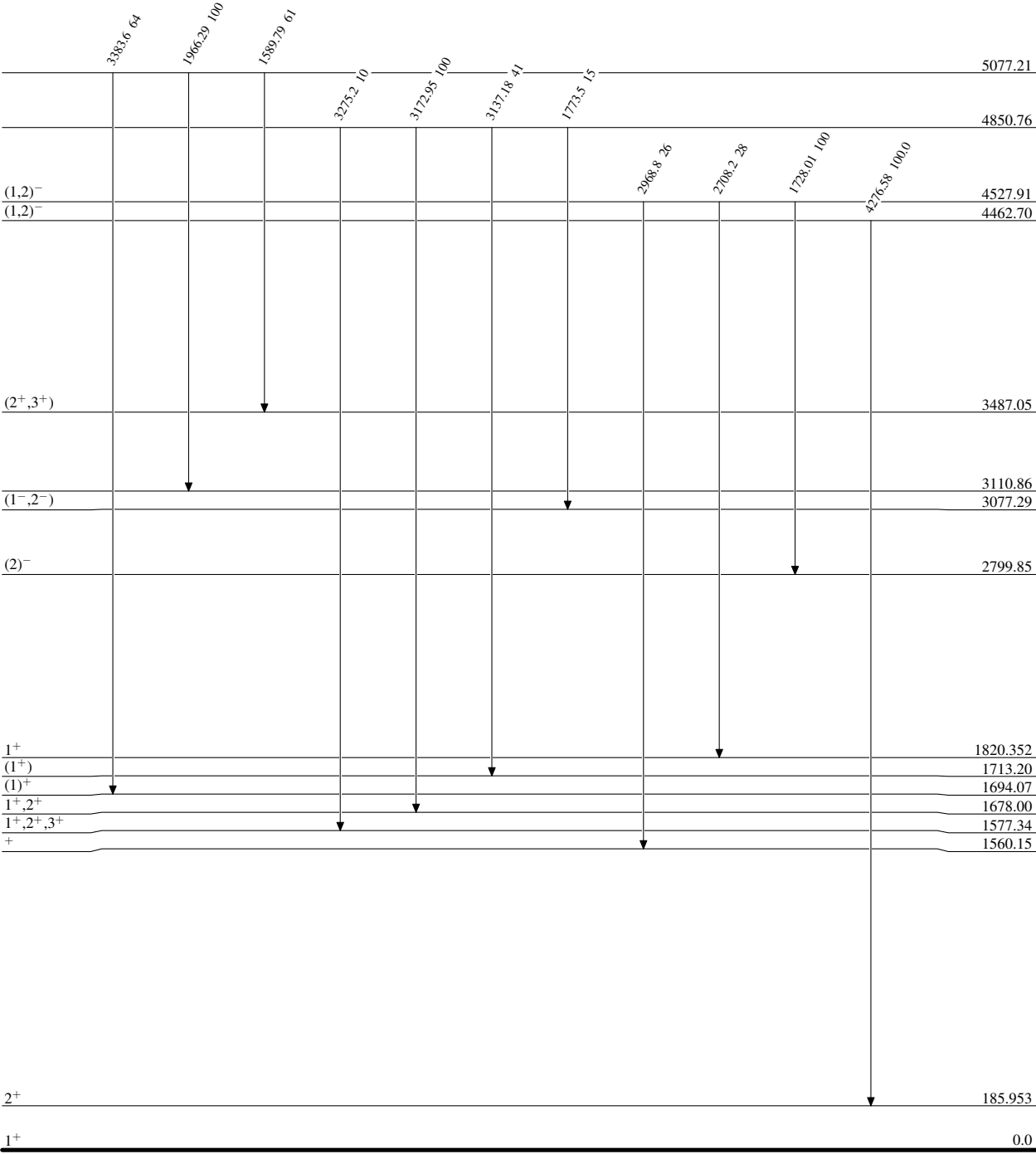
<u>E_i(level)</u>	<u>J^{π}_i</u>	<u>E_{γ}[†]</u>	<u>I_{γ}[‡]</u>	<u>E_f</u>	<u>J^{π}_f</u>
4850.76		3275.2 7	10 4	1577.34	1 ⁺ ,2 ⁺ ,3 ⁺
5077.21		1589.79 20	61 7	3487.05	(2 ⁺ ,3 ⁺)
		1966.29 11	100 7	3110.86	
		3383.6 3	64 9	1694.07	(1) ⁺

[†] From thermal-neutron capture data.
[‡] Percent photon branching from each level.

