Adopted Levels, Gammas

History

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

Q(β^-)=1323.7 *8*; S(n)=9319.2 *8*; S(p)=8774 *3*; Q(α)=−7836.4 *17* 2012Wa38
S(2n)=16811.1 *8*, S(2p)=21950.2 *25* (2012Wa38).
^{61}Co produced and identified in bombardment of ^{61}Ni with fast fast neutrons followed by chemical separation (Parmley and Moyer: Phys Rev 72, 82 (1947)). Later studies by 1948Ku01 and 1949Pa01 confirmed the isotopic identification.
2011Sr04: shell-model calculations of levels, J, π, B(E2) using GXPF1A, KB3G and *fpg* effective interactions.

^{61}Co Levels

Cross Reference (XREF) Flags

A	^{61}Fe β^- decay (5.98 min)	F	^{62}Ni(t,α)
B	^{16}O(^{48}Ca,p2nγ)	G	^{64}Ni(p,α)
C	^{59}Co(t,p)	H	^{64}Ni(p,$\alpha\gamma$)
D	^{60}Co(n,γ),(n,n):resonances	I	^{238}U(^{70}Zn,Xγ)
E	^{62}Ni(d,^{3}He)		

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$[#]	XREF	Comments
0.0	7/2$^-$	1.649 h *5*	ABC EFGHI	%β^-=100 J$^\pi$: L(t,p)=0; L(t,α)=L(p,α)=3. $T_{1/2}$: weighted average of 1.650 h *5* (1951Sm64), 1.66 h *1* (1956Nu02), 1.645 h *7* (1956Ru45), 1.70 h *3* (1962Va23), 1.58 h *3* (1966St11), 1.63 h *3* (1967Gr15,1968Ka21), 1.66 h *7* (1982Ma41). Reduced χ^2=1.7. Others: 1.75 h (1948Ku01), 1.75 h *5* (1949Pa01), 1.70 h *5* (1960Pr05), 1969Ki09.
1027.48 *8*	3/2$^-$	[@]	ABC EFGH	XREF: C(1036)F(1031). J$^\pi$: L(d,^{3}He)=L(t,α)=1; 1027γ not M3 from $T_{1/2}$ and RUL.
1205.09 *9*	(3/2)$^-$	[@]	A C FGH	XREF: F(1210). J$^\pi$: L(t,p)=2; log *ft*=5.85 from (3/2$^-$); 3/2$^-$ from $\sigma(\theta)$ in (p,α).
1272 *25*			F	
1285.54[d] *23*	(9/2)$^-$	0.55 ps *14*	ABC FGHI	XREF: F(1287). J$^\pi$: L(t,p)=2; γ to 7/2$^-$; 9/2$^-$ from (p,α); first 9/2$^-$ predicted at 1405 keV in shell-model calculations (2011Sr04).
1325.40 *10*	(1/2$^-$)	[@]	AB FG	XREF: F(1338). J$^\pi$: 298(θ) probably isotropic in (^{48}Ca,p2nγ); log *ft*=5.90 from (3/2$^-$); 1/2$^-$ favored in (p,α).
1618.85 *17*	5/2$^-$,7/2$^-$		A E GH	J$^\pi$: L(d,^{3}He)=3.
1631 *7*	(5/2,7/2)$^-$		C F	XREF: F(1635). J$^\pi$: L(t,α)=(3); L(t,p)=2.
1645.87 *12*	(3/2$^-$,5/2)		A GH	J$^\pi$: log *ft*=6.20 from (3/2$^-$); γ rays to 3/2$^-$ and 7/2$^-$.
1664.3[b] *4*	(11/2$^-$)	7 ps +7−2	B g I	J$^\pi$: ΔJ=(2), (E2) γ to 7/2$^-$; 7/2$^-$ and 11/2$^-$ from $\sigma(\theta)$ for a doublet in (p,α).
1674 *7*	(7/2)$^-$		C Fg	XREF: F(1682). J$^\pi$: L(t,α)=(3); L(t,p)=2; 7/2$^-$ and 11/2$^-$ from $\sigma(\theta)$ for a doublet in (p,α).
1889.1 *3*	(5/2,7/2)$^-$		A C EFGH	XREF: C(1891)F(1903)H(1891). J$^\pi$: L(d,^{3}He)=3; 7/2$^-$ is suggested from $\sigma(\theta)$ in (p,α), but possible β feeding (log *ft*=7.5) from (3/2$^-$) supports 5/2$^-$.
1953.19 *16*	1/2$^-$,3/2$^-$		A C EFGH	XREF: F(1971). J$^\pi$: L(d,^{3}He)=L(t,α)=1.
2011.49 *15*	(3/2,5/2)$^-$		A C G	J$^\pi$: L(t,p)=2+4; log *ft*=6.09 from (3/2$^-$).
2230.9 *3*	(5/2,7/2)$^-$		A C H	J$^\pi$: L(t,p)=2; γ to (9/2)$^-$; possible γ to 3/2$^-$.

