Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Kazimierz Zuber, Balraj Singh	NDS 125, 1 (2015)	25-Jan-2015

$Q(\beta^-)=-5635$ *16*; S(n)=11710.6 *19*; S(p)=4800.3 *10*; $Q(\alpha)=-5063.8$ *11* 2012Wa38
S(2n)=21768.7 *11*, S(2p)=14332.7 *10* (2012Wa38).
^{61}Cu produced and identified by 1937Th01 (deuteron bombardment of Ni by 5 MeV deuterons followed by chemical separation), and 1937Ri01 (E=9 MeV alpha bombardment of Ni, chemical separation).
2010Vi07: measured spin, magnetic dipole moment and electric quadrupole moment, hyperfine structure study at ISOLDE-CERN using collinear and in-source laser spectroscopy.
Additional information 1.

^{61}Cu Levels

Cross Reference (XREF) Flags

A	^{61}Zn ε decay (89.1 s)	G	^{58}Ni(^{16}O,^{13}N)	M	^{60}Ni(α,t)
B	^{28}Si(^{36}Ar,3pγ)	H	^{59}Co(^{3}He,nγ)	N	^{61}Ni(p,n):resonances
C	^{40}Ca(^{24}Mg,3pγ)	I	^{60}Ni(p,γ):resonances	O	^{61}Ni(p,n),(p,nγ)
D	^{40}Ca(^{28}Si,α3pγ)	J	^{60}Ni(p,p),(p,p′):resonances	P	^{63}Cu(p,t)
E	^{58}Ni(α,p)	K	^{60}Ni(d,n)	Q	^{64}Zn(p,α)
F	^{58}Ni(α,pγ)	L	^{60}Ni(^{3}He,d)		

E(level)[†]	J^π[‡]	$T_{1/2}$[@]	XREF	Comments
0.0[&]	3/2⁻	3.339 h *8*	ABCDEFGHI KLM OPQ	%ε+%β⁺=100 μ=+2.1083 *5* (2011Vi03,2014StZZ) Q=−0.221 *10* (2011Vi03,2013StZZ,2014StZZ) J^π: atomic beam (1958Re10,1957Ni09); hyperfine structure (2011Vi03, 2010Vi07). Parity from L(^{3}He,d)=1. Dominant configuration=$\pi p_{3/2}$ from comparison of measured g factor with predictions from shell-model calculations (2010Vi07). μ,Q: from 2011Vi03 (also 2010Vi07), hyperfine structure using collinear laser spectroscopy. Value of Q=−0.211 *10* in 2011Vi03 and −0.21 *2* in 2010Vi07 re-evaluated by 2013StZZ. Other μ: +2.14 *4* (atomic beam, 1966Do01). $T_{1/2}$: weighted average of 3.32 h *3* (1954Be84), 3.27 h *10* (1956Ru45), 3.408 h *10* (1969Ri04, uncertainty increased to 0.030 in averaging procedure), 3.26 h *5* (1972Du09), 3.34 h *1* (1972Cr02), 3.39 h *4* (1973Ne02) 3.24 h *16* (1982Ma41), 3.333 *5* (1982Gr10, uncertainty is statistical, increased to 0.010 in averaging procedure), 3.36 h *6* (2006Ab30). Others: 3.4 h *1* (1937Ri01,1937Th01,1950Ku05,1950Bo34), 3.33 h (1948Co08).
475.05 *6*	1/2⁻	0.66 ps *9*	A EFGHI KLM OPQ	J^π: L(^{3}He,d)=L(d,n)=1, J not 3/2 from γ(θ) in (α,pγ).
970.07[a] *5*	5/2⁻	0.69 ps *13*	ABCDEFGHI KLM OPQ	J^π: L(^{3}He,d)=L(d,n)=3, log *ft*=7.1 from 3/2⁻ in ^{61}Zn ε decay.
1310.49[&] *7*	7/2⁻	0.53 ps *7*	ABCDEFGHI LM OPQ	XREF: G(1330). J^π: γ(θ) in (α,pγ); γ(lin pol) in (^{24}Mg,3pγ).
1394.29 *6*	5/2⁻	0.85 ps *14*	AB DEF HI KLM OPQ	J^π: L(^{3}He,d)=L(d,n)=3, γ(θ) in (α,pγ).
1660.42 *7*	3/2⁻	0.182 ps *19*	A EF HI O Q	J^π: log *ft*=5.30 from 3/2⁻; γ(θ) in (α,pγ).
1701	7/2⁻		G L	
1732.58 *5*	7/2⁻	>1.4 ps	ABCDEF HI O Q	J^π: γ(θ) in (α,pγ), π from M1+E2 from 1942,7/2⁻.
1904.20 *13*	5/2⁻	180 fs *19*	A F HI L O Q	J^π: L(^{3}He,d)=3; log *ft*=6.8 from 3/2⁻.
1919 *3*			E	
1932.52 *9*	3/2⁻	87 fs *10*	A EFGHI KLM O Q	XREF: G(1940). J^π: L(^{3}He,d)=L(d,n)=1,γ(θ) in (α,pγ).
1942.56 *11*	7/2⁻	1.2 ps +*11*−*4*	BCD F HI O Q	J^π: γ(θ) in (α,pγ), 1942γ to 3/2⁻ is E2.

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Adopted Levels, Gammas (continued)

^{61}Cu Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[@]	XREF	Comments
2088.89 *9*	(1/2)$^-$	40 fs *4*	A EFG I L O Q	J^π: L(^{3}He,d)=1; $\gamma(\theta)$ in (α,pγ). $T_{1/2}$: from (α,pγ). Other: 28.4 fs *35* in ^{61}Ni(p,nγ).
2203.41 *11*	5/2$^-$	173 fs *20*	EF I LM O Q	J^π: L(^{3}He,d)=3; E2 γ to 1/2$^-$.
2295.22 *9*	9/2$^-$	1.8 ps *6*	B DEF I O Q	J^π: $\gamma(\theta)$ in (α,pγ), 1325γ to 5/2$^-$ is E2.
2336.39[a] *8*	9/2$^-$	430 fs *50*	BCDEF I K O Q	J^π: ΔJ=2, E2 γ to 5/2$^-$. (5/2$^-$) proposed for a 2335 *5* group in (α,p) is in disagreement, if same level as 2336.4.
2358.13 *10*	3/2$^-$	197 fs *24*	A EF I L O Q	E(level): possibly doublet (1973Sa19). J^π: L(^{3}He,d)=1, $\gamma(\theta)$ in (α,pγ).
2399.35 *13*	7/2$^-$	121 fs *14*	EFG I L O Q	J^π: L(^{3}He,d)=3, $\gamma(\theta)$ in (α,pγ).
2472.49 *10*	3/2$^-$	75 fs *8*	A EF I L O Q	J^π: L(^{3}He,d)=1, $\gamma(\theta)$ in (α,pγ).
2583.77 *22*	3/2,5/2	102 fs *12*	F I O Q	XREF: O(2575).
2584.6 *5*	3/2,5/2	98 fs *12*	EF Q	J^π: $\gamma(\theta)$ in (α,pγ).
2611.99 *8*	9/2$^-$	280 fs *40*	BCDEF I Q	J^π: $\gamma(\theta)$ in (α,pγ), 879γ to 7/2$^-$ is M1+E2.
2627.12[&] *9*	11/2$^-$	>350 fs	BCDEF I	
2684.03 *18*	3/2$^-$	85 fs *12*	A EF I L Q	J^π: L(^{3}He,d)=1, $\gamma(\theta)$ in (α,pγ).
2706 *15*	9/2$^+$		G Q	
2720.34[b] *9*	9/2$^+$	>2.8 ps	BCDEF I LM Q	J^π: L(^{3}He,d)=L(α,p)=4,;$\gamma(\theta)$ in (α,pγ); $\sigma(\theta)$ in (α,p).
2728.21 *15*	7/2$^-$	0.23 ps *3*	F I	J^π: $\gamma(\theta)$ in (α,pγ), 1758γ to 5/2$^-$ is M1+E2.
2792.56 *10*	5/2$^-$	116 fs *+20−40*	A EF I KL Q	J^π: L(^{3}He,d)=3; log *ft*=5.21 from 3/2$^-$.
2840.53 *13*	1/2$^-$,3/2$^-$		A EF I LM Q	J^π: L(^{3}He,d)=L(d,n)=1.
2857.1 *3*	(3/2)$^-$		A EF I L Q	J^π: L(^{3}He,d)=1; 3/2$^-$ supported in (α,p) from $\sigma(\theta)$ and DWBA.
2924.2 *4*	(5/2,7/2)$^-$	0.27 ps *4*	EF Q	J^π: 1192γ to 7/2$^-$ is M1(+E2); $\sigma(\theta)$ and DWBA in (α,p); possible 297γ to 11/2$^-$ disfavors 5/2.
2932.56 *14*	3/2$^-$	65 fs *13*	A F I L	J^π: L(^{3}He,d)=1; $\gamma(\theta)$ in (α,pγ).
3001.67 *17*	5/2	0.17 ps *6*	EF I Q	J^π: $\gamma(\theta)$ of primary-γ in ^{60}Ni(p,γ).
3015.73 *11*	11/2$^-$	0.29 ps *4*	BCDEF I Q	
3019.3 *10*	3/2$^-$	69 fs *11*	A F I LM	J^π: L(^{3}He,d)=1, $\gamma(\theta)$ in (α,pγ).
3042.0? *7*	3/2$^-$		I K Q	
3065.57 *21*	3/2$^-$	40 fs *6*	EF I L Q	J^π: L(^{3}He,d)=L(d,n)=1, $\gamma(\theta)$ in (α,pγ).
3092.1 *5*	3/2$^-$	33 fs *5*	A EF I LM Q	J^π: L(^{3}He,d)=1, $\gamma(\theta)$ in (α,pγ).
3198.58 *23*			EF K Q	
3249 *15*			Q	
3260.42 *8*	11/2$^-$	0.35 ps *5*	BCDEFG I Q	J^π: ΔJ=2, E2 γ to 7/2$^-$; ΔJ=1, (M1+E2) γ to 9/2$^-$.
3277.1 *4*			E I L Q	J^π: L(^{3}He,d)=(4) suggests (7/2$^+$,9/2$^+$), but γ to 3/2$^-$ and γ from a 6627, 1/2$^-$ level requiring high multipolarities disfavors such an assignment. It is possible there are two separate levels near this energy, one with a high spin of 7/2 or 9/2 and the other of low spin of 1/2,3/2.
3323.1 *5*	(3/2)		EF Q	J^π: $\sigma(\theta)$ and DWBA in (α,p).
3358.2 *6*			I Q	
3364 *6*			E	
3372.9 *4*	(9/2)		F	J^π: $\gamma(\theta)$ in (α,pγ).
3411.7 *7*	(5/2)$^+$		E G I LM Q	J^π: L(^{3}He,d)=2; 5/2$^+$ from $\sigma(\theta)$ and DWBA in (α,p).
3430.3 *6*			I Q	
3437.1 *11*			E I	
3454.4 *4*	3/2$^+$,5/2$^+$		EF K Q	J^π: L(d,n)=2.
3521.2 *15*	1/2$^-$,3/2$^-$,5/2$^-$		A EF I Q	J^π: log *ft*=5.5 from 3/2$^-$.
3548.78 *12*	(11/2$^-$)		BC EF Q	
3578 *6*	3/2$^+$,5/2$^+$		E LM Q	J^π: L(^{3}He,d)=2.
3591 *2*	(5/2$^+$)		E I	J^π: $\sigma(\theta)$ and DWBA in (α,p).
3612.6 *10*			E I	
3647 *5*	(5/2,7/2)		E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
3653.3 *11*			D	

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Adopted Levels, Gammas (continued)

^{61}Cu Levels (continued)

E(level)[†]	J^π[‡]	XREF	Comments
3660 *6*		E	
3686 *7*		E	
3706.1 *6*		E I	J^π: $\sigma(\theta)$ and DWBA in (α,p) suggest (11/2$^-$); but gamma rays from 3/2 resonances at 6362, 6372 and 6393 suggest a maximum spin of 7/2.
3730.1 *5*		I	
3739.5 *5*	(11/2)	FG	J^π: $\gamma(\theta)$ in (α,pγ).
3748 *7*		E	
3780.6[a] *3*	13/2$^-$	BC	
3790.2 *5*		E I	J^π: $\sigma(\theta)$ and DWBA in (α,p) suggest (7/2,9/2), but it is in conflict with γ from a 1/2$^+$ resonance at 6802 keV. There may be two separate levels near this energy, one of high spin 7/2 or 9/2 and the other of low spin of 1/2 or 3/2.
3820 *5*	1/2$^+$	E K	J^π: L(d,n)=0.
3853.5 *5*	(7/2,5/2)	EF	J^π: $\sigma(\theta)$ and DWBA in (α,p).
3863	1/2$^-$,3/2$^-$	LM	J^π: L(^{3}He,d)=1.
3942.54[c] *12*	(11/2$^+$)	BCD F	
3944 *5*	(9/2$^+$)	E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
3947.0? *6*		I	
3967	1/2$^-$,3/2$^-$	L	J^π: L(^{3}He,d)=1.
3970.80 *22*	(13/2$^-$)	B	
3980.6 *5*	(7/2$^-$,5/2)	E I	J^π: $\sigma(\theta)$ and DWBA in (α,p).
4008 *2*	(1/2)	E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
4041 *5*	(7/2)	E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
4052.45 *23*	(13/2$^-$)	B D	
4060		G	
4081.34[b] *10*	13/2$^+$	BCD F	
4085 *2*	(9/2)	E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
4132.8 *4*	9/2$^+$	E I L	XREF: L(4125). J^π: from (p,γ) resonance, IAR analysis.
4232 *5*	(11/2$^-$)	E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
4260 *5*	(7/2)	E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
4287.7 *10*	(13/2$^-$)	BCD	
4296.1 *10*	(11/2$^-$)	E I	
4333.0? *5*	(7/2,5/2$^+$)	E G I	XREF: E(4337). J^π: $\sigma(\theta)$ and DWBA in (α,p).
4357	(1/2)$^+$	L	J^π: L(^{3}He,d)=0.
4380.4 *10*		D I	
4386 *5*	(9/2$^-$)	E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
4423 *5*	7/2$^-$,9/2$^-$	E L	J^π: L(d,^{3}He)=3.
4463 *5*	(9/2$^-$,7/2)	E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
4466.2[&] *11*	(15/2$^-$)	BCD	
4470 *50*	3/2$^+$,5/2$^+$	K	J^π: L(d,n)=2.
4484	5/2$^-$,7/2$^-$	L	J^π: L(^{3}He,d)=3.
4516 *5*	(7/2)	E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
4560 *5*	(5/2,7/2)	E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
4590.61 *9*	13/2$^+$	BCD	
4598 *2*	(7/2)	E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
4603	1/2$^-$,3/2$^-$	L	J^π: L(^{3}He,d)=1.
4665 *5*	(7/2)	E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
4702 *5*	(7/2)	E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
4756 *5*	(7/2)	E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
4817 *5*	(9/2)	E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
4819.57 *21*	(15/2$^-$)	BCD	
4845 *5*	(9/2$^-$,7/2)	E	J^π: $\sigma(\theta)$ and DWBA in (α,p).
4859	5/2$^-$,7/2$^-$	L	J^π: L(^{3}He,d)=3.

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Adopted Levels, Gammas (continued)

^{61}Cu Levels (continued)

E(level)[†]	J^{π}[‡]	XREF	Comments
4879 *5*	(7/2)	E	J^{π}: $\sigma(\theta)$ and DWBA in (α,p).
4909 *5*	(9/2,7/2)	E K	
4943 *5*	(7/2)	E	J^{π}: $\sigma(\theta)$ and DWBA in (α,p).
4990.65[c] *25*	(15/2$^+$)	BC	
5015 *2*	(9/2)	E	J^{π}: $\sigma(\theta)$ and DWBA in (α,p).
5063 *5*		E	
5072	7/2$^+$,9/2$^+$	L	J^{π}: L(^{3}He,d)=4.
5101 *5*		E	
5119.96[b] *11*	17/2$^+$	BCD	
5126.3 *5*		I	
5135.6 *14*	(15/2$^+$)	BCD	
5153 *2*	(9/2$^-$,7/2)	E	J^{π}: $\sigma(\theta)$ and DWBA in (α,p).
5251.7 *4*		I K	
5278	7/2$^+$,9/2$^+$	L	J^{π}: L(^{3}He,d)=4.
5302.0 *3*		B	
5431	7/2$^+$,9/2$^+$	L	J^{π}: L(^{3}He,d)=4.
5464.4 *5*		C I	
5513.7 *11*		I	
5532.03[h] *23*	(13/2$^+$)	B	
5579.9[a] *9*	(17/2$^-$)	B	
5580 *50*	1/2$^+$	K	J^{π}: L(d,n)=0.
5680.8 *22*		I	
5702.34 *21*	(15/2$^+$)	BC	
5729.50[i] *36*	15/2$^+$	B	
5732	3/2$^+$,5/2$^+$	L	J^{π}: L(^{3}He,d)=2.
5748.75 *23*	(17/2$^-$)	B	
5788	1/2$^+$	L	J^{π}: L(^{3}He,d)=0.
5812.6 *22*		I	
5849.8 *8*		IJ	
5853.3 *3*	(17/2$^+$)	B	
5856.3[c] *14*	19/2$^+$	BCD	
5860.6 *9*		IJ	
5913.9 *22*		I	
5917.0 *10*		J	
5948.3 *22*		I	Probably a doublet.
5960.2 *7*		J	
5972.4 *12*		J	
5977.8 *22*		I	
5987.4 *6*		IJ	
6019.1 *22*		I	
6026.6 *7*		IJ	
6055.95[h] *14*	(17/2$^+$)	BC	
6084	1/2$^+$	L	J^{π}: L(^{3}He,d)=0.
6091.9 *22*		I	
6098.3 *9*		IJ	
6101.7 *22*		I	
6109.6 *22*		I	
6123.9 *7*		IJ	
6125.3 *22*		I	
6150.1 *9*		IJ	
6158.8 *22*		I K	
6192.8 *10*		IJ	
6207.9 *22*		IJ	
6227.1 *6*	(1/2)	IJ	
6237.4 *22*		I	

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Adopted Levels, Gammas (continued)

^{61}Cu Levels (continued)

E(level)†	Jπ‡	XREF	Comments
6241.4 22		I	
6259.1 22		I	
6266.9 22		I	
6290.5 22		IJ	
6294.5 22		I	
6304.3 22		I	
6313.6 8		IJ	
6340.7 22		I	
6351.1 5	(3/2)	IJ	Jπ: D+Q γ to 1/2$^-$.
6362.0 3	3/2	IJ	
6372.7 6	3/2	IJ	
6378.5 3	3/2	IJ	
6393.4 4	3/2$^-$	IJ L	XREF: L(6402). Jπ: L(^{3}He,d)=1; $\gamma(\theta)$ in (p,γ).
6412.5 22		I	
6418.2 6		IJ	
6420 50	1/2$^-$,3/2$^-$	K	Jπ: L(d,n)=1.
6422.3 22		I	
6429.6 11	(1/2)	IJ	
6441.6 6	5/2	IJ	
6446.1 3	5/2	I	
6451.8 22		I	
6457	(1/2 to 7/2)$^-$	G L	Jπ,E(level): L(^{3}He,d)=1+3; doublet with 1/2$^-$,3/2$^-$ and 5/2$^-$,7/2$^-$.
6457.6 6	5/2	I	
6466.4 4	3/2	IJ	
6470.5 22		I	
6485.6 14		IJ	
6493.1 22		I	
6505.6 5	3/2	I	
6509.3 7		IJ	
6528.5 22	3/2	I	
6535.1 6	(3/2)	I	
6541.1 5	3/2	IJ	
6554.1 22		I	
6564.6 15	3/2	IJ	
6572.2[i] 3	(19/2$^+$)	B	
6584.3 4	1/2$^+$#	IJ	
6585.2 10	(3/2,5/2)	I	
6590.7 15		J	
6605.0 10	3/2	IJ	
6619.5 4	3/2	IJ	
6627.2 3	1/2$^-$#	IJ	E(level): probably a fragment of the analog of the 283-keV, 1/2$^-$, state in ^{61}Ni.
6629.8 8		IJ	
6645.1 4	1/2$^-$#	IJ	E(level): there is probably a doublet at 1876 keV. The dominant component is probably a fragment of the analog of the 283-keV, 1/2$^-$, state in ^{61}Ni.
6678.4 3	(1/2$^-$)#	IJ	
6681.2 6	1/2$^-$,3/2$^-$	JK	Jπ: L(d,n)=1.
6693.8 22	1/2$^+$#	IJ	
6699.0 7	1/2$^-$,3/2$^-$	J L	Jπ: L(^{3}He,d)=1.
6706.5		I	
6712.4 9	3/2$^-$	IJ	
6725.7 8		J	
6739.0 5	3/2$^-$,5/2$^-$	I	
6744.7 6		J	
6762.7 6	3/2$^-$,5/2$^-$	IJ	

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Adopted Levels, Gammas (continued)

^{61}Cu Levels (continued)

E(level)[†]	J^{π}[‡]	XREF	Comments
6784.6 *14*		J	
6799.0		I	
6802.3 *4*	$1/2^{+}$[#]	IJ	
6804.0 *8*		J	
6814.1 *6*	(3/2,5/2,1/2)	IJ	
6822.1[b] *14*	$21/2^{+}$	BCD	
6847.8 *9*		J	
6868.4 *6*		J L	
6889.5 *7*		J	
6912.5 *8*		J	
6915.0 *6*	$(3/2^{-})$	I	
6937.4 *5*	$3/2^{-}$	I	
6940.3 *7*		J	
6953.4 *22*	$1/2^{+}$[#]	J	
6972.0 *8*		J L	
6991.8 *22*	$1/2^{+}$[#]	J	
6997.3 *6*		J	
7011.2 *12*	$3/2^{-}$	IJ	E(level): probably a fragment of the analog of the 656-keV, $1/2^{-}$, state in ^{61}Ni. E(p)=2242 *5* (1988Iz01).
7016.3 *6*	$3/2^{-}$	I	
7025.9 *11*	5/2	IJ	
7039.0 *22*	$1/2^{+}$[#]	J	
7043.8 *7*	$(3/2,1/2^{-})$	IJ	
7054.7 *22*	$1/2^{+}$[#]	IJ	E(level): probably a doublet.
7060.0 *4*	$3/2^{-}$	IJ	E(level): 2299 in table 3 of 1988Iz01.
7084.2 *22*	$(1/2^{-},3/2^{-})$[#]	J	
7090.5 *8*		J	
7107.3 *4*	$(1/2^{+})$[#]	IJ	
7113.7 *22*	$(3/2^{-},1/2^{-})$[#]	J	
7120.8 *7*	$3/2^{-}$	I	
7124.4[e] *6*	(19/2)	B	
7130 *50*	$1/2^{-},3/2^{-}$	K	J^{π}: L(d,n)=1.
7159 *5*	5/2	I	
7192		L	
7197.3 *22*	$1/2^{+}$[#]	J	
7201.3 *5*	$(3/2^{-})$	I	
7214.3 *5*	$3/2^{-}$	I	
7223.2 *4*	$1/2^{+}$[#]	IJ	
7241.6 *22*	$(1/2^{-},3/2^{-})$[#]	J	
7262.9 *4*	$1/2^{+}$[#]	IJ	
7274.0 *22*	$(3/2^{-},1/2^{-})$[#]	J	
7283.2 *3*	$1/2^{+}$[#]	IJ	
7306.02 *25*	$21/2^{+}$	B	
7313.3		I	
7316.3 *22*	$1/2^{+}$[#]	J	
7319.2		I	
7329.1 *22*	$(1/2^{-},3/2^{-})$[#]	J	
7370 *50*	$5/2^{-},7/2^{-}$	K	J^{π}: L(d,n)=3.
7378.3 *22*	$5/2^{+}$[#]	J	
7387.1[c] *17*	$23/2^{+}$	BCD	
7401	$5/2^{-},7/2^{-}$	L	J^{π}: L(d,n)=3.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{61}Cu Levels (continued)

E(level)†	Jπ‡	XREF	Comments
7414.6 22	(1/2⁻,3/2⁻)#	J	
7428.4		I	
7430.4 22	1/2⁺#	J	
7438.2 22	1/2⁺#	J	
7455.2 10	(21/2⁺)	B	
7474.6 22	1/2⁻#	J	
7485.5 22	1/2⁻#	J	
7489.4 22	1/2⁻#	J	
7497.3 22	1/2⁻#	J	
7510.0 22	1/2⁺#	IJ	
7519.9 22	(3/2⁻,1/2⁻)#	J	
7525.8 22	(3/2⁺,5/2⁺)#	J	
7535.4 13	(21/2⁻)	B	
7541.5 22	1/2⁻#	J	
7549.4 22	1/2⁺#	IJ	
7554.3 22	1/2⁻#	J	
7556.3 22	1/2⁻#	IJ	
7560.2 22	1/2⁺#	IJ	
7569.0 22	(5/2⁺,3/2⁺)#	J	
7572.0		I	
7578.9 22	1/2⁻#	J	
7581.8 22	1/2⁻#	J	
7583.8 22	1/2⁻#	J	
7588.7 22	1/2⁻#	J	
7606.5 19	(21/2⁺)	B	
7608.4 22	(3/2⁻,1/2⁻)#	J	
7620 50	1/2⁻,3/2⁻	K	Jπ: L(d,n)=1.
7631.0 22	(5/2⁺,3/2⁺)#	J	
7636.9 22	1/2⁺#	J	
7638.9 22	(5/2⁺)#	J	
7643	(1/2 to 7/2)⁻	L	Jπ,E(level): L(^{3}He,d)=1+3; doublet with 1/2⁻,3/2⁻ and 5/2⁻,7/2⁻.
7645.8		I	
7647.7 22	1/2⁺#	IJ	
7657.6 22	(3/2⁻,1/2⁻)#	J	
7662.5 22	(5/2⁺,3/2⁺)#	J	
7672.3 22	(5/2⁺,3/2⁺)#	J	
7681.2 22	1/2⁺#	J	
7702.1	3/2⁺#	J	
7702.7	(5/2⁺)#	J	
7705.3	(1/2⁻)#	J	
7722.5	(3/2⁺)#	J	
7728.7	(1/2⁻)#	J	
7743.9	1/2⁺#	J	
7746.0	(5/2⁺)#	J	
7762.0	(5/2⁺)#	J	
7767.4	1/2⁺#	J	

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Adopted Levels, Gammas (continued)

^{61}Cu Levels (continued)

E(level)[†]	J^{π}[‡]	XREF	E(level)[†]	J^{π}[‡]	XREF
7781.9	$(3/2^-)$[#]	J	8113.1	$5/2^+$[#]	J
7785.1	$(5/2^+)$[#]	J	8118.5	$1/2^-$[#]	J
7805.8	$3/2^+$[#]	J	8120.7	$(5/2^+)$[#]	J
7806.7	$1/2^+$[#]	J	8121.7	$1/2^+$[#]	J
7837.5	$(3/2^+)$[#]	J	8122.5	$3/2^-$[#]	J
7842.6	$1/2^+$[#]	J	8127.7	$(5/2^+)$[#]	J
7847.1 *5*	$3/2^+$[#]	IJ	8131.9 *5*	$1/2^+$[#]	IJ
7849.5	$(1/2^-)$[#]	J	8139.5	$(1/2^-)$[#]	J
7855.0	$3/2^-$[#]	J	8139.6	$(5/2^+)$[#]	J
7858.6[d] *9*	(21/2)	B	8148.9	$1/2^+$[#]	IJ
7886.2	$(1/2^-)$[#]	J	8151.5	$(5/2^+)$[#]	J
7894.1	$(1/2^-)$[#]	J	8156.1	$5/2^+$[#]	J
7896.4	$1/2^+$[#]	J	8162.0	$5/2^+$[#]	J
7919.2	$1/2^+$[#]	J	8164.9	$(1/2^-)$[#]	J
7921.1	$1/2^-$[#]	J	8167.8	$5/2^+$[#]	J
7931.2	$(5/2^+)$[#]	J	8168.7	$(1/2^-)$[#]	J
7937.0 *17*	$23/2^-$	BCD	8170.0	$1/2^-$[#]	J
7943.6	$1/2^+$[#]	J	8171.2	$5/2^+$[#]	J
7946.9	$3/2^+$[#]	J	8173.6	$1/2^+$[#]	J
7950.9	$1/2^-$[#]	J	8175.3	$1/2^+$[#]	J
7962.4	$1/2^+$[#]	J	8177.9	$3/2^-$[#]	J
7970.2	$1/2^+$[#]	J	8181.2	$1/2^-$[#]	J
7971.9	$3/2^-$[#]	J	8187.5	$(5/2^+)$[#]	J
7987.5	$1/2^+$[#]	J	8194.4 *5*	$(5/2^+)$[#]	IJ
7996.9	$1/2^+$[#]	J	8212.1 *8*	$(21/2^-)$	B
8006.1	$3/2^-$[#]	J	8222.4	$1/2^-$[#]	J
8015.3	$3/2^+$[#]	J	8250.3	$1/2^-$[#]	J
8016.3	$1/2^-$[#]	J	8272.4	$1/2^-$[#]	J
8019.8	$1/2^-$[#]	J	8290.1	$3/2^-$[#]	J
8023.3	$5/2^+$[#]	J	8307.6	$1/2^-$[#]	J
8028.3	$(5/2^+)$[#]	J	8333.8 *8*	$(23/2^+)$	B
8030.3[i] *5*	$(23/2^+)$	B	8358.1 *7*		B
8031.6	$(5/2^+)$[#]	J	8361.0	$1/2^-$[#]	J
8043.1	$(5/2^+)$[#]	J	8364.6	$1/2^-$[#]	J
8054.8	$(1/2^-)$[#]	J	8415.3	$1/2^-$[#]	J
8057.3	$1/2^+$[#]	J	8426.8	$1/2^-$[#]	J
8067.9	$(5/2^+)$[#]	J	8431.4 *4*	5/2	I
8075.4	$3/2^-$[#]	J	8436.4 *7*	1/2	I
8076.3	$1/2^+$[#]	J	8440.0 *4*	1/2	I
8086.6	$1/2^+$[#]	J	8442.8 *7*	3/2,5/2	I
8090.2	$5/2^+$[#]	J	8446.0 *5*		I
8096.8	$3/2^-$[#]	J	8447.1 *5*	$9/2^+$	I
8101.8	$1/2^+$[#]	J	8448.2 *4*	$9/2^+$	I
8103.1	$(1/2^-)$[#]	J	8448.3	$3/2^-$[#]	J
8108.6	$1/2^+$[#]	J	8449.2	$9/2^+$[#]	J