Adopted Levels, Gammas

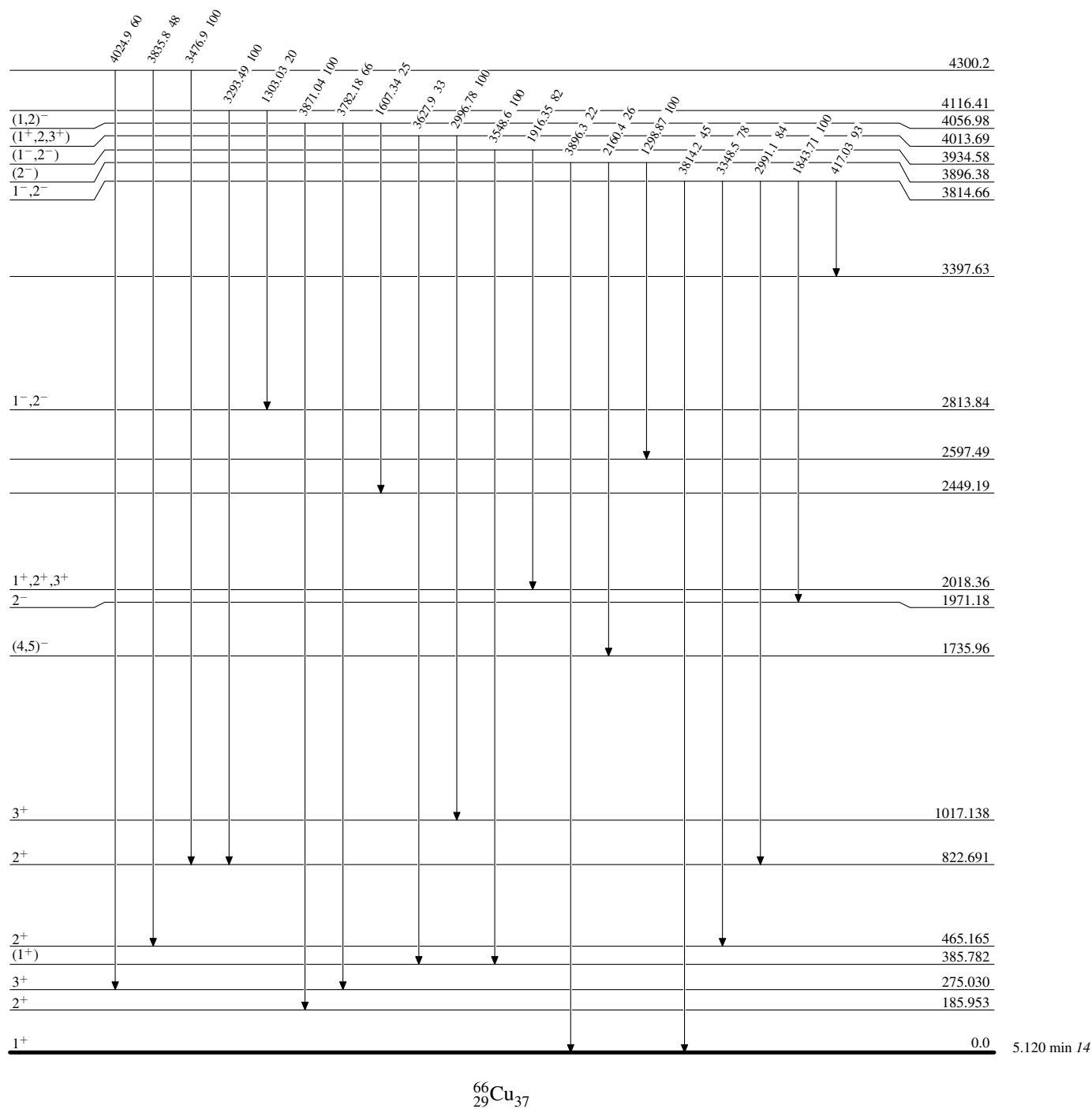
Level Scheme

Intensities: Relative photon branching from each level



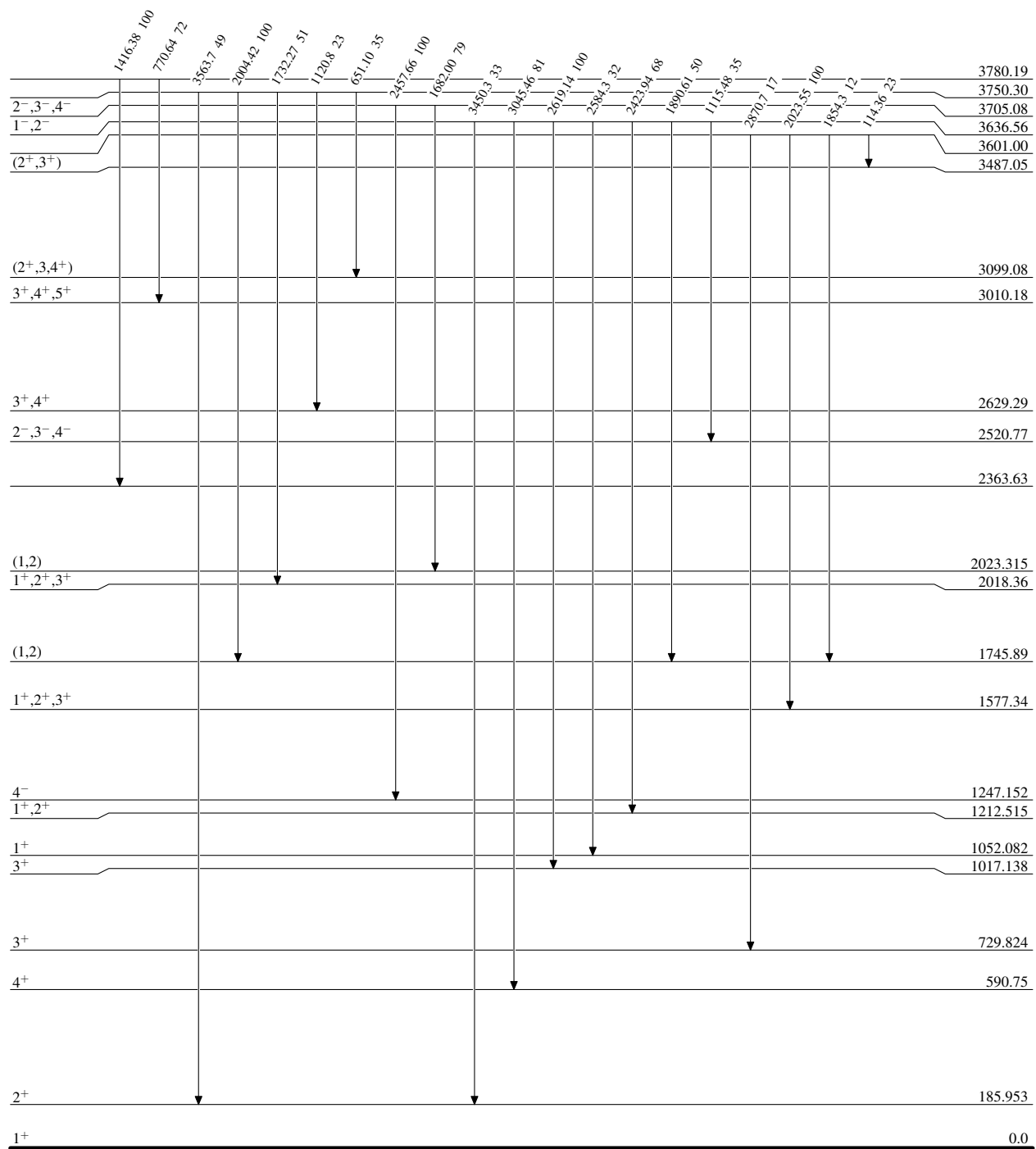
Adopted Levels, GammasLevel Scheme (continued)