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Adopted Levels, Gammas (continued)

^{61}Co Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$[#]	XREF	Comments
2238 *5*	1/2$^+$		EFG	J$^{\pi}$: L(d,^{3}He)=L(t,α)=L(p,α)=0.
2302.99 *17*	1/2$^-$,3/2$^-$		A C E GH	XREF: E(2313). J$^{\pi}$: L(d,^{3}He)=1.
2338.9[d] *6*	(11/2$^-$)	1.7 ps *+4−3*	B	J$^{\pi}$: ΔJ=1, dipole γ to (9/2$^-$).
2345.5 *8*	5/2$^-$,7/2$^-$		C EFG	XREF: E(2354)F(2368). J$^{\pi}$: L(d,^{3}He)=L(t,α)=3; L(t,p)=0+4. 3/2,5/2 in (p,α) possibly from $\sigma(\theta)$ shape.
2373.8 *11*	(1/2 to 15/2)$^-$		C G	XREF: C(2385). J$^{\pi}$: L(t,p)=4.
2374.2[b] *6*	(13/2$^-$)		B I	
2431.4[&] *5*	(3/2,5/2)$^-$		A C G	J$^{\pi}$: L(t,p)=2+4; γ to 3/2$^-$.
2448 *5*	5/2$^-$,7/2$^-$		EF	XREF: F(2459). J$^{\pi}$: L(d,^{3}He)=3.
2484.5 *4*	(3/2,5/2)$^-$		A C G	XREF: C(2479). J$^{\pi}$: L(t,p)=4; log *ft*=7.21 from (3/2$^-$); γ to 7/2$^-$.
2499 *5*	(3/2$^+$,5/2$^+$)		E	J$^{\pi}$: L(d,^{3}He)=2; L(d,^{3}He)=3 fit is poor but not ruled out.
2558.6 *8*	(3/2$^+$)		G	J$^{\pi}$: L(p,α)=(2), agreement of $\sigma(\theta)$ data with DWBA.
2571.6 *9*	3/2$^+$,5/2$^+$		C EFG	XREF: F(2583). J$^{\pi}$: L(d,^{3}He)=L(t,α)=2.
2642.3 *8*	(3/2 to 11/2)$^-$		C G	XREF: C(2649). J$^{\pi}$: L(t,p)=2. 7/2$^+$,9/2$^-$ in (p,α) possibly from $\sigma(\theta)$ shape.
2706.7 *11*	(3/2 to 11/2)$^-$		C G	XREF: C(2713). J$^{\pi}$: L(t,p)=2.
2726.5 *10*			G	
2754.5 *4*	(3/2$^-$,5/2)		A C G	XREF: C(2760). J$^{\pi}$: log *ft*=6.07 from (3/2$^-$); γ to 7/2$^-$; L(t,p)=2 or 1+3.
2780.1 *10*			G	
2864.38 *18*	(3/2,5/2)$^-$		A C G	J$^{\pi}$: L(t,p)=2+4; log *ft*=5.70 from (3/2$^-$).
2893 *5*	5/2$^-$,7/2$^-$		EF	J$^{\pi}$: L(d,^{3}He)=L(t,α)=3.
2920.1 *5*	(3/2$^-$,5/2)		A G	J$^{\pi}$: log *ft*=6.9 from (3/2$^-$); γ to 7/2$^-$.
2952.9 *10*	(3/2 to 11/2)$^-$		C G	J$^{\pi}$: L(t,p)=2(+6).
2979.9 *10*			G	
3000.27 *20*	(3/2,5/2)$^-$		A C G	J$^{\pi}$: L(t,p)=2+4; log *ft*=5.45 from (3/2$^-$).
3026 *5*	3/2$^+$,5/2$^+$		E	J$^{\pi}$: L(d,^{3}He)=2.
3028 *25*	5/2$^-$,7/2$^-$		F	J$^{\pi}$: L(t,α)=3.
3077 *4*	(3/2 to 11/2)$^-$		C	J$^{\pi}$: L(t,p)=2.
3104.4 *5*	(1/2,3/2,5/2)		A G	J$^{\pi}$: log *ft*=6.5 from (3/2$^-$).
3116.7 *11*	(3/2$^+$,5/2$^+$)		G	J$^{\pi}$: possibly from $\sigma(\theta)$ shape.
3126.7[b] *6*	(15/2$^-$)		B G I	
3130 *4*	(3/2 to 11/2)$^-$		C	J$^{\pi}$: L(t,p)=2+4.
3151.7 *11*			FG	XREF: F(3163).
3176.0 *9*			G	J$^{\pi}$: 1/2,3/2 listed in (p,α) (1979Sm03) corresponds to 3176 and/or 3191 level.
3191.1 *6*	(3/2$^-$,5/2)		A G	J$^{\pi}$: log *ft*=6.3 from (3/2$^-$); γ to 7/2$^-$.
3197 *14*	7/2$^-$		C	J$^{\pi}$: L(t,p)=0+4.
3204.7 *3*	(3/2$^-$,5/2$^-$)		A FG	J$^{\pi}$: log *ft*=5.39 from (3/2$^-$); γ to 7/2$^-$; L(t,α)=(2).
3218 *5*	3/2$^+$,5/2$^+$		E	J$^{\pi}$: L(d,^{3}He)=L(t,α)=2.
3239.2 *6*	(3/2$^-$,5/2)		A G	J$^{\pi}$: log *ft*=6.4 from (3/2$^-$); γ to 7/2$^-$.
3252 *9*	7/2$^-$		C	J$^{\pi}$: L(t,p)=0(+4).
3349.4 *11*			G	
3357.0 *13*	(1/2 to 13/2)		C G	J$^{\pi}$: L(t,p)=2+4,3.
3365.0 *7*	(3/2$^-$,5/2)		A G	J$^{\pi}$: log *ft*=6.2 from (3/2$^-$); γ to 7/2$^-$.
3384.3 *11*			G	
3396.9 *12*			FG	
3409.7 *11*			G	