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Adopted Levels, Gammas (continued)

^{61}Cu Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
8454.5 *4*	9/2+[#]	IJ	
8455.6	1/2,3/2	IJ	
8458.6 *4*	9/2+[#]	IJ	
8460.1	9/2+[#]	J	
8464.4 *4*	9/2+[#]	IJ	XREF: J(8466).
8465.9 *4*	9/2+[#]	IJ	XREF: J(8467.8).
8466.0	1/2	I	
8468.7	1/2−[#]	J	
8469.5 *6*	5/2	I	
8473.1 *4*	9/2+[#]	IJ	
8476.3 *4*	9/2+[#]	IJ	
8477.9	1/2−[#]	J	
8478.3 *4*	9/2+[#]	IJ	
8481.5 *5*	9/2+[#]	IJ	
8481.7	3/2	I	
8483.5 *5*	9/2+[#]	IJ	
8485.0 *4*	9/2+[#]	IJ	
8488.0	1/2−[#]	J	
8489.9 *6*	1/2	I	
8492.4 *5*	3/2	I	
8497.8	3/2−[#]	J	
8499.9 *6*	5/2	I	
8503.7 *10*		I	
8507.3 *10*	1/2	I	
8508.1 *5*	1/2	I	
8509.9 *4*		I	
8515.4 *10*		I	
8522.6 *7*	1/2,3/2	I	
8561	7/2+,9/2+	L	Jπ: L(^{3}He,d)=4.
8591.0	3/2−[#]	J	
8625.4[e] *9*	(23/2)	B	
8631.1	3/2−[#]	J	
8670 *40*		L	
8678.7[j] *4*	(21/2−)	B	
8692.5	1/2−[#]	J	
8731.6	1/2−[#]	J	
8734.3	1/2−[#]	J	
8742.7	1/2−[#]	J	
8789.0[h] *4*	(25/2+)	B	
8885.1 *5*	(25/2+)	B	
9138.8 *23*		B	
9142	(3/2 to 9/2)+	L	Jπ,E(level): L(^{3}He,d)=2+4; doublet with 3/2+,5/2+ and 7/2+,9/2+.
9287.1[k] *4*	(23/2−)	B	
9408.1 *20*	27/2−	BCD	
9474.4[d] *10*	(25/2)	B	
9643.9 *15*	(25/2−)	B	
9692.7 *5*	(25/2−)	B	
9725.1[i] *5*	(27/2+)	B	
9789.9 *8*	(27/2−)	B	
9957.5[j] *3*	(25/2−)	B	

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Adopted Levels, Gammas (continued)

^{61}Cu Levels (continued)

E(level)[†]	J^{π}[‡]	XREF	Comments
9963	7/2$^+$,9/2$^+$	L	J^{π}: L(^{3}He,d)=4.
10342.4[e] *10*	(27/2)	B	
10347.2 *11*	(25/2$^+$)	B	
10409.5[l] *10*	(25/2$^+$)	B	E(level): any one of the 10409 or 10463 levels can be the bandhead of SD-1 band.
10462.7 *12*	(25/2$^+$)	B	E(level): see comment for 10409.5 level for bandhead of SD-1 band.
10671.9	1/2$^+$[#]	J	
10687.7[k] *4*	(27/2$^-$)	B	
10906.6[h] *9*	(29/2$^+$)	B	
11019 *4*		B	
11132.9 *7*	(31/2$^-$)	B	
11144 *4*		B	
11237.0 *19*	(27/2$^-$)	B	
11255 *4*		B	
11301.6[j] *4*	(29/2$^-$)	B	
11303.2 *14*	(27/2$^-$)	B	
11369.5[d] *10*	(29/2)	B	
11449[n] *3*	(25/2$^+$)	B	
11752.7[s] *18*	(29/2$^-$)	B	
11768 *7*		N	
11775.8[l] *11*	(29/2$^+$)	B	
11798 *7*		N	
11822 *7*		N	
11831 *7*		N	
11852 *7*		N	
11881 *7*		N	
11902 *7*		N	
11919 *7*		N	
11935 *7*		N	
11946 *7*		N	
11969 *7*		N	
11994 *7*		N	
12003.7[k] *5*	(31/2$^-$)	B	
12054 *7*		N	
12084 *7*		N	
12086.6[i] *11*	(31/2$^+$)	B	
12090[o] *3*	(27/2$^+$)	B	
12102 *7*		N	
12121 *7*		N	
12148 *7*		N	
12166 *7*		N	
12189 *7*		N	
12215 *7*		N	
12253 *7*		N	
12273 *7*		N	
12303 *7*		N	
12314 *7*		N	
12355.5[e] *11*	(31/2)	B	
12356 *7*		N	
12394 *7*		N	
12409 *7*		N	
12452 *7*		N	
12478 *7*		N	
12494 *7*		N	

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Adopted Levels, Gammas (continued)

^{61}Cu Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	XREF
12506 *7*		N
12520 *7*		N
12793.5[r] *16*	(31/2$^-$)	B
12839.2[j] *6*	(33/2$^-$)	B
12847.3[n] *25*	(29/2$^+$)	B
13146 *4*	(31/2$^-$)	B
13206.0[p] *20*	(29/2$^+$)	B
13284.5[l] *17*	(33/2$^+$)	B
13419.7 *17*	(33/2$^+$)	B
13678[o] *3*	(31/2$^+$)	B
13823[m] *5*	(29/2$^+$)	B
13874.2[q] *19*	(31/2$^+$)	B
13983.5[f] *12*	(33/2)	B
14020.6[d] *12*	(33/2)	B
14023.8[k] *12*	(35/2$^-$)	B
14068[s] *3*	(33/2$^-$)	B
14163 *3*		B
14563[n] *3*	(33/2$^+$)	B
14587.1[p] *19*	(33/2$^+$)	B
14628.1[r] *24*	(35/2$^-$)	B
14800.4[g] *12*	(35/2)	B
15201.7[j] *15*	(37/2$^-$)	B
15232.0[l] *20*	(37/2$^+$)	B
15311[m] *5*	(33/2$^+$)	B
15434.6[q] *20*	(35/2$^+$)	B
15524[o] *3*	(35/2$^+$)	B
15742.3[f] *13*	(37/2)	B
16302.2[p] *21*	(37/2$^+$)	B
16571.2[g] *15*	(39/2)	B
16588[n] *4*	(37/2$^+$)	B
16615[s] *5*	(37/2$^-$)	B
16921 *4*	(39/2$^-$)	B
17039[r] *4*	(39/2$^-$)	B
17067[m] *5*	(37/2$^+$)	B
17310.6[q] *22*	(39/2$^+$)	B
17431[l] *3*	(41/2$^+$)	B
17618.0[f] *16*	(41/2)	B
17750[o] *4*	(39/2$^+$)	B
18353.0[p] *23*	(41/2$^+$)	B
18857.3[g] *19*	(43/2)	B
18995[n] *4*	(41/2$^+$)	B
19134[m] *4*	(41/2$^+$)	B
19472[s] *6*	(41/2$^-$)	B
19562[q] *3*	(43/2$^+$)	B
19878[r] *4*	(43/2$^-$)	B
19970[l] *3*	(45/2$^+$)	B
20285[o] *4*	(43/2$^+$)	B
20550.6[f] *23*	(45/2)	B
20723[p] *3*	(45/2$^+$)	B
20913.2 *25*	(45/2)	B
21536[m] *4*	(45/2$^+$)	B
21839[n] *5*	(45/2$^+$)	B
22212[q] *4*	(47/2$^+$)	B
22284 *6*	(45/2$^+$)	B
22718[s] *6*	(45/2$^-$)	B
22984[l] *4*	(49/2$^+$)	B
23376[r] *6*	(47/2$^-$)	B
23418[o] *6*	(47/2$^+$)	B
23662[p] *4*	(49/2$^+$)	B
24337[m] *4*	(49/2$^+$)	B
24612 *6*	(49/2$^+$)	B
25121[n] *6*	(49/2$^+$)	B
25325[q] *5*	(51/2$^+$)	B
26577[l] *6*	(53/2$^+$)	B
26842 *6*	(53/2$^+$)	B
26928[o] *7*	(51/2$^+$)	B
27023[p] *4*	(53/2$^+$)	B
27525[m] *5*	(53/2$^+$)	B
28885[q] *7*	(55/2$^+$)	B
x[t]	J1+1	B
339+x *3*		B
790+x[u] *6*	J1	B
2037.0+x[t] *20*	J1+3	B
2520+x[u] *5*	J1+2	B
4288+x[t] *3*	J1+5	B
4465+x[u] *5*	J1+4	B
6674+x[u] *4*	J1+6	B
6735+x[t] *4*	J1+7	B
9261+x[u] *5*	J1+8	B
9434+x[t] *5*	J1+9	B
12369+x[u] *6*	J1+10	B
12482+x[t] *6*	J1+11	B
15897+x[t] *7*	J1+13	B
y[v]	J2	B
1833+y *4*	J2+2	B
1846.1+y[v] *18*	J2+2	B
3998.3+y[v] *24*	J2+4	B
6459+y[v] *3*	J2+6	B
9258+y[v] *5*	J2+8	B
12432+y[v] *5*	J2+10	B

[†] Level energies with $\Delta E<5$ keV are deduced from least-squares fit to the Adopted Eγ data. The others are weighted averages from (α,p), (^{16}O,^{13}N), (d,n) and (^{3}He,d).

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Adopted Levels, Gammas (continued)

^{61}Cu Levels (continued)

‡ For high-spin states (J>9/2), assignments are generally as proposed in (^{36}Ar,3pγ) (2008An06), based on $\gamma\gamma(\theta)$ data, band structures, decay pattern, and yrast nature of population of states in heavy-ion γ-ray studies. Also based on DCO from 1999Vi12, R(DCO) and linear polarization from 2004Iz01. The assignments for low-spin states are primarily from p$\gamma(\theta)$ in (α,pγ) and (p,γ) together analysis of resonances in (p,γ). The assignments deduced from angular momentum transfers are stated in separate arguments.

\# From resonance analysis in (p,p),(p,p′):resonances.

@ From DSA measurements in ^{58}Ni(α,pγ) reaction, except as noted.

& Band(A): Band based on 3/2$^-$ g.s.,α=−1/2. Normal-deformed structure.

[a] Band(a): Band based on 5/2$^-$,α=+1/2 Normal-deformed structure.

[b] Band(B): Band based on 9/2$^+$,α=+1/2. Normal-deformed structure.

[c] Band(b): Band based on 11/2$^+$,α=−1/2. Normal-deformed structure.

[d] Band(C): Band based on (21/2),α=+1/2. Dipole dominated structure. Population intensity=1% of the reaction channel.

[e] Band(c): Band based on (19/2),α=−1/2. Dipole dominated structure. Population intensity=1% of the reaction channel.

[f] Band(D): Band based on (33/2),α=+1/2. Continuation of band based on 19/2. Dipole dominated structure. Population intensity=1% of the reaction channel.

[g] Band(d): Band based on (35/2),α=−1/2. Continuation of band based on 19/2. Dipole dominated structure. Population intensity=1% of the reaction channel.

[h] Band(E): Band based on (13/2$^+$),α=+1/2. Dipole dominated structure. Population intensity=20% of the reaction channel.

[i] Band(e): Band based on 15/2$^+$,α=−1/2. Dipole dominated structure. Population intensity=20% of the reaction channel.

[j] Band(F): Band based on 21/2$^-$,α=+1/2. Dipole dominated structure. Population intensity=5% of the reaction channel.

[k] Band(f): Band based on 23/2$^-$,α=−1/2. Dipole dominated structure. Population intensity=5% of the reaction channel.

[l] Band(G): SD-1 band. Band based on 25/2$^+$. Population intensity=7% of the reaction channel.

[m] Band(H): SD-2 band. Band based on 29/2$^+$. Population intensity=1% of the reaction channel.

[n] Band(I): SD-3 band,α=+1/2. Band based on (25/2$^+$). Population intensity=1% of the reaction channel.

[o] Band(i): SD-3 band,α=−1/2. Band based on (27/2$^+$). Population intensity=1% of the reaction channel.

[p] Band(J): SD-4 band,α=+1/2. Band based on 29/2$^+$. Population intensity=2% of the reaction channel.

[q] Band(j): SD-4 band,α=−1/2. Band based on 31/2$^+$. Population intensity=2% of the reaction channel.

[r] Band(K): SD-5 band. Band based on 31/2$^-$. Population intensity=1% of the reaction channel.

[s] Band(L): SD-6 band. Band based on (29/2$^-$). Population intensity=1% of the reaction channel.

[t] Band(M): SD-7 band. SD-7 and SD-8 are Signature partners. Population intensity≈0.5% of the reaction channel.

[u] Band(m): SD-8 band. SD-7 and SD-8 are Signature partners. Population intensity≈0.5% of the reaction channel.

[v] Band(N): SD-9 band. Population intensity≈0.5% of the reaction channel.

$\gamma(^{61}\mathrm{Cu})$

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ	α[b]	Comments
475.05	1/2⁻	475.0 1	100[@]	0.0	3/2⁻	M1(+E2)	<0.004		B(M1)(W.u.)=0.31 5 δ: 0.04 from theoretical estimate by 1972Ca20 adopted by 1973Sa19 in (α,pγ), but this value gives B(E2)(W.u.)=2500 400, much larger than RUL of 200; the latter value limits δ to <0.004.
970.07	5/2⁻	494.8 2	0.9[a] 1	475.05	1/2⁻	E2			B(E2)(W.u.)=17 7
		969.98 7	100[a] 5	0.0	3/2⁻	M1+E2	−0.35 4		B(M1)(W.u.)=0.031 7; B(E2)(W.u.)=7.2 21
1310.49	7/2⁻	340.45 21	6.6[a] 3	970.07	5/2⁻	M1+E2	−0.017 15		B(M1)(W.u.)=0.065 10; B(E2)(W.u.)=0.3 +6−3
		1310.9 2	100[a] 3	0.0	3/2⁻	E2			B(E2)(W.u.)=18 3
1394.29	5/2⁻	424.2 2	3.3[&] 3	970.07	5/2⁻				
		919.2 2	14.0[&] 7	475.05	1/2⁻	E2			B(E2)(W.u.)=8.5 15
		1394.5 1	100[&] 3	0.0	3/2⁻	M1+E2	−3.55 18		B(M1)(W.u.)=0.00060 12; B(E2)(W.u.)=7.0 12
1660.42	3/2⁻	265.9 2	7.0[a] 5	1394.29	5/2⁻				
		690.3 1	24.0[a] 18	970.07	5/2⁻	M1(+E2)	+0.05 19		B(M1)(W.u.)=0.058 8; B(E2)(W.u.)=0.5 +42−5 δ: −3.1 +9−14 also possible.
		1185.3 3	22.1[a] 14	475.05	1/2⁻	M1+E2			δ: ≥0.26 and ≤1.00 from (α,pγ).
		1660.4 1	100.0[a] 23	0.0	3/2⁻	M1+E2	+0.39 +10−18		B(M1)(W.u.)=0.0150 20; B(E2)(W.u.)=1.5 7 δ: +1.4 4 also possible.
1732.58	7/2⁻	338.6 2	9.9 8	1394.29	5/2⁻	M1+E2	−1.2 +9−5		B(M1)(W.u.)<0.018; B(E2)(W.u.)<350
		422.0 2	44.4 26	1310.49	7/2⁻	M1(+E2)	+0.08 7		B(M1)(W.u.)<0.054; B(E2)(W.u.)<9.4 Mult.: ΔJ=0 transition.
		762.5 1	19.8 16	970.07	5/2⁻	M1+E2	+0.50 4		B(M1)(W.u.)<0.0033; B(E2)(W.u.)<2.8
		1732.54 7	100 3	0.0	3/2⁻	E2			B(E2)(W.u.)<1.0
1904.20	5/2⁻	593.5 2	53.1[&] 24	1310.49	7/2⁻	M1+E2	−0.05 3		B(M1)(W.u.)=0.129 16; B(E2)(W.u.)=1.7 +20−17
		934.2 2	100[&] 3	970.07	5/2⁻	M1+E2	−0.14 4		B(M1)(W.u.)=0.061 7; B(E2)(W.u.)=2.5 15
		1904.2 3	87[&] 5	0.0	3/2⁻	M1+E2	+0.68 9		B(M1)(W.u.)=0.0044 7; B(E2)(W.u.)=1.01 22
1932.52	3/2⁻	962.4 5	11.3[&] 16	970.07	5/2⁻				
		1457.8 2	38[&] 3	475.05	1/2⁻	M1+E2	+0.20 10		B(M1)(W.u.)=0.020 3; B(E2)(W.u.)=0.7 7 δ: −3.0 8 also possible.
		1932.4 1	100[&] 6	0.0	3/2⁻	M1+E2	+0.26 +12−8		B(M1)(W.u.)=0.022 4; B(E2)(W.u.)=0.7 7 δ: +1.8 +6−3 also possible.
1942.56	7/2⁻	209.8 2	26 5	1732.58	7/2⁻	(M1)		0.0078	B(M1)(W.u.)=0.27 +14−13
		548.0 3	0.8[&] 2	1394.29	5/2⁻				
		632.1 2	31 6	1310.49	7/2⁻	(M1)			B(M1)(W.u.)=0.012 6 Mult.: ΔJ=0 transition.
		972.2 2	100 15	970.07	5/2⁻	M1+E2			
		1942.8 3	34 8	0.0	3/2⁻	E2			B(E2)(W.u.)=0.21 +11−10
2088.89	(1/2)⁻	1613.5 2	47[@] 4	475.05	1/2⁻				
		2088.9 1	100[@] 2	0.0	3/2⁻				

Adopted Levels, Gammas (continued)

$\gamma(^{61}Cu)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.[#]	δ	Comments
2203.41	5/2⁻	470.8 2	24.4[&] 17	1732.58	7/2⁻			
		892.8 2	40.0[&] 13	1310.49	7/2⁻	M1(+E2)	−0.01 3	B(M1)(W.u.)=0.034 4; B(E2)(W.u.)=0.008 +46−8 δ: −9 2 also possible.
		1233.3 2	100.0[&] 13	970.07	5/2⁻	M1(+E2)	−0.03 +4−2	B(M1)(W.u.)=0.032 4; B(E2)(W.u.)=0.03 +9−3
		1728.2 3	49[&] 3	475.05	1/2⁻	E2		B(E2)(W.u.)=3.4 5
2295.22	9/2⁻	352.4 2	22.2[&] 12	1942.56	7/2⁻	M1+E2	−0.20 8	B(M1)(W.u.)=0.023 8; B(E2)(W.u.)=13 12
		562.8 4	49 4	1732.58	7/2⁻	M1+E2	+0.56 10	B(M1)(W.u.)=0.010 4; B(E2)(W.u.)=18 8
		901.0 2	37 4	1394.29	5/2⁻	E2		B(E2)(W.u.)=5.3 19
		985.1 6	100 9	1310.49	7/2⁻	M1+E2	−0.17 3	B(M1)(W.u.)=0.0048 17; B(E2)(W.u.)=0.26 13
		1325.2 3	49 5	970.07	5/2⁻	E2		B(E2)(W.u.)=1.0 4
2336.39	9/2⁻	393.4 4	2.3[&] 10	1942.56	7/2⁻			
		942.2[c] 5	1.6[&] 3	1394.29	5/2⁻	E2		B(E2)(W.u.)=1.5 4
		1025.9 2	29.3[&] 20	1310.49	7/2⁻	M1+E2	−0.25 8	B(M1)(W.u.)=0.0098 14; B(E2)(W.u.)=1.1 7
		1366.2 1	100[&] 3	970.07	5/2⁻	E2		B(E2)(W.u.)=14.6 18
2358.13	3/2⁻	425.6 3	31[@] 2	1932.52	3/2⁻			
		697.6 1	89[@] 8	1660.42	3/2⁻			
		1883.1 3	100[@] 2	475.05	1/2⁻			
		2358.6 3	68[@] 5	0.0	3/2⁻			
2399.35	7/2⁻	1088.4 3	71.8[&] 18	1310.49	7/2⁻	M1+E2	+0.6 +2−4	B(M1)(W.u.)=0.043 10; B(E2)(W.u.)=24 12
		1429.0 3	100[&] 5	970.07	5/2⁻	M1+E2	−0.164 24	B(M1)(W.u.)=0.035 5; B(E2)(W.u.)=0.8 3
2472.49	3/2⁻	1502.4 1	12.0[@] 13	970.07	5/2⁻			
		1997.4 2	100[@] 3	475.05	1/2⁻	M1(+E2)	−0.02 5	B(M1)(W.u.)=0.031 4; B(E2)(W.u.)=0.006 +28−6 δ: −0.87 9 also possible.
		2472.1 20	6.6[@] 27	0.0	3/2⁻			
2583.77	3/2,5/2	641.5 3	22[&] 4	1942.56	7/2⁻			
		850.9 3	100[&] 11	1732.58	7/2⁻			
2584.6	3/2,5/2	2584.5 5	100[&]	0.0	3/2⁻			
2611.99	9/2⁻	316.6[c] 2	2.4[&] 2	2295.22	9/2⁻			
		669.6 2	89 8	1942.56	7/2⁻	M1+E2	+0.25 4	B(M1)(W.u.)=0.099 18; B(E2)(W.u.)=25 9
		879.3 1	100 8	1732.58	7/2⁻	M1+E2	+0.36 10	B(M1)(W.u.)=0.046 9; B(E2)(W.u.)=14 8
		1301.7 3	23.1 23	1310.49	7/2⁻	[M1+E2]		
		1642.2 8	7.7 8	970.07	5/2⁻	[E2]		B(E2)(W.u.)=0.41 8
2627.12	11/2⁻	290.4[c] 2	1.7[&] 1	2336.39	9/2⁻			
		331.6 4	2.7[&] 3	2295.22	9/2⁻			
		1316.8 1	100[&] 3	1310.49	7/2⁻	E2		B(E2)(W.u.)<27
2684.03	3/2⁻	1289.8[c] 6	≤5[a]	1394.29	5/2⁻			
		2209.0 2	100[a] 6	475.05	1/2⁻			

$^{61}_{29}Cu_{32}$-14

$\gamma(^{61}Cu)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.[#]	δ	Comments
2684.03	3/2⁻	2683.5 *5*	80[a] *6*	0.0	3/2⁻			
2720.34	9/2⁺	109.5 *2*	8.3[&] *13*	2611.99	9/2⁻			
		320.9[c] *2*	2.2[&] *5*	2399.35	7/2⁻			
		777.2[c] *3*	2.5[&] *7*	1942.56	7/2⁻			
		987.6 *2*	68[&] *9*	1732.58	7/2⁻	E1		B(E1)(W.u.)<6.1×10⁻⁵
		1409.1 *3*	100[&] *3*	1310.49	7/2⁻	E1		B(E1)(W.u.)<3.1×10⁻⁵
2728.21	7/2⁻	328.8[c] *4*	4.5[&] *5*	2399.35	7/2⁻			
		524.5[c] *3*	≤6.5[&]	2203.41	5/2⁻			
		1417.8 *2*	55[&] *3*	1310.49	7/2⁻	M1+E2	+0.4 *+7−4*	B(M1)(W.u.)=0.010 *5*; B(E2)(W.u.)=1.4 *+43−14*
		1758.2 *3*	100[&] *13*	970.07	5/2⁻	M1+E2	−1.6 *4*	B(M1)(W.u.)=0.0030 *13*; B(E2)(W.u.)=4.5 *12*
2792.56	5/2⁻	1131.9 *8*	22[@] *14*	1660.42	3/2⁻			
		1482.1 *1*	98[@] *3*	1310.49	7/2⁻			
		2792.3 *2*	100[@] *3*	0.0	3/2⁻			
2840.53	1/2⁻,3/2⁻	751.6 *1*	100[@] *13*	2088.89	(1/2)⁻			
		2842.1 *7*	79.5[@] *8*	0.0	3/2⁻			
2857.1	(3/2)⁻	2381.4 *20*	25[@] *4*	475.05	1/2⁻			
		2857.0 *3*	100[@] *15*	0.0	3/2⁻			
2924.2	(5/2,7/2)⁻	297.4[c] *2*	5.7[&] *8*	2627.12	11/2⁻			
		312.0[c] *2*	3.1[&] *8*	2611.99	9/2⁻			
		524.5[c] *2*	≤5.7[&]	2399.35	7/2⁻			
		629.1[c] *5*	3.4[&] *8*	2295.22	9/2⁻			
		981.3 *5*	12.1[&] *23*	1942.56	7/2⁻			
		1191.8 *4*	100[&] *6*	1732.58	7/2⁻	M1(+E2)	0.00 *5*	B(M1)(W.u.)=0.038 *7*
2932.56	3/2⁻	1538.9 *2*	13.0[@] *12*	1394.29	5/2⁻			
		2457.6 *4*	100[@] *6*	475.05	1/2⁻			
		2931.8 *2*	14[@] *4*	0.0	3/2⁻			
3001.67	5/2	798.0 *3*	22.4[&] *15*	2203.41	5/2⁻			
		1607.3 *2*	43[&] *3*	1394.29	5/2⁻			
		3002.6 *5*	100[&] *5*	0.0	3/2⁻			
3015.73	11/2⁻	679.25 *14*	22[a] *5*	2336.39	9/2⁻	M1+E2		
		720.55 *14*	21[a] *5*	2295.22	9/2⁻	M1(+E2)	−0.01 *2*	B(M1)(W.u.)=0.030 *9*; B(E2)(W.u.)=0.010 *+42−10*
		1705.4 *3*	100[a] *4*	1310.49	7/2⁻	E2		B(E2)(W.u.)=6.6 *11*
3019.3	3/2⁻	2543.9 *30*	100[&] *19*	475.05	1/2⁻	M1+E2	−0.6 *4*	B(M1)(W.u.)=0.010 *5*; B(E2)(W.u.)=1.0 *+11−10*
		3019.3 *11*	41[&] *6*	0.0	3/2⁻			
3042.0?	3/2⁻	2566[c]	100[a]	475.05	1/2⁻			
		3042[c]	62[a]	0.0	3/2⁻			

$^{61}_{29}Cu_{32}$-15

Adopted Levels, Gammas (continued)