Intensities: Relative photon branching from each level



Adopted Levels, GammasLevel Scheme (continued)

Intensities: Relative photon branching from each level

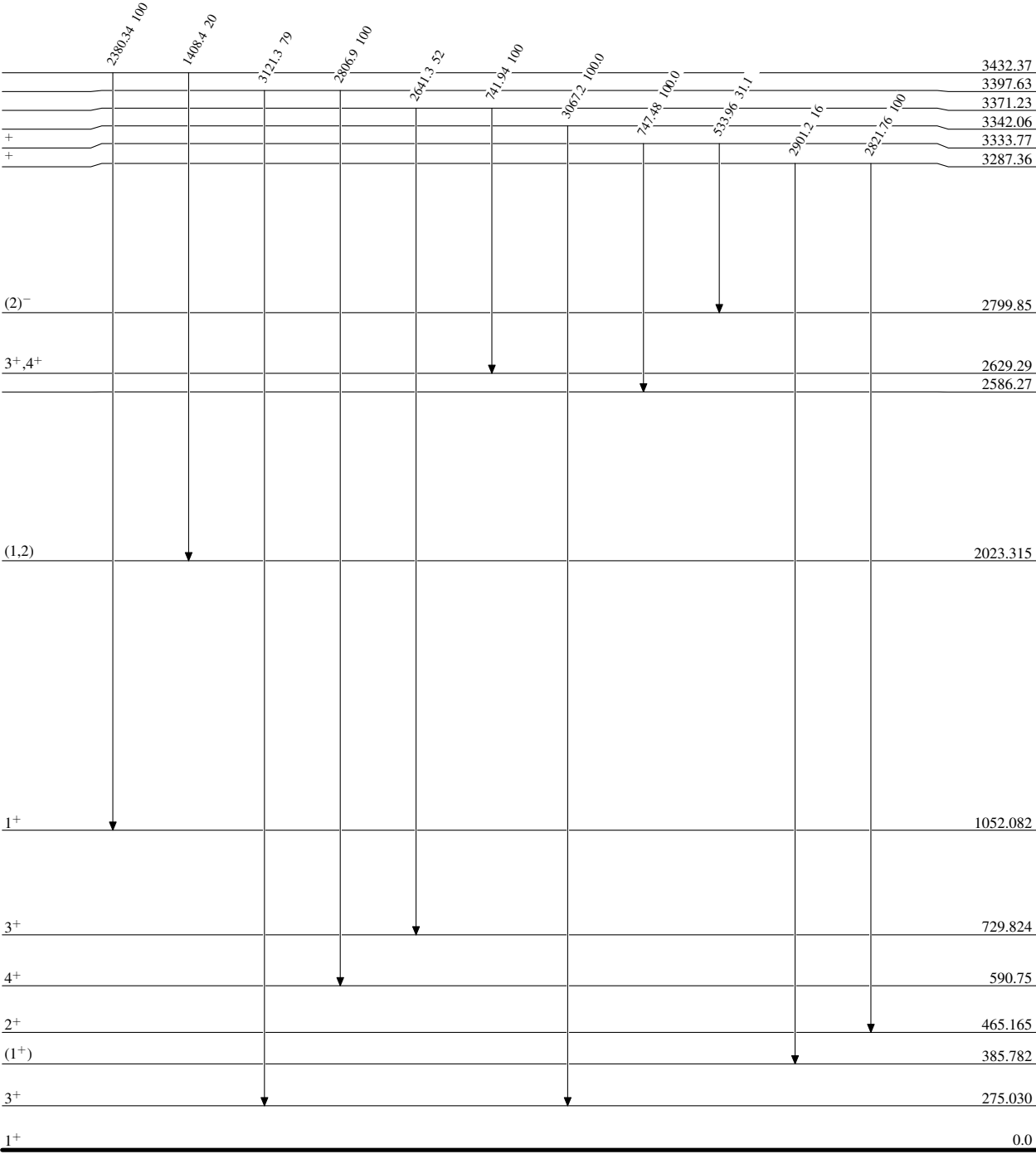


5.120 min 14

Adopted Levels, Gammas

Level Scheme (continued)

