Adopted Levels, Gammas

History

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

Q(β^-)=−2117 *4*; S(n)=9138 *4*; S(p)=5101 *4*; Q(α)=−3362 *4* 2012Wa38
Note: Current evaluation has used the following Q record.
Q(β^-)=−2100 *30*; S(n)=9138 *3*; S(p)=5102 *3*; Q(α)=−3352 *5* 2009AuZZ,2003Au03
Additional information 1.
Other reactions.
^{59}Co(^{12}C,nα): E=60-85 MeV. Measured Eγ, Iγ, σ (2008Ag06).
Zn(p,X): E<27.5 MeV. Measured σ, excitation functions (2007Al41); E= 31-141 MeV. Measured σ (2005Bo10); E=5-100 MeV. Measured production σ (2005Sz02); E=26-67 MeV. Measured production σ, excitation functions (2005Ta01); E=24-70 MeV. Measured production σ (2003Sz01). E=1 GeV. Measured isotopic σ (2007Na31).
Zn(p,xn): E=4-40 MeV. Measured σ, excitation functions (2007Ud02).
Zn(d,X): E=19 MeV. Measured excitation functions (2004Gr01); E=6-50 MeV. Measured excitation functions (2004Ta13); E=3-19 MeV. Measured excitation functions (2003Bo15).
^{63}Cu(α,n): E=5-45 MeV. Measured excitation functions (2006Si18).
Cu(α,X): E=16-60 MeV. Measured production σ (2001Sz06); E=7-40 MeV. Measured σ (2000Ta18); E=50 MeV. Measured Eγ, Iγ (1997La03).
^{66}Zn(p,n): E=5-100 MeV. Measured production σ (2005Sz02); E=35-67 MeV. Measured production σ (2003Sz01); E=6-26 MeV. Measured σ (1998Sz02).
^{67}Zn(p,2n); E=6-26 MeV. Measured σ (1998Sz02).
^{68}Zn(p,3n): E=20-71 MeV. Measured excitation functions (2002St31).
^{66}Zn(^{16}O,^{9}N7p): E=60-95 MeV. Measured excitation functions (2006So07).
^{63}Cu(^{16}O,3αn): E=55-110 MeV. Measured excitation functions (2003Ch57).
Cu(^{7}Li,X): E=35 MeV/nucleon. Measured production σ (2004De41).
Si(^{68}Ga,X): E=50-60 MeV/nucleon. Measured reaction σ (2004Li29).
Cu(^{3}He,X): E=3-36 MeV. Measured production σ (2002Ta23).
Ge(γ,X): E=150 MeV. Measured reaction yields (2001DiZZ).
^{70}Ge(n,X): E≈64 MeV. Measured reaction yields (1997Na27).
H-F analysis means Hauser-Feshbach analysis in this evaluation.

^{66}Ga Levels

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

Cross Reference (XREF) Flags

A	^{66}Ge ε decay	D	^{64}Zn(α,d)
B	^{56}Fe(^{13}C,2npγ), ^{52}Cr(^{16}O,npγ)	E	^{66}Zn(p,nγ)
C	^{63}Cu(α,nγ), ^{64}Zn(α,npγ)	F	^{66}Zn(^{3}He,t)

E(level)[†]	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0	0$^+$	9.49 h *3*	ABC EF	%ε+%β^+=100 J$^\pi$: spin from atomic beam (1976Fu06); π=+ from M1 from 1$^+$ level. T$_{1/2}$: weighted average of 9.57 h *6* (1956Ru45), 9.5 h *1* (1959Ca15), 9.33 h *8* (1964Ru06), and 9.49 h *3* (2006Ab30). Others: 9.45 h (1950La55) and 9.35 h (1967Va13).
43.812 *16*	1$^+$[‡]	18.0 ns *9*	ABC E	T$_{1/2}$: from delayed-$\gamma\gamma$ coincidences in ^{66}Ge ε decay.
66.139 *19*	(2)$^+$	23.0 ns *14*	ABC E	μ=1.01 *2* (2005St24,1989Ra17) J$^\pi$: 1$^+$,2$^+$ from M1+E2 to 1$^+$; not fed in ε decay from 0$^+$.

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Adopted Levels, Gammas (continued)

^{66}Ga Levels (continued)

E(level)[†]	J^{π}	$T_{1/2}$	XREF	Comments
				$T_{1/2}$: weighted average of pulsed-beam delayed-γ coincidences: 23 ns *2* from ^{63}Cu(α,nγ) and 23 ns *2* from ^{66}Zn(p,nγ). μ: From time-dependent perturbed-angular distribution (TDPAD) of γ rays (1976Le03); does not include Knight shift correction.
108.893 *15*	1^+	1.2 ns *2*	A CDE	J^{π}: 1 from $\gamma(\theta)$ in (p,nγ), J=2 from H-F analysis in (p,nγ); π=+ from M1 to 0^+. $T_{1/2}$: from delayed-$\gamma\gamma$ coincidences in ^{66}Ge ε decay.
162.472 *20*	$(3)^+$	13 ns *5*	ABC E	E(level): disagreement over the J^{π} assignment and the γ branchings from this level in ^{66}Ge ε decay, (α,nγ), (α,npγ), and (p,nγ) suggest that there may be a level doublet at this energy. J^{π}: there is some disagreement over the J^{π} assignment of this level. J=(3) from $\gamma(\theta)$ in (α,nγ) and (α,npγ); J=3 from H-F analysis in (p,nγ). J=2 from $\gamma(\theta)$ of the 96γ doublet in (p,nγ). π=+ from E2 to 1^+. $T_{1/2}$: From pulsed-beam delayed-γ coincidences in (α,npγ) (1978Mo21). Other value: 4.2 ns 2 (1997KoZW).
234.043 *17*	2^+		A C E	J^{π}: E2 to 0^+. Other: J=1,2 from $\gamma(\theta)$ in (p,nγ); J=2 from H-F analysis in (p,nγ).
290.908 *25*	$(0,1)^+$		A E	J=1,2 from $\gamma(\theta)$ in (p,nγ), J=2 rejected by incompatible δ(182γ) values from $\gamma(\theta)$ in (p,nγ) and α(K)exp in ^{66}Ge ε decay; other: J=0,4 from H-F analysis in (p,nγ); π=+ from M1 to 1^+.
335.404 *20*	$(2)^+$		E	J^{π}: 2 from $\gamma(\theta)$ in (p,nγ); J=1,2 from H-F analysis in (p,nγ); π=+ from M1 to 1^+.
381.859 *20*	1^+[‡]		A E	
415.34 *3*	$(4)^+$	<2[@] ns	BC E	J^{π}: from $\gamma(\theta)$ and γ-decay systematics in (α,nγ), (α,npγ), and H-F analysis in (p,nγ); π=+ from M1 to 162.4-keV [$(3)^+$] level.
423.77 *3*	$(3)^+$		E	J^{π}: 3 from H-F analysis in (p,nγ); π=+ from M1 to 66.1-keV [$(2)^+$] level.
459.878 *22*	2^+		E	J^{π}: 2 from $\gamma(\theta)$ and H-F analysis in (p,nγ); π=+ from M1+E2 to 43.8-keV [1^+] level.
516.20 *4*	$(4)^+$	<2[@] ns	BC E	J^{π}: from $\gamma(\theta)$ and γ-decay systematics in (α,nγ), (α,npγ), and H-F analysis in (p,nγ); π=+ from M1+E2 to 162.4-keV [$(3)^+$] level.
536.618 *21*	1^+[‡]		A E	
552.90 *3*	$(3)^+$		CDE	J^{π}: from H-F analysis in (p,nγ); π=+ from M1 to 234.0-keV [$(2)^+$] level.
620.98 *3*	$(2)^+$		E	J^{π}: 1,2 from H-F analysis in (p,nγ); π=+ from M1 to 43.8-keV [1^+] level.
639.58 *3*	$(3)^+$		E	J^{π}: 3 from H-F analysis in (p,nγ); π=+ from M1 to 162.4-keV [$(3)^+$] level.
664.202 *24*	$(1,2)^+$		A E	J^{π}: 1,2 from H-F analysis in (p,nγ); π=+ from M1 to 1^+ level π=+ from M1 to 43.8-keV [1^+] level.
705.995 *21*	1^+[‡]		A E	
721.89 *3*	$(3)^+$		C E	J^{π}: 3 from H-F analysis in (p,nγ); π=+ from M1 to 66.1-keV [$(2)^+$] level.
783.96 *15*	(3)		C	J^{π}: from $\gamma(\theta)$ and γ-decay modes in (α,nγ), (α,npγ).
790.08 *3*	$(1,2)^+$		E	J^{π}: 1,2 from H-F analysis in (p,nγ); π=+ from M1 to 66.1-keV [$(2)^+$] level.
838.93 *3*			DE	
845.03 *5*	$(2^+,3,4^+)$		E	J^{π}: from gammas to $(4)^+$ and $1^+,2^+$ levels.
863.55 *6*	(5)[#]	<2[@] ns	BC E	J^{π}: spin from $\gamma(\theta)$ of 448γ and 701γ in (α,nγ), (α,npγ).
866.09 *5*	1^+		A E	J^{π}: from log *ft*=5.84 *6* from 0^+, and M1,E2 to 108.9-keV [1^+] level.
943.86 *5*	$(2^+,3,4^+)$		E	J^{π}: from gammas to $(4)^+$ and $1^+,2^+$ levels.
974.48 *4*	$(1,2^+)$		A E	From γ to 0^+ level.
998.62 *7*	$(1^+,2,3^+)$		E	J^{π}: from gammas to 1^+, $(3)^+$ levels.
1001.39 *15*			A	
1018.31 *17*			E	
1062.12 *22*			A	
1065.15 *19*	$(1^+,2,3^+)$		E	J^{π}: gammas to 1^+, and $(3)^+$.
1076.6 *4*			A	
1081.2 *4*			E	
1141.99 *10*			C	