$\gamma(^{61}Cu)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.[#]	Comments
3065.57	3/2⁻	706.4 *5*	25[&] *2*	2358.13	3/2⁻		
		1161.1 *3*	100[&] *8*	1904.20	5/2⁻		
		1672.1 *4*	79[&] *7*	1394.29	5/2⁻		
		3065.9 *5*	52[&] *8*	0.0	3/2⁻		
3092.1	3/2⁻	3092.0 *5*	100[a]	0.0	3/2⁻		
3198.58		1256.0 *4*	57[&] *13*	1942.56	7/2⁻		
		1466.1 *3*	100[&] *15*	1732.58	7/2⁻		
		1804.1 *5*	61[&] *20*	1394.29	5/2⁻		
3260.42	11/2⁻	633.1 *2*	39[a] *3*	2627.12	11/2⁻	(M1)	B(M1)(W.u.)=0.033 *6*
		648.2 *1*	62[a] *10*	2611.99	9/2⁻	(M1+E2)	
		964.8 *5*	28[a] *4*	2295.22	9/2⁻		
		1317.8 *5*	65[a] *7*	1942.56	7/2⁻		
		1528.0 *1*	100[a] *9*	1732.58	7/2⁻	E2	B(E2)(W.u.)=4.6 *9*
3277.1		3277	100[a]	0.0	3/2⁻		
3323.1	(3/2)	2012.5 *5*	100[&]	1310.49	7/2⁻		
3372.9	(9/2)	1640.6 *5*	100[&]	1732.58	7/2⁻		
3454.4	3/2⁺,5/2⁺	1055.8[c] *5*	6.8[&] *4*	2399.35	7/2⁻		
		1721.7 *5*	27[&] *8*	1732.58	7/2⁻		
		2143.9 *5*	100[&] *16*	1310.49	7/2⁻		
3521.2	1/2⁻,3/2⁻,5/2⁻	3521.1 *15*	100[a]	0.0	3/2⁻		
3548.78	(11/2⁻)	921.7 *2*	72 *13*	2627.12	11/2⁻	D	
		936.5 *2*	100 *15*	2611.99	9/2⁻	D+Q	
		1212.6 *4*	16.7 *19*	2336.39	9/2⁻		
		1253.9 *3*	28 *6*	2295.22	9/2⁻	D+Q	
		1606.4 *6*	25.9 *19*	1942.56	7/2⁻		
		2238.5 *4*	28.5 *19*	1310.49	7/2⁻		
3653.3		1041	100[a]	2611.99	9/2⁻		
3739.5	(11/2)	1444.4 *4*	100[&]	2295.22	9/2⁻		
3780.6	13/2⁻	1153.5 *6*	22.5 *23*	2627.12	11/2⁻	D+Q	
		1443.4 *5*	100 *3*	2336.39	9/2⁻	E2	
3790.2		2820	100[a]	970.07	5/2⁻		
3853.5	(7/2,5/2)	1132.4 *4*	100[&]	2720.34	9/2⁺		
3942.54	(11/2⁺)	1222.2 *1*	100 *9*	2720.34	9/2⁺	D+Q	
		1315.0 *5*	9.1 *18*	2627.12	11/2⁻		
		1330.2 *6*	18.2 *18*	2611.99	9/2⁻		
3947.0?		2553[c]		1394.29	5/2⁻		
		3471[c]		475.05	1/2⁻		
3970.80	(13/2⁻)	710.4 *2*	100 *9*	3260.42	11/2⁻	D+Q	
		1343.2 *3*	76 *6*	2627.12	11/2⁻	D+Q	

$^{61}_{29}Cu_{32}$-16

γ(^{61}Cu) (continued)

E$_i$(level)	J$_i^\pi$	E$_\gamma$[†]	I$_\gamma$[‡]	E$_f$	J$_f^\pi$	Mult.[#]	Comments
3970.80	(13/2$^-$)	1358.4 7	58 3	2611.99	9/2$^-$		
4052.45	(13/2$^-$)	791.7 4	63 8	3260.42	11/2$^-$	D+Q	
		1424.9[c] 7	38 5	2627.12	11/2$^-$	D+Q	
		1715.9 3	100 10	2336.39	9/2$^-$		
		1757.3 4	83 10	2295.22	9/2$^-$		
4081.34	13/2$^+$	709.6 4	33[a] 6	3372.9	(9/2)		
		1065.6 2	38[a] 6	3015.73	11/2$^-$	E1	
		1361.0 1	100[a] 3	2720.34	9/2$^+$	E2	
4132.8	9/2$^+$	2400.1	100[a] 3	1732.58	7/2$^-$		
		2822.2	54[a] 3	1310.49	7/2$^-$		
4287.7	(13/2$^-$)	1952.0 1	100 10	2336.39	9/2$^-$	Q	
		1992.2 4	26.2 16	2295.22	9/2$^-$		
4333.0?	(7/2,5/2$^+$)	3021.8[c]	100[a]	1310.49	7/2$^-$		
4380.4		2044	100	2336.39	9/2$^-$		Iγ from ^{40}Ca(^{28}Si,α3pγ).
4466.2	(15/2$^-$)	686.8 6	6 2	3780.6	13/2$^-$		
		1451.7 12	15 2	3015.73	11/2$^-$		
		1841.3 1	100 4	2627.12	11/2$^-$	Q	
4590.61	13/2$^+$	209		4380.4			E$_\gamma$: 209γ and 935γ from ^{40}Ca(^{28}Si,α3pγ).
		509.7 2	7.4 15	4081.34	13/2$^+$		
		648.0 2	23.7 22	3942.54	(11/2$^+$)	D+Q	
		935		3653.3			
		1041.9 2	65 6	3548.78	(11/2$^-$)	D	
		1330.0 1	67 3	3260.42	11/2$^-$	E1	
		1870.4 2	100 7	2720.34	9/2$^+$	E2	
4819.57	(15/2$^-$)	767.2 3	50 6	4052.45	(13/2$^-$)	D+Q	
		848.6 4	50 6	3970.80	(13/2$^-$)		
		1559.4 2	100 8	3260.42	11/2$^-$	Q	
		2193.1 10	78 8	2627.12	11/2$^-$		
4990.65	(15/2$^+$)	908.9 3	100 9	4081.34	13/2$^+$	D+Q	
		1048.0 5	43 6	3942.54	(11/2$^+$)		
5119.96	17/2$^+$	300.3 2	8.4 10	4819.57	(15/2$^-$)	D	
		529.2 2	94 6	4590.61	13/2$^+$	E2	
		652.3 5	8.6 11	4466.2	(15/2$^-$)	D	
		1038.6 1	100 3	4081.34	13/2$^+$	E2	
5135.6	(15/2$^+$)	547.1 2	63 9	4590.61	13/2$^+$	D+Q	
		849.7 2	100 11	4287.7	(13/2$^-$)	D	
5251.7		2530.5	100[a] 8	2720.34	9/2$^+$		
		4280.9	89[a] 8	970.07	5/2$^-$		
5302.0		1753.0 5	100	3548.78	(11/2$^-$)		
5464.4		326.4 4	100[a]	5135.6	(15/2$^+$)		
5532.03	(13/2$^+$)	1244.3 4	83 33	4287.7	(13/2$^-$)		
		2270.5 6	100 33	3260.42	11/2$^-$		
5579.9	(17/2$^-$)	1800 1	100	3780.6	13/2$^-$	Q	

$^{61}_{29}$Cu$_{32}$-17

Adopted Levels, Gammas (continued)

$\gamma(^{61}Cu)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.[#]	δ	Comments
5702.34	(15/2$^+$)	170.3 2	17 4	5532.03	(13/2$^+$)	D		
		400.3 2	8 4	5302.0				
		564.4 2	100 12	5135.6	(15/2$^+$)	D		
		582.2 2	29 4	5119.96	17/2$^+$	D+Q		
		1111.5 3	17 4	4590.61	13/2$^+$			
		1414.6 3	21 4	4287.7	(13/2$^-$)	D		
		1731.9 3	100 12	3970.80	(13/2$^-$)			
5729.50	15/2$^+$	197.4 2	29 14	5532.03	(13/2$^+$)	D		
		591.6 2	100 29	5135.6	(15/2$^+$)	D		Mult.: ΔJ=0 transition.
		1139.0 4	29 14	4590.61	13/2$^+$	D+Q		
		1441.9 3	71 14	4287.7	(13/2$^-$)	D		
		1647.9 3	57 14	4081.34	13/2$^+$	D+Q		
		1758.7 5	14 14	3970.80	(13/2$^-$)			
5748.75	(17/2$^-$)	928.8 3	100 5	4819.57	(15/2$^-$)	D+Q		
		1280.7 3	38 5	4466.2	(15/2$^-$)			
5853.3	(17/2$^+$)	1772.0 4	100	4081.34	13/2$^+$	Q		
5856.3	19/2$^+$	719.2 7	2.9 4	5135.6	(15/2$^+$)			
		736.0 1	100 5	5119.96	17/2$^+$	M1		
6055.95	(17/2$^+$)	326.6 1	48 5	5729.50	15/2$^+$	D		
		353.3 3	100 10	5702.34	(15/2$^+$)	D		
		1065.4 4	6.4 9	4990.65	(15/2$^+$)	D+Q		
		1236.5 2	28 4	4819.57	(15/2$^-$)	D		
		1974.1 4	21 3	4081.34	13/2$^+$	Q		
6351.1	(3/2)	3992.7		2358.13	3/2$^-$			
		4690.1		1660.42	3/2$^-$	D+Q	0.58 +24−10	
		5380.8		970.07	5/2$^-$			
		5874.8		475.05	1/2$^-$	D+Q	0.054 +54−14	
		6350.6		0.0	3/2$^-$	D+Q	0.56 10	
6362.0	3/2	2632	24 5	3730.1				
		2656	24 5	3706.1				
		2950	29 5	3411.7	(5/2)$^+$			
		3270[c]		3092.1	3/2$^-$			
		3296[c]		3065.57	3/2$^-$			
		3343.9	38 5	3019.3	3/2$^-$			
		3360[c]		3001.67	5/2			
		3505.4	29 5	2857.1	(3/2)$^-$			
		3678[c]		2684.03	3/2$^-$	D+Q	0.045 +14−4	
		3778.0	<5	2583.77	3/2,5/2			
		3888.6	38 5	2472.49	3/2$^-$	D+Q	0.18 6	
		4003.6	24 5	2358.13	3/2$^-$	D+Q	0.37 +20−15	
		4273.1	29 5	2088.89	(1/2)$^-$	D(+Q)	<0.12	
		4701.0	<5	1660.42	3/2$^-$			
		4967.7	90 5	1394.29	5/2$^-$	D+Q	0.17 7	

From ENSDF

$^{61}_{29}Cu_{32}$-18

Adopted Levels, Gammas (continued)

$\gamma(^{61}Cu)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.[#]	δ
6362.0	3/2	5391.7	38 *5*	970.07	$5/2^-$	D+Q	0.13 *11*
		5885.7	14 *5*	475.05	$1/2^-$		
		6361.5	100 *10*	0.0	$3/2^-$	D+Q	0.15 *3*
6372.7	3/2	2642	13 *4*	3730.1			
		2666	13 *4*	3706.1			
		2848	8 *4*	3521.2	$1/2^-,3/2^-,5/2^-$		
		2942	29 *4*	3430.3			
		3280[c]		3092.1	$3/2^-$		
		3307[c]		3065.57	$3/2^-$		
		3354.7	8 *4*	3019.3	$3/2^-$		
		3516.2[c]		2857.1	$(3/2)^-$		
		3688[c]		2684.03	$3/2^-$	D+Q	0.30 *10*
		3788.8	13 *4*	2583.77	3/2,5/2		
		3899.4	13 *4*	2472.49	$3/2^-$	D+Q	0.50 *10*
		4169	21 *4*	2203.41	$5/2^-$	D(+Q)	<0.3
		4283.9	21 *4*	2088.89	$(1/2)^-$	D(+Q)	0.00 *4*
		4711.8	13 *4*	1660.42	$3/2^-$		
		4978.5	75 *4*	1394.29	$5/2^-$	D+Q	0.13 *4*
		5402.5	46 *4*	970.07	$5/2^-$	D+Q	0.17 *7*
		5896.5	46 *4*	475.05	$1/2^-$	D+Q	0.20 *12*
		6372.3	100 *8*	0.0	$3/2^-$	D+Q	0.20 *1*
6378.5	3/2	2854	5.6 *19*	3521.2	$1/2^-,3/2^-,5/2^-$		
		3537	1.9 *19*	2840.53	$1/2^-,3/2^-$		
		3586.6	3.7 *19*	2792.56	$5/2^-$		
		3794.7	3.7 *19*	2583.77	3/2,5/2		
		3905.3	3.7 *19*	2472.49	$3/2^-$	D+Q	0.20 *10*
		4289.8	7.4 *19*	2088.89	$(1/2)^-$	D+Q	0.03 *1*
		4473.9[c]		1904.20	$5/2^-$		
		4717.7	1.9 *19*	1660.42	$3/2^-$		
		4984.4	27.8 *19*	1394.29	$5/2^-$	D(+Q)	0.00 *5*
		5408.4	9.3 *19*	970.07	$5/2^-$	D(+Q)	0.03 *10*
		5902.4	16.7 *19*	475.05	$1/2^-$		
		6378.2	100 *4*	0.0	$3/2^-$	D+Q	0.10 *2*
6393.4	$3/2^-$	2663	3.7 *19*	3730.1			
		2687	9.3 *19*	3706.1			
		2869	1.9 *19*	3521.2	$1/2^-,3/2^-,5/2^-$		
		2963	1.9 *19*	3430.3			
		3301	5.6 *19*	3092.1	$3/2^-$		
		3328	<1.9	3065.57	$3/2^-$		
		3375.3	1.9 *19*	3019.3	$3/2^-$		
		3391[c]		3001.67	5/2		
		3536.8	7.4 *19*	2857.1	$(3/2)^-$		
		3552	<1.9	2840.53	$1/2^-,3/2^-$		

$^{61}_{29}Cu_{32}$-19

$\gamma(^{61}Cu)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ
6393.4	3/2⁻	3709[c]		2684.03	3/2⁻	D+Q	0.40 *15*
		4035.0[c]		2358.13	3/2⁻	D+Q	0.16 *10*
		4304.5	14.8 *19*	2088.89	(1/2)⁻	D(+Q)	0.00 *10*
		4488.6	1.9 *19*	1904.20	5/2⁻		
		4732.4	<1.9	1660.42	3/2⁻		
		4999.1	33.3 *19*	1394.29	5/2⁻	D(+Q)	0.00 *10*
		5423.1	1.9 *19*	970.07	5/2⁻	D(+Q)	0.00 *22*
		6392.9	100 *4*	0.0	3/2⁻	D+Q	0.16 *1*
6429.6	(1/2)	3955.5	1.4 *14*	2472.49	3/2⁻		
		4070.5	7.1 *14*	2358.13	3/2⁻		
		4340.0	2.9 *14*	2088.89	(1/2)⁻		
		5952.6	31 *3*	475.05	1/2⁻		
		6428.4	100 *3*	0.0	3/2⁻		
6441.6	5/2	3968.2	4.4 *15*	2472.49	3/2⁻		
		4497	5.9 *15*	1942.56	7/2⁻		
		5047.3	7.4 *15*	1394.29	5/2⁻		
		5130.8	11.8 *15*	1310.49	7/2⁻		
		5471.3	17.7 *15*	970.07	5/2⁻		
		6441.1	100 *3*	0.0	3/2⁻		
6446.1	5/2	3381	3 *3*	3065.57	3/2⁻		
		3444	3 *3*	3001.67	5/2	D+Q	0.1
		3719	36 *3*	2728.21	7/2⁻		
		3973.2	28 *3*	2472.49	3/2⁻	D(+Q)	0.0
		4243	50 *3*	2203.41	5/2⁻	D+Q	0.2
		4502	3 *3*	1942.56	7/2⁻		
		4513	3 *3*	1932.52	3/2⁻		
		4713.7	3 *3*	1732.58	7/2⁻		
		4785.6[c]		1660.42	3/2⁻		
		5052.3	14 *3*	1394.29	5/2⁻	D+Q	0.4
		5135.8	100 *6*	1310.49	7/2⁻	D+Q	0.05
		5476.3	39 *3*	970.07	5/2⁻	D+Q	0.31
		5970.3[c]		475.05	1/2⁻		
		6446.1[c]		0.0	3/2⁻	D(+Q)	0.0
6457.6	5/2	5147	53 *3*	1310.49	7/2⁻		
		5487	13.3 *17*	970.07	5/2⁻		
		6457	100 *3*	0.0	3/2⁻		
6466.4	3/2	3674.1	3.9 *19*	2792.56	5/2⁻		
		3882.2	3.9 *19*	2583.77	3/2,5/2		
		4805.2	7.7 *19*	1660.42	3/2⁻	D+Q	0.17 *8*
		5495.9	21.2 *19*	970.07	5/2⁻	D(+Q)	0.07 *8*
		5989.9	52 *4*	475.05	1/2⁻	D(+Q)	0.01 *4*
		6465.7	100 *4*	0.0	3/2⁻	D+Q	0.07 *2*
6505.6	3/2	4844.6		1660.42	3/2⁻	D+Q	0.35 *18*

$^{61}_{29}Cu_{32}$-20

Adopted Levels, Gammas (continued)

$\gamma(^{61}Cu)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.[#]	δ	Comments
6505.6	3/2	5111.3		1394.29	$5/2^-$	D(+Q)	0.06 *16*	
		5535.3		970.07	$5/2^-$	D(+Q)	0.16 *18*	
		6029.3		475.05	$1/2^-$	D(+Q)	0.05 *10*	
		6505.1		0.0	$3/2^-$	D+Q	0.51 *6*	
6535.1	(3/2)	4874.1		1660.42	$3/2^-$	D+Q	0.08 *6*	
		6058.8		475.05	$1/2^-$	D+Q	0.39 *4*	
		6534.6		0.0	$3/2^-$	D+Q	0.19 *3*	
6541.1	3/2	4880.0		1660.42	$3/2^-$	D+Q	0.32 *7*	
		6064.7		475.05	$1/2^-$	D(+Q)	0.08 *7*	
		6540.5		0.0	$3/2^-$	D(+Q)	0.02 *2*	
6564.6	3/2	6087.3		475.05	$1/2^-$	D+Q	0.14 *7*	
		6563.1		0.0	$3/2^-$	D+Q	0.23 *8*	
6572.2	$(19/2^+)$	515.9 *3*	100 *12*	6055.95	$(17/2^+)$	D		
		718.7 *3*	5.8 *5*	5853.3	$(17/2^+)$	D+Q		
		1451.7 *3*	61 *4*	5119.96	$17/2^+$	D+Q		
6584.3	$1/2^+$	3566	100	3019.3	$3/2^-$			
		3652	78	2932.56	$3/2^-$			
		4111	39	2472.49	$3/2^-$			
		4226	32	2358.13	$3/2^-$			
		4651	22	1932.52	$3/2^-$			
		4924	61	1660.42	$3/2^-$			
		6584	26	0.0	$3/2^-$			
6585.2	(3/2,5/2)	4227		2358.13	$3/2^-$	D+Q	0.36 *9*	
6605.0	3/2	4246		2358.13	$3/2^-$	D+Q	0.12 *7*	
		4401		2203.41	$5/2^-$	D+Q	0.22 *13*	
		5210		1394.29	$5/2^-$	D+Q	0.14 *8*	
		6604		0.0	$3/2^-$	D+Q	0.19 *5*	
6619.5	3/2	3355[c]	3.0 *15*	3260.42	$11/2^-$			γ to $11/2^-$ requiring E4 or M4 is unlikely.
		3554	1.5 *15*	3065.57	$3/2^-$			
		3935	3.0 *15*	2684.03	$3/2^-$			
		4219	3.0 *15*	2399.35	$7/2^-$			
		4261	3.0 *15*	2358.13	$3/2^-$			
		4416	3.0 *15*	2203.41	$5/2^-$			
		4887	4.6 *15*	1732.58	$7/2^-$			
		5225	22.7 *15*	1394.29	$5/2^-$			
		5309	1.5 *15*	1310.49	$7/2^-$			
		5649	7.6 *15*	970.07	$5/2^-$			
		6619	100 *3*	0.0	$3/2^-$	D+Q	0.78 *12*	
6627.2	$1/2^-$	2331[c]	2.9	4296.1	$(11/2^-)$			γ to $(11/2^-)$ requiring M5 is unlikely.
		2680[c]	20	3947.0?				
		2837	26	3790.2				
		2897	5.7	3730.1				
		3037[c]	20	3591	$(5/2^+)$	[M2]		

$\gamma(^{61}Cu)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.[#]	δ	Comments
6627.2	1/2⁻	3350	5.7	3277.1				γ to (7/2⁺,9/2⁺) level at 3277 keV from 6627, 1/2⁻ level. Either this γ is questionable or there are two separate levels near 3277 keV.
		3535	17	3092.1	3/2⁻			
		3562	23	3065.57	3/2⁻			
		3609	5.7	3019.3	3/2⁻			
		3786	5.7	2840.53	1/2⁻,3/2⁻			
		4269	8.6	2358.13	3/2⁻			
		4694	5.7	1932.52	3/2⁻			
		4966	8.6	1660.42	3/2⁻			
		6151	100	475.05	1/2⁻			
		6627	31	0.0	3/2⁻			
6645.1	1/2⁻	3368	53 *15*	3277.1				
		3580	18 *15*	3065.57	3/2⁻			
		3713[c]		2932.56	3/2⁻			
		3789	24 *15*	2857.1	(3/2)⁻			
		3804	26 *15*	2840.53	1/2⁻,3/2⁻			
		4172	44 *15*	2472.49	3/2⁻			
		4557	29 *15*	2088.89	(1/2)⁻			
		6169[c]		475.05	1/2⁻			
		6645	100 *15*	0.0	3/2⁻			
6678.4	(1/2⁻)	3248	7 *4*	3430.3				
		3586	29 *4*	3092.1	3/2⁻			
		3613	11 *4*	3065.57	3/2⁻			
		3746	36 *4*	2932.56	3/2⁻			
		3822	14 *4*	2857.1	(3/2)⁻			
		3837	4 *4*	2840.53	1/2⁻,3/2⁻			
		4205	39 *4*	2472.49	3/2⁻			
		4320	25 *4*	2358.13	3/2⁻			
		4745	32 *4*	1932.52	3/2⁻			
		4774	18 *4*	1904.20	5/2⁻			
		5018	7 *4*	1660.42	3/2⁻			
		5708	4 *4*	970.07	5/2⁻			
		6202	32 *4*	475.05	1/2⁻			
		6678	100 *7*	0.0	3/2⁻			
6712.4	3/2⁻	4808		1904.20	5/2⁻	D+Q	+0.44 *36*	
		5049		1660.42	3/2⁻	D+Q	+1.29 *+0−79*	
		5317		1394.29	5/2⁻	D+Q	+0.8 *+0−5*	
		6237		475.05	1/2⁻	D(+Q)	−0.19 *44*	
		6712		0.0	3/2⁻	D+Q	+1.25 *+18−13*	
6739.0	3/2⁻,5/2⁻	4266		2472.49	3/2⁻	D+Q	+34 *16*	
		5344		1394.29	5/2⁻	D+Q	+0.8 *+0−3*	
		5769		970.07	5/2⁻	D+Q	+0.25 *+19−13*	
		6739		0.0	3/2⁻	D+Q	+0.83 *+46−18*	

$^{61}_{29}Cu_{32}$-22

γ(^{61}Cu) (continued)

E_i(level)	J_i^π	E_γ†	I_γ‡	E_f	J_f^π	Mult.#	δ	Comments
6802.3	1/2+	3012	39	3790.2				γ to (7/2,9/2) level at 3790 keV from 6802, 1/2+ level. Either this γ is questionable or there are two separate levels near 3790 keV.
		3444	21	3358.2				
		3784	21	3019.3	3/2−			
		4714	20	2088.89	(1/2)−			
		4869	12	1932.52	3/2−			
		5142	47	1660.42	3/2−			
		6326	10	475.05	1/2−			
		6802	100	0.0	3/2−			
6822.1	21/2+	967.6 *3*	6.1 *6*	5856.3	19/2+	M1+E2		
		1704.9 *1*	100 *3*	5119.96	17/2+	E2		
6915.0	(3/2−)	4982		1932.52	3/2−	D+Q	+0.55 *+74−23*	
		6439		475.05	1/2−	D(+Q)	−0.07 *10*	
		6914		0.0	3/2−	D+Q	+0.70 *+25−15*	
6937.4	3/2−	4849		2088.89	(1/2)−	D(+Q)	0.00 *12*	
		5033		1904.20	5/2−	D(+Q)	−0.01 *14*	
		5967		970.07	5/2−	D(+Q)	+0.14 *13*	
		6937		0.0	3/2−	D+Q	+0.37 *9*	
7011.2	3/2−	3398[c]	9.1	3612.6				
		3599	4.6	3411.7	(5/2)+			
		3734	9.1	3277.1				
		3946	23	3065.57	3/2−			
		4079	45	2932.56	3/2−	D(+Q)	−0.05 *+13−18*	
		4155	23	2857.1	(3/2)−			
		4219	14	2792.56	5/2−			
		4327	18	2684.03	3/2−	D(+Q)	−0.12 *22*	
		4538	4.6	2472.49	3/2−			
		4653	14	2358.13	3/2−			
		4808	23	2203.41	5/2−			
		4923	23	2088.89	(1/2)−	D+Q	+0.21 *9*	
		5067	9.1	1942.56	7/2−			
		5078	18	1932.52	3/2−			
		5342		1660.42	3/2−	D+Q	+0.49 *+17−14*	
		5617	100	1394.29	5/2−	D+Q	−0.21 *+18−42*	
		6041	14	970.07	5/2−			
		6535	32	475.05	1/2−	D(+Q)	+0.04 *9*	
		7011	68	0.0	3/2−	D(+Q)	+0.02 *14*	
7016.3	3/2−	5621		1394.29	5/2−	D(+Q)	−0.08 *11*	
		6541		475.05	1/2−	D(+Q)	+0.03 *9*	
		7016		0.0	3/2−	D+Q	+0.18 *7*	
7025.9	5/2	4007	12	3019.3	3/2−			
		4023	12	3001.67	5/2			
		4169	7.7	2857.1	(3/2)−			

$^{61}_{29}Cu_{32}$-23

Adopted Levels, Gammas (continued)

$\gamma(^{61}Cu)$ (continued)

E_i(level)	J_i^π	E_γ†	I_γ‡	E_f	J_f^π	Mult.#	δ	Comments
7025.9	5/2	4233	15	2792.56	$5/2^-$			
		4552	15	2472.49	$3/2^-$			
		4667	15	2358.13	$3/2^-$			
		5092	35	1932.52	$3/2^-$	D+Q	+0.30 *16*	
		5121	12	1904.20	$5/2^-$			
		5293	35	1732.58	$7/2^-$	D(+Q)	−0.02 *11*	
		5364	65	1660.42	$3/2^-$	D+Q	+0.36 *12*	
		5631	7.7	1394.29	$5/2^-$			
		5715	15	1310.49	$7/2^-$			
		6055	38	970.07	$5/2^-$			
		7025	100	0.0	$3/2^-$	D(+Q)	+0.07 *9*	
7043.8	$(3/2,1/2^-)$	4957		2088.89	$(1/2)^-$	D(+Q)	−0.11 *10*	
		5382		1660.42	$3/2^-$	D+Q	+0.50 *+14−10*	
		7045		0.0	$3/2^-$	D+Q	+0.44 *9*	
7060.0	$3/2^-$	5398		1660.42	$3/2^-$	D+Q	+0.50 *+16−13*	
		5666		1394.29	$5/2^-$	D+Q	−0.25 *15*	
		6091		970.07	$5/2^-$	D+Q	+0.14 *10*	
		7058		0.0	$3/2^-$	D+Q	+0.55 *12*	
7107.3	$(1/2^+)$	3317	12	3790.2				γ to (7/2,9/2) level at 3790 keV from 7107, $(1/2^+)$ level. Either this γ is questionable or there are two separate levels near 3790 keV.
		3749	11	3358.2				
		3830	10	3277.1				γ to $(7/2^+,9/2^+)$ level at 3277 keV from 7107, $(1/2^+)$ level. Either this γ is questionable or there are two separate levels near 3277 keV.
		4175	28	2932.56	$3/2^-$			
		4749	30	2358.13	$3/2^-$			
		5019	4.4	2088.89	$(1/2)^-$			
		5174	11	1932.52	$3/2^-$			
		5446	35	1660.42	$3/2^-$			
		6631	100	475.05	$1/2^-$			
		7107	15	0.0	$3/2^-$			
7120.8	$3/2^-$	6645		475.05	$1/2^-$	D+Q	−0.17 *8*	
		7120		0.0	$3/2^-$	D+Q	−0.42 *10*	
7124.4	(19/2)	1268.3 *7*	90 *10*	5856.3	$19/2^+$	D		Mult.: $\Delta J=0$ transition.
		2004.0 *20*	100 *10*	5119.96	$17/2^+$	D		
7201.3	$(3/2^-)$	5539		1660.42	$3/2^-$	D+Q	+0.75 *+54−19*	
		5887		1310.49	$7/2^-$	Q+O	−0.28 *+14−17*	
		6232		970.07	$5/2^-$	D(+Q)	−0.07 *11*	
		6727		475.05	$1/2^-$	D+Q	+0.08 *+11−8*	
		7202		0.0	$3/2^-$	D+Q	+0.65 *+21−13*	
7214.3	$3/2^-$	5819		1394.29	$5/2^-$	D+Q	−0.50 *+15−21*	
		6244		970.07	$5/2^-$	D(+Q)	−0.04 *12*	
		6739		475.05	$1/2^-$	D+Q	+0.14 *10*	
		7214		0.0	$3/2^-$	D+Q	+0.24 *6*	