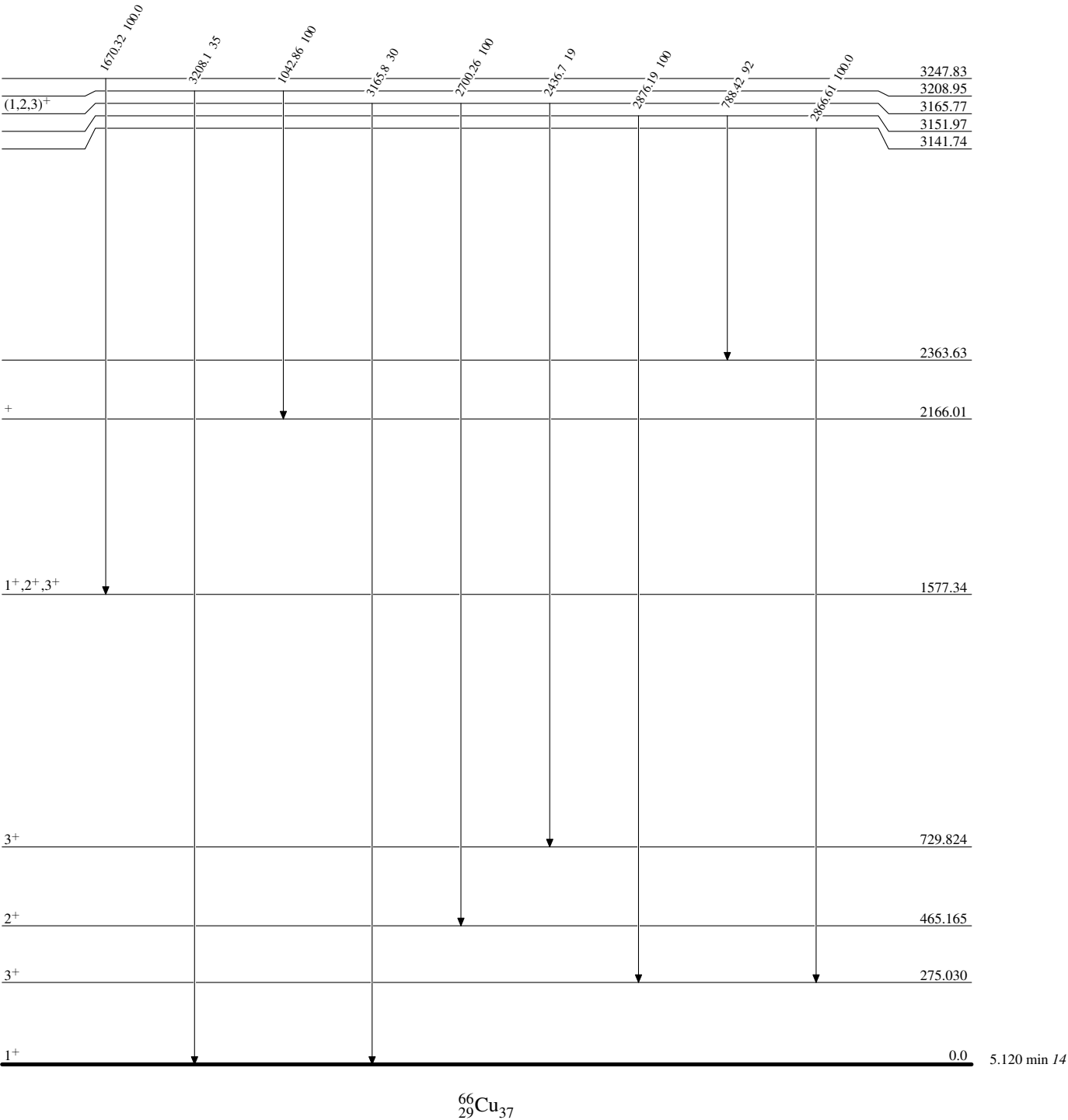
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