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Adopted Levels, Gammas (continued)

^{66}Ga Levels (continued)

E(level)†	J$^{\pi}$	T$_{1/2}$	XREF	Comments
1164.22 *22*			A	
1210.20 *4*			A	
1350.63 *11*	(5)#		BC	J$^{\pi}$: spin from $\gamma(\theta)$ of 935γ and excitation functions in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ).
1380 *30*	(6^{-})		D	Configuration=((π p$_{3/2}$)(ν g$_{9/2}$))6^{-} J$^{\pi}$: from DWBA analysis in (α,d).
1450			D	
1456.08 *6*	1^{+}‡		A	
1464.33 *15*	(7)#	57.3 ns *14*	BC	μ=+0.90 *2*; Q=0.78 *4* (2005St24,1989Ra17) J$^{\pi}$: from $\gamma(\theta)$ of 601γ and excitation functions in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ). T$_{1/2}$: from pulsed-beam delayed-γ coincidences in ^{56}Fe(^{13}C,2npγ), ^{52}Cr(^{16}O,npγ). Other value: 39 ns *2* (1997KoZW). μ: Other: +0.861 *21* and +0.89 *2* (1985Ra23) from time-dependent perturbed angular distribution (TDPAD) of γ rays. Q: From DPAD of γ rays (1985Ra23).
1513.37 *13*	(6)#		C	
1556.65 *3*	1^{+}		A	J$^{\pi}$: from log *ft*=4.87 *7* in ^{66}Ge ε decay.
1573.7 *3*	1$^{(+)}$		A C	J$^{\pi}$: from log *ft*=5.7 *3* in ^{66}Ge ε decay.
1617.66 *21*	(6)#		C	
1769.36 *20*	1^{+}‡		A	
1774.90 *19*	(7)#		C	J$^{\pi}$: from 1268γ decay of J^{π}=(9) level at 3043, γ decay to J=(6) level at 1513, and observed weakness of population in the reactions ^{63}Cu(α,nγ) and ^{64}Zn(α,npγ).
2408.43 *25*	(8)#		C	
2512.44 *21*	(8)#	<2@ ns	C	
2652.99 *21*	(9^{+})#	<2@ ns	BC	π=(+) from M1 from J^{π}=(9^{+}).
3043.45 *18*	(9^{+})#	0.208 ns *8*	BCD	μ=4.2 *9* (2005St24,1989Ra17) Configuration=((π g$_{9/2}$)(ν g$_{9/2}$))9^{+} J^{π}=9^{+} suggested in (α,d) from strength of reaction σ, reaction systematics and shell model. μ: From integral perturbed angular correlation (IPAC) (1987Ba45). T$_{1/2}$: value quoted by 1987Ba45 without giving any details.
3362.3 *3*			C	
3420.1 *3*	(10)#		C	
3850	(0^{+})		F	E(level): from ^{66}Zn(^{3}He,t), uncertainty unavailable. J$^{\pi}$: IAR, L=(0) in ^{66}Zn(^{3}He,t).
4110.4 *3*	(10)#		C	
4162.1 *3*	(11)#	<2@ ns	C	
4192.7 *3*			C	
4271.7 *4*	(12)#		C	
4302.7 *3*			C	
5109.2 *4*	(13)#		C	J$^{\pi}$: from $\gamma(\theta)$ and excitation functions in ^{63}Cu(α,nγ) and ^{64}Zn(α,npγ).

† Deduced by evaluators from least-squares fit to adopted Eγ data, except as noted.
‡ From log *ft* from 0^{+}.
# Assuming J^{π}(162 level)=(3^{+}); from $\gamma(\theta)$ in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ).
@ From prompt γ decay in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ).

$\gamma(^{66}Ga)$

α(K)exp: From (p,nγ), unless indicated otherwise.