$^{61}_{29}Cu_{32}$-24

Adopted Levels, Gammas (continued)

$\gamma(^{61}Cu)$ (continued)

E_i(level)	J^{π}_i	E_γ†	I_γ‡	E_f	J^{π}_f	Mult.#
7223.2	1/2$^+$	4158	31	3065.57	3/2$^-$	
		4205	35	3019.3	3/2$^-$	
		4291	25	2932.56	3/2$^-$	
		4750	12	2472.49	3/2$^-$	
		4865	21	2358.13	3/2$^-$	
		5290	36	1932.52	3/2$^-$	
		5562	11	1660.42	3/2$^-$	
		6747	62	475.05	1/2$^-$	
		7223	100	0.0	3/2$^-$	
7262.9	1/2$^+$	3904	3.2	3358.2		
		3985	2.7	3277.1		
		4244	1.7	3019.3	3/2$^-$	
		4578	9.1	2684.03	3/2$^-$	
		4789	2.8	2472.49	3/2$^-$	
		4904	3.1	2358.13	3/2$^-$	
		5174	0.8	2088.89	(1/2)$^-$	
		5329	4.2	1932.52	3/2$^-$	
		5602	10.4	1660.42	3/2$^-$	
		6786	2.5	475.05	1/2$^-$	
		7262	100	0.0	3/2$^-$	
7283.2	1/2$^+$	3846[c]	9.1	3437.1		
		4006	5.3	3277.1		
		4218	2.2	3065.57	3/2$^-$	
		4265	0.74	3019.3	3/2$^-$	
		4442	2.2	2840.53	1/2$^-$,3/2$^-$	
		4599	3.1	2684.03	3/2$^-$	
		4810	3.9	2472.49	3/2$^-$	
		5195	0.74	2088.89	(1/2)$^-$	
		5350	2.8	1932.52	3/2$^-$	
		5622	12	1660.42	3/2$^-$	
		6807	6.4	475.05	1/2$^-$	
		7283	100	0.0	3/2$^-$	
7306.02	21/2$^+$	733.1 4	100 10	6572.2	(19/2$^+$)	D
		1250.0 6	17.3 17	6055.95	(17/2$^+$)	Q
		1450.4 3	4.3 4	5856.3	19/2$^+$	D+Q
7387.1	23/2$^+$	564.4 4	39.5 66	6822.1	21/2$^+$	M1+E2
		1533.0 1	100 10	5856.3	19/2$^+$	E2
7455.2	(21/2$^+$)	1599.0 16	100	5856.3	19/2$^+$	D+Q
7535.4	(21/2$^-$)	1787.0 18	100 8	5748.75	(17/2$^-$)	
		1955.4 20	42 8	5579.9	(17/2$^-$)	Q
7606.5	(21/2$^+$)	1753.0 18	100 5	5853.3	(17/2$^+$)	Q
7847.1	3/2$^+$	6452	57	1394.29	5/2$^-$	
		6537	100	1310.49	7/2$^-$	

E_i(level)	J^{π}_i	E_γ†	I_γ‡	E_f	J^{π}_f	Mult.#
7847.1	3/2$^+$	6877	100	970.07	5/2$^-$	
		7370	86	475.05	1/2$^-$	
7858.6	(21/2)	734.0 7	100	7124.4	(19/2)	D+Q
7937.0	23/2$^-$	1112.2 2	100	6822.1	21/2$^+$	E1
8030.3	(23/2$^+$)	723.9 7	100 10	7306.02	21/2$^+$	D
		1206.0 12	28 3	6822.1	21/2$^+$	D+Q
		1458.3 7	39 4	6572.2	(19/2$^+$)	Q
8131.9	1/2$^+$	6744	22	1394.29	5/2$^-$	[M2]
		6819	100	1310.49	7/2$^-$	[E3]
		7159	61	970.07	5/2$^-$	[M2]
		7653	67	475.05	1/2$^-$	
8151.5	(5/2$^+$)	6754	67	1394.29	5/2$^-$	
		6839	100	1310.49	7/2$^-$	
		7179	50	970.07	5/2$^-$	
		7673	43	475.05	1/2$^-$	
8194.4	(5/2$^+$)	6798	79	1394.29	5/2$^-$	
		6887	79	1310.49	7/2$^-$	
		7223	100	970.07	5/2$^-$	
		7717	63	475.05	1/2$^-$	
8212.1	(21/2$^-$)	2632 3	100	5579.9	(17/2$^-$)	(Q)
8333.8	(23/2$^+$)	1509.3 8	100	6822.1	21/2$^+$	D+Q
8358.1		2778 3	100	5579.9	(17/2$^-$)	
8431.4	5/2	7120.3	54 5	1310.49	7/2$^-$	
		8430.6	100 5	0.0	3/2$^-$	
8436.4	1/2	7960.0	100 5	475.05	1/2$^-$	
		8435.8	16 5	0.0	3/2$^-$	
8440.0	1/2	6778.8	69 17	1660.42	3/2$^-$	
		7045.5	33 17	1394.29	5/2$^-$	
		7963.5	100 28	475.05	1/2$^-$	
		8439.3	75 14	0.0	3/2$^-$	
8442.8	3/2,5/2	7472.3	100 5	970.07	5/2$^-$	
		8442.1	22 5	0.0	3/2$^-$	
8446.0		5724.9	100 7	2720.34	9/2$^+$	
		7134.8	38 9	1310.49	7/2$^-$	
		7969.3	17 5	475.05	1/2$^-$	
		8445.1	17 5	0.0	3/2$^-$	
8447.1	9/2$^+$	4114	16	4333.0?	(7/2,5/2$^+$)	
		4314	2.3	4132.8	9/2$^+$	
		5725	100	2720.34	9/2$^+$	
		6047	40	2399.35	7/2$^-$	
		6504	21	1942.56	7/2$^-$	
		7135	53	1310.49	7/2$^-$	
8448.2	9/2$^+$	3199	13	5251.7		

From ENSDF

$^{61}_{29}Cu_{32}$-25

Adopted Levels, Gammas (continued)

$\gamma(^{61}Cu)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f
8448.2	$9/2^+$	3298	7.6	5153	$(9/2^-,7/2)$
		4319	25	4132.8	$9/2^+$
		4470	1.9	3980.6	$(7/2^-,5/2)$
		5434	17	3015.73	$11/2^-$
		5729	100	2720.34	$9/2^+$
		5823	3.8	2627.12	$11/2^-$
		6051	11	2399.35	$7/2^-$
		6155	9.4	2295.22	$9/2^-$
8454.5	$9/2^+$	3202	14	5251.7	
		3332	24	5126.3	
		4321	28	4132.8	$9/2^+$
		4473	10	3980.6	$(7/2^-,5/2)$
		5437	28	3015.73	$11/2^-$
		5732	100	2720.34	$9/2^+$
		5841	10	2611.99	$9/2^-$
		6054	41	2399.35	$7/2^-$
		6117	21	2336.39	$9/2^-$
		6158	14	2295.22	$9/2^-$
		6511	17	1942.56	$7/2^-$
		6720	41	1732.58	$7/2^-$
8458.6	$9/2^+$	3206	3.3	5251.7	
		3336	10	5126.3	
		4325	6.7	4132.8	$9/2^+$
		5197	13	3260.42	$11/2^-$
		5736	100	2720.34	$9/2^+$
		6058	23	2399.35	$7/2^-$
		6121	47	2336.39	$9/2^-$
		6162	6.7	2295.22	$9/2^-$
		6515	13	1942.56	$7/2^-$
		6724	73	1732.58	$7/2^-$
		7146	37	1310.49	$7/2^-$
8464.4	$9/2^+$	3212	3.1	5251.7	
		3342	1.6	5126.3	
		4082	1.6	4380.4	
		4131	3.1	4333.0?	$(7/2,5/2^+)$
		4331	16	4132.8	$9/2^+$
		4483	3.1	3980.6	$(7/2^-,5/2)$
		5447	13	3015.73	$11/2^-$
		5742	100	2720.34	$9/2^+$
		6064	3.1	2399.35	$7/2^-$
		6168	1.6	2295.22	$9/2^-$
		6521	1.6	1942.56	$7/2^-$
		6730	1.6	1732.58	$7/2^-$

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.[#]
8464.4	$9/2^+$	7152	1.6	1310.49	$7/2^-$	
8465.9	$9/2^+$	3214	3.1	5251.7		
		4133	4.7	4333.0?	$(7/2,5/2^+)$	
		4333	14	4132.8	$9/2^+$	
		4485	1.6	3980.6	$(7/2^-,5/2)$	
		5449	13	3015.73	$11/2^-$	
		5744	100	2720.34	$9/2^+$	
		6129	16	2336.39	$9/2^-$	
		6732	1.6	1732.58	$7/2^-$	
		7154	3.1	1310.49	$7/2^-$	
8469.5	5/2	6564.5[c]	54 *9*	1904.20	$5/2^-$	
		7158.5	100 *12*	1310.49	$7/2^-$	
		8468.8	79 *12*	0.0	$3/2^-$	
8473.1	$9/2^+$	3221	4.8	5251.7		
		4140	1.6	4333.0?	$(7/2,5/2^+)$	
		4340	18	4132.8	$9/2^+$	
		5456	3.2	3015.73	$11/2^-$	
		5470	3.2	3001.67	5/2	
		5751	100	2720.34	$9/2^+$	
		6073	6.5	2399.35	$7/2^-$	
		6136	8.1	2336.39	$9/2^-$	
		6177	4.8	2295.22	$9/2^-$	
		6530	4.8	1942.56	$7/2^-$	
		7161	6.5	1310.49	$7/2^-$	
8476.3	$9/2^+$	3224	6.0	5251.7		
		3354	10	5126.3		
		4343	16	4132.8	$9/2^+$	
		5473	4.0	3001.67	5/2	
		5754	100	2720.34	$9/2^+$	
		5863	6.0	2611.99	$9/2^-$	
		6076	12	2399.35	$7/2^-$	
		6139	12	2336.39	$9/2^-$	
		6180	6.0	2295.22	$9/2^-$	
		6533	6.0	1942.56	$7/2^-$	
		7164	22	1310.49	$7/2^-$	
8478.3	$9/2^+$	3226	1.5	5251.7		
		3356	1.5	5126.3		
		4345	6.0	4132.8	$9/2^+$	
		4497	3.0	3980.6	$(7/2^-,5/2)$	
		5461	3.0	3015.73	$11/2^-$	[E3]
		5756	100	2720.34	$9/2^+$	
		5850	9.0	2627.12	$11/2^-$	
		5865	4.5	2611.99	$9/2^-$	

$^{61}_{29}Cu_{32}$-26

Adopted Levels, Gammas (continued)

γ(^{61}Cu) (continued)

E$_i$(level)	J$^\pi_i$	E$_\gamma$†	I$_\gamma$‡	E$_f$	J$^\pi_f$
8478.3	9/2$^+$	6078	4.5	2399.35	7/2$^-$
		6141	3.0	2336.39	9/2$^-$
		6182	3.0	2295.22	9/2$^-$
		6535	3.0	1942.56	7/2$^-$
		6744	3.0	1732.58	7/2$^-$
		7166	4.5	1310.49	7/2$^-$
8483.5	9/2$^+$	3016	2.6	5464.4	
		3359	2.6	5126.3	
		4148	1.3	4333.0?	(7/2,5/2$^+$)
		4348	5.1	4132.8	9/2$^+$
		4500	2.6	3980.6	(7/2$^-$,5/2)
		5759	100	2720.34	9/2$^+$
		5853	10	2627.12	11/2$^-$
		7169	5.1	1310.49	7/2$^-$
8485.0	9/2$^+$	3233	1.8	5251.7	
		4103	3.6	4380.4	
		4352	15	4132.8	9/2$^+$
		4504	1.8	3980.6	(7/2$^-$,5/2)
		5468	5.5	3015.73	11/2$^-$
		5482	7.3	3001.67	5/2
		5763	100	2720.34	9/2$^+$
		5857	3.6	2627.12	11/2$^-$
		6148	3.6	2336.39	9/2$^-$
		6189	1.8	2295.22	9/2$^-$
		6542	13	1942.56	7/2$^-$
		6751	16	1732.58	7/2$^-$
		7173	9.1	1310.49	7/2$^-$
8489.9	1/2	6828.7	63 8	1660.42	3/2$^-$
		8013.4	29 10	475.05	1/2$^-$
		8489.2	100 10	0.0	3/2$^-$
8492.4	3/2	7181.4	55 12	1310.49	7/2$^-$
		7521.9	67 12	970.07	5/2$^-$
		8015.9	82 12	475.05	1/2$^-$
		8491.7	100 12	0.0	3/2$^-$
8499.9	5/2	6766.2	92 10	1732.58	7/2$^-$
		7188.3	64 10	1310.49	7/2$^-$
		8499.6	100 10	0.0	3/2$^-$
8503.7		8503.1	100	0.0	3/2$^-$
8507.3	1/2	8506.7	100	0.0	3/2$^-$
8508.1	1/2	6603.1^c	47 16	1904.20	5/2$^-$
		6846.9	58 14	1660.42	3/2$^-$
		8031.6	28 12	475.05	1/2$^-$
		8507.4	100 14	0.0	3/2$^-$

E$_i$(level)	J$^\pi_i$	E$_\gamma$†	I$_\gamma$‡	E$_f$	J$^\pi_f$	Mult.#
8509.9		6306^c	13 3	2203.41	5/2$^-$	
		6576	14 3	1932.52	3/2$^-$	
		6848.8	7 3	1660.42	3/2$^-$	
		7199.0	7 4	1310.49	7/2$^-$	
		8509.3	100 6	0.0	3/2$^-$	
8515.4		8039.0	100	475.05	1/2$^-$	
8522.6	1/2,3/2	8046.2	54 8	475.05	1/2$^-$	
		8522.0	100 8	0.0	3/2$^-$	
8625.4	(23/2)	767.0 8	100 8	7858.6	(21/2)	D+Q
		1501.0 15	23 8	7124.4	(19/2)	
8678.7	(21/2$^-$)	2106.6 11	100 17	6572.2	(19/2$^+$)	D
		3101.2 16	50 8	5579.9	(17/2$^-$)	Q
8789.0	(25/2$^+$)	758.7 4	100 10	8030.3	(23/2$^+$)	D+Q
		1483.2 7	40 5	7306.02	21/2$^+$	Q
8885.1	(25/2$^+$)	854.9 4	100 10	8030.3	(23/2$^+$)	D+Q
		1429.9 14	21.0 20	7455.2	(21/2$^+$)	
		1495.8 15	40.0 20	7387.1	23/2$^+$	D+Q
		1578.9 16	31.0 20	7306.02	21/2$^+$	Q
9138.8		2314.0 23	100	6822.1	21/2$^+$	
9287.1	(23/2$^-$)	608.2 3	100 10	8678.7	(21/2$^-$)	D
		929.0 8	3.5 17	8358.1		
		1075.0 11	3.5 17	8212.1	(21/2$^-$)	
		1980.6 20	24 4	7306.02	21/2$^+$	D
9408.1	27/2$^-$	1471.4 3	100	7937.0	23/2$^-$	E2
9474.4	(25/2)	849.0 9	100 10	8625.4	(23/2)	D+Q
		1616.0 16	27 9	7858.6	(21/2)	
9643.9	(25/2$^-$)	1707.0 17	100	7937.0	23/2$^-$	D
9725.1	(27/2$^+$)	840.1 4	66 7	8885.1	(25/2$^+$)	
		935.9 5	100 9	8789.0	(25/2$^+$)	D
		1695.0 8	67 7	8030.3	(23/2$^+$)	Q
9789.9	(27/2$^-$)	1853.0 19	100	7937.0	23/2$^-$	Q
9957.5	(25/2$^-$)	670.3 3	100 11	9287.1	(23/2$^-$)	D
		1279.5 6	39 4	8678.7	(21/2$^-$)	
		1928.0 19	24.1 19	8030.3	(23/2$^+$)	D
		2422.0 24	13.0 19	7535.4	(21/2$^-$)	Q
		2568 3	14.8 19	7387.1	23/2$^+$	
10342.4	(27/2)	868.0 9	100 10	9474.4	(25/2)	D+Q
		1717.0 17	40 10	8625.4	(23/2)	Q
10347.2	(25/2$^+$)	2013.0 20	100 25	8333.8	(23/2$^+$)	
		2317.1 23	50 25	8030.3	(23/2$^+$)	D+Q
		2958 3	75 25	7387.1	23/2$^+$	
		3523 4	50 25	6822.1	21/2$^+$	
10409.5	(25/2$^+$)	2472.4 12	65 6	7937.0	23/2$^-$	D

From ENSDF

$\gamma(^{61}Cu)$ (continued)

E_i(level)	J_i^π	E_γ†	I_γ‡	E_f	J_f^π	Mult.#	Comments
10409.5	(25/2$^+$)	2954 3	18 6	7455.2	(21/2$^+$)		
		3584 4	100 12	6822.1	21/2$^+$	Q	
10462.7	(25/2$^+$)	2127.9 21	77 8	8333.8	(23/2$^+$)	D+Q	
		3008 3	15 8	7455.2	(21/2$^+$)		
		3074 3	100 8	7387.1	23/2$^+$	D+Q	
		3638 4	69	6822.1	21/2$^+$	Q	
10687.7	(27/2$^-$)	730.1 4	100 10	9957.5	(25/2$^-$)	D+Q	
		897.6 9	4.6 11	9789.9	(27/2$^-$)		Mult.: ΔJ=0 transition.
		1400.9 7	43 5	9287.1	(23/2$^-$)	Q	
		1802.5 18	11.5 11	8885.1	(25/2$^+$)		
10906.6	(29/2$^+$)	1181.0 12	100 10	9725.1	(27/2$^+$)	D+Q	
		2118.0 14	13.0 13	8789.0	(25/2$^+$)	Q	
11019		3630 4	100	7387.1	23/2$^+$		
11132.9	(31/2$^-$)	1343.4 13	9.7 16	9789.9	(27/2$^-$)	Q	
		1723.7 9	100 10	9408.1	27/2$^-$	Q	
11144		3755 4	100	7387.1	23/2$^+$		
11237.0	(27/2$^-$)	3300 3	100	7937.0	23/2$^-$		
11255		3866 4	100	7387.1	23/2$^+$		
11301.6	(29/2$^-$)	613.8 3	100 11	10687.7	(27/2$^-$)	D+Q	
		1344.4 7	29 3	9957.5	(25/2$^-$)	Q	
		1893.1 19	5.3 13	9408.1	27/2$^-$		
11303.2	(27/2$^-$)	1894.0 19	66 17	9408.1	27/2$^-$	D	Mult.: ΔJ=0 transition.
		3367 3	100 17	7937.0	23/2$^-$	Q	
11369.5	(29/2)	1027.0 10	100 10	10342.4	(27/2)	D+Q	
		1644.4 16	50 10	9725.1	(27/2$^+$)		
		1895.0 19	30 10	9474.4	(25/2)		
11752.7	(29/2$^-$)	2060.0 21	60 20	9692.7	(25/2$^-$)	Q	
		2109.0 21	60 20	9643.9	(25/2$^-$)	(Q)	
		2344.0 23	100 20	9408.1	27/2$^-$	(D+Q)	
11775.8	(29/2$^+$)	1313.0 15	67 17	10462.7	(25/2$^+$)		
		1366.0 16	100 10	10409.5	(25/2$^+$)		
		1428.6 14	25 3	10347.2	(25/2$^+$)	Q	
		2367.9 24	50 5	9408.1	27/2$^-$	D	
12003.7	(31/2$^-$)	702.2 4	100 10	11301.6	(29/2$^-$)	D+Q	
		870.2 9	31 3	11132.9	(31/2$^-$)	D	Mult.: ΔJ=0 transition.
		1316.8 13	61 7	10687.7	(27/2$^-$)		
12086.6	(31/2$^+$)	1180.0 12	100 20	10906.6	(29/2$^+$)	D+Q	
		2362.0 24	80 4	9725.1	(27/2$^+$)	Q	
12355.5	(31/2)	986.0 10	100 12	11369.5	(29/2)	D+Q	
		2013.0 20	37 12	10342.4	(27/2)		
12793.5	(31/2$^-$)	1490.0 15	41 6	11303.2	(27/2$^-$)		
		1556.5 16	5.9 6	11237.0	(27/2$^-$)		
		3386 3	100 12	9408.1	27/2$^-$	Q	

$^{61}_{29}Cu_{32}$-28

Adopted Levels, Gammas (continued)

$\gamma(^{61}Cu)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ‡	E_f	J^π_f	Mult.#
12839.2	$(33/2^-)$	835.5 *4*	100 *10*	12003.7	$(31/2^-)$	D+Q
		1537.3 *8*	32 *4*	11301.6	$(29/2^-)$	Q
12847.3	$(29/2^+)$	757.2 *8*	100 *20*	12090	$(27/2^+)$	
		1398.0 *14*	100 *20*	11449	$(25/2^+)$	
		3122.0[c] *31*	60 *20*	9725.1	$(27/2^+)$	
		4058[c] *4*	40 *20*	8789.0	$(25/2^+)$	
13146	$(31/2^-)$	3737 *4*	100	9408.1	$27/2^-$	Q
13206.0	$(29/2^+)$	3480 *4*	100	9725.1	$(27/2^+)$	
13284.5	$(33/2^+)$	1509.4 *15*	100	11775.8	$(29/2^+)$	Q
13419.7	$(33/2^+)$	1642.9 *16*	100	11775.8	$(29/2^+)$	
13678	$(31/2^+)$	830.6 *8*	17 *8*	12847.3	$(29/2^+)$	
		1587.8 *16*	100 *17*	12090	$(27/2^+)$	Q
13874.2	$(31/2^+)$	668.2 *7*	100 *14*	13206.0	$(29/2^+)$	D+Q
		4150 *4*	57 *14*	9725.1	$(27/2^+)$	Q
13983.5	(33/2)	1628.0 *16*	36 *7*	12355.5	(31/2)	D+Q
		1897.0 *19*	100 *7*	12086.6	$(31/2^+)$	D
		2614 *3*	50 *7*	11369.5	(29/2)	Q
14020.6	(33/2)	1665.0 *17*	56 *11*	12355.5	(31/2)	D+Q
		1934.0 *19*	100 *11*	12086.6	$(31/2^+)$	
		2651 *3*	44 *11*	11369.5	(29/2)	
14023.8	$(35/2^-)$	1183.6 *13*	100 *10*	12839.2	$(33/2^-)$	D+Q
		2021.3 *20*	27 *2*	12003.7	$(31/2^-)$	Q
14068	$(33/2^-)$	2315.0 *23*	100	11752.7	$(29/2^-)$	Q
14163		3030 *3*	100	11132.9	$(31/2^-)$	
14563	$(33/2^+)$	885.4 *10*	27 *9*	13678	$(31/2^+)$	
		1716.0 *17*	100 *18*	12847.3	$(29/2^+)$	
14587.1	$(33/2^+)$	713.1 *7*	30 *10*	13874.2	$(31/2^+)$	D+Q
		1381.0 *14*	100 *10*	13206.0	$(29/2^+)$	Q
		2500.5[c] *25*	10 *10*	12086.6	$(31/2^+)$	D+Q
14628.1	$(35/2^-)$	1834.6 *18*	100	12793.5	$(31/2^-)$	Q
14800.4	(35/2)	780.0 *10*	11 *4*	14020.6	(33/2)	D+Q
		817.0 *10*	64 *7*	13983.5	(33/2)	D
		1961.0 *20*	100 *7*	12839.2	$(33/2^-)$	D
15201.7	$(37/2^-)$	1177.4 *13*	100 *9*	14023.8	$(35/2^-)$	D+Q
		2364.3 *24*	82 *9*	12839.2	$(33/2^-)$	Q
15232.0	$(37/2^+)$	1811.0 *18*	13.3 *25*	13419.7	$(33/2^+)$	Q
		1948.9 *20*	100 *10*	13284.5	$(33/2^+)$	Q
15311	$(33/2^+)$	1488.0 *15*	100	13823	$(29/2^+)$	
15434.6	$(35/2^+)$	848.0 *10*	36 *5*	14587.1	$(33/2^+)$	D+Q
		1559.8 *16*	100 *18*	13874.2	$(31/2^+)$	Q
15524	$(35/2^+)$	960.3 *10*	20 *10*	14563	$(33/2^+)$	
		1845.7 *19*	100 *20*	13678	$(31/2^+)$	Q
15742.3	(37/2)	942.0 *10*	100 *5*	14800.4	(35/2)	D
15742.3	(37/2)	1721.0 *17*	15 *5*	14020.6	(33/2)	
		1759.0 *18*	50 *5*	13983.5	(33/2)	Q
16302.2	$(37/2^+)$	868.0 *10*	67 *8*	15434.6	$(35/2^+)$	D+Q
		1714.3 *17*	100 *42*	14587.1	$(33/2^+)$	
16571.2	(39/2)	829.0 *10*	64 *5*	15742.3	(37/2)	D
		1771.0 *18*	100 *5*	14800.4	(35/2)	Q
16588	$(37/2^+)$	2025.0 *20*	100	14563	$(33/2^+)$	Q
16615	$(37/2^-)$	2547 *3*	100	14068	$(33/2^-)$	Q
16921	$(39/2^-)$	2293.0 *23*	100	14628.1	$(35/2^-)$	
17039	$(39/2^-)$	2411.0 *24*	100	14628.1	$(35/2^-)$	
17067	$(37/2^+)$	1756.0 *18*	100	15311	$(33/2^+)$	
17310.6	$(39/2^+)$	1008.4 *10*	15 *5*	16302.2	$(37/2^+)$	
		1875.9 *19*	100 *20*	15434.6	$(35/2^+)$	Q
17431	$(41/2^+)$	2198.7 *22*	100	15232.0	$(37/2^+)$	Q
17618.0	(41/2)	1047.0 *10*	100 *6*	16571.2	(39/2)	D+Q
		1875.0 *19*	56 *6*	15742.3	(37/2)	Q
17750	$(39/2^+)$	2226.7 *22*	100	15524	$(35/2^+)$	(Q)
18353.0	$(41/2^+)$	1042.3 *10*	5.6 *56*	17310.6	$(39/2^+)$	
		2050.7 *21*	100 *17*	16302.2	$(37/2^+)$	
18857.3	(43/2)	1239.0 *12*	100 *6*	17618.0	(41/2)	D+Q
		2286.0 *23*	47 *6*	16571.2	(39/2)	
18995	$(41/2^+)$	2407.0 *24*	100	16588	$(37/2^+)$	Q
19134	$(41/2^+)$	2067.0 *21*	100 *17*	17067	$(37/2^+)$	
		3902 *4*	50 *17*	15232.0	$(37/2^+)$	Q
19472	$(41/2^-)$	2857 *3*	100	16615	$(37/2^-)$	Q
19562	$(43/2^+)$	1209.0 *12*	59 *6*	18353.0	$(41/2^+)$	
		2252.1 *23*	100 *18*	17310.6	$(39/2^+)$	Q
19878	$(43/2^-)$	2839 *3*	100 *33*	17039	$(39/2^-)$	
		2957 *3*	67 *33*	16921	$(39/2^-)$	
19970	$(45/2^+)$	2538.9 *25*	100	17431	$(41/2^+)$	Q
20285	$(43/2^+)$	2534.8 *25*	100	17750	$(39/2^+)$	Q
20550.6	(45/2)	1692.8 *17*	100 *25*	18857.3	(43/2)	
		2934 *3*	75 *25*	17618.0	(41/2)	
20723	$(45/2^+)$	2370.0 *24*	100	18353.0	$(41/2^+)$	
20913.2	(45/2)	2055.9 *21*	100 *17*	18857.3	(43/2)	
		3295 *3*	83 *17*	17618.0	(41/2)	
21536	$(45/2^+)$	2402.0 *24*	100 *20*	19134	$(41/2^+)$	Q
		4105 *4*	40 *20*	17431	$(41/2^+)$	Q
21839	$(45/2^+)$	2844 *3*	100	18995	$(41/2^+)$	(Q)
22212	$(47/2^+)$	2650 *3*	100	19562	$(43/2^+)$	Q
22284	$(45/2^+)$	4853 *5*	100	17431	$(41/2^+)$	
22718	$(45/2^-)$	3246 *3*	100	19472	$(41/2^-)$	
22984	$(49/2^+)$	3014 *3*	100	19970	$(45/2^+)$	(Q)

$\gamma(^{61}Cu)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.[#]
23376	(47/2⁻)	3498 *4*	100	19878	(43/2⁻)	
23418	(47/2⁺)	3133 *3*	100	20285	(43/2⁺)	
23662	(49/2⁺)	2939 *3*	100	20723	(45/2⁺)	
24337	(49/2⁺)	2801 *3*	100 *33*	21536	(45/2⁺)	
		4367 *4*	33 *33*	19970	(45/2⁺)	(Q)
24612	(49/2⁺)	4642 *5*	100	19970	(45/2⁺)	
25121	(49/2⁺)	3281 *3*	100	21839	(45/2⁺)	
25325	(51/2⁺)	3113 *3*	100	22212	(47/2⁺)	(Q)
26577	(53/2⁺)	3592 *4*	100	22984	(49/2⁺)	Q
26842	(53/2⁺)	3857 *4*	100	22984	(49/2⁺)	(Q)
26928	(51/2⁺)	3510 *4*	100	23418	(47/2⁺)	
27023	(53/2⁺)	3362 *3*	100	23662	(49/2⁺)	
		4038 *4*	100	22984	(49/2⁺)	
27525	(53/2⁺)	3188 *3*	100	24337	(49/2⁺)	
28885	(55/2⁺)	3560 *4*	100	25325	(51/2⁺)	
2037.0+x	J1+3	1698.0 *17*	100 *33*	339+x		
		2037.0 *20*	100 *33*	x	J1+1	
2520+x	J1+2	1730.0 *17*	100	790+x	J1	
4288+x	J1+5	2251.0 *23*	100	2037.0+x	J1+3	
4465+x	J1+4	1945.0 *19*	100	2520+x	J1+2	
6674+x	J1+6	2209.0 *22*	100 *20*	4465+x	J1+4	
		2385.6 *24*	40 *20*	4288+x	J1+5	
6735+x	J1+7	2447.2 *24*	100	4288+x	J1+5	
9261+x	J1+8	2587 *3*	100	6674+x	J1+6	
9434+x	J1+9	2699 *3*	100	6735+x	J1+7	
12369+x	J1+10	3108 *3*	100	9261+x	J1+8	
12482+x	J1+11	3048 *3*	100	9434+x	J1+9	
15897+x	J1+13	3414 *3*	100	12482+x	J1+11	
1846.1+y	J2+2	1846.1 *18*	100	y	J2	
3998.3+y	J2+4	2152.2 *22*	100	1846.1+y	J2+2	
		2165.0 *22*	33	1833+y	J2+2	
6459+y	J2+6	2460.3 *25*	100	3998.3+y	J2+4	
9258+y	J2+8	2799 *3*	100	6459+y	J2+6	
12432+y	J2+10	3174 *3*	100	9258+y	J2+8	

† Weighted averages of all available data from γ-ray studies.