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Adopted Levels, Gammas (continued)

^{61}Co Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
3417 *4*	(9/2⁻,11/2⁻)		C E	XREF: E(3421). Jπ: L(d,^{3}He)=(5); L(t,p)=0+3+5 suggests a doublet.
3428.4 *11*	(9/2⁻,11/2⁻)		G	Jπ: L(d,^{3}He)=(5).
3445.1 *12*	7/2⁻		C FG	XREF: F(3467). Jπ: L(t,p)=0+2; L(t,α)=(3).
3470.8 *10*	(3/2,5/2)		G	Jπ: possibly from σ(θ) shape.
3471.7[d] *7*	(13/2⁻)		B I	
3484.8 *11*	(3/2 to 11/2)⁻		C G	Jπ: L(t,p)=2+4.
3492.5 *14*	5/2⁻,7/2⁻		E G	Jπ: L(d,^{3}He)=3.
3513.6 *11*	7/2⁻		C G	Jπ: L(t,p)=0+2.
3535.6 *10*	(5/2,7/2)		C G	Jπ: possibly from σ(θ) shape in (p,α).
3564.7 *13*			G	
3575.3 *13*	(3/2 to 11/2)⁻		C G	Jπ: L(t,p)=2+4.
3599.6 *14*	(1/2⁺,5/2⁻,7/2⁻)		E G	Jπ: L(d,^{3}He)=(0,3); σ(θ) better fit with L=3.
3609.4 *13*	(3/2 to 13/2)		C G	Jπ: L(t,p)=2+4 or 3+5. In (p,α), Jπ=1/2⁺,5/2,7/2 for a doublet possibly from σ(θ) shape.
3654.0 *11*	(3/2 to 11/2)⁻		G	Jπ: L(t,p)=2+4.
3658.0[c] *7*	(15/2)⁻		B I	
3660 *4*	(3/2 to 17/2)⁺		C F	Jπ: L(t,p)=5.
3691.5 *10*	(3/2 to 13/2)⁺		C G	Jπ: L(t,p)=3+5.
3700.2 *15*	(1/2 to 15/2)⁻		C G	XREF: C(3713). Jπ: L(t,p)=4.
3727.8 *15*	(5/2 to 11/2)⁻		C G	XREF: C(3732). Jπ: L(t,p)=2+6.
3752.6 *12*	(3/2 to 11/2)⁻		G	Jπ: L(t,p)=2+4.
3758.2? *15*			G	
3775.3[&] *11*	(5/2,7/2)		C FG	XREF: F(3782). Jπ: L(t,p)=1(+3) suggests (5/2⁺,7/2⁺,9/2⁺); L(t,α)=(3) gives (5/2⁻,7/2⁻).
3806.3 *13*	5/2⁻,7/2⁻		E G	Jπ: L(d,^{3}He)=3.
3814.6 *15*	(3/2 to 11/2)		C G	Jπ: L(t,p)=(3),2+4.
3827.3 *14*			G	
3871.1 *12*	3/2⁺,5/2⁺		C FG	Jπ: L(t,α)=2. But L(t,p)=(2+4) suggests negative parity.
3889.8 *13*	3/2⁺,5/2⁺		E G	Jπ: L(d,^{3}He)=2.
3905.6 *12*			G	
3915.7 *12*	(3/2 to 13/2)⁺		C G	Jπ: L(t,p)=3+5.
3924.4 *13*			G	
3937.1 *12*			G	
3965 *25*	(5/2⁻,7/2⁻)		C F	XREF: F(3970). Jπ: L(t,p)=2+4; L(t,α)=(3).
3987 *7*			C	
4002 *5*	(1/2⁺,5/2⁻,7/2⁻)		E	Jπ: L(d,^{3}He)=(0,3); σ(θ) better fit with L=3.
4071[&] *6*			C	Jπ: L(t,p)=3+(6) suggest (1/2:13/2)⁺ for L=3 and (5/2:19/2)$^{(-)}$ for L=6.
4093.8[c] *8*	(17/2⁻)	0.76 ps *21*	B I	
4152 *7*	(7/2⁻)		C E	XREF: E(4159). Jπ: L(t,p)=(0).
4211 *6*	(3/2 to 17/2)⁺		C	Jπ: L(t,p)=5.
4267 *5*	(1/2⁺,5/2⁻,7/2⁻)		E	Jπ: L(d,^{3}He)=(0,3); σ(θ) better fit with L=3.
4282 *4*	(5/2 to 11/2)⁻		C	Jπ: L(t,p)=2+6.
4349 *6*	7/2⁻		C	Jπ: L(t,p)=0+(6).
4382 *5*	3/2⁺,5/2⁺		E	Jπ: L(d,^{3}He)=2.
4389 *3*	7/2⁻		C	Jπ: L(t,p)=0+(4+6).
4455 *5*	3/2⁺,5/2⁺		E	Jπ: L(d,^{3}He)=2.
4499 *15*	7/2⁻		C G	XREF: G(4510).