E_i(level)	J_i^π	E_γ‡	I_γ#	E_f	J_f^π	Mult.	δ	α†	Comments
43.812	1^+	43.81 *3*	100	0.0	0^+	M1[b]		0.700	α(K)exp=0.64 *4*; α(L)exp=0.092 *7* α(K)=0.622 *9*; α(L)=0.0672 *10*; α(M)=0.00984 *14*; α(N+..)=0.000516 *8* α(N)=0.000516 *8* B(M1)(W.u.)=0.0086 *5* α(K)exp,α(L)exp: From ε decay.
66.139	$(2)^+$	22.33 *5*	100	43.812	1^+	M1+E2[b]	0.079 *17*	6.0 *5*	α(L)exp=0.77 *13* α(K)=5.1 *4*; α(L)=0.78 *14*; α(M)=0.112 *20*; α(N+..)=0.0044 *4* α(N)=0.0044 *4* B(M1)(W.u.)=0.0122 *12*; B(E2)(W.u.)=2.5×10^2 *11* α(L)exp: From ε decay. δ: 0.079 *17* from α(L)exp implies a large but acceptable E2 transition strength of 240 W.u. 120. δ(E1+M2)=0.08 from α(L)exp would imply an M2 transition strength of 1.3×10^4 W.u. +6-4.
108.893	1^+	42.69 *8*	16 *5*	66.139	$(2)^+$	[M1]		0.754	B(M1)(W.u.)=0.019 *7* α(K)=0.670 *10*; α(L)=0.0724 *11*; α(M)=0.01060 *16*; α(N+..)=0.000556 *9* α(N)=0.000556 *9*
		65.09 *2*	56 *4*	43.812	1^+	(M1+E2)	<0.04	0.231 *5*	α(K)=0.205 *4*; α(L)=0.0221 *5*; α(M)=0.00323 *7*; α(N+..)=0.000170 *3* α(N)=0.000170 *3* B(M1)(W.u.)>0.015; B(E2)(W.u.)<13 Mult.: D+Q from α(K)exp=0.208 *14*, α(L)exp=0.021 *4* measured in ^{66}Ge ε decay, M1+E2 from J^π of the initial and final levels. δ: from α(K)exp.
		108.90 *2*	100 *6*	0.0	0^+	M1[b]		0.0555	α(K)exp=0.050 *4*; α(L)exp=0.006 *3* B(M1)(W.u.)=0.0070 *13* α(K)=0.0495 *7*; α(L)=0.00523 *8*; α(M)=0.000765 *11*; α(N+..)=4.06×10^{-5} *6* α(N)=4.06×10^{-5} *6* α(K)exp,α(L)exp: From ε decay; other: α(K)exp=0.047 *9* from (p,nγ).
162.472	$(3)^+$	53.39 *20*	≤3.6	108.893	1^+				I_γ: there is serious disagreement over the relative branching of the 53γ. According to ^{66}Ge ε decay data the 53γ is the major branch while Iγ(53)/Iγ(96)=0.03 from $\gamma\gamma(\theta)$ in (p,nγ).
		96.34 *2*	100 *11*	66.139	$(2)^+$	(M1+E2)		0.4 *4*	α(K)exp=0.059 *17* α(K)=0.4 *4*; α(L)=0.05 *4*; α(M)=0.007 *6*; α(N+..)=0.00030 *25* α(N)=0.00030 *25* Mult.: from $\gamma(\theta)$ in (α,nγ), (α,npγ) and ΔJ^π. δ: −0.2 *+2−1* if J^π(162)=3^+ from $\gamma(\theta)$ in ^{63}Cu(α,nγ); −0.5≤δ(D+Q)≤0.0 if J^π(162)=2 from $\gamma(\theta)$ of the 96γ doublet in (p,nγ).

$^{66}_{31}Ga_{35}$-4

Adopted Levels, Gammas (continued)

$\gamma(^{66}Ga)$ (continued)

E_i(level)	J^π_i	E_γ‡	I_γ#	E_f	J^π_f	Mult.	δ	α†	Comments
162.472	$(3)^+$	118.80 *20*	0.4	43.812	1^+	E2(+M3)		1.9 *16*	α(K)=1.6 *13*; α(L)=0.24 *20*; α(M)=0.04 *3*; α(N+..)=0.0016 *14* α(N)=0.0016 *14* E_γ: reported in (α,nγ), (α,npγ); weak in (p,nγ). Q+O from $\gamma(\theta)$ in (α,nγ); E2+M3 from RUL. δ(E2+M3)=−0.2 *2* if J^π(162)=3^+, δ(D+Q)=+0.9 *2* if J(162)=2; from $\gamma(\theta)$ in (α,nγ).
234.043	2^+	71.51 *4*	2.6 *4*	162.472	$(3)^+$	[D]		0.178	α(K)=0.1562; α(L)=0.0163
		125.15 *3*	6.0 *5*	108.893	1^+	M1+E2[c]		0.17 *14*	α(K)exp=0.040 *7* α(K)=0.15 *12*; α(L)=0.017 *14*; α(M)=0.0025 *20*; α(N+..)=0.00012 *9* α(N)=0.00012 *9* δ: −4.0 *5* for J^π(234)=2^+,−0.34 *10* for J^π(234)=1^+ from $\gamma(\theta)$ in ^{63}Cu(α,nγ). <0.24 from α(K)exp in (p,nγ).
		190.21 *2*	100 *6*	43.812	1^+	M1+E2[bc]	0.27 *10*	0.016 *3*	α(K)exp=0.0144 *19* α(K)=0.0145 *24*; α(L)=0.0015 *3*; α(M)=0.00022 *4*; α(N+..)=1.17×10^{-5} *18* α(N)=1.17×10^{-5} *18* α(K)exp: From ε decay; other: 0.0118 *21* from (p,nγ). Mult.,δ: from α(K)exp=0.0144 *19* in ^{66}Ge ε decay. δ=+0.11 *3* if J(234 level)=2, δ=−1.2 *7* if J(234)=1 from $\gamma(\theta)$ in ^{66}Zn(p,nγ). δ=+0.05 if J(234 level)=2, δ=+1.6 *10* if J(234 level)=1 from $\gamma(\theta)$ in ^{63}Cu(α,nγ). δ <0.24 from α(K)exp in (p,nγ).
		233.98 *4*	1.3 *3*	0.0	0^+	E2[c]		0.0291	α(K)exp=0.024 *7* α(K)=0.0259 *4*; α(L)=0.00281 *4*; α(M)=0.000408 *6*; α(N+..)=2.02×10^{-5} *3* α(N)=2.02×10^{-5} *3*
290.908	$(0,1)^+$	182.03 *4*	100 *6*	108.893	1^+	M1+E2[cb]	−0.22 *12*	0.017 *4*	α(K)exp=0.0131 *24* α(K)=0.015 *3*; α(L)=0.0016 *4*; α(M)=0.00024 *5*; α(N+..)=1.23×10^{-5} *24* α(N)=1.23×10^{-5} *24* I_γ: from ε decay larger by a factor of 2.5 compared to that from (p,nγ). Mult.: from α(K)exp=0.0115 *15* in ^{66}Ge ε decay. δ: from $\gamma(\theta)$ in ^{66}Zn(p,nγ). δ=+0.20 *4* for J(291 level)=2 is incompatible with δ<0.06 from α(K)exp in ^{66}Ge ε decay. δ <0.23 from α(K)exp in (p,nγ).
		247.08 *6*	1.3 *4*	43.812	1^+				
335.404	$(2)^+$	172.95 *3*	9.0 *11*	162.472	$(3)^+$	M1+E2[c]		0.05 *4*	α(K)exp=0.0153 *31* α(K)=0.05 *4*; α(L)=0.005 *4*; α(M)=0.0008 *6*; α(N+..)=3.7×10^{-5} *25* α(N)=3.7×10^{-5} *25* δ: <0.25 from α(K)exp in (p,nγ).
		226.50 *3*	34.6 *25*	108.893	1^+	M1+E2	+0.09 *3*	0.00846 *20*	α(K)exp=0.0076 *14* α=0.00846 *20*; α(K)=0.00756 *17*; α(L)=0.000784 *19*; α(M)=0.000115 *3*; α(N+..)=6.14×10^{-6} *14* α(N)=6.14×10^{-6} *14*

From ENSDF

$^{66}_{31}Ga_{35}$-5

$\gamma(^{66}Ga)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[#]	E_f	J_f^π	Mult.	δ	α[†]	Comments
									Mult.: from $\gamma(\theta)$ and α(K)exp in (p,nγ). δ: from $\gamma(\theta)$ in (p,nγ); <0.28 from α(K)exp in (p,nγ).
		269.27 *3*	35 *4*	66.139	$(2)^+$	M1+E2[c]		0.011 *6*	α(K)exp=0.0047 *9* α(K)=0.010 *6*; α(L)=0.0011 *6*; α(M)=0.00016 *9*; α(N+..)=8.E−6 *5* α(N)=8.E−6 *5* δ: +0.18 *6* or +1.40 *15* from $\gamma(\theta)$ in ^{66}Zn(p,nγ); <0.28 from α(K)exp in (p,nγ).
		291.59 *3*	100 *6*	43.812	1^+	M1+E2[c]	+0.04 *4*	0.00444 *8*	α(K)exp=0.0039 *7*