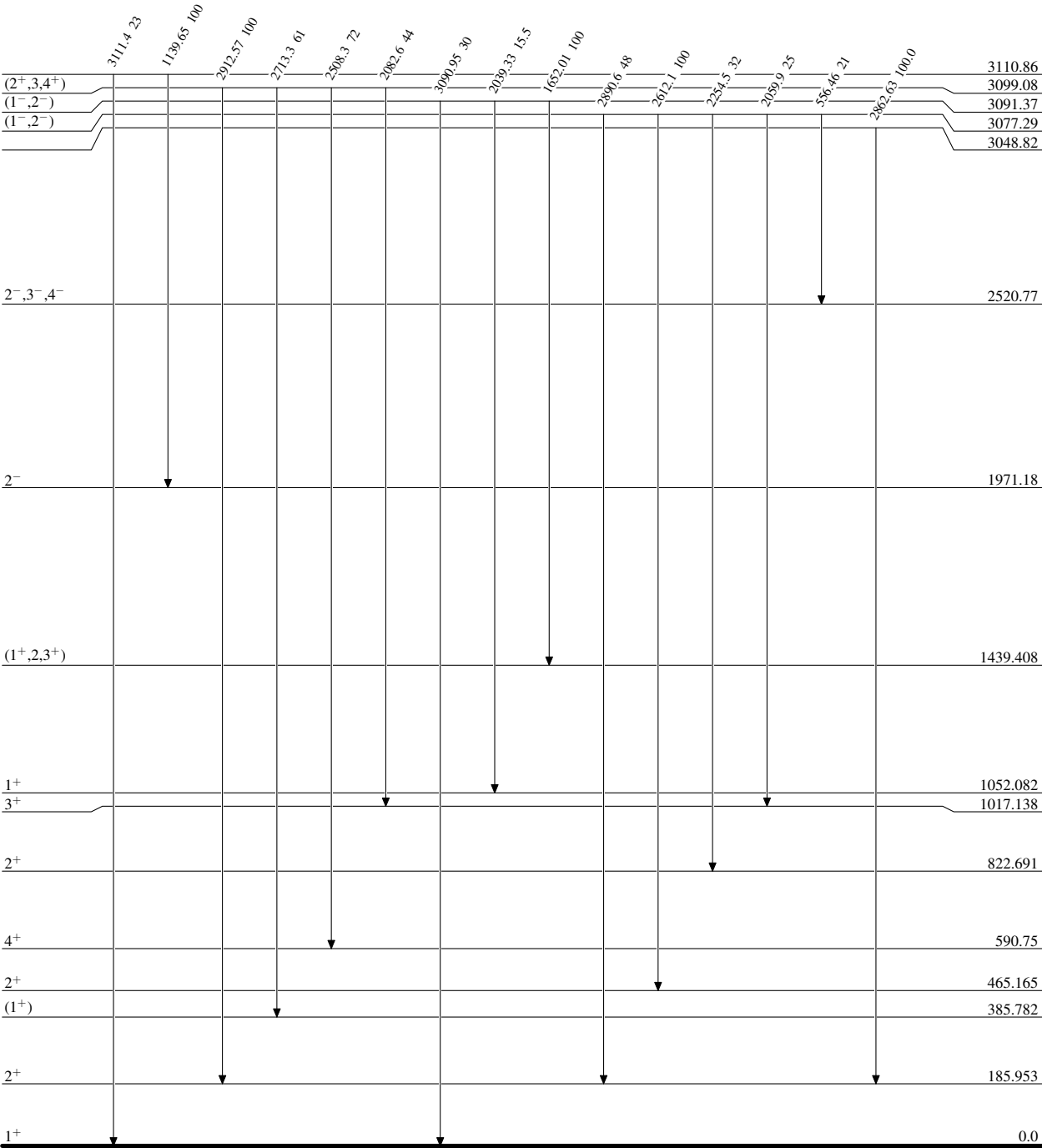


⁶⁶Cu₃₇

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



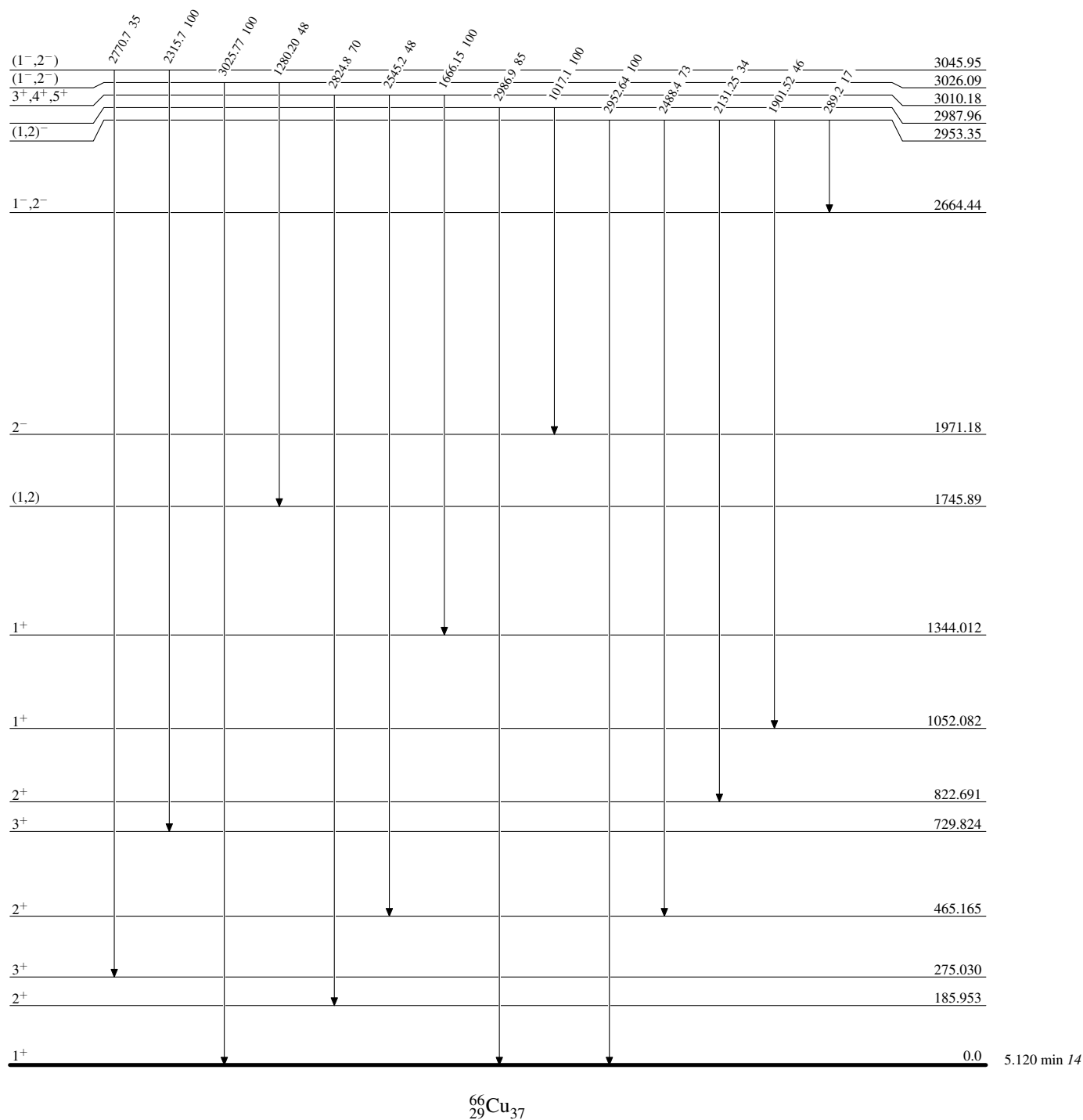
⁶⁶Cu₃₇

5.120 min 14

Adopted Levels, Gammas

Level Scheme (continued)