‡ Primarily from $^{28}Si(^{36}Ar,3p\gamma)$ reaction (2008An06), unless otherwise stated.

From assignments in 2008An06 based on DCO ratios and band structure, except as noted. All mult=Q transitions are assumed as ΔJ=2, E2 and mult=D+Q as ΔJ=1, M1+E2 transitions. For levels below 9 MeV excitation, several assignments are from γ-ray linear polarization measurements and DCO data from 2004Iz01.

$^{61}_{29}Cu_{32}$-30

Adopted Levels, Gammas (continued)

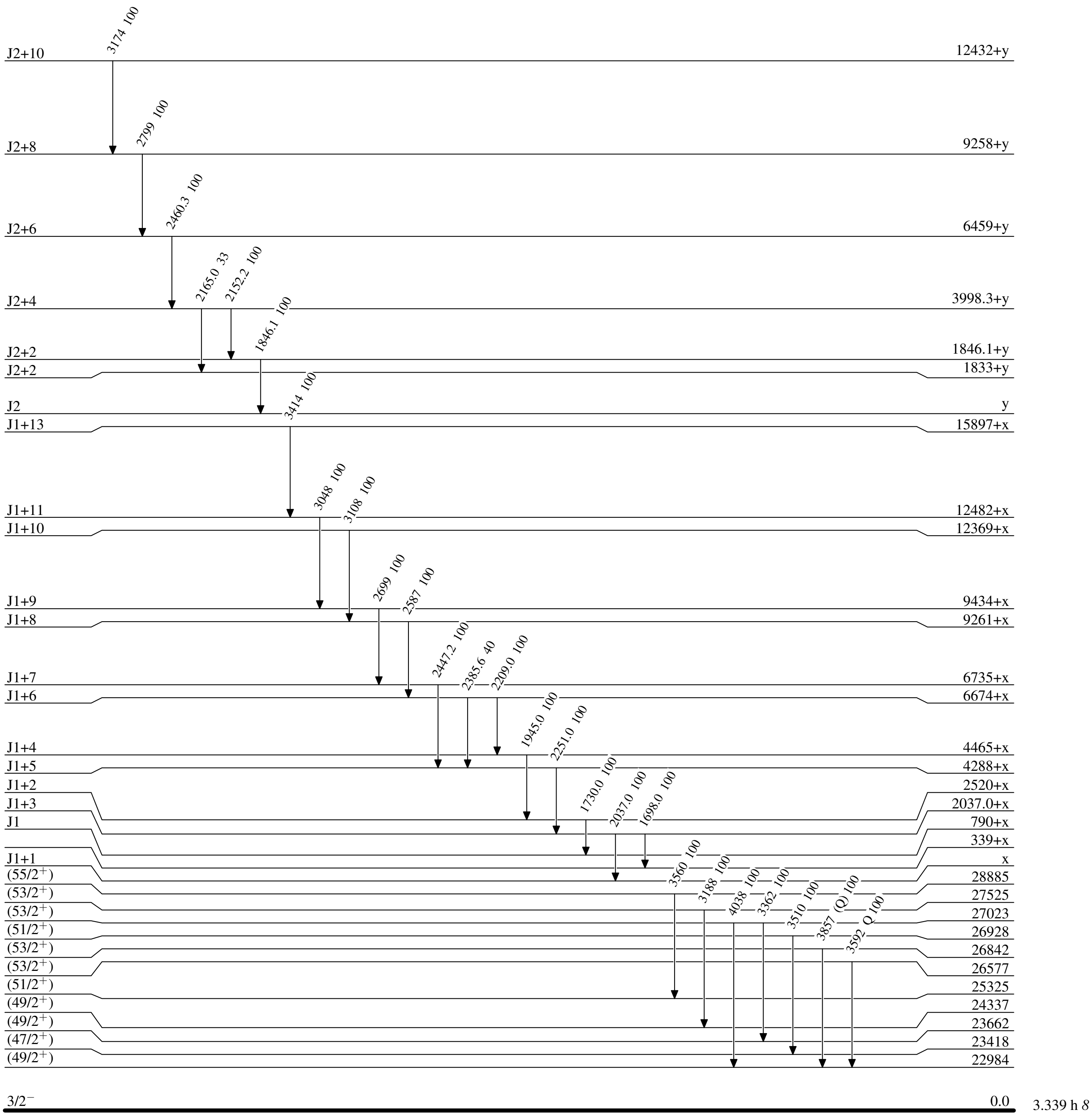
$\gamma(^{61}Cu)$ (continued)

[@] From ^{61}Zn ε decay (89.1 s).
[&] From 1973Sa19 in ^{58}Ni(α,pγ) reaction.
[a] From weighted averages of all available data.
[b] 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.
[c] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

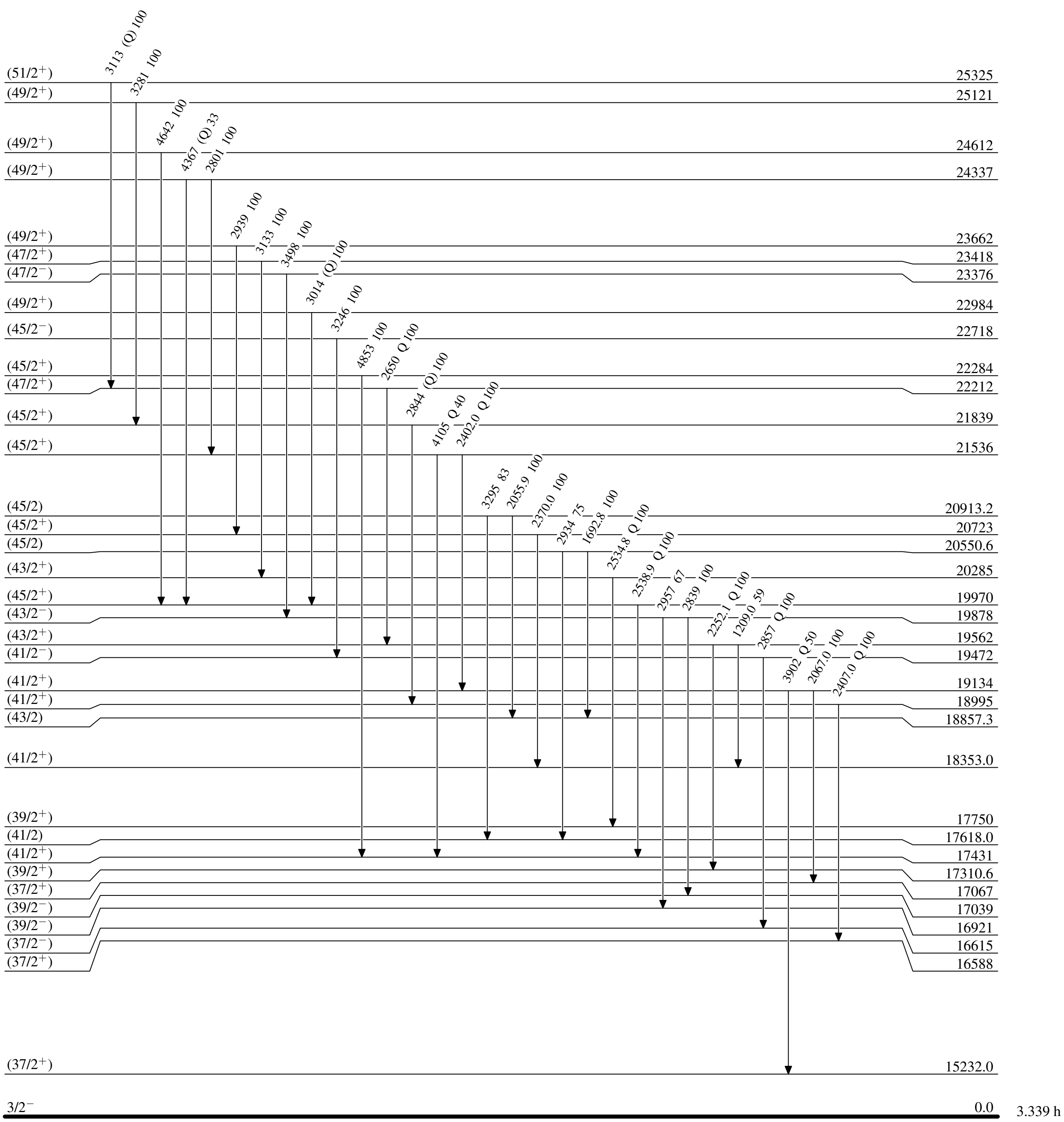


$^{61}_{29}Cu_{32}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

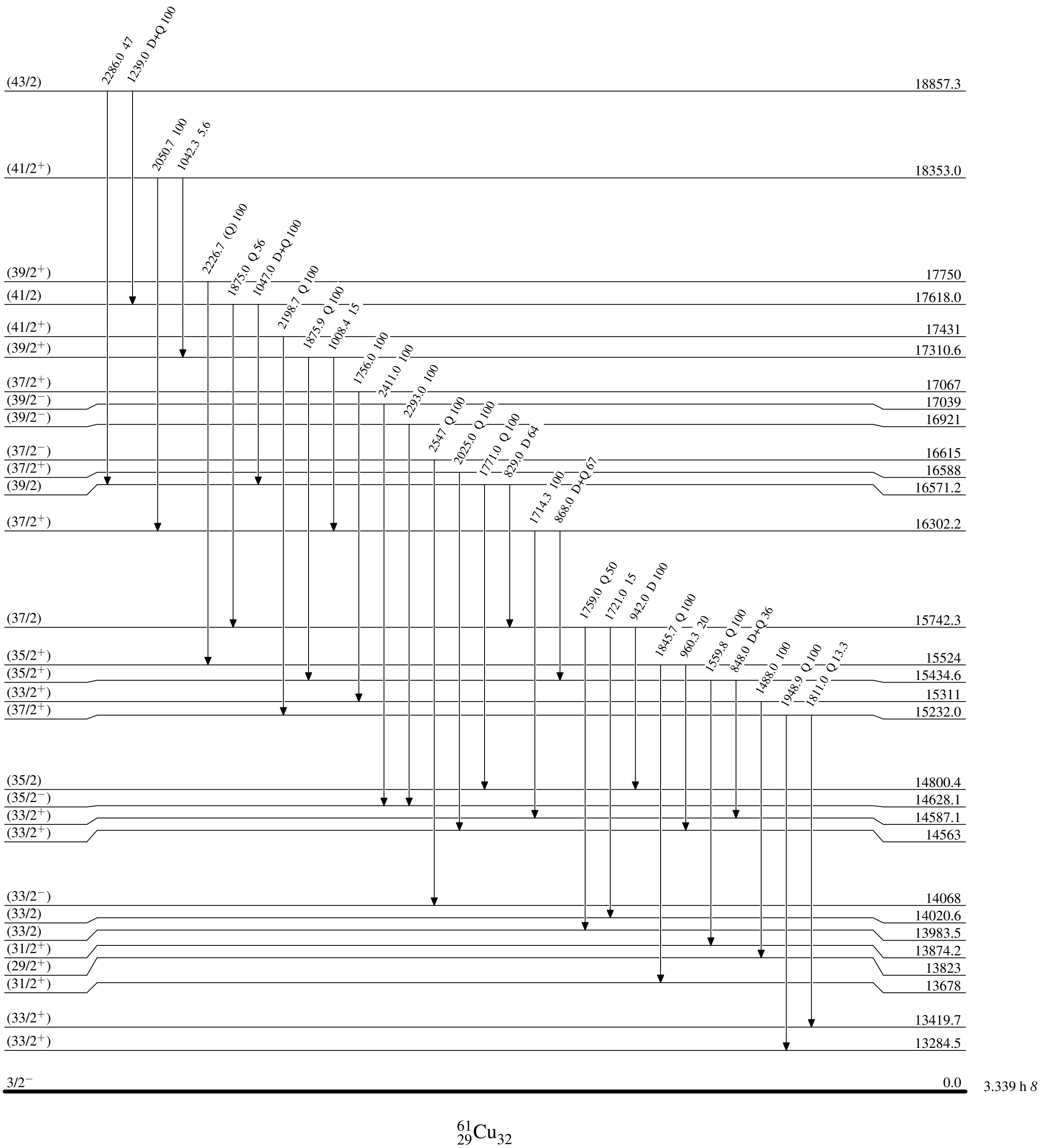


$^{61}_{29}Cu_{32}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



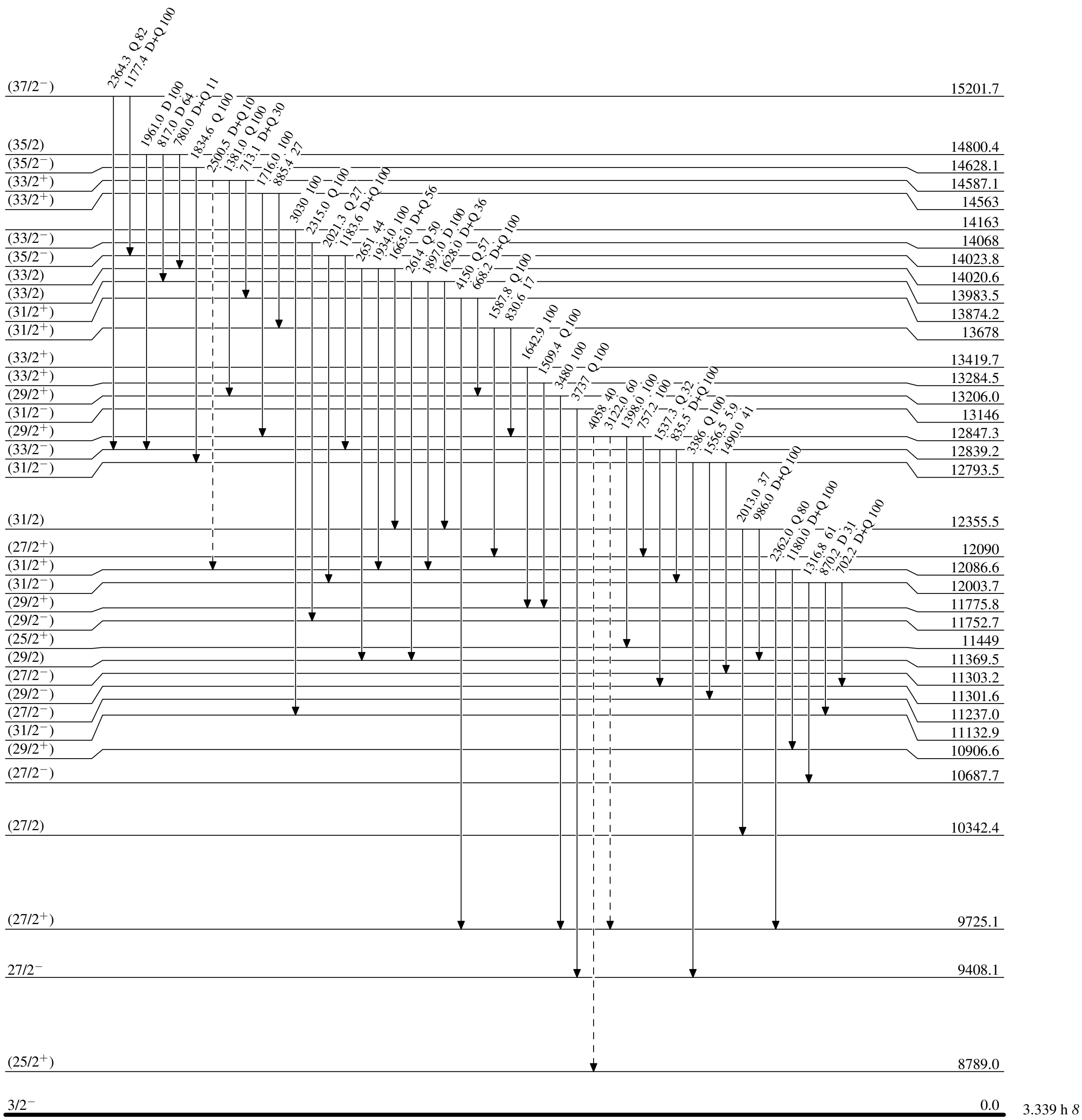
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

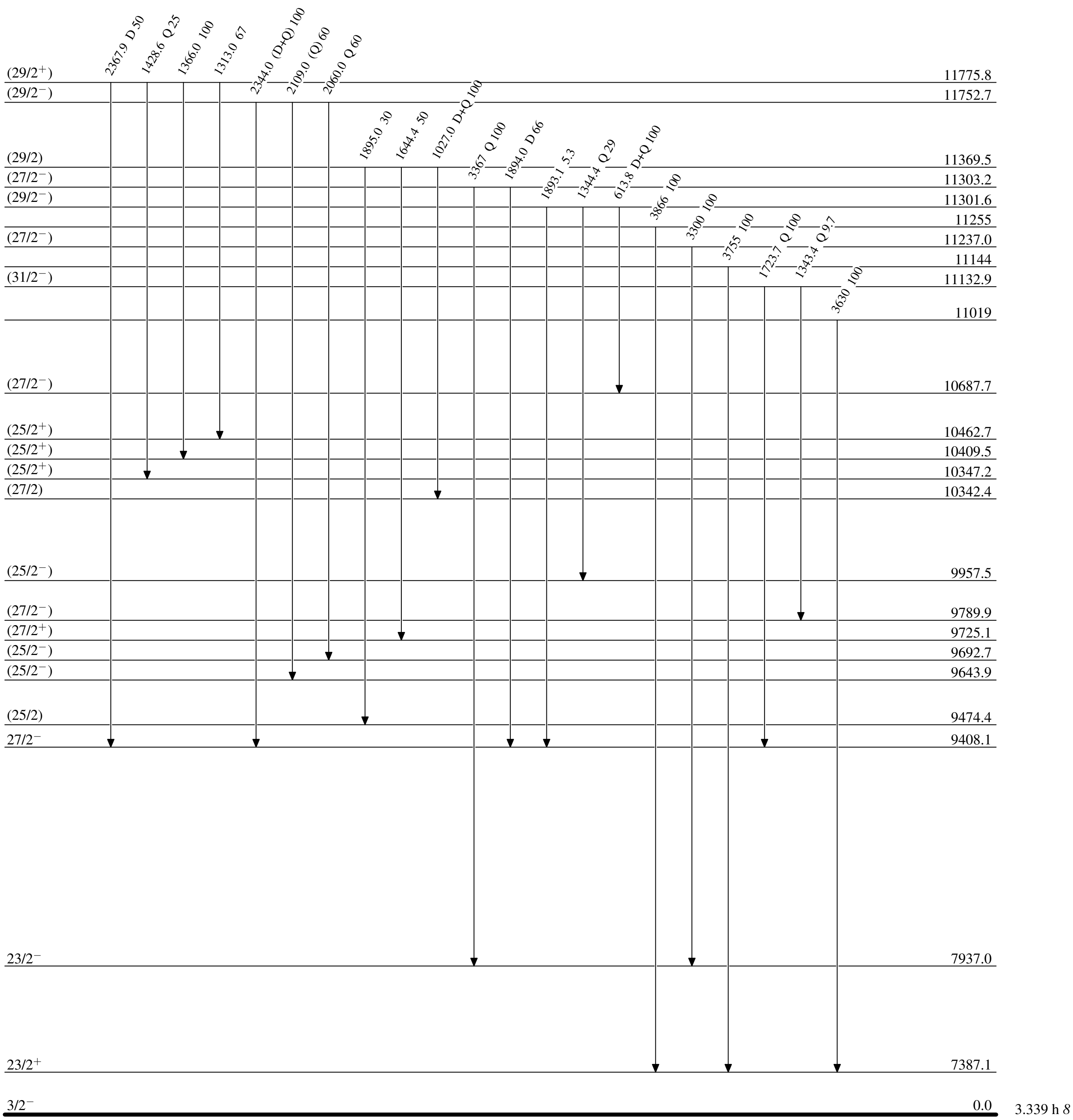


$^{61}_{29}Cu_{32}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

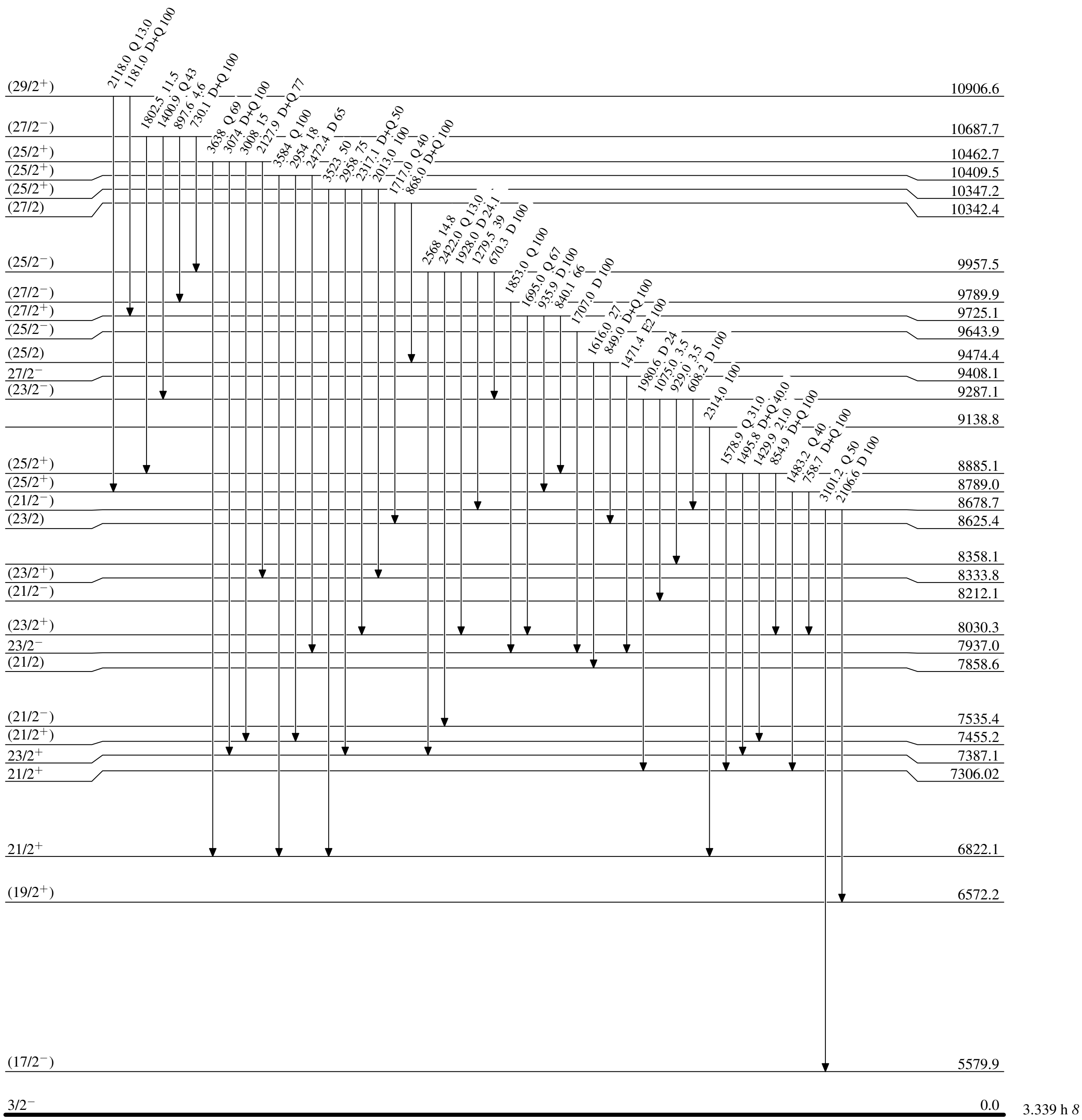


$^{61}_{29}Cu_{32}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

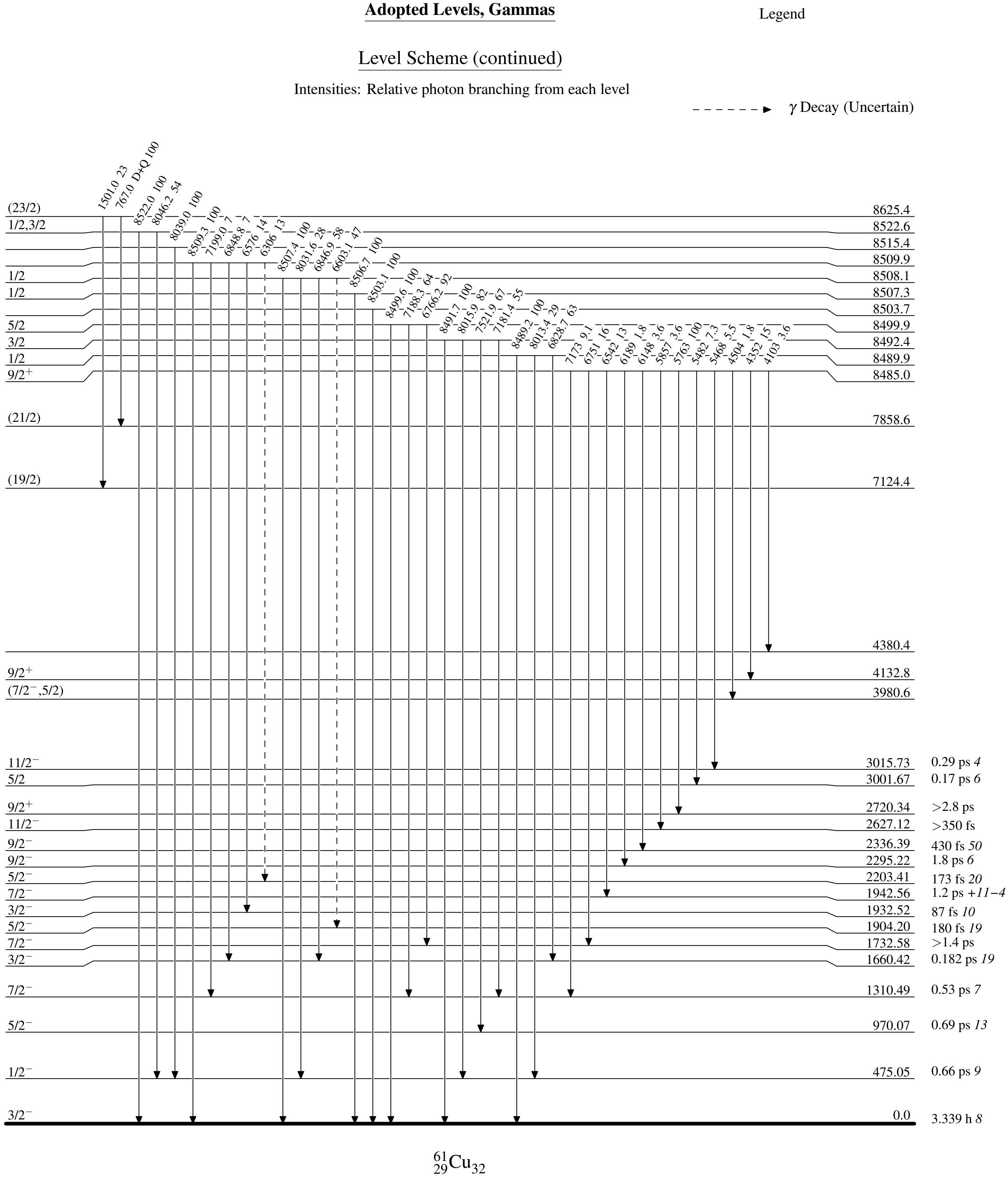


$^{61}_{29}Cu_{32}$

Adopted Levels, Gammas

Level Scheme (continued)