$^{66}_{31}Ga_{35}$-6

Adopted Levels, Gammas (continued)

$\gamma(^{66}Ga)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[#]	E_f	J_f^π	Mult.	δ	α[†]	Comments
									α=0.00444 *8*; α(K)=0.00397 *7*; α(L)=0.000409 *7*; α(M)=5.98×10^{-5} *11*; α(N+..)=3.22×10^{-6} *6* α(N)=3.22×10^{-6} *6* δ: from $\gamma(\theta)$ in (p,nγ); <0.30 from α(K)exp in (p,nγ). E_γ: Eγ=291.23 *16* observed in ^{66}Ge ε decay is shown deexciting the 291-keV level. The adopted gammas placement follows from the coincidence data of 1994Ti02 in (p,nγ).
381.859	1$^+$	90.94 *5*	1.4 *4*	290.908	(0,1)$^+$	[M1]		0.0904	α(K)=0.0806 *12*; α(L)=0.00856 *12*; α(M)=0.001252 *18*; α(N+..)=6.64×10^{-5} *10* α(N)=6.64×10^{-5} *10*
		147.79 *3*	4.6 *9*	234.043	2$^+$	[M1]		0.0247	α(K)=0.0220 *3*; α(L)=0.00231 *4*; α(M)=0.000338 *5*; α(N+..)=1.80×10^{-5} *3* α(N)=1.80×10^{-5} *3*
		272.97 *4*	37.4 *13*	108.893	1$^+$	M1+E2[c]	+0.24 *10*	0.0058 *6*	α(K)exp=0.0048 *9* α=0.0058 *6*; α(K)=0.0052 *5*; α(L)=0.00054 *6*; α(M)=7.9×10^{-5} *8*; α(N+..)=4.2×10^{-6} *4* α(N)=4.2×10^{-6} *4* δ: from $\gamma(\theta)$ in (p,nγ); <0.34 from α(K)exp in (p,nγ).
		315.55 *13*	2.90 *10*	66.139	(2)$^+$				
		338.05 *3*	31.0 *20*	43.812	1$^+$	M1+E2[c]	−0.05 *9*	0.00311 *9*	α(K)exp=0.0030 *7* α=0.00311 *9*; α(K)=0.00278 *8*; α(L)=0.000286 *9*; α(M)=4.18×10^{-5} *13*; α(N+..)=2.25×10^{-6} *7* α(N)=2.25×10^{-6} *7* δ: from $\gamma(\theta)$ in (p,nγ); <0.53 from α(K)exp in (p,nγ).
		381.85 *5*	100	0.0	0$^+$	M1[cb]		0.00232 *4*	α(K)exp=0.00208 α=0.00232 *4*; α(K)=0.00208 *3*; α(L)=0.000213 *3*; α(M)=3.11×10^{-5} *5*; α(N+..)=1.678×10^{-6} *24* α(N)=1.678×10^{-6} *24* α(K)exp: From (p,nγ) used for normalization; 0.0020 *3* from ε decay.
415.34	(4)$^+$	252.89 *3*	100 *7*	162.472	(3)$^+$	M1[c]		0.00628 *9*	α(K)exp=0.0060 *11* B(M1)(W.u.)>0.00065 α=0.00628 *9*; α(K)=0.00561 *8*; α(L)=0.000580 *9*; α(M)=8.49×10^{-5} *12*; α(N+..)=4.56×10^{-6} *7* α(N)=4.56×10^{-6} *7* δ(Q/D)=+0.03 *10* from (α,nγ); +0.17 *10* from $\gamma(\theta)$ in (α,npγ); <0.35 from α(K)exp in (p,nγ).
		349.16 *21*	4.1 *14*	66.139	(2)$^+$				
423.77	(3)$^+$	189.91 *10*	22 *3*	234.043	2$^+$				
		261.30 *3*	100 *8*	162.472	(3)$^+$	M1[c]		0.00580 *9*	α(K)exp=0.0054 *11* α=0.00580 *9*; α(K)=0.00518 *8*; α(L)=0.000535 *8*;

$\gamma(^{66}Ga)$ (continued)

E_i(level)	J^π_i	E_γ[‡]	I_γ[#]	E_f	J^π_f	Mult.	δ	α[†]	Comments
									α(M)=7.82×10^{-5} *11*; α(N+..)=4.20×10^{-6} *6* α(N)=4.20×10^{-6} *6*
423.77	(3)$^+$	357.62 *3*	89 *5*	66.139	(2)$^+$	M1[c]		0.00271 *4*	α(K)exp=0.0024 *5* α=0.00271 *4*; α(K)=0.00242 *4*; α(L)=0.000248 *4*; α(M)=3.64×10^{-5} *5*; α(N+..)=1.96×10^{-6} *3* α(N)=1.96×10^{-6} *3*
459.878	2$^+$	124.54 *10*	2.3 *9*	335.404	(2)$^+$				
		225.82 *11*	3.4 *9*	234.043	2$^+$				E_γ: Eγ=225.93 *24* observed in ^{66}Ge ε decay is shown deexciting the 291-keV level where it gave a poor fit to the level energy difference. The adopted gammas placement follows from the coincidence data of 1994Ti02 in (p,nγ).
		297.38 *5*	4.4 *10*	162.472	(3)$^+$				
		351.01 *3*	33.7 *24*	108.893	1$^+$	M1+E2[c]	≈+0.1[@]	≈0.00287	α(K)exp=0.0024 *5* α≈0.00287; α(K)≈0.00257; α(L)≈0.000264; α(M)≈3.86×10^{-5}; α(N+..)≈2.08×10^{-6} α(N)≈2.08×10^{-6}
		393.67 *4*	11.7 *13*	66.139	(2)$^+$	M1[c]		0.00216 *3*	α(K)exp=0.0019 *4* α=0.00216 *3*; α(K)=0.00193 *3*; α(L)=0.000198 *3*; α(M)=2.89×10^{-5} *4*; α(N+..)=1.562×10^{-6} *22* α(N)=1.562×10^{-6} *22*
		416.02 *3*	100 *7*	43.812	1$^+$	M1+E2[c]	+0.03[@] *3*	0.00190 *3*	α(K)exp=0.0016 *3* α=0.00190 *3*; α(K)=0.001701 *25*; α(L)=0.0001738 *25*; α(M)=2.54×10^{-5} *4*; α(N+..)=1.373×10^{-6} *2* α(N)=1.373×10^{-6} *20*
516.20	(4)$^+$	101.0 *3*		415.34	(4)$^+$				
		353.75 *3*	100 *6*	162.472	(3)$^+$	M1+E2[c]	+0.0 *1*	0.00278 *6*	α(K)exp=0.0025 *5* B(M1)(W.u.)>0.00022 α=0.00278 *6*; α(K)=0.00249 *5*; α(L)=0.000255 *6*; α(M)=3.73×10^{-5} *8*; α(N+..)=2.01×10^{-6} *4* α(N)=2.01×10^{-6} *4* δ: from $\gamma(\theta)$ in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ); <0.41 from α(K)exp in (p,nγ).
		449.99 *5*	11.4 *20*	66.139	(2)$^+$				
536.618	1$^+$	154.74 *3*	4.2 *4*	381.859	1$^+$	[M1]		0.0219	α(K)=0.0195 *3*; α(L)=0.00204 *3*; α(M)=0.000299 *5*; α(N+..)=1.597×10^{-5} *23* α(N)=1.597×10^{-5} *23*
		245.71 *3*	73 *3*	290.908	(0,1)$^+$	M1[c]		0.00675 *10*	α(K)exp=0.0063 *12* α=0.00675 *10*; α(K)=0.00603 *9*; α(L)=0.000623 *9*; α(M)=9.12×10^{-5} *13*; α(N+..)=4.90×10^{-6} *7* α(N)=4.90×10^{-6} *7*
		302.52 *3*	34 *3*	234.043	2$^+$				
		427.83 *6*	7.2 *15*	108.893	1$^+$				