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Adopted Levels, Gammas (continued)

^{61}Co Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
			Jπ: L(t,p)=0+4.
4534 *6*	(5/2 to 11/2)⁻	C	Jπ: L(t,p)=2+6.
4622 *5*	(3/2 to 11/2)⁻	C	Jπ: L(t,p)=2+(4,6).
4656 *5*	3/2⁺,5/2⁺	E	Jπ: L(d,^{3}He)=2.
4671 *7*	(5/2 to 11/2)⁻	C	Jπ: L(t,p)=2+6.
4753 *5*	3/2⁺,5/2⁺	E G	XREF: G(4730). Jπ: L(d,^{3}He)=2.
4766 *5*	(3/2 to 11/2)⁻	C	Jπ: L(t,p)=2+4.
4802.3[c] *17*	(19/2⁻)	B	
4838 *6*	(5/2 to 11/2)⁻	C	Jπ: L(t,p)=2+6.
4911 *5*	(5/2 to 11/2)⁻	C	Jπ: L(t,p)=2+(4+6).
4960 *5*	(5/2)⁺	C G	Jπ: L(t,p)=1; 3/2,5/2 possibly from σ(θ) shape in (p,α).
4990 *5*	3/2⁺,5/2⁺	E	Jπ: L(d,^{3}He)=2.
5061 *5*	(3/2,5/2,7/2)	E	Jπ: L(d,^{3}He)=(2,3); σ(θ) better fit with L=2.
5081 *12*	(3/2 to 11/2)⁻	C	Jπ: L(t,p)=2+4.
5150 *5*	(3/2,5/2,7/2)	E	Jπ: L(d,^{3}He)=(2,3); σ(θ) better fit with L=3.
5164 *5*	⁺	C	Jπ: L(t,p)=3.
5214[&] *5*	(3/2 to 13/2)	C	Jπ: L(t,p)=2+(5).
5271 *4*	(3/2 to 13/2)⁺	C	Jπ: L(t,p)=3+5.
5321 *6*	(5/2,7/2,9/2)	C	Jπ: L(t,p)=1+3,0+4. L=0+4 suggests 7/2⁻; L=1+3 gives 5/2⁺,7/2,9/2.
5388 *6*	(3/2 to 11/2)⁻	C	Jπ: L(t,p)=2.
9320.01	9/2⁺,11/2⁺[a]	D	
9320.91	9/2⁺,11/2⁺[a]	D	
9321.19	9/2⁺,11/2⁺[a]	D	
9321.66	9/2⁺,11/2⁺[a]	D	

† Level energy with ΔE<1 keV are deduced from least-square fit to the Adopted Gammas. The others are from (p,α) or weighted averages from (t,p) and (d,^{3}He). Values from (t,α) are not used due to less precision in this work.

‡ When L-transfer arguments are used, the target J^π=0⁺ for (d,^{3}He), (t,α) and (p,α) reactions. Target J^π=7/2⁻ for (t,p) reaction, which gives negative parity for even L transfer and positive parity for odd L transfer, with several J^π values possible for L≥1; for L=0, J^π=7/2⁻, assuming the two neutrons are in S=0 state. For high-spin (J>9/2), the assignments are based on γ(θ) data for selected transitions, yrast nature of population of states, decay pattern and systematics. No separate arguments are given for the high-spin states.

