Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. Abriola(a), A. A. Sonzogni	NDS 111,1 (2010)	1-May-2009

Q(β^-)=8362 *3*; S(n)=5143.2 *21*; S(p)=11666 *3*; Q(α)=−1.028×10^4 *15* 2012Wa38
Note: Current evaluation has used the following Q record 8362 3 *5143.2* *201*.19×10^4 *4* −1.09×10^{43} 2009AuZZ.
α: Additional information 1.

^{72}Cu Levels

Cross Reference (XREF) Flags

A ^{72}Ni β^- decay
B Ni(^{86}Kr,Xγ)

E(level)‡	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0	(2)	6.63 s *3*	AB	%β^-=100 T$_{1/2}$: from β(t) (2006Th12). Other: 6.6 s *1* from γ(t) in 1983Ru06. J$^\pi$: In a simple shell model picture, the odd proton will occupy the p$_{3/2}$ orbital while the odd neutron will occupy either the p$_{1/2}$ or g$_{7/2}$. This will render J^π=1$^+$, 2$^+$, 3$^-$, 4$^-$, 5$^-$, 6$^-$. Since the 270 keV isomer de-excites with a E2-M1-E1 cascade, it will be possible assign it 6$^-$ and 2$^+$ to the ground state. However, detailed shell model calculations in 2006Th12 are very inconclusive.
137.32 *8*	(3$^-$)	17.6† ns *7*	AB	J$^\pi$: E1 γ to (2).
219.3	(4$^-$)	0.09† ns *3*	B	J$^\pi$: M1 γ to (3$^-$).
270.3	(6$^-$)	1.76† μs *3*	B	J$^\pi$: E2 γ to (4$^-$).
376.49 *7*	(1$^+$)#		A	
451.54 *7*	(2)		A	J$^\pi$: γ's from (1$^+$) levels and similarity to excited state in ^{70}Cu.
470.56 *9*	(1$^+$)#		A	
476.01 *10*			A	
673.29 *9*			A	
987.31 *10*			A	
1517.43 *10*			A	
1709.01 *21*			A	
1762.22 *20*			A	
1894.54 *18*			A	
2060.49 *8*	(1$^+$)#		A	
2196.78 *12*	(1$^+$)#		A	
2596.8 *7*			A	

† From γ(t) in IT decay.
‡ From least-squares fit to Eγ.
# From log *ft*=4.5-5.0 in ^{72}Ni β^- decay.

Adopted Levels, Gammas (continued)

γ(^{72}Cu)