$^{66}_{31}Ga_{35}$-8

$\gamma(^{66}Ga)$ (continued)

E_i(level)	J_i^π	E_γ‡	I_γ#	E_f	J_f^π	Mult.	α†	Comments
536.618	1^+	470.62 *6*	100 *5*	66.139	$(2)^+$			
		492.63 *15*	8.3 *4*	43.812	1^+			
		536.74 *7*	83 *3*	0.0	0^+	M1[c]	0.001060 *15*	α(K)exp=0.0010 *2* α=0.001060 *15*; α(K)=0.000949 *14*; α(L)=9.65×10^{-5} *14*; α(M)=1.411×10^{-5} *20*; α(N+..)=7.64×10^{-7} α(N)=7.64×10^{-7} *11*
552.90	$(3)^+$	137.56 *4*	13 *3*	415.34	$(4)^+$			
		217.53 *13*	2.6 *19*	335.404	$(2)^+$			
		318.85 *3*	77 *6*	234.043	2^+	M1+E2[c]	0.007 *3*	α(K)exp=0.0030 *7* α=0.007 *3*; α(K)=0.006 *3*; α(L)=0.0006 *3*; α(M)=9.E−5 *5*; α(N+..)=4.7×10^{-6} *21* α(N)=4.7×10^{-6} *21* δ: +0.0 *1* for J=3 to J=2 transition, from $\gamma(\theta)$ in (α,nγ), (α,npγ), and (p,nγ); <0.32 from α(K)exp in (p,nγ).
		390.44 *5*	31 *3*	162.472	$(3)^+$	M1[c]	0.00220 *3*	α(K)exp=0.0022 *5* α=0.00220 *3*; α(K)=0.00197 *3*; α(L)=0.000202 *3*; α(M)=2.95×10^{-5} *5*; α(N+..)=1.592×10^{-6} *23* α(N)=1.592×10^{-6} *23*
		486.75 *7*	100 *7*	66.139	$(2)^+$	M1[c]	0.001323 *19*	α(K)exp=0.0012 *2* α=0.001323 *19*; α(K)=0.001183 *17*; α(L)=0.0001206 *17*; α(M)=1.764×10^{-5} *25* α(N)=9.54×10^{-7} *14*
620.98	$(2)^+$	285.65 *7*	3.2 *15*	335.404	$(2)^+$			
		386.85 *5*	39 *3*	234.043	2^+	M1[c]	0.00225 *4*	α(K)exp=0.0020 *4* α=0.00225 *4*; α(K)=0.00201 *3*; α(L)=0.000206 *3*; α(M)=3.02×10^{-5} *5*; α(N+..)=1.627×10^{-6} *23* α(N)=1.627×10^{-6} *23*
		458.52 *4*	37 *3*	162.472	$(3)^+$	M1[c]	0.001517 *22*	α(K)exp=0.0014 *3* α=0.001517 *22*; α(K)=0.001357 *19*; α(L)=0.0001384 *20*; α(M)=2.02×10^{-5} *3*; α(N+..)=1.094×10^{-6} α(N)=1.094×10^{-6} *16*
		577.18 *3*	100 *10*	43.812	1^+	M1[c]	0.000901 *13*	α(K)exp=0.00080 *16* α=0.000901 *13*; α(K)=0.000806 *12*; α(L)=8.19×10^{-5} *12*; α(M)=1.198×10^{-5} *17*; α(N+..)=6.49×10^{-7} α(N)=6.49×10^{-7} *9*
639.58	$(3)^+$	215.94 *17*	1.9 *14*	423.77	$(3)^+$			
		224.29 *11*	3.5 *16*	415.34	$(4)^+$			
		304.16 *4*	17.8 *24*	335.404	$(2)^+$			
		405.65 *10*	3.2 *16*	234.043	2^+			
		477.12 *3*	100 *8*	162.472	$(3)^+$	M1[c]	0.001384 *20*	α(K)exp=0.0011 *2* α=0.001384 *20*; α(K)=0.001239 *18*; α(L)=0.0001262 *18*; α(M)=1.85×10^{-5} *3*;

Adopted Levels, Gammas (continued)

γ(^{66}Ga) (continued)

E$_i$(level)	J$^{\pi}_i$	E$_{\gamma}$‡	I$_{\gamma}$#	E$_f$	J$^{\pi}_f$	Mult.	α†	Comments
								α(N+..)=9.99×10^{-7} α(N)=9.99×10^{-7} *14*
639.58	(3)$^+$	573.46 *5*	24 *4*	66.139	(2)$^+$	M1+E2[c]	0.0012 *3*	α(K)exp=0.0010 *2* α=0.0012 *3*; α(K)=0.00105 *23*; α(L)=0.000107 *25*; α(M)=1.6×10^{-5} *4*; α(N+..)=8.4×10^{-7} *18* α(N)=8.4×10^{-7} *18* δ: <2.4 from α(K)exp in (p,nγ).
664.202	(1,2)$^+$	328.80 *12*	14.4 *25*	335.404	(2)$^+$			
		430.11 *19*		234.043	2$^+$			
		501.66 *5*	12.2 *25*	162.472	(3)$^+$			
		555.39 *26*	22 *3*	108.893	1$^+$			
		598.06 *3*	100 *9*	66.139	(2)$^+$	M1[c]	0.000833 *12*	α(K)exp=0.00073 *14* α=0.000833 *12*; α(K)=0.000745 *11*; α(L)=7.56×10^{-5} *11*; α(M)=1.107×10^{-5} *16*; α(N+..)=5.99×10^{-7} α(N)=5.99×10^{-7} *9*
		620.41 *3*	63 *6*	43.812	1$^+$	M1[c]	0.000768 *11*	α(K)exp=0.00074 *14* α=0.000768 *11*; α(K)=0.000687 *10*; α(L)=6.97×10^{-5} *10*; α(M)=1.020×10^{-5} *15*; α(N+..)=5.53×10^{-7} α(N)=5.53×10^{-7} *8*
		664.15 *18*	3.1 *19*	0.0	0$^+$			
705.995	1$^+$	41.84 *10*	3.3 *26*	664.202	(1,2)$^+$	[D]	0.85 *3*	α(K)=0.74; α(L)=0.08
		169.47 *10*	4 *2*	536.618	1$^+$	[M1]	0.01729	α(K)=0.01543 *22*; α(L)=0.001611 *23*; α(M)=0.000236 *4*; α(N+..)=1.261×10^{-5} *18* α(N)=1.261×10^{-5} *18*
		246.1 *4*		459.878	2$^+$			
		323.8 *3*	3.3 *7*	381.859	1$^+$			
		370.9 *5*		335.404	(2)$^+$			
		415.28 *13*	9.9 *13*	290.908	(0,1)$^+$			
		472.00 *11*	76 *5*	234.043	2$^+$			
		597.14 *4*	5.9 *7*	108.893	1$^+$			
		639.74 *11*	13.8 *7*	66.139	(2)$^+$			
		662.19 *5*	2.6 *7*	43.812	1$^+$			
		705.94 *3*	100 *5*	0.0	0$^+$	M1[c]	0.000579 *9*	α(K)exp=0.00053 *12* α=0.000579 *9*; α(K)=0.000519 *8*; α(L)=5.25×10^{-5} *8*; α(M)=7.68×10^{-6} *11*; α(N+..)=4.16×10^{-7} *6* α(N)=4.16×10^{-7} *6*
721.89	(3)$^+$	386.43 *19*	18 *4*	335.404	(2)$^+$			
		487.93 *8*	67 *7*	234.043	2$^+$			
		559.40 *5*	33 *5*	162.472	(3)$^+$			
		655.75 *3*	100 *11*	66.139	(2)$^+$	M1[c]	0.000680 *10*	α(K)exp=0.00053 *14* α=0.000680 *10*; α(K)=0.000609 *9*; α(L)=6.17×10^{-5} *9*; α(M)=9.03×10^{-6}