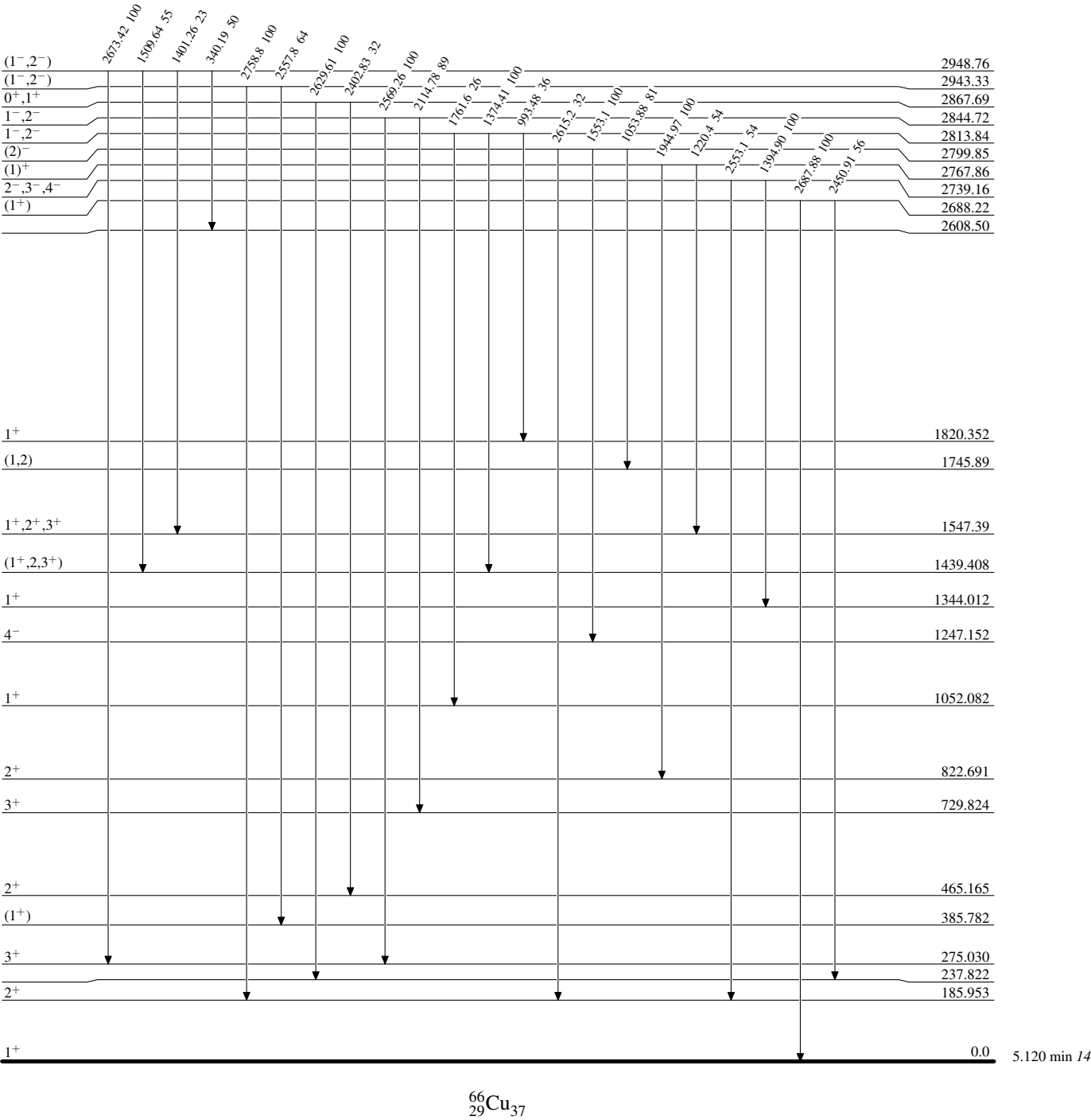
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

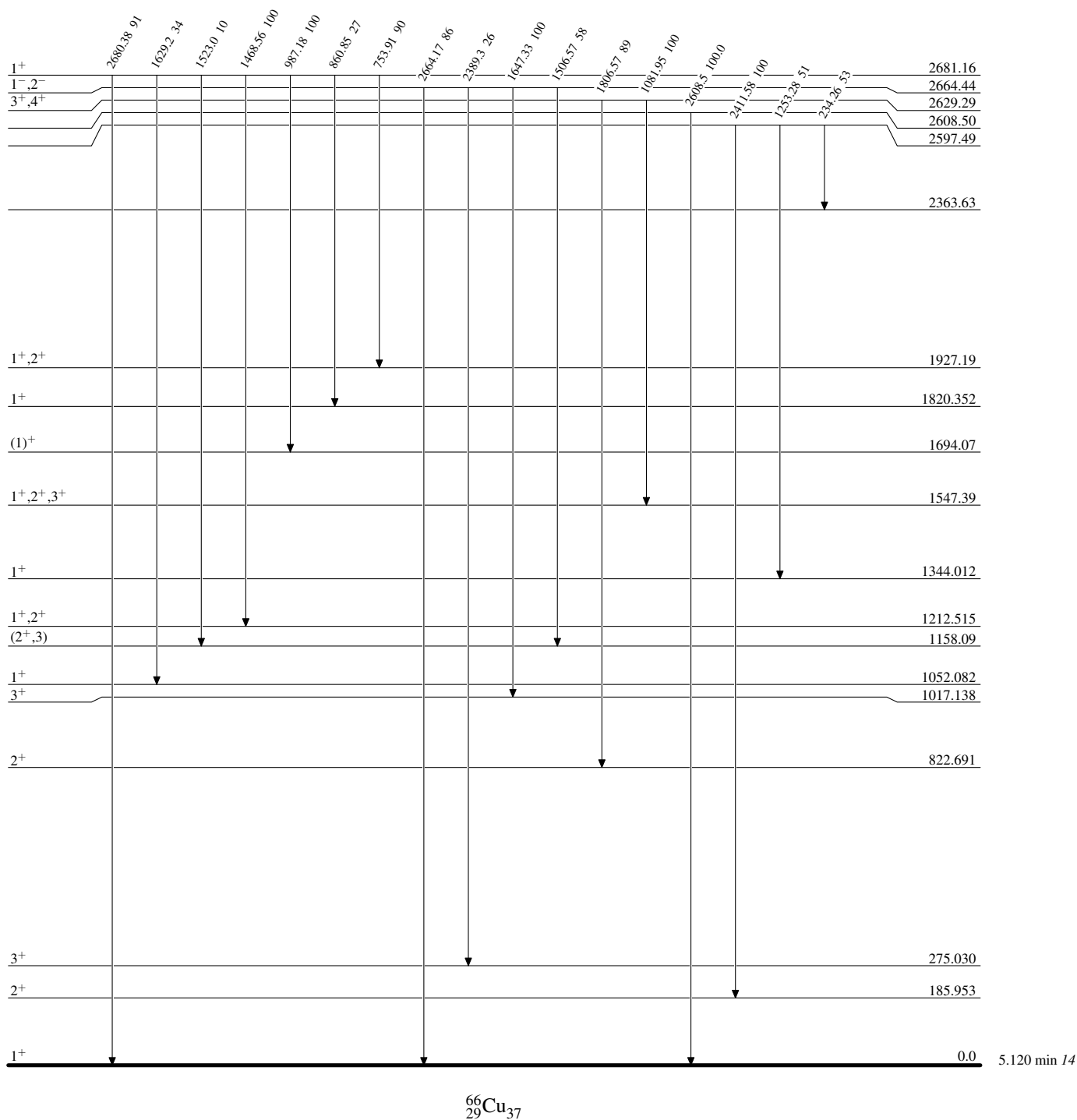
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