\# From DSAM in (^{48}Ca,p2nγ), unless otherwise stated. Because of incomplete knowledge of the level scheme, the feeding γ transitions are not known. Hence, the value given is considered as an apparent half-life, and as a lower limit.

@ <100 ns from coincidence resolving time of ≈40 ns in γβ-coin in β⁻ decay.

& Possible doublet.

a S-wave neutron capture in ^{60}Cu g.s., J^π=5⁺.

b Band(A): γ cascade based on 11/2⁻.

c Band(B): γ cascade based on (15/2⁻).

d Band(C): γ cascade based on 9/2⁻.

γ(^{61}Co)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	Comments
1027.48	3/2⁻	1027.42 *11*	100	0.0	7/2⁻	[E2]	B(E2)(W.u.)>0.00035
1205.09	(3/2)⁻	177.61 *12*	4.6 *4*	1027.48	3/2⁻		
		1205.07 *12*	100	0.0	7/2⁻		
1285.54	(9/2)⁻	1285.5 *4*	100	0.0	7/2⁻		E_γ: weighted average of 1285.7 *3* in β⁻ decay, 1284.5 *6* in (^{48}Ca,p2nγ) and 1286.4 *9* in (^{70}Zn,Xγ).

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Adopted Levels, Gammas (continued)

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

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.	Comments
1325.40	(1/2⁻)	120.34 *12*	23.9 *18*	1205.09	(3/2)⁻		
		297.90 *7*	100 *8*	1027.48	3/2⁻		
1618.85	5/2⁻,7/2⁻	333.0 *4*	61 *10*	1285.54	(9/2)⁻		
		1618.9 *2*	100 *12*	0.0	7/2⁻		
1645.87	(3/2⁻,5/2)	440.5 *4*	3.1 *7*	1205.09	(3/2)⁻		
		618.40 *16*	13.4 *11*	1027.48	3/2⁻		
		1645.95 *16*	100 *5*	0.0	7/2⁻		
1664.3	(11/2⁻)	379.1 *5*	25 *4*	1285.54	(9/2)⁻		
		1663.6 *5*	100 *15*	0.0	7/2⁻	(E2)	B(E2)(W.u.)=0.36 +*14*−*18*
1889.1	(5/2,7/2)⁻	244[‡]	16[‡] *6*	1645.87	(3/2⁻,5/2)		
		603.3 *5*	41 *17*	1285.54	(9/2)⁻		
		1889.0 *4*	100 *20*	0.0	7/2⁻		
1953.19	1/2⁻,3/2⁻	748.10 *18*	100 *10*	1205.09	(3/2)⁻		
		925.6 *3*	42 *5*	1027.48	3/2⁻		
2011.49	(3/2,5/2)⁻	686.0 *3*	9.1 *18*	1325.40	(1/2⁻)		
		806.3 *4*	4.4 *11*	1205.09	(3/2)⁻		
		984.1 *4*	14 *3*	1027.48	3/2⁻		
		2011.6 *2*	100 *7*	0.0	7/2⁻		
2230.9	(5/2,7/2)⁻	945.4 *5*	100 *30*	1285.54	(9/2)⁻		
		1027[#&]		1205.09	(3/2)⁻		
		1205[#&]		1027.48	3/2⁻		
		2230.8 *4*	100 *16*	0.0	7/2⁻		
2302.99	1/2⁻,3/2⁻	349.7 *3*	23 *6*	1953.19	1/2⁻,3/2⁻		
		657.3 *4*	32 *14*	1645.87	(3/2⁻,5/2)		
		978[&]	11 *6*	1325.40	(1/2⁻)		
		1097.8 *2*	100 *9*	1205.09	(3/2)⁻		
		1275	88 *19*	1027.48	3/2⁻		
2338.9	(11/2⁻)	1053.9 *7*	100	1285.54	(9/2)⁻	(M1)[@]	B(M1)(W.u.)=0.0111 *23*
2374.2	(13/2⁻)	709.8 *5*	100	1664.3	(11/2⁻)	(D)[@]	
2431.4	(3/2,5/2)⁻	542.6[&] *5*	60 *30*	1889.1	(5/2,7/2)⁻		
		1403.9 *5*	100 *50*	1027.48	3/2⁻		
2484.5	(3/2,5/2)⁻	2484.4 *4*	100	0.0	7/2⁻		
2754.5	(3/2⁻,5/2)	2754.4 *4*	100	0.0	7/2⁻		
2864.38	(3/2,5/2)⁻	561.4[&] *5*	7 *4*	2302.99	1/2⁻,3/2⁻		
		1538.8 *3*	35 *7*	1325.40	(1/2⁻)		
		1659.3 *2*	100 *12*	1205.09	(3/2)⁻		
		1837.2 *6*	18 *4*	1027.48	3/2⁻		
2920.1	(3/2⁻,5/2)	2920.0 *5*	100	0.0	7/2⁻		
3000.27	(3/2,5/2)⁻	696.9 *4*	19 *5*	2302.99	1/2⁻,3/2⁻		
		769.4 *5*	26 *7*	2230.9	(5/2,7/2)⁻		
		989.2 *4*	100 *22*	2011.49	(3/2,5/2)⁻		
		1381.4 *3*	66 *8*	1618.85	5/2⁻,7/2⁻		
		1972.7 *5*	10 *3*	1027.48	3/2⁻		
3104.4	(1/2,3/2,5/2)	1899.3 *5*	100	1205.09	(3/2)⁻		
3126.7	(15/2⁻)	752.4 *5*	100 *20*	2374.2	(13/2⁻)	(D)[@]	
		1462.4 *8*	24.7 *11*	1664.3	(11/2⁻)	(Q)[@]	
3191.1	(3/2⁻,5/2)	3191.0 *6*	100	0.0	7/2⁻		
3204.7	(3/2⁻,5/2⁻)	1879.4 *4*	100 *14*	1325.40	(1/2⁻)		
		1999.8 *8*	50 *17*	1205.09	(3/2)⁻		
		2177.1 *7*	80 *17*	1027.48	3/2⁻		
		3204.2 *6*	17 *4*	0.0	7/2⁻		
3239.2	(3/2⁻,5/2)	3239.1 *6*	100	0.0	7/2⁻		
3365.0	(3/2⁻,5/2)	3364.9 *7*	100	0.0	7/2⁻		