$^{66}_{31}$Ga$_{35}$-10

γ(^{66}Ga) (continued)

E_i(level)	J^π_i	E_γ‡	I_γ#	E_f	J^π_f	Mult.	α†	Comments
								13; α(N+..)=4.89×10^{-7} *7* α(N)=4.89×10^{-7} *7*
783.96	(3)	718.0 *2*	100	66.139	(2)$^+$	(D)		δ(Q/D)=−0.02 *10* from γ(θ) in (α,nγ), (α,npγ).
790.08	(1,2)$^+$	150.68 *7*	3.3 *17*	639.58	(3)$^+$			
		253.46 *14*	4.7 *17*	536.618	1$^+$			
		330.10 *4*	18.1 *25*	459.878	2$^+$			
		408.15 *23*	1.9 *17*	381.859	1$^+$			
		556.16 *25*	12 *3*	234.043	2$^+$			
		681.07 *6*	9.7 *19*	108.893	1$^+$			
		724.00 *3*	100 *11*	66.139	(2)$^+$	M1[c]	0.000549 *8*	α(K)exp=0.00047 *11* α=0.000549 *8*; α(K)=0.000491 *7*; α(L)=4.97×10^{-5} *7*; α(M)=7.27×10^{-6} *11*; α(N+..)=3.94×10^{-7} *6* α(N)=3.94×10^{-7} *6*
		746.24 *8*	6.4 *19*	43.812	1$^+$			
838.93		132.86 *9*	5 *3*	705.995	1$^+$			
		302.18 *14*	44 *8*	536.618	1$^+$			
		457.04 *21*	15 *4*	381.859	1$^+$			
		730.03 *3*	40 *5*	108.893	1$^+$			
		772.79 *10*	27 *5*	66.139	(2)$^+$			
		795.16 *5*	100 *9*	43.812	1$^+$			
845.03	(2$^+$,3,4$^+$)	429.82 *10*	18 *3*	415.34	(4)$^+$			
		611.03 *8*	16 *4*	234.043	2$^+$			
		682.5 *3*		162.472	(3)$^+$			
		778.84 *5*	100 *9*	66.139	(2)$^+$	M1,E2[c]	0.00054 *7*	α(K)exp=0.00046 *13* α=0.00054 *7*; α(K)=0.00048 *6*; α(L)=4.9×10^{-5} *7*; α(M)=7.1×10^{-6} *10*; α(N+..)=3.8×10^{-7} *5* α(N)=3.8×10^{-7} *5*
863.55	(5)	347.31 *19*		516.20	(4)$^+$			
		448.23 *5*	100 *13*	415.34	(4)$^+$	(D)		δ(Q/D)=−0.1 *1* from γ(θ) in (α,nγ), (α,npγ).
		700.94 *15*	19 *6*	162.472	(3)$^+$	(Q(+O))		δ(O/Q)=−0.1 *1* from γ(θ) in (α,nγ), (α,npγ).
866.09	1$^+$	201.1 *3*	13 *4*	664.202	(1,2)$^+$			
		484.11 *20*	13 *4*	381.859	1$^+$			
		530.74 *17*	14 *3*	335.404	(2)$^+$			
		575.30 *27*	17 *3*	290.908	(0,1)$^+$			
		757.31 *17*	100 *4*	108.893	1$^+$	M1,E2[c]	0.00057 *8*	α(K)exp=0.00048 *12* α=0.00057 *8*; α(K)=0.00051 *7*; α(L)=5.2×10^{-5} *8*; α(M)=7.6×10^{-6} *11*; α(N+..)=4.1×10^{-7} *6* α(N)=4.1×10^{-7} *6*
		799.2 *4*	3.5 *26*	66.139	(2)$^+$			
		821.80 *15*	<18	43.812	1$^+$			
		866.20 *6*	30 *3*	0.0	0$^+$			
943.86	(2$^+$,3,4$^+$)	427.55 *23*		516.20	(4)$^+$			

γ(^{66}Ga) (continued)

E_i(level)	J_i^π	E_γ‡	I_γ#	E_f	J_f^π	Comments
943.86	(2$^+$,3,4$^+$)	608.07 *26*		335.404	(2)$^+$	
		709.75 *9*	20 *6*	234.043	2$^+$	
		781.40 *17*	13 *6*	162.472	(3)$^+$	
		877.75 *5*	100 *10*	66.139	(2)$^+$	
974.48	(1,2$^+$)	683.55 *14*		290.908	(0,1)$^+$	
		740.53 *8*	18 *5*	234.043	2$^+$	
		812.4 *4*	7 *5*	162.472	(3)$^+$	
		865.7 *4*	5 *4*	108.893	1$^+$	
		908.12 *8*	100 *9*	66.139	(2)$^+$	
		930.67 *11*	26 *5*	43.812	1$^+$	
		974.56 *7*	36 *5*	0.0	0$^+$	I_γ: relative branchings of all these gammas are different in ε decay and (p,nγ) reaction.
998.62	(1$^+$,2,3$^+$)	461.96 *15*	41 *14*	536.618	1$^+$	
		575.0 *3*	35 *18*	423.77	(3)$^+$	
		889.77 *10*	63 *14*	108.893	1$^+$	
		932.43 *9*	100 *18*	66.139	(2)$^+$	
		955.0 *5*	57 *16*	43.812	1$^+$	
1001.39		619.46[d] *15*	≤100	381.859	1$^+$	
		892.06 *20*	67 *33*	108.893	1$^+$	
		935.68 *20*	50 *10*	66.139	(2)$^+$	
1018.31		602.82 *19*	81 *42*	415.34	(4)$^+$	
		856.2 *3*	100 *50*	162.472	(3)$^+$	
1062.12		196.1 *3*		866.09	1$^+$	I_γ: weak γ with large uncertainty in Iγ in ε decay.
		995.9 *3*	100 *27*	66.139	(2)$^+$	
1065.15	(1$^+$,2,3$^+$)	683.1 *3*		381.859	1$^+$	
		730.1 *5*		335.404	(2)$^+$	
		902.8 *4*	100 *19*	162.472	(3)$^+$	
		956.5 *5*	26 *14*	108.893	1$^+$	
		1020.9 *6*		43.812	1$^+$	
1076.6		370.5 *5*	100	705.995	1$^+$	I_γ: weak γ with large uncertainty in ε decay.
		1010.5 *5*	30	66.139	(2)$^+$	I_γ: weak γ with large uncertainty in ε decay.
1081.2		699.2 *4*		381.859	1$^+$	
		972.6 *5*	100 *33*	108.893	1$^+$	
1141.99		358.2 *2*	86	783.96	(3)	
		420.2 *2*	71	721.89	(3)$^+$	
		588.9 *2*	49	552.90	(3)$^+$	
		726.6 *2*	100	415.34	(4)$^+$	
1164.22		782.3 *4*	100	381.859	1$^+$	
		1120.42 *25*	50	43.812	1$^+$	I_γ: weak γ ray with large uncertainty.
1210.20		1101.26 *4*	100 *13*	108.893	1$^+$	
		1144.13 *6*	23 *13*	66.139	(2)$^+$	
1350.63	(5)	208.6 *2*	5	1141.99		
		487.2 *2*	<27	863.55	(5)	E_γ: doublet in (α,nγ); multiply placed.
		833.8		516.20	(4)$^+$	Eγ,Iγ: energy uncertainty and relative branching unavailable.