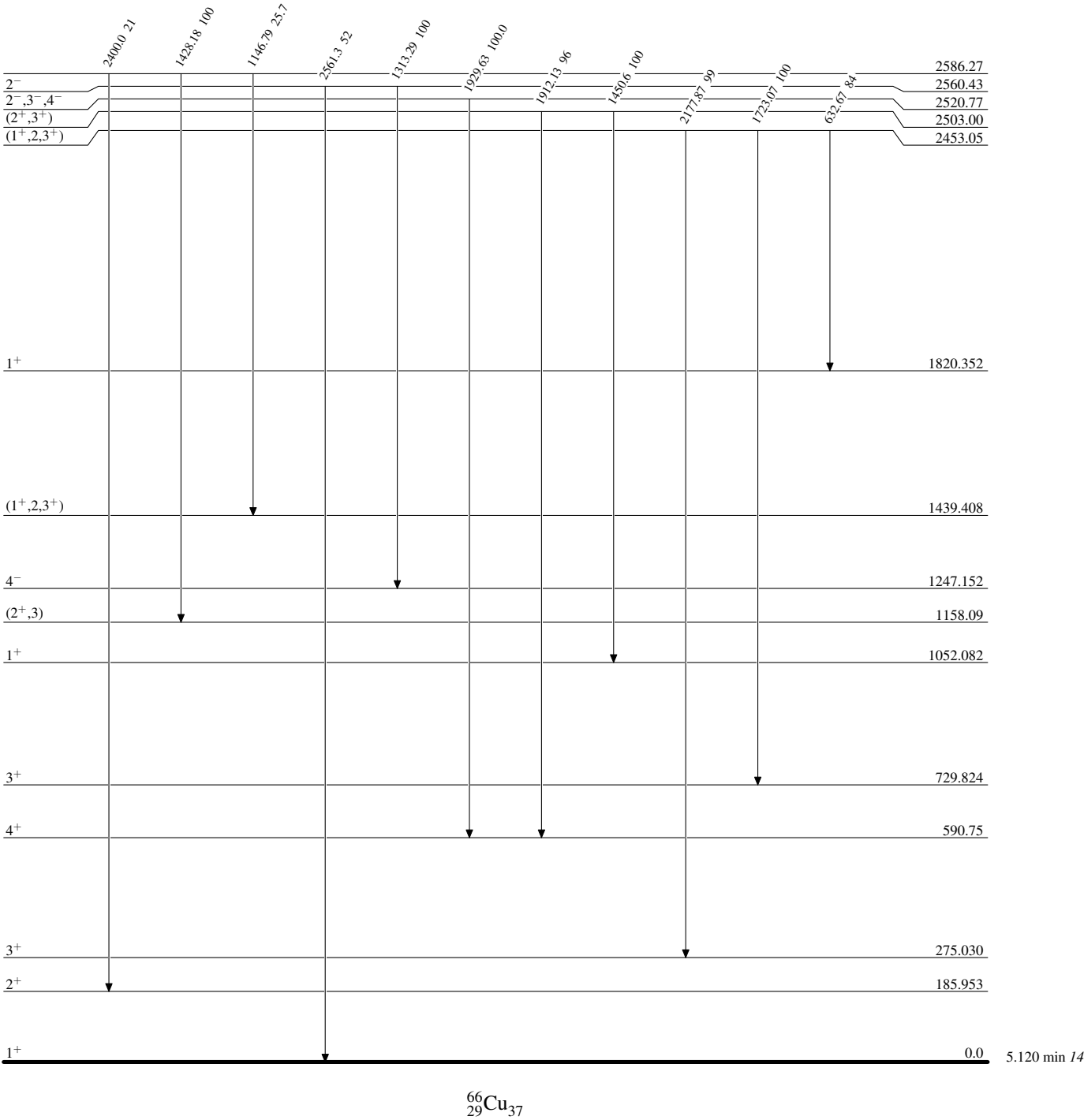
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