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

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

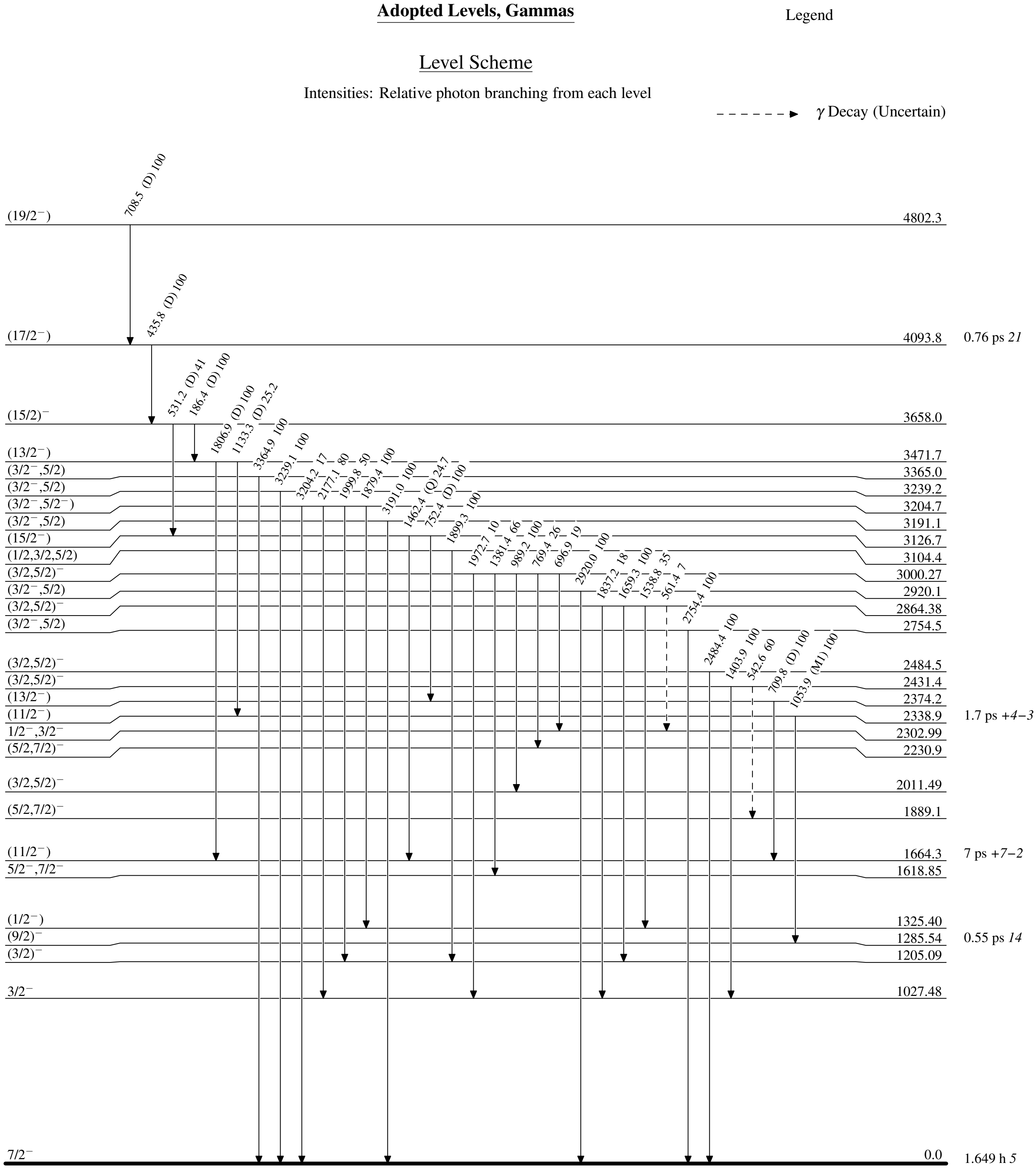
E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.	Comments
3471.7	(13/2−)	1133.3 *7*	25.2 *10*	2338.9	(11/2−)	(D)[@]	
		1806.9 *10*	100 *12*	1664.3	(11/2−)	(D)[@]	
3658.0	(15/2)−	186.4 *5*	100 *12*	3471.7	(13/2−)	(D)[@]	
		531.2 *5*	41 *9*	3126.7	(15/2−)	(D)[@]	Mult.: $\gamma(\theta)$ consistent with ΔJ=0, dipole.
4093.8	(17/2−)	435.8 *5*	100	3658.0	(15/2)−	(D)[@]	
4802.3	(19/2−)	708.5 *15*	100	4093.8	(17/2−)	(D)[@]	