$^{66}_{31}Ga_{35}$-12

γ(^{66}Ga) (continued)

E_i(level)	J^π_i	E_γ[‡]	I_γ[#]	E_f	J^π_f	Mult.	δ	α[†]	Comments
1350.63	(5)	935.1 *2*	100	415.34	(4)$^+$	(D)			δ(Q/D)=+0.0 *1* from $\gamma(\theta)$ in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ).
1456.08	1$^+$	919.38 *24*	32 *13*	536.618	1$^+$				
		1165.83 *21*	51 *13*	290.908	(0,1)$^+$				E_γ: poor fit to level energy difference.
		1221.88 *7*	100 *6*	234.043	2$^+$				
		1347.35 *25*	15 *5*	108.893	1$^+$				
		1412.54 *17*	83 *6*	43.812	1$^+$				
		1456.6 *6*	19 *6*	0.0	0$^+$				
1464.33	(7)	113.7 *2*	100	1350.63	(5)	E2		0.432	α(K)=0.379 *6*; α(L)=0.0458 *8*; α(M)=0.00661 *11*; α(N+..)=0.000291 *5* α(N)=0.000291 *5* B(E2)(W.u.)=15.6 *5* Mult.: Q+O from $\gamma(\theta)$ in ^{63}Cu(α,nγ); E2 from RUL. δ(M3/E2)=−0.09 *10* from $\gamma(\theta)$ in ^{63}Cu(α,nγ) ^{64}Zn(α,npγ).
		600.9 *2*	67	863.55	(5)	(Q)[a]			δ(O/Q)=−0.03 *10* from $\gamma(\theta)$ in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ).
1513.37	(6)	162.6 *2*	60	1350.63	(5)	(D(+Q))	+0.0[&] *1*	0.017 *4*	α: average of α(M1+E2) and α(E1+M2). Uncertainty covers all possible values.
		371.5 *2*	80	1141.99					
		649.7 *2*	100	863.55	(5)	(D)[a]			δ(Q/D)=−0.02 *10* from $\gamma(\theta)$ in ^{63}Cu(α,nγ) and ^{64}Zn(α,npγ).
1556.65	1$^+$	555.01[d] *20*	≤17	1001.39					
		1020.3 *3*	2.1 *13*	536.618	1$^+$				
		1174.74 *17*	18 *3*	381.859	1$^+$				
		1265.0 *4*	11.7 *21*	290.908	(0,1)$^+$				
		1322.54 *4*	66 *4*	234.043	2$^+$				
		1490.43 *19*	17 *4*	66.139	(2)$^+$				
		1512.87 *4*	100 *13*	43.812	1$^+$				
1573.7	1$^{(+)}$	1339.6 *3*	8 *7*	234.043	2$^+$				
		1507.8 *6*	100	66.139	(2)$^+$				I_γ: weak γ with large uncertainty in intensity from ε decay.
1617.66	(6)	754.1 *2*	100	863.55	(5)	(D+Q)	−0.34[&] *10*		
1769.36	1$^+$	1387.4 *4*	15 *12*	381.859	1$^+$				
		1478.6 *4*	≈21	290.908	(0,1)$^+$				
		1660.2 *4*	50 *40*	108.893	1$^+$				
		1769.5 *4*	100 *40*	0.0	0$^+$				
1774.90	(7)	261.4 *2*	100	1513.37	(6)	(D+Q)	+0.28[&] *10*		
2408.43	(8)	944.1 *2*	100	1464.33	(7)	(D)[a]			δ(Q/D)=−0.02 *10* from $\gamma(\theta)$ in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ).
2512.44	(8)	1048.3 *2*	100	1464.33	(7)	(D+Q)	+0.72[&] *20*		
2652.99	(9$^+$)	1188.6 *2*	100	1464.33	(7)	(Q)[a]			δ(O/Q)=−0.09 *10* from $\gamma(\theta)$ in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ).
3043.45	(9$^+$)	390.4 *2*	92	2652.99	(9$^+$)	M1+E2	+0.9 *1*	0.00337 *16*	B(M1)(W.u.)=0.00035 *4*; B(E2)(W.u.)=3.0 *4* α=0.00337 *16*; α(K)=0.00301 *14*; α(L)=0.000313 *15*; α(M)=4.57×10^{-5} *22*; α(N+..)=2.40×10^{-6} *11*

From ENSDF

Adopted Levels, Gammas (continued)

$\gamma(^{66}Ga)$ (continued)

E_i(level)	J^{π}_i	E_{γ}[‡]	I_{γ}[#]	E_f	J^{π}_f	Mult.	δ	Comments
								α(N)=2.40×10^{-6} *11* Mult.: D+Q from $\gamma(\theta)$ ^{63}Cu(α,nγ); M1+E2 from RUL. δ(Q/D)=−0.02 *10* from $\gamma(\theta)$ in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ). δ: from $\gamma(\theta)$ in ^{63}Cu(α,nγ), ^{64}Zn(α,pnγ).
3043.45	(9$^+$)	531.2 *2*	28	2512.44	(8)	(D)[a]		δ(Q/D)=−0.02 *10* from $\gamma(\theta)$ in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ).
		1268.4 *2*	100	1774.90	(7)			
		1579.1 *2*	40	1464.33	(7)	(Q)[a]		δ(O/Q)=+0.03 *10* from $\gamma(\theta)$ in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ).
3362.3		709.3 *2*	100	2652.99	(9$^+$)			
3420.1	(10)	376.6 *2*	100	3043.45	(9$^+$)	(D)[a]		δ(Q/D)=−0.02 *10* from $\gamma(\theta)$ in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ).
4110.4	(10)	1066.9 *2*	100	3043.45	(9$^+$)	(D)[a]		δ(Q/D)=−0.02 *10* from $\gamma(\theta)$ in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ).
4162.1	(11)	1118.6 *2*	100	3043.45	(9$^+$)	(Q+O)[a]	+0.16 *20*	δ(O/Q)=+0.16 *20* from $\gamma(\theta)$ in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ).
4192.7		1539.7 *2*	100	2652.99	(9$^+$)			
4271.7	(12)	851.6 *2*	100	3420.1	(10)	(Q)[a]		δ(O/Q)=+0.05 *10* from $\gamma(\theta)$ in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ).
4302.7		1649.7 *2*	100	2652.99	(9$^+$)			
5109.2	(13)	947.1 *2*	100	4162.1	(11)	(Q)		Mult.: from $\gamma(\theta)$ in ^{63}Cu(α,nγ) and ^{64}Zn(α,npγ) and ΔJ^{π}.