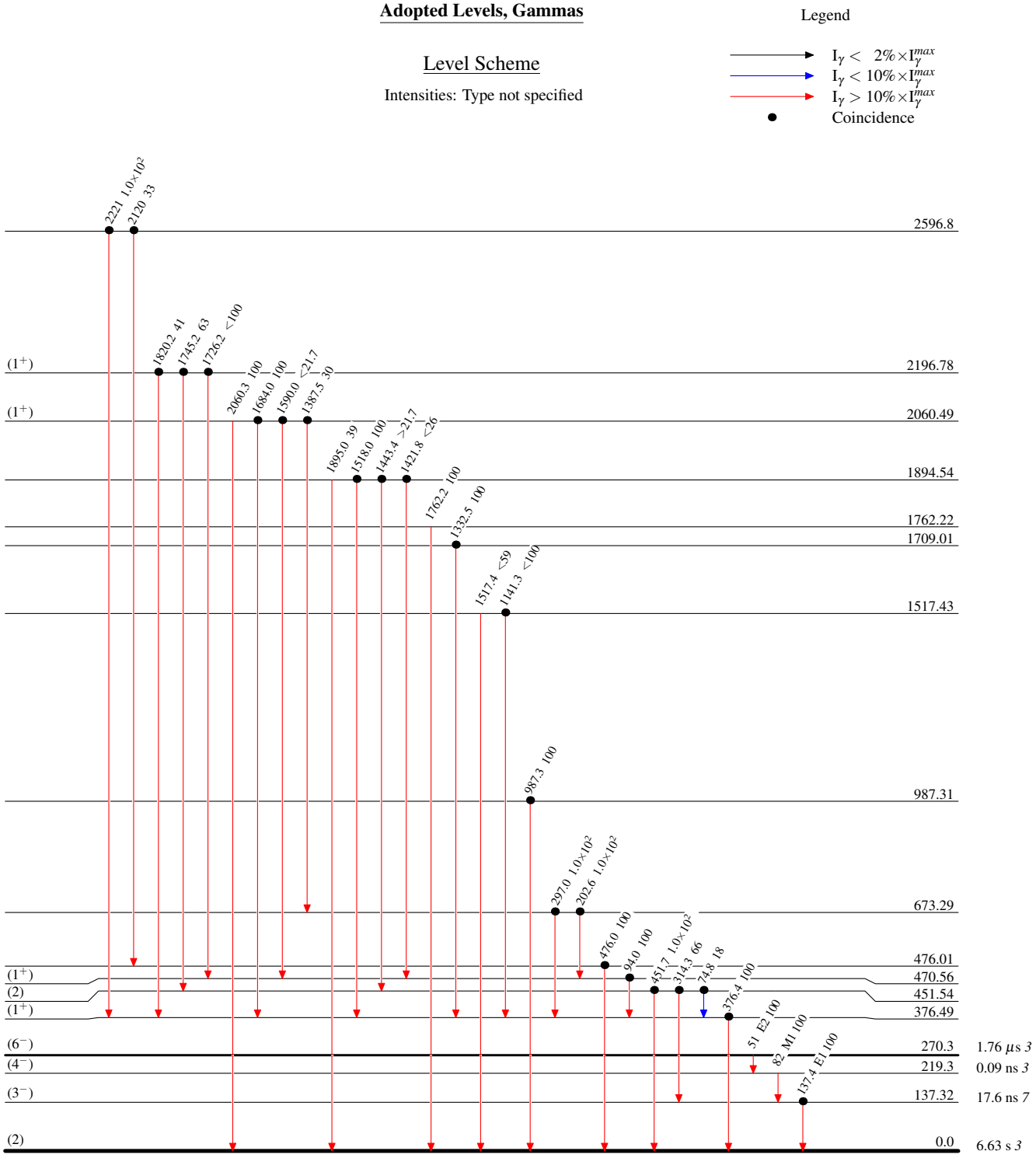
E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.†	α	$I_{(\gamma+ce)}$	Comments
137.32	(3⁻)	137.4 *1*	100	0.0	(2)	E1	0.0210		α(K)=0.0189 *3*; α(L)=0.00187 *3*; α(M)=0.000262 *4*; α(N)=7.65×10^{-6} *11*; α(N+..)=7.65×10^{-6} *11* B(E1)(W.u.)=8.4×10^{-6} *4*
219.3	(4⁻)	82	100	137.32	(3⁻)	M1	0.0918	100	ce(K)/(γ+ce)=0.0752 *10*; ce(L)/(γ+ce)=0.00781 *11*; ce(M)/(γ+ce)=0.001098 *16*; ce(N)/(γ+ce)=3.24×10^{-5} *5* B(M1)(W.u.)=0.41 *14*
270.3	(6⁻)	51	100	219.3	(4⁻)	E2	7.74	100	ce(K)/(γ+ce)=0.756 *6*; ce(L)/(γ+ce)=0.1140 *20*; ce(M)/(γ+ce)=0.0156 *3*; ce(N)/(γ+ce)=0.000272 *5* B(E2)(W.u.)=6.0 *6*
376.49	(1⁺)	376.4 *1*	100	0.0	(2)				
451.54	(2)	74.8 *1*	18 *6*	376.49	(1⁺)				
		314.3 *1*	66 *12*	137.32	(3⁻)				
		451.7 *1*	1.0×10^2 *4*	0.0	(2)				
470.56	(1⁺)	94.0 *1*	100	376.49	(1⁺)				
476.01		476.0 *1*	100	0.0	(2)				
673.29		202.6 *1*	1.0×10^2 *3*	470.56	(1⁺)				
		297.0 *1*	1.0×10^2 *3*	376.49	(1⁺)				
987.31		987.3 *1*	100	0.0	(2)				
1517.43		1141.3 *5*	<100	376.49	(1⁺)				
		1517.4 *1*	<59	0.0	(2)				
1709.01		1332.5 *2*	100	376.49	(1⁺)				
1762.22		1762.2 *2*	100	0.0	(2)				
1894.54		1421.8 *9*	<26	470.56	(1⁺)				
		1443.4 *9*	>21.7	451.54	(2)				
		1518.0 *2*	100 *17*	376.49	(1⁺)				
		1895.0 *4*	39 *17*	0.0	(2)				
2060.49	(1⁺)	1387.5 *2*	30 *7*	673.29					
		1590.0 *1*	<21.7	470.56	(1⁺)				
		1684.0 *4*	100 *17*	376.49	(1⁺)				
		2060.3 *1*	100 *17*	0.0	(2)				
2196.78	(1⁺)	1726.2 *1*	<100	470.56	(1⁺)				
		1745.2 *3*	63 *11*	451.54	(2)				
		1820.2 *7*	41 *17*	376.49	(1⁺)				
2596.8		2120 *1*	33 *11*	476.01					
		2221 *1*	1.0×10^2 *3*	376.49	(1⁺)				

† From RUL in IT decay.

Adopted Levels, Gammas

Level Scheme

Intensities: Type not specified



$^{72}_{29}Cu_{43}$