† From ^{61}Fe β^- decay if a level is populated in this study, otherwise from in-beam γ reaction data. Exceptions are noted.
‡ From ^{64}Ni(p,$\alpha\gamma$). Iγ(245γ)/Iγ(1889γ) adopted. Note Iγ(603γ)/Iγ(1889γ)=0.84 *21* in (p,$\alpha\gamma$).
# See comment in ^{64}Ni(p,$\alpha\gamma$).
@ From $\gamma(\theta)$ in ^{16}O(^{48}Ca,p2n).
& Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

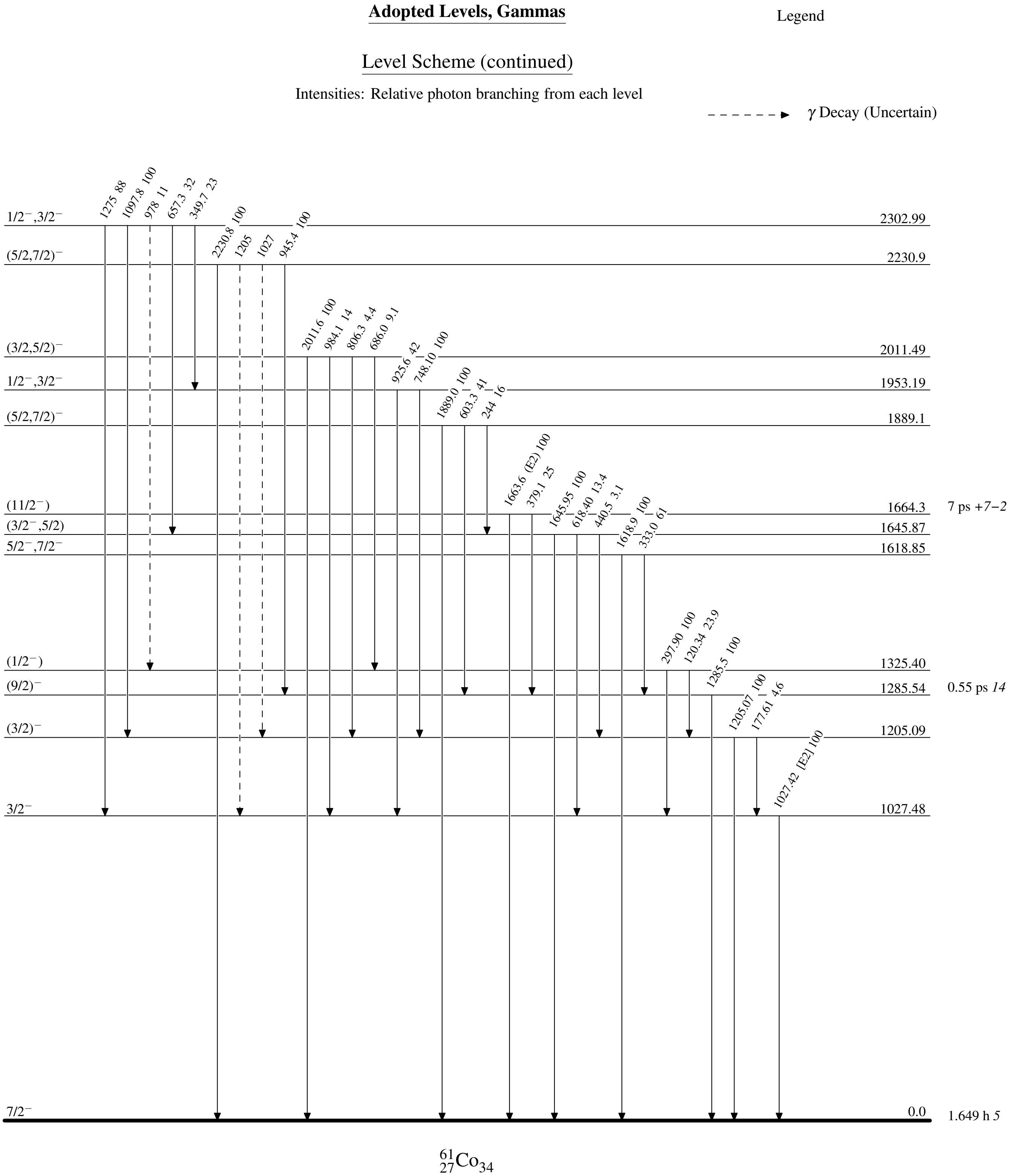


$^{61}_{27}Co_{34}$

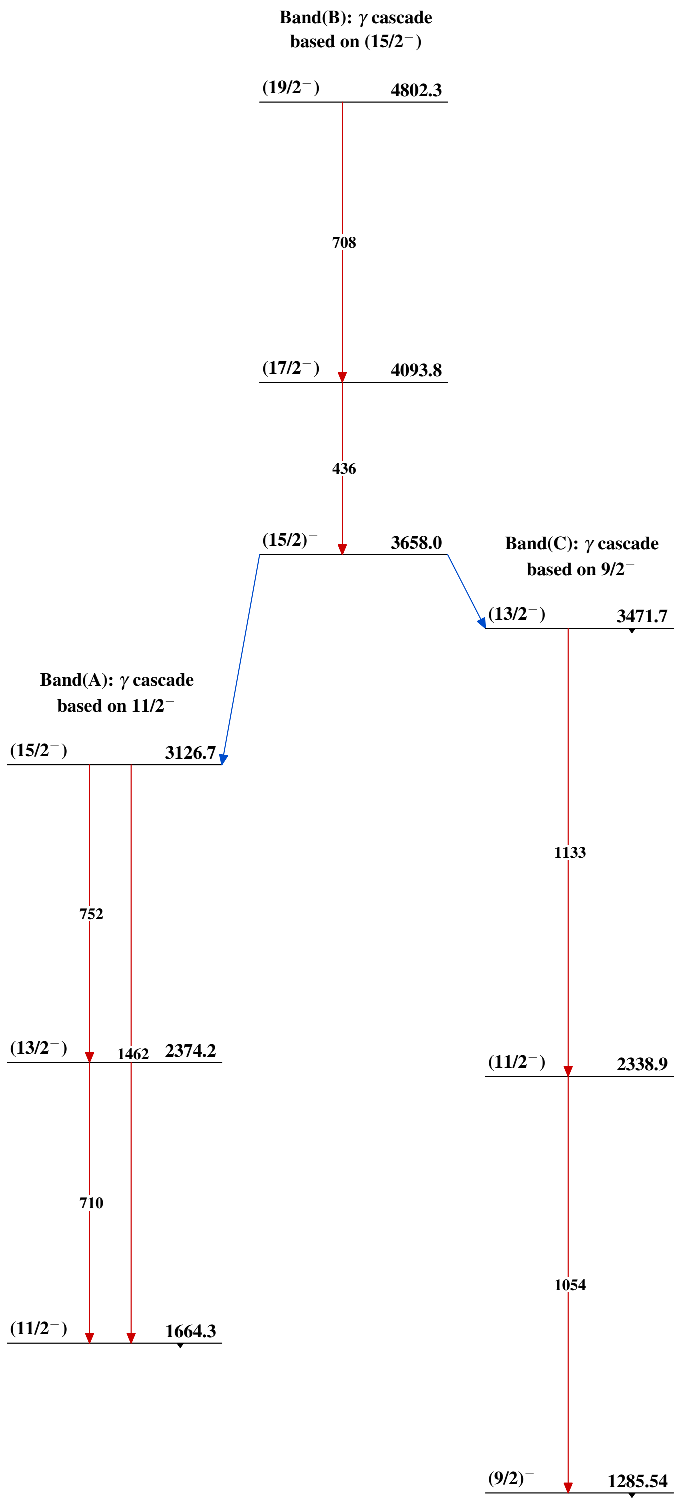
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



Adopted Levels, Gammas



$^{61}_{27}Co_{34}$