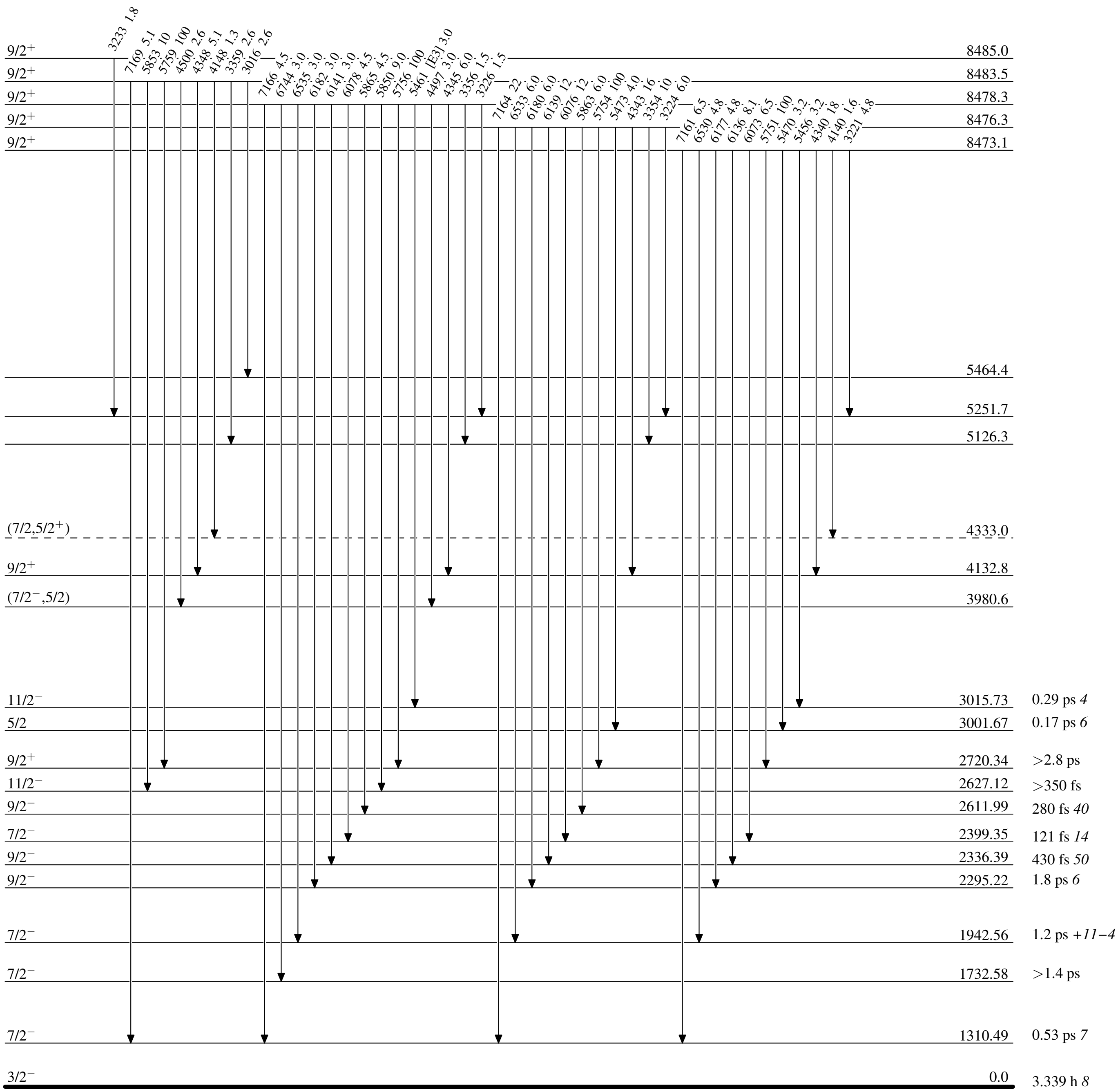
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{61}_{29}Cu_{32}$

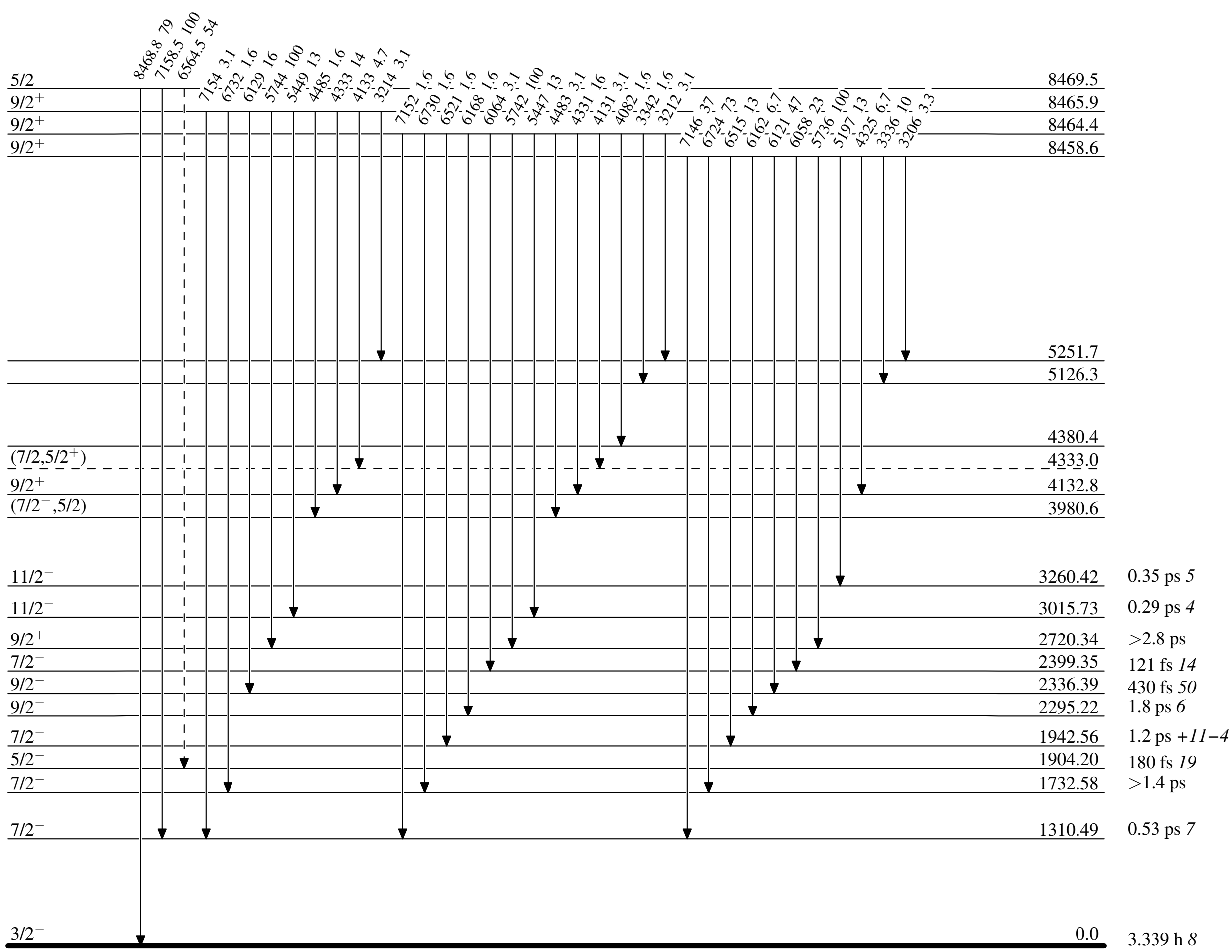
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

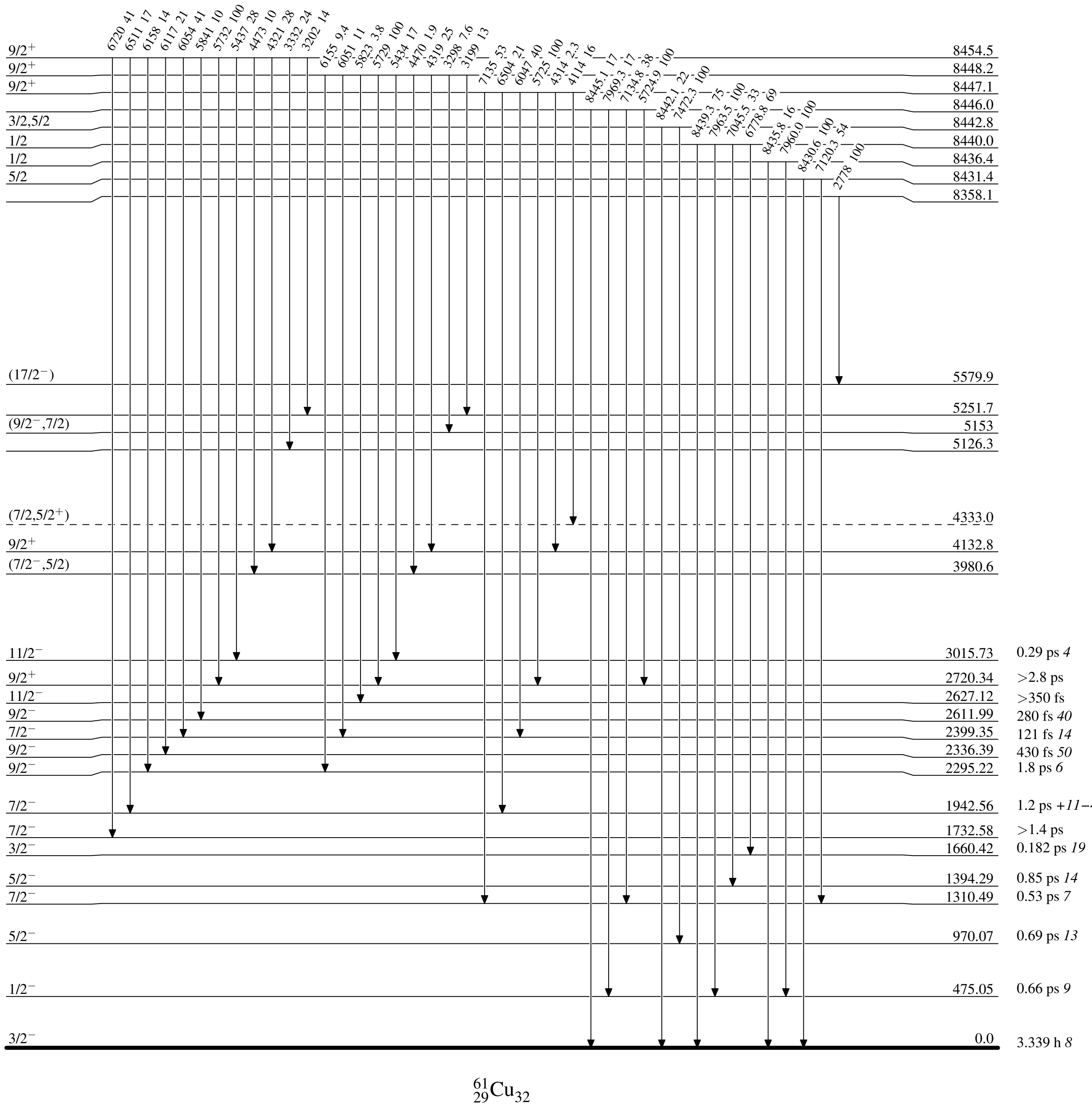


$^{61}_{29}Cu_{32}$

Adopted Levels, Gammas

Level Scheme (continued)

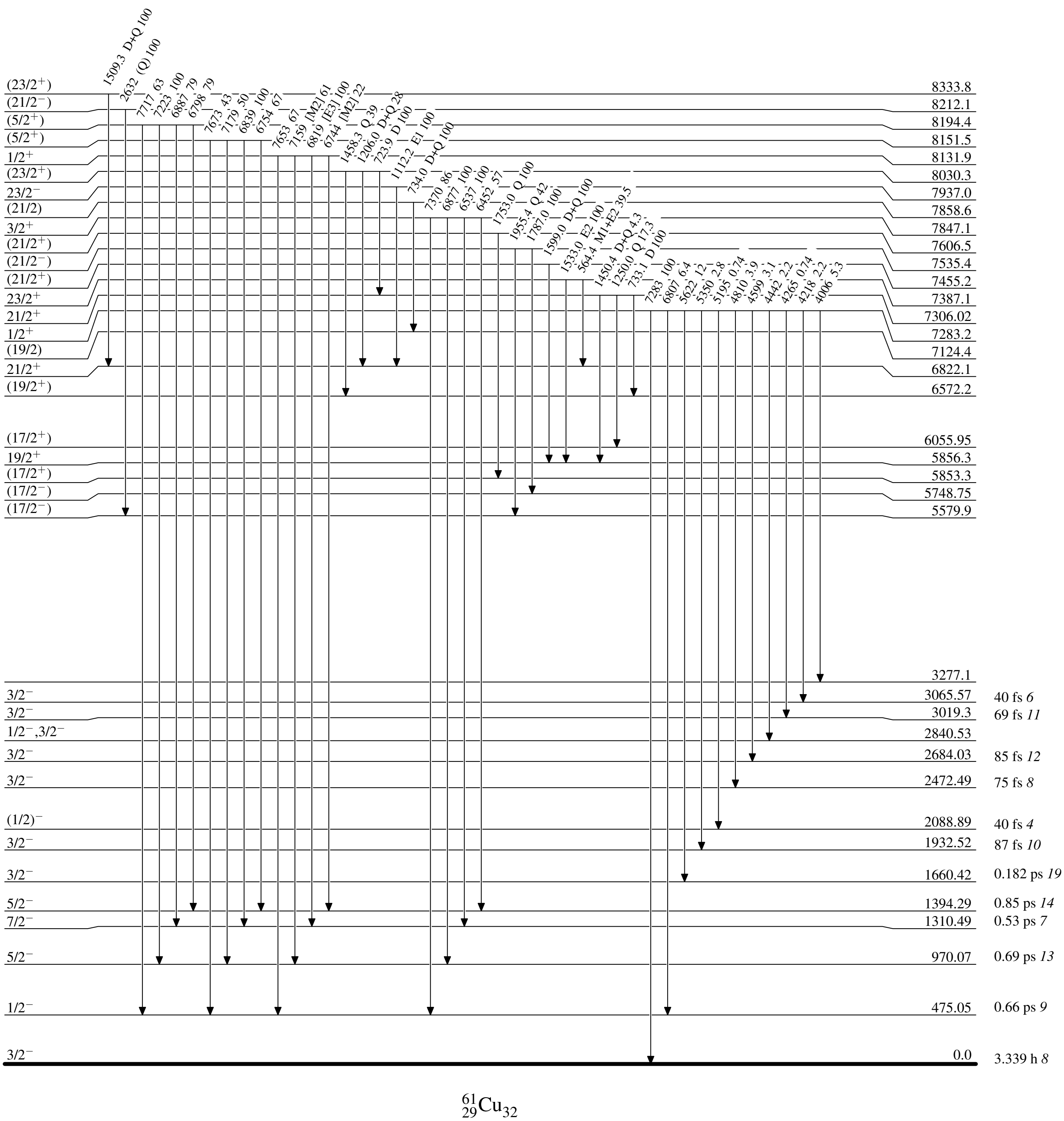
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



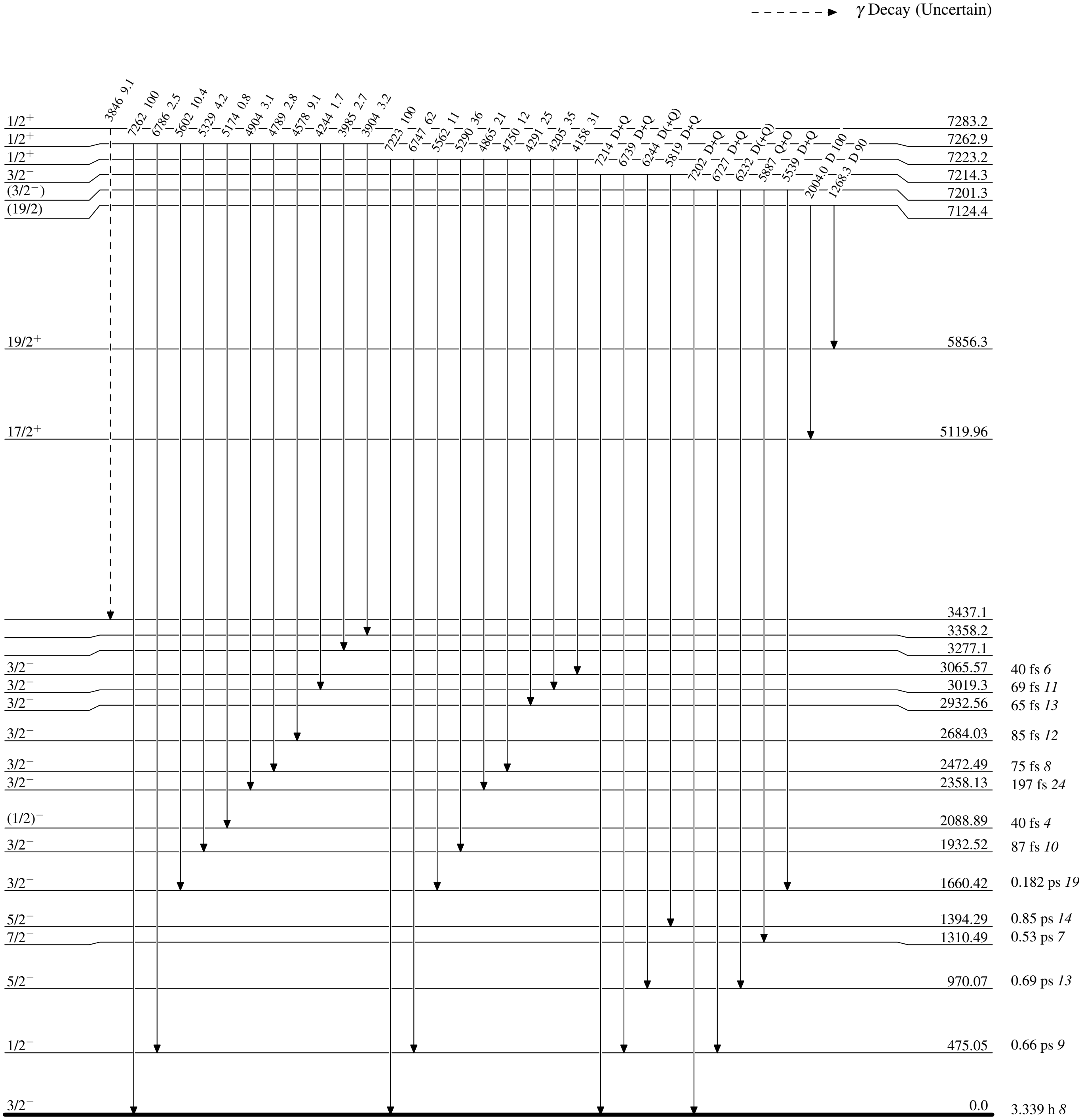
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

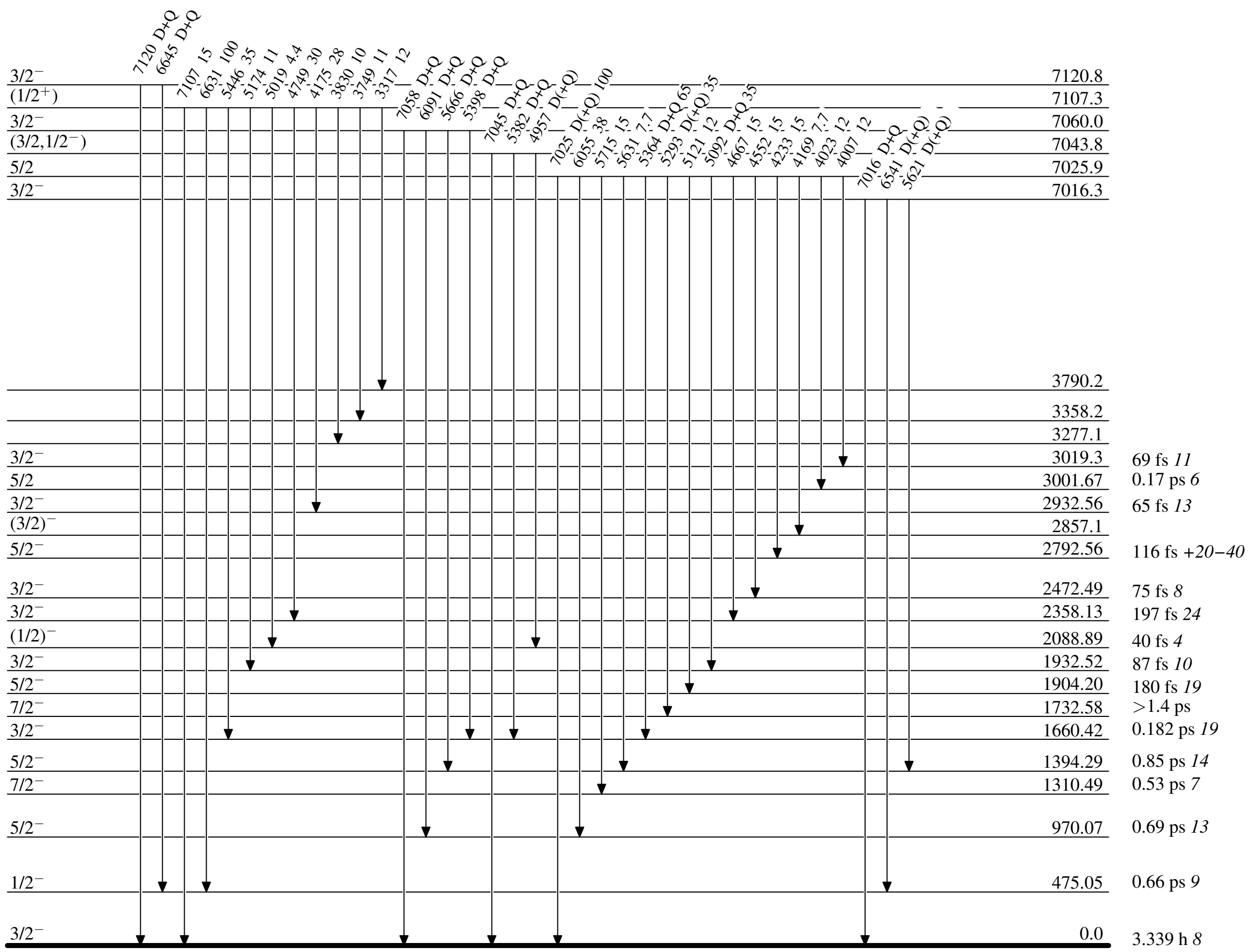


$^{61}_{29}Cu_{32}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{61}_{29}Cu_{32}$

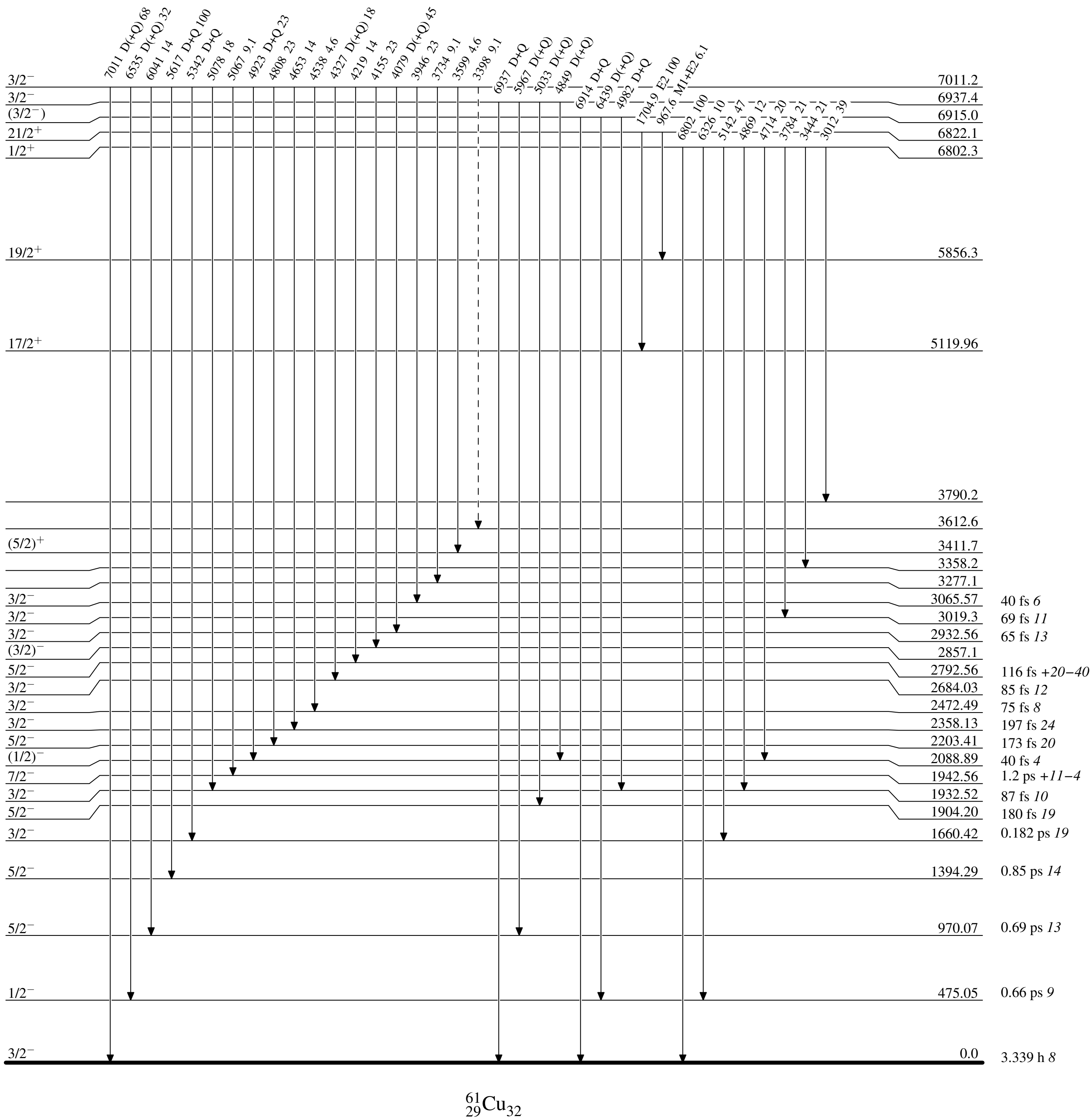
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