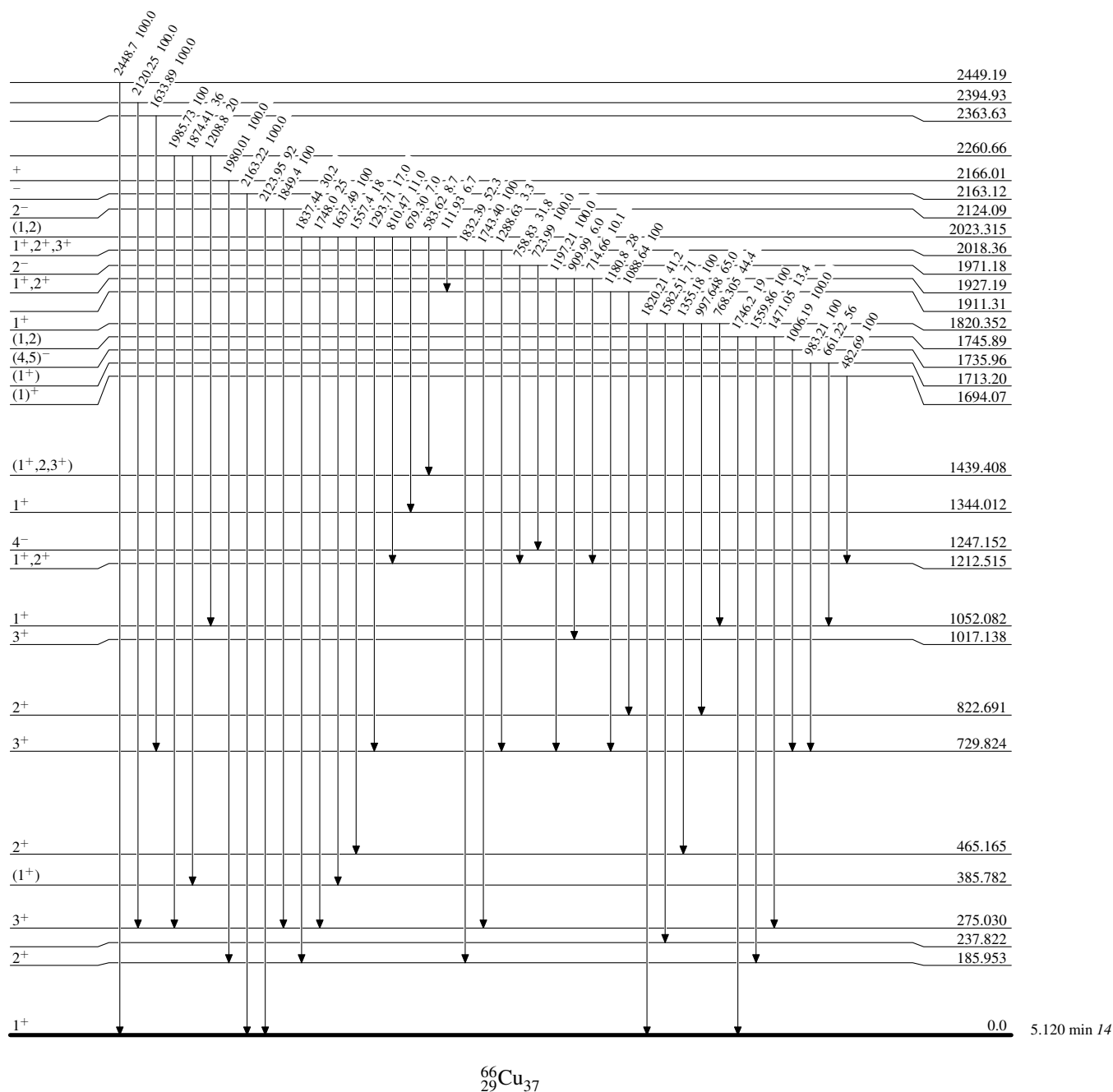


⁶⁶Cu₃₇

Adopted Levels, Gammas

Level Scheme (continued)

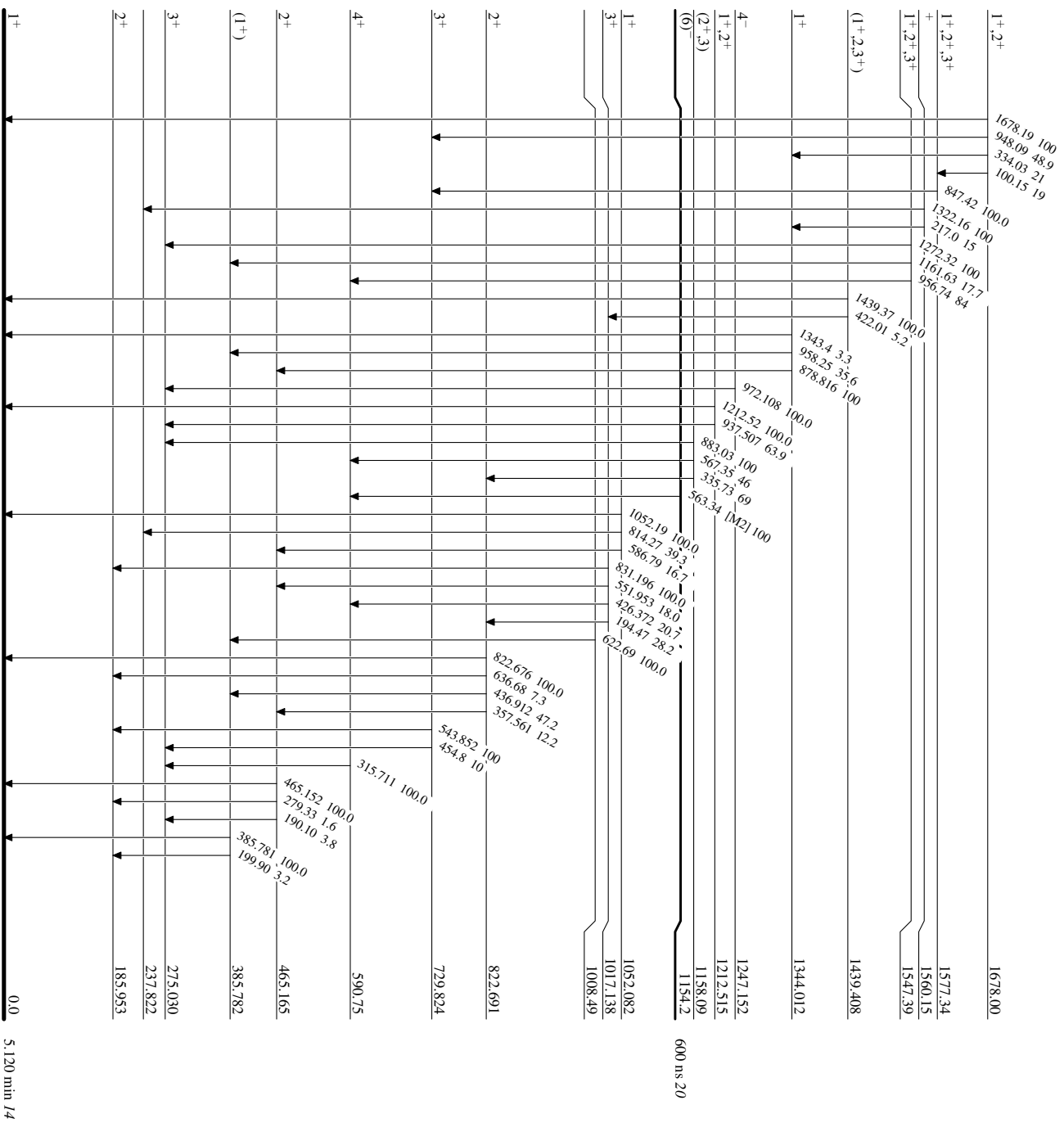
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