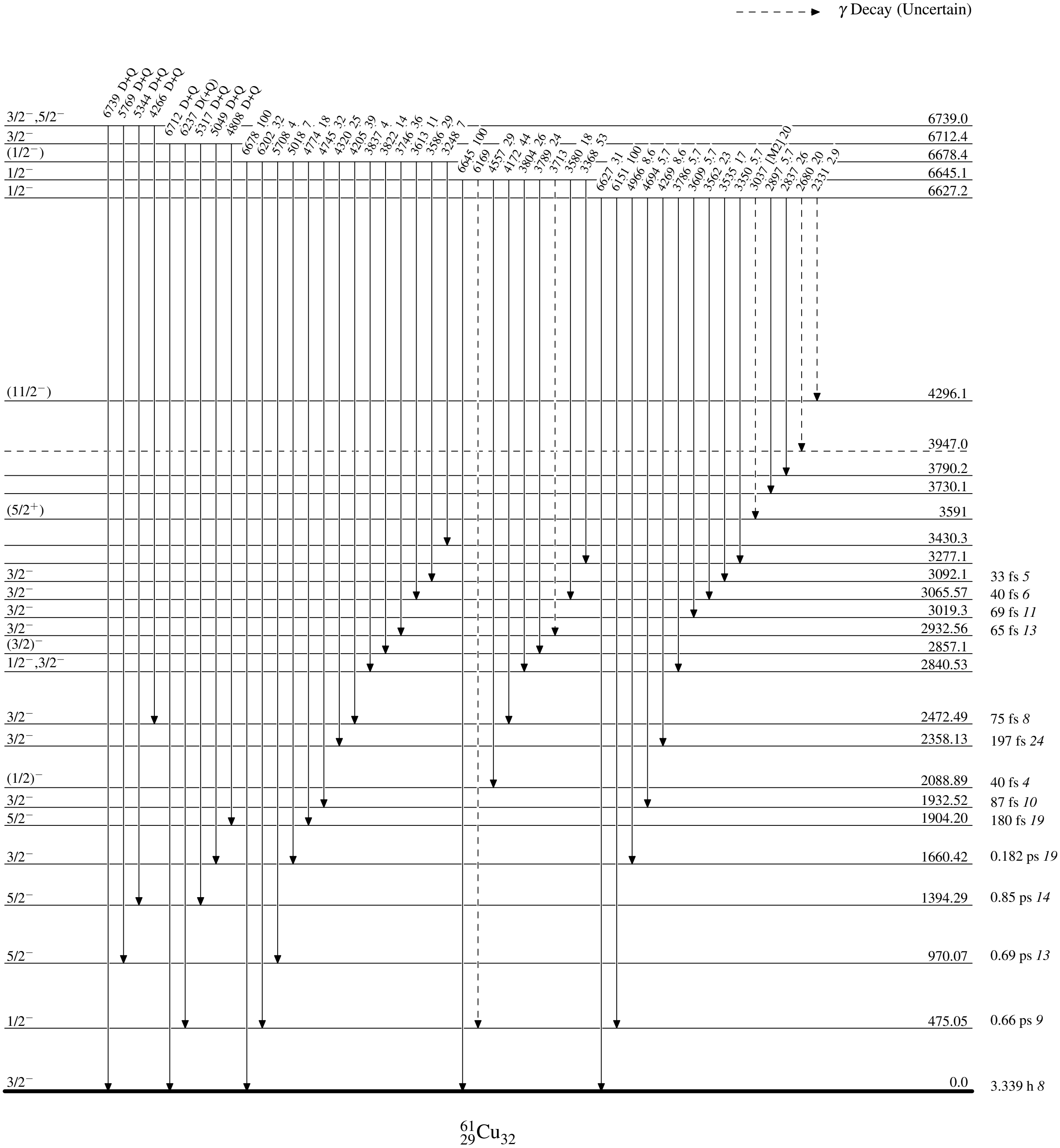


$^{61}_{29}Cu_{32}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

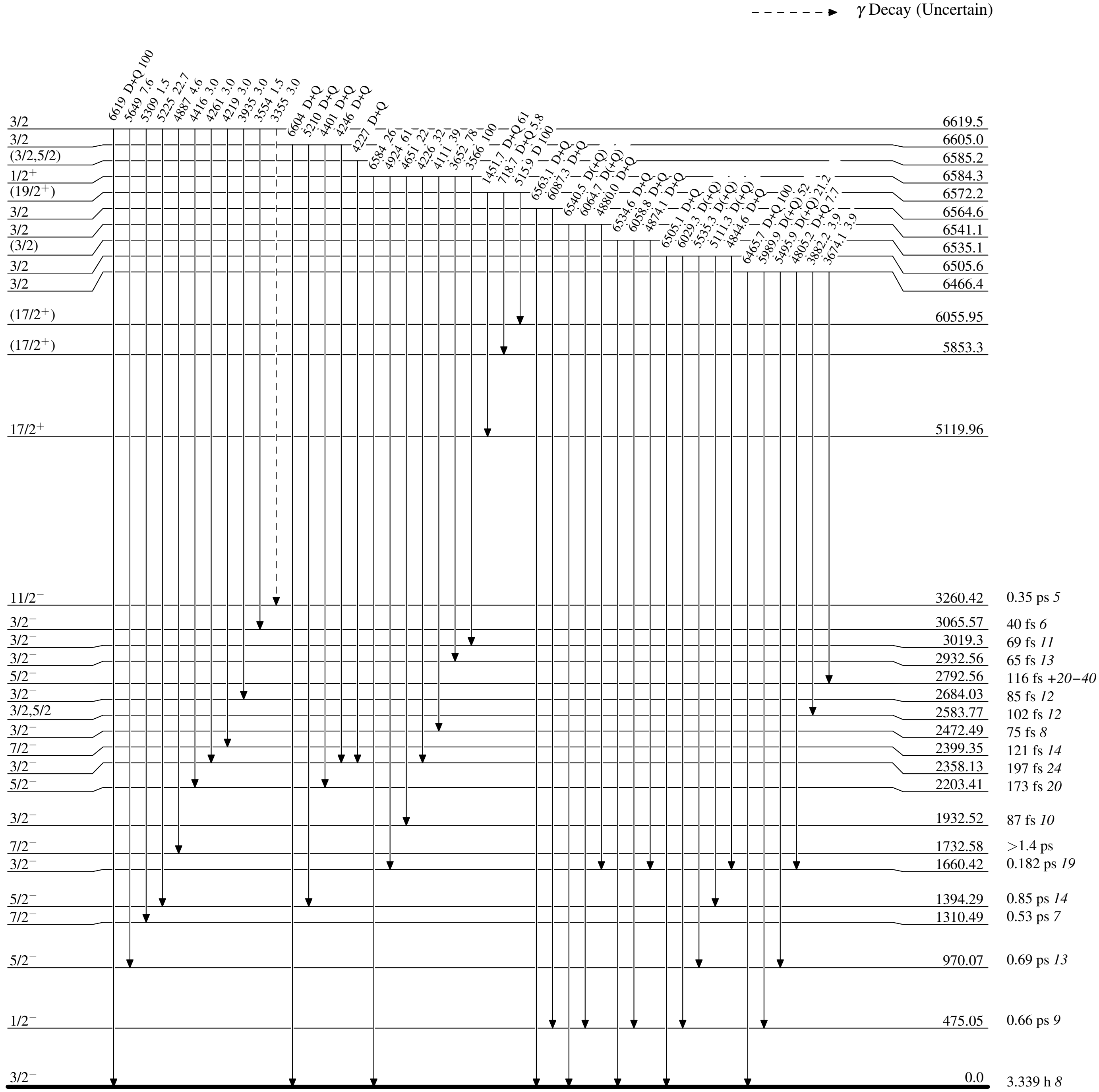


Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level



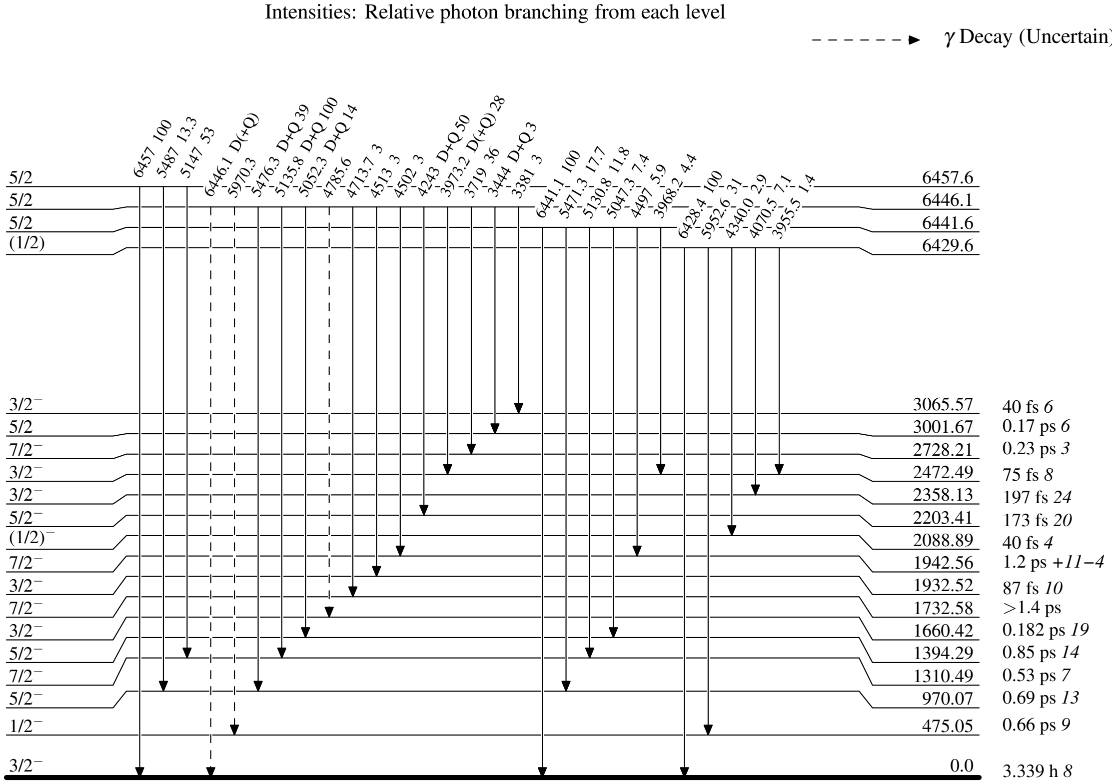
$^{61}_{29}Cu_{32}$

Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{61}_{29}Cu_{32}$

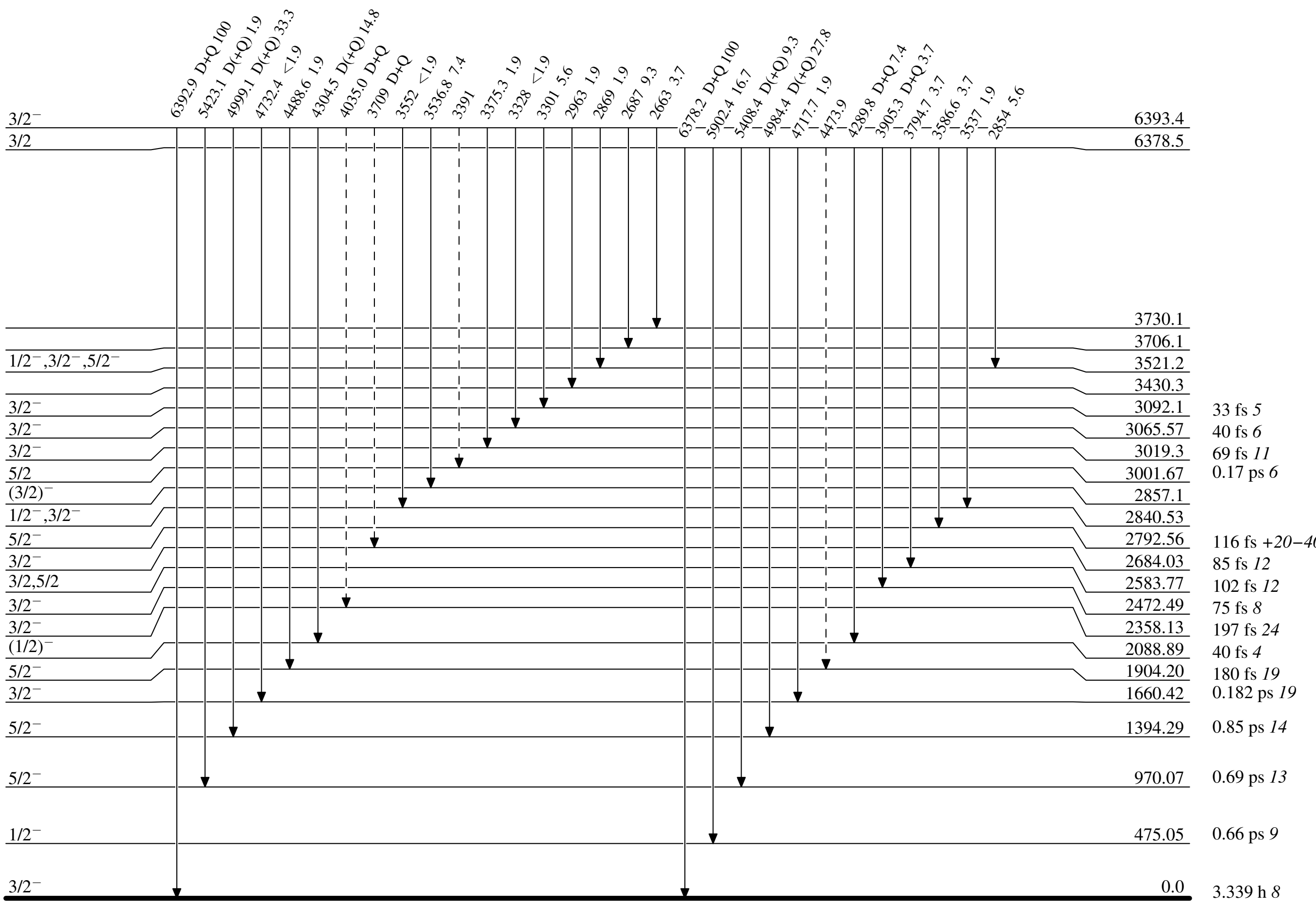
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



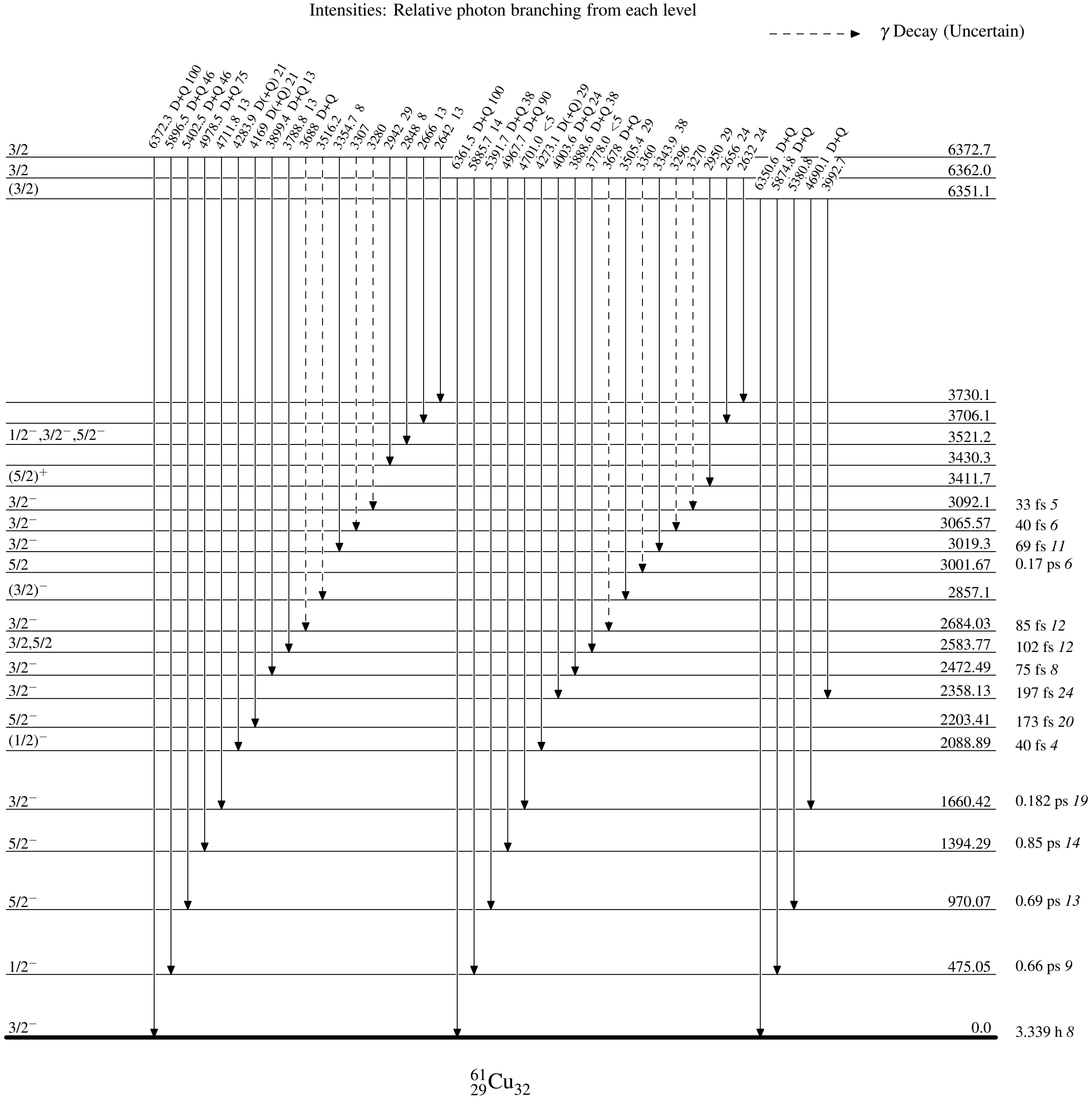
$^{61}_{29}Cu_{32}$

Adopted Levels, Gammas

Legend

Level Scheme (continued)

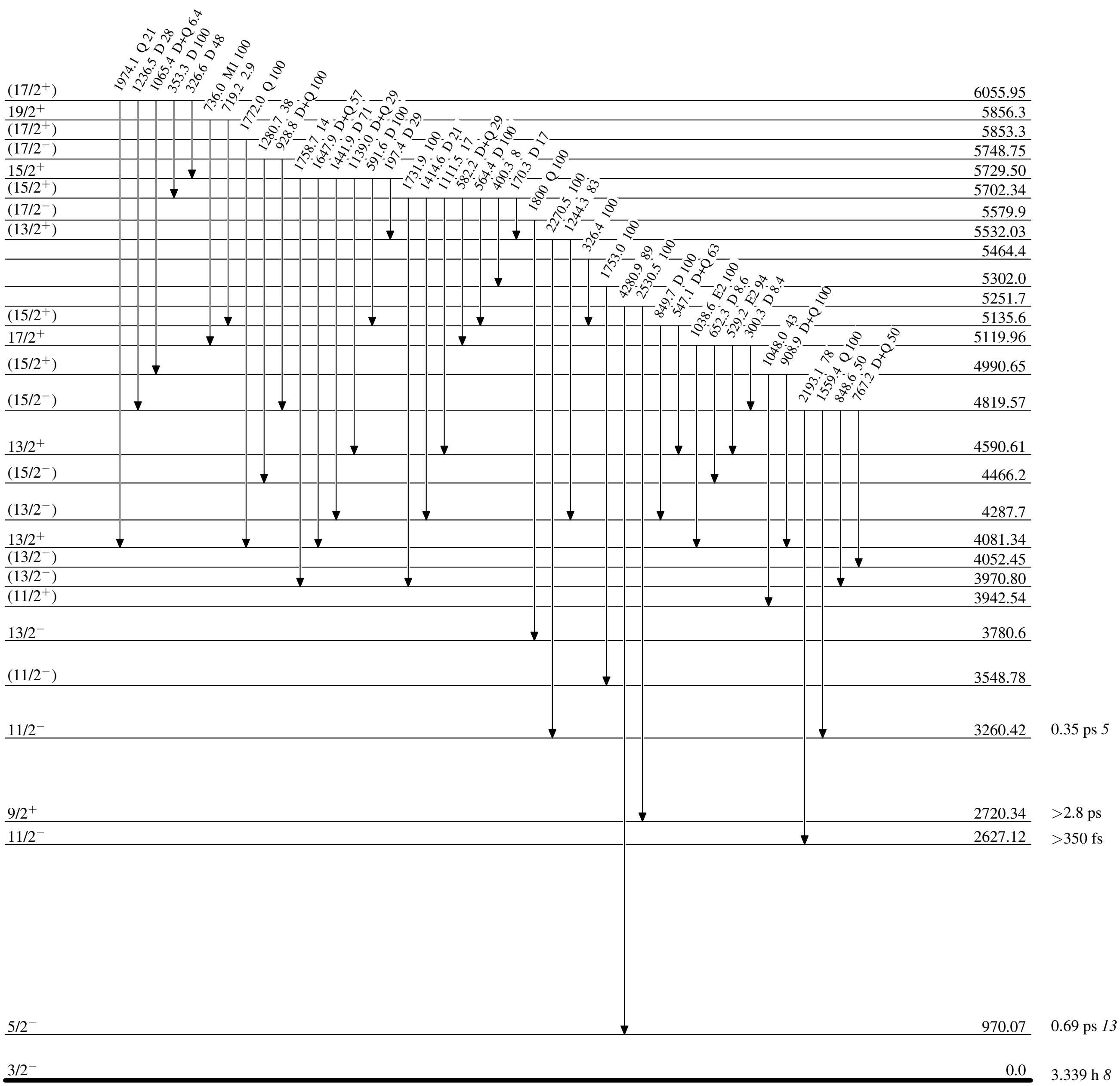
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

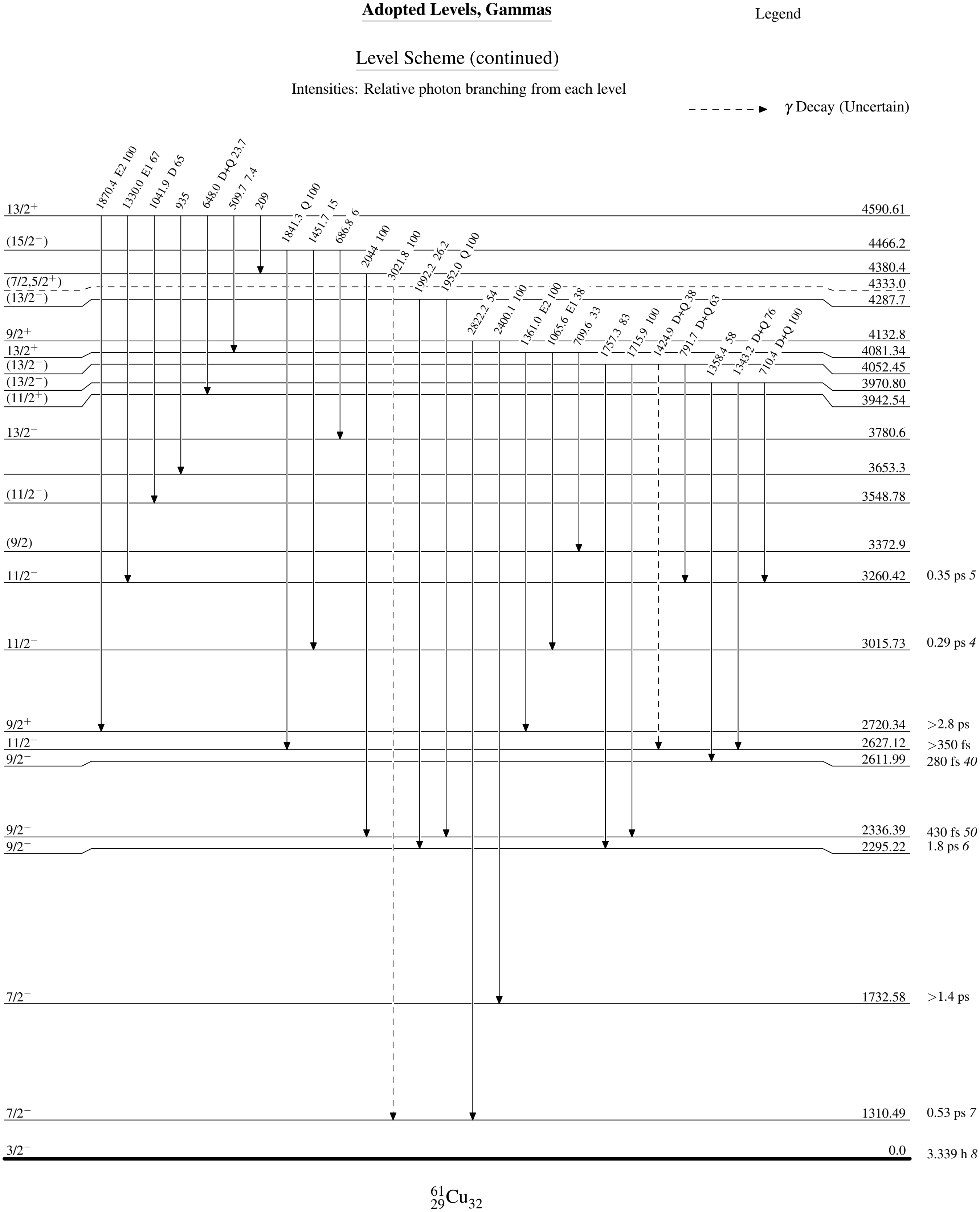


$^{61}_{29}Cu_{32}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



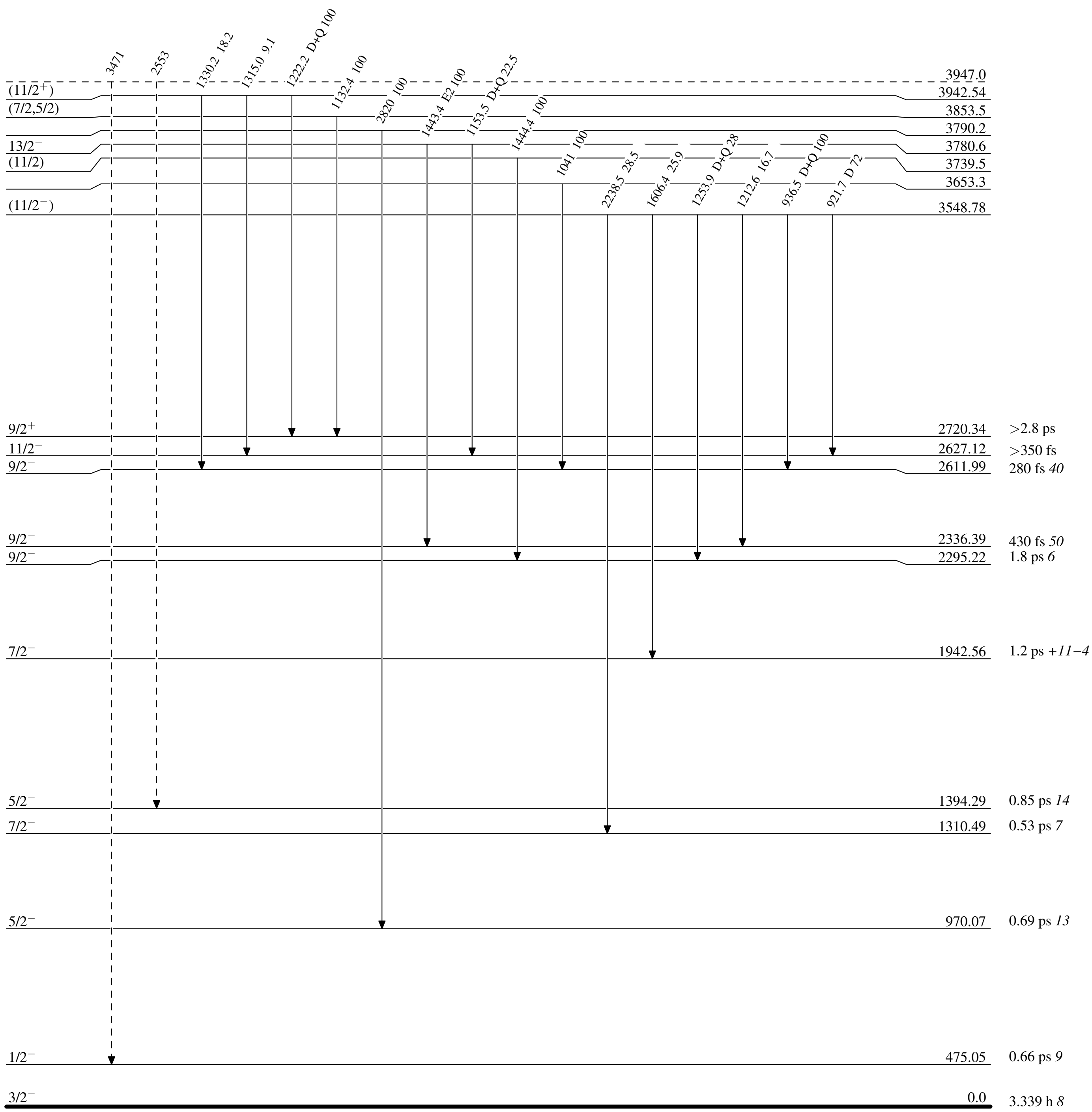
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



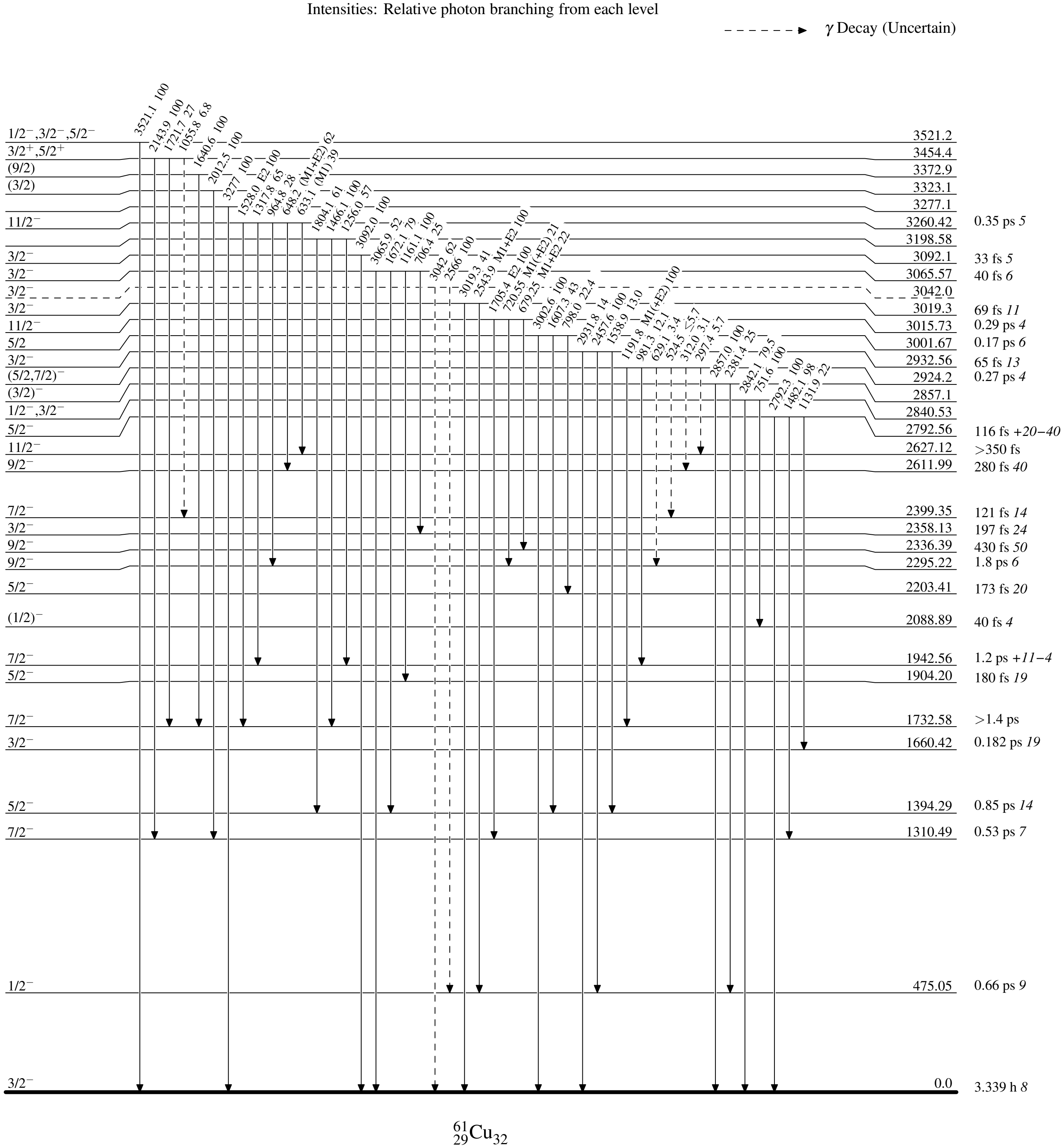
$^{61}_{29}Cu_{32}$

Adopted Levels, Gammas

Legend

Level Scheme (continued)

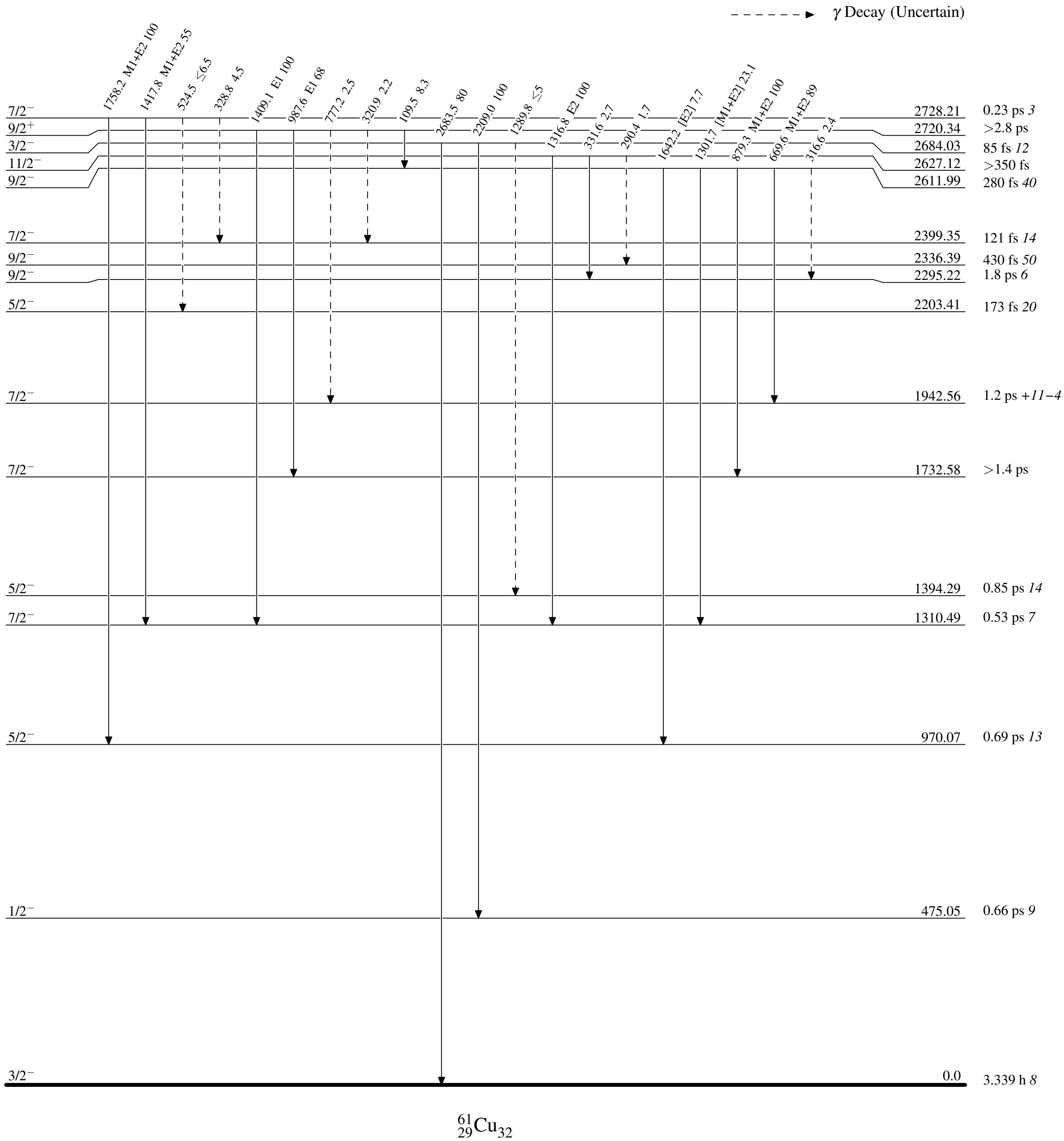
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

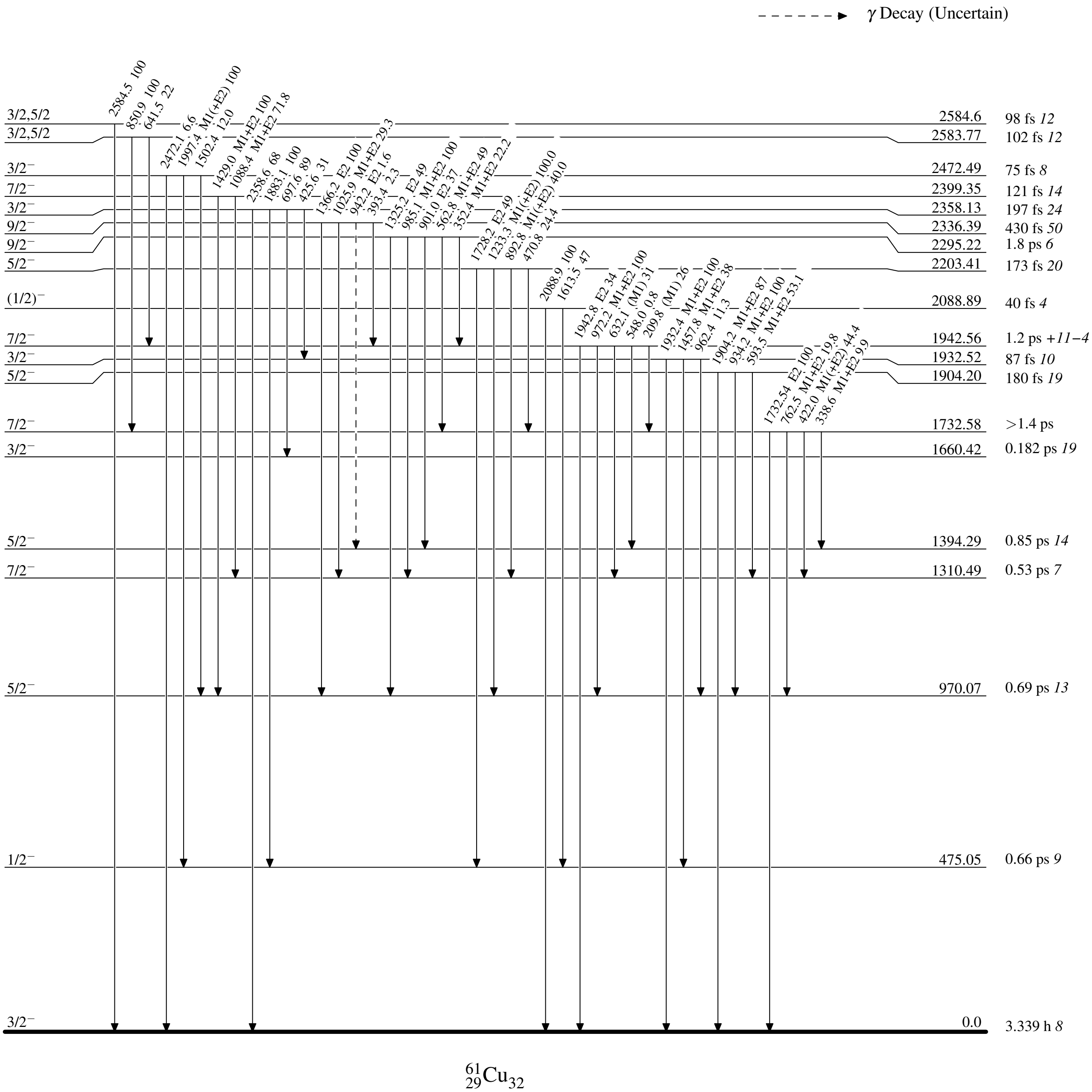


Adopted Levels, Gammas

Legend

Level Scheme (continued)

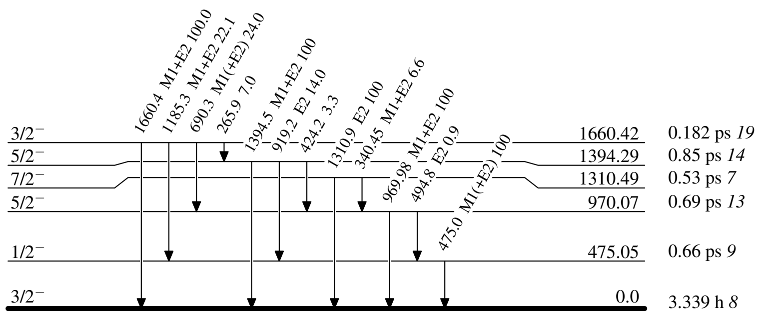
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

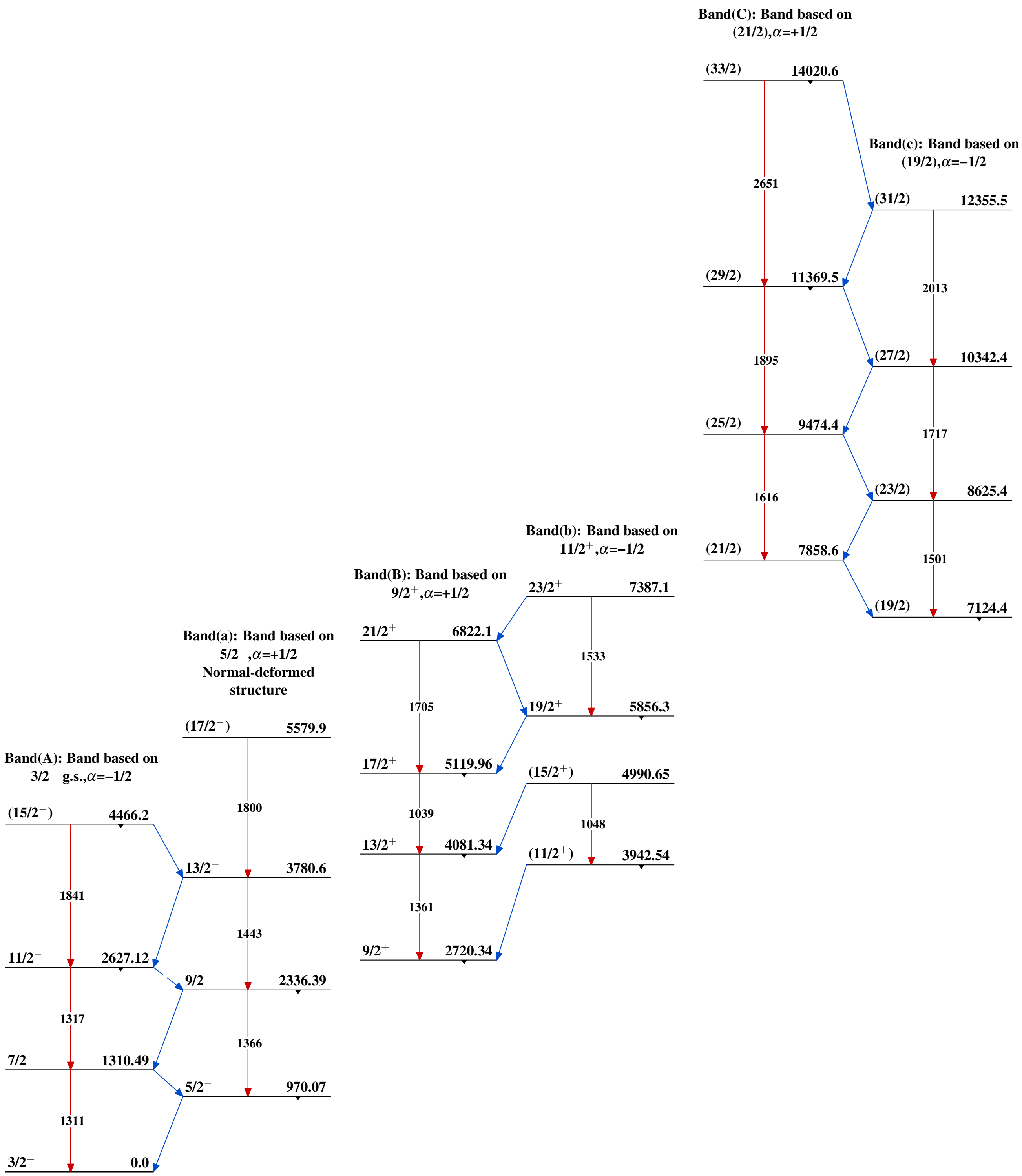
Level Scheme (continued)

Intensities: Relative photon branching from each level



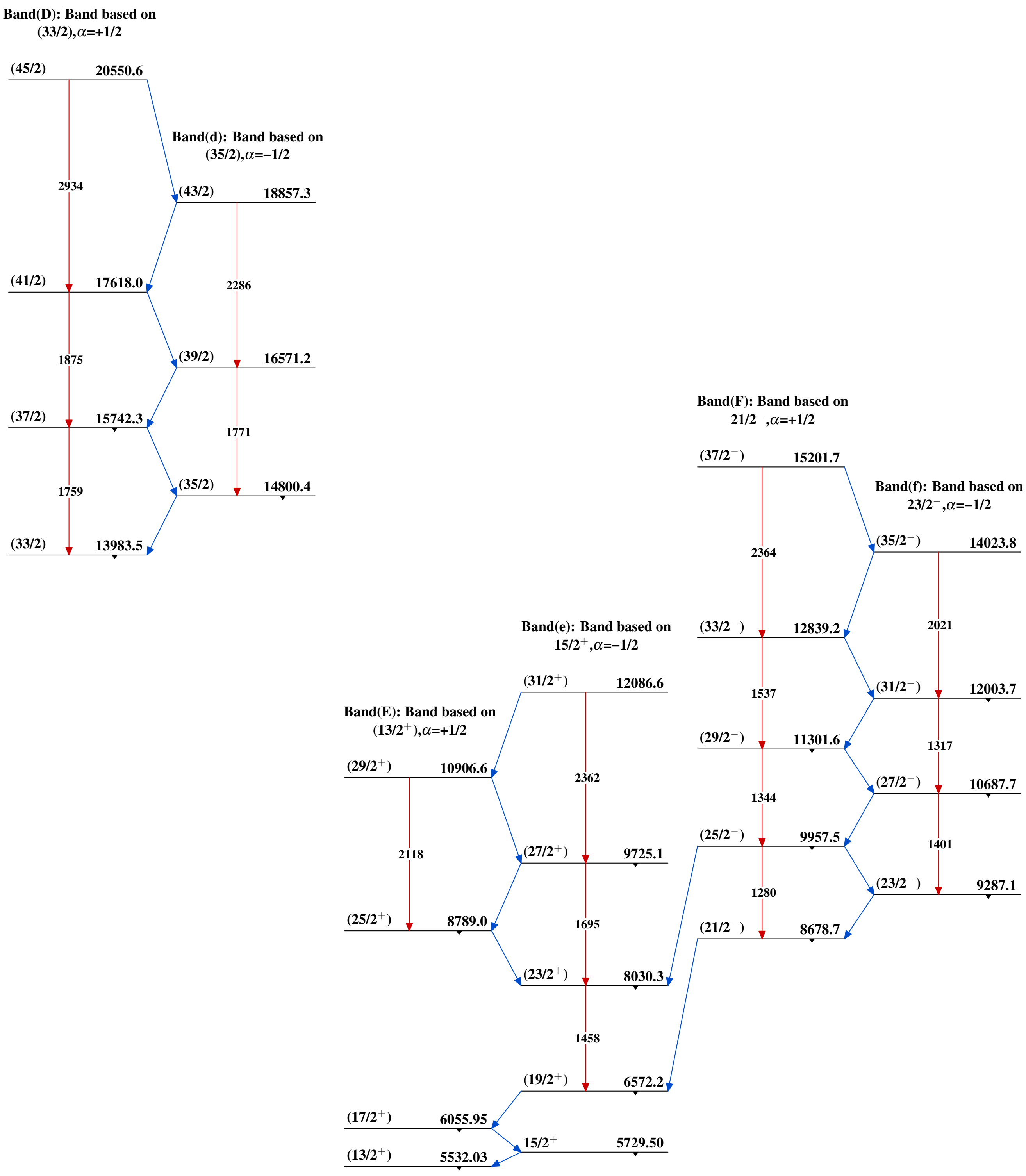
$^{61}_{29}Cu_{32}$

Adopted Levels, Gammas



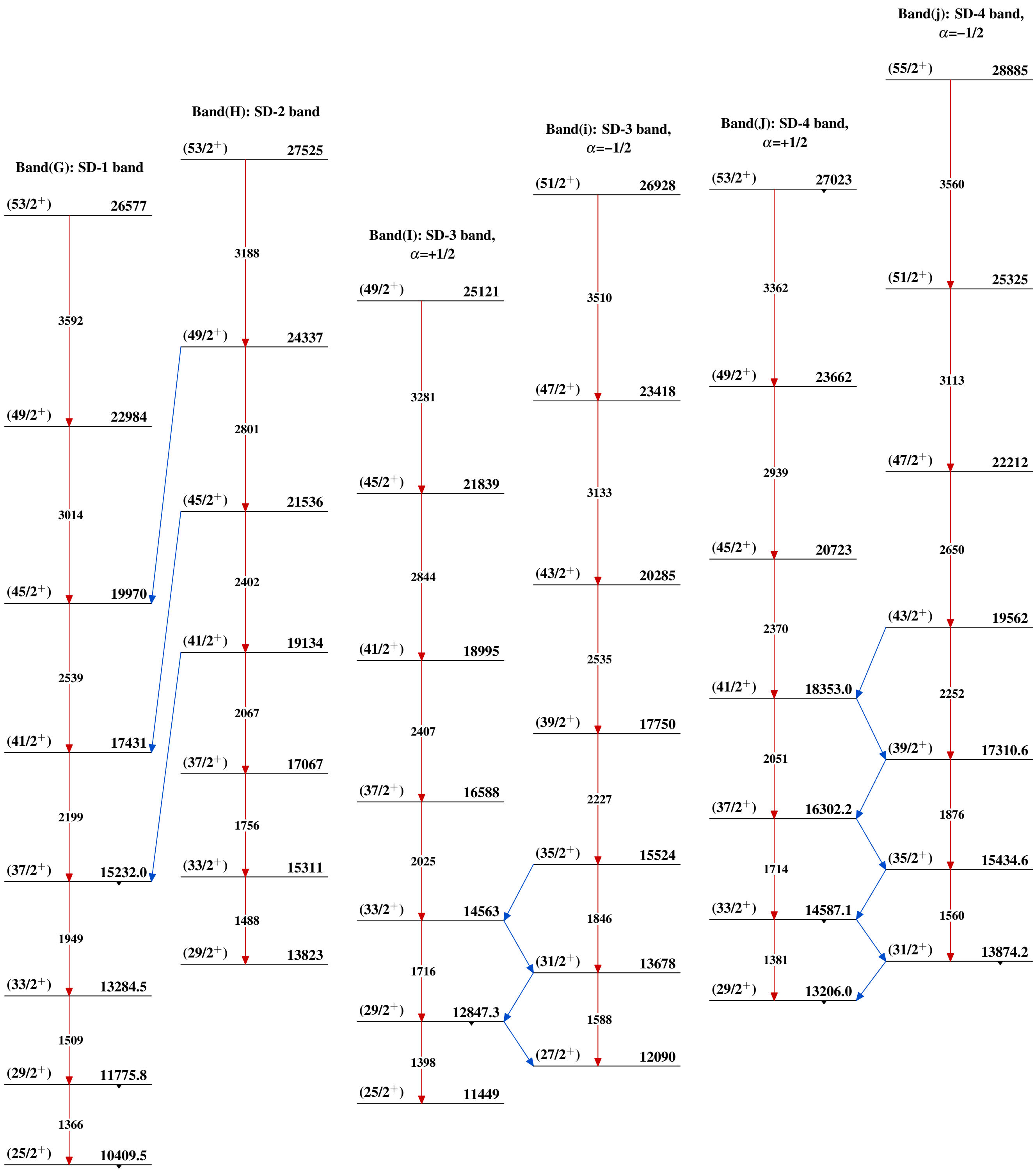
$^{61}_{29}Cu_{32}$

Adopted Levels, Gammas (continued)



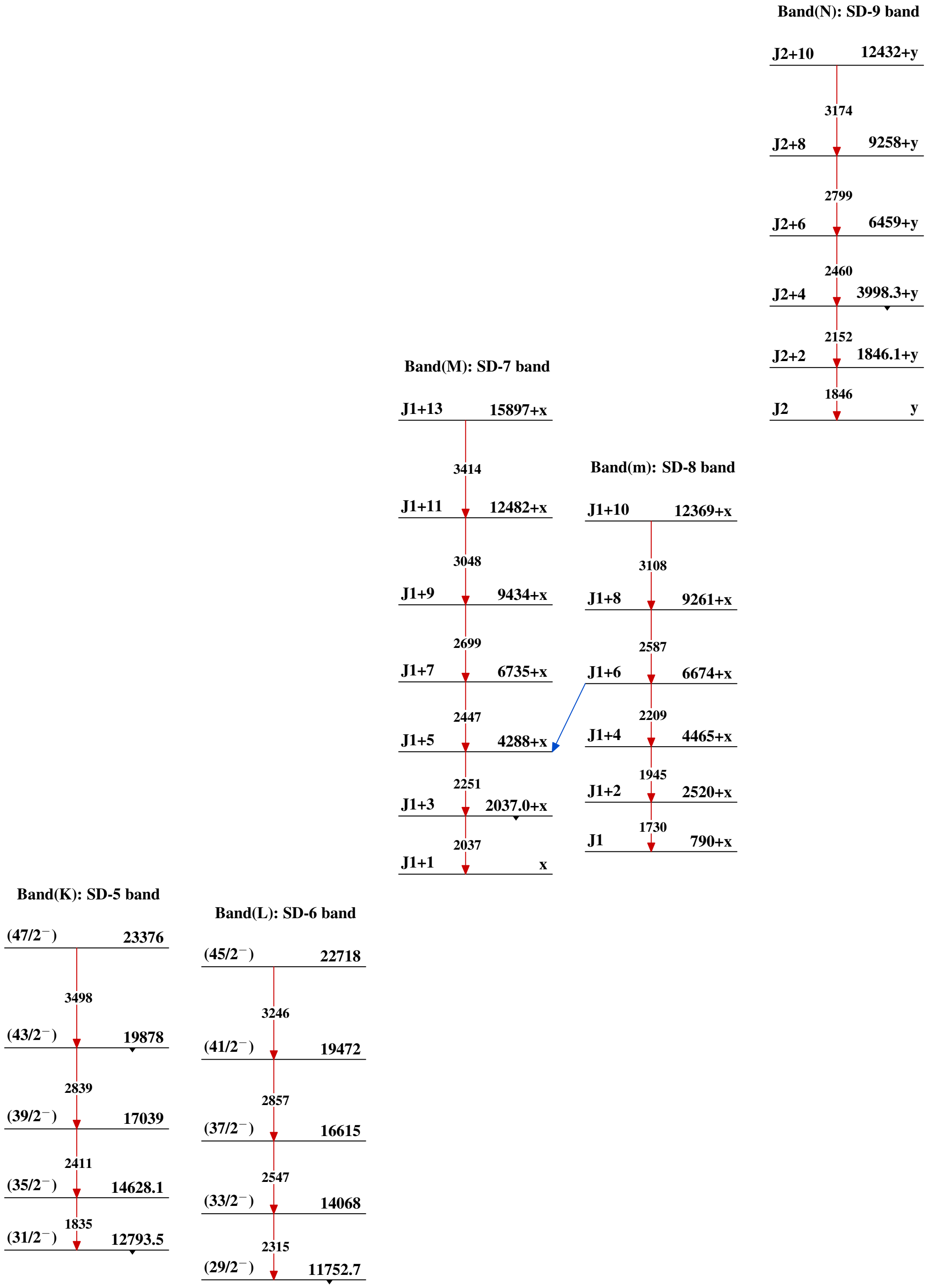
$^{61}_{29}Cu_{32}$

Adopted Levels, Gammas (continued)



$^{61}_{29}Cu_{32}$

Adopted Levels, Gammas (continued)



$^{61}_{29}Cu_{32}$