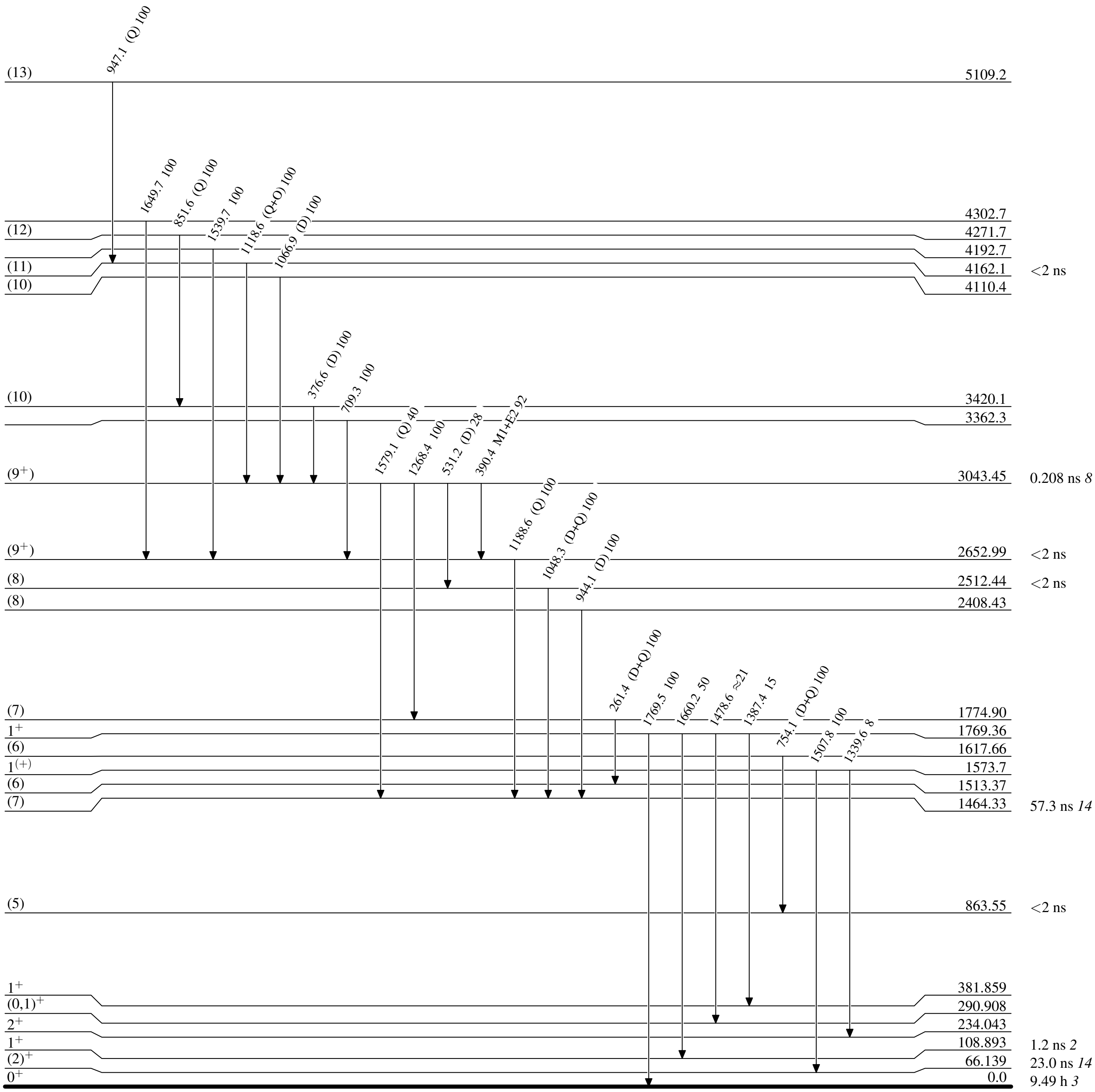
† Additional information 2.
‡ Mainly from ^{66}Ge ε decay and ^{66}Zn(p,nγ); also from ^{63}Cu(α,nγ), ^{64}Zn(α,npγ).
# Relative branching is given; mainly from ^{66}Ge ε decay and ^{66}Zn(p,nγ), also from ^{63}Cu(α,nγ), ^{64}Zn(α,npγ).
@ From $\gamma(\theta)$ in ^{66}Zn(p,nγ).
& From $\gamma(\theta)$ in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ).
a From $\gamma(\theta)$ in ^{63}Cu(α,nγ), ^{64}Zn(α,npγ) and ΔJ^{π}.
b From internal-conversion coefficients in ^{66}Ge ε decay.
c From α(K)exp in (p,nγ).
d Placement of transition in the level scheme is uncertain.

$^{66}_{31}Ga_{35}$-14

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{66}_{31}Ga_{35}$

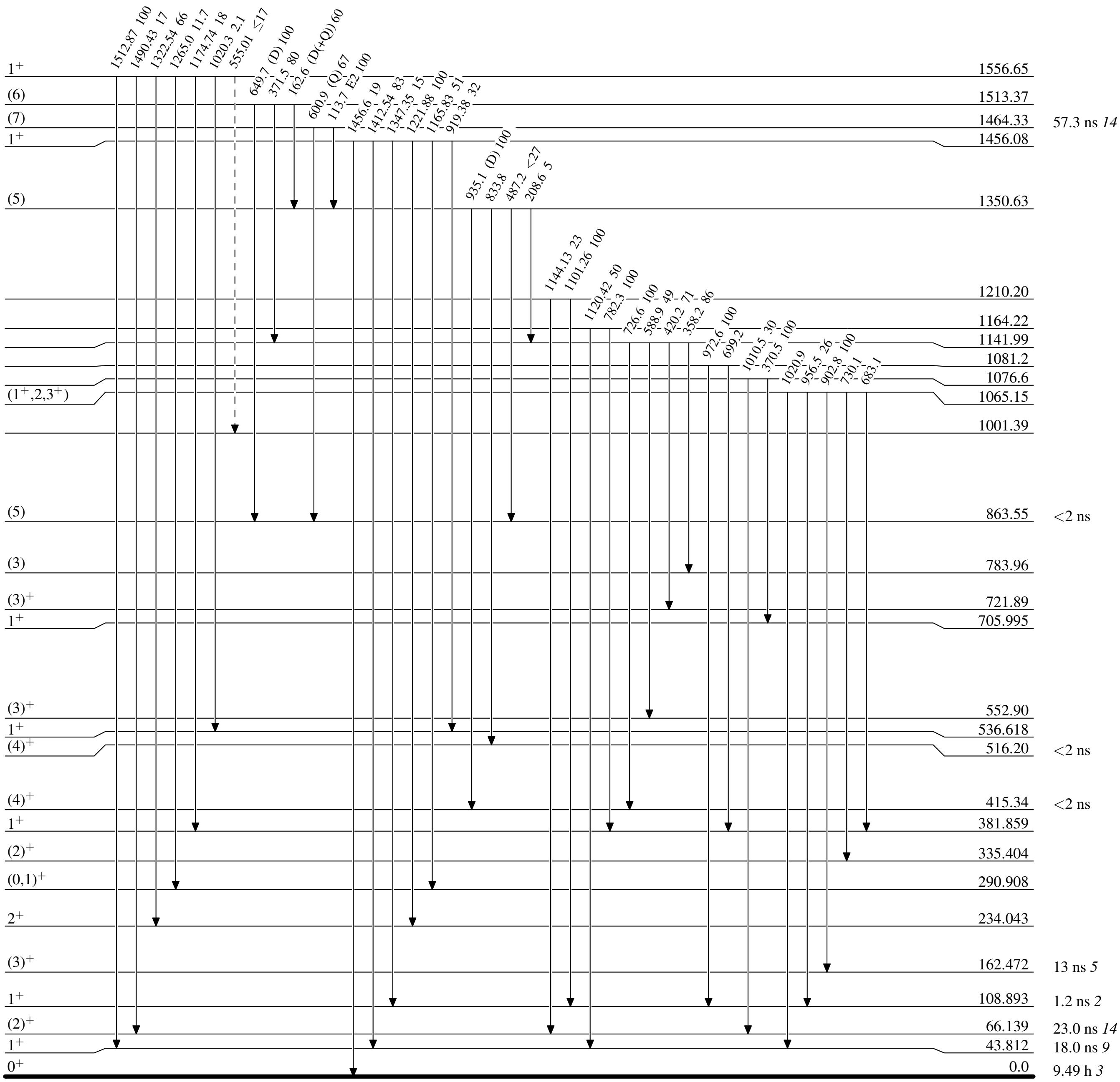
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{66}_{31}Ga_{35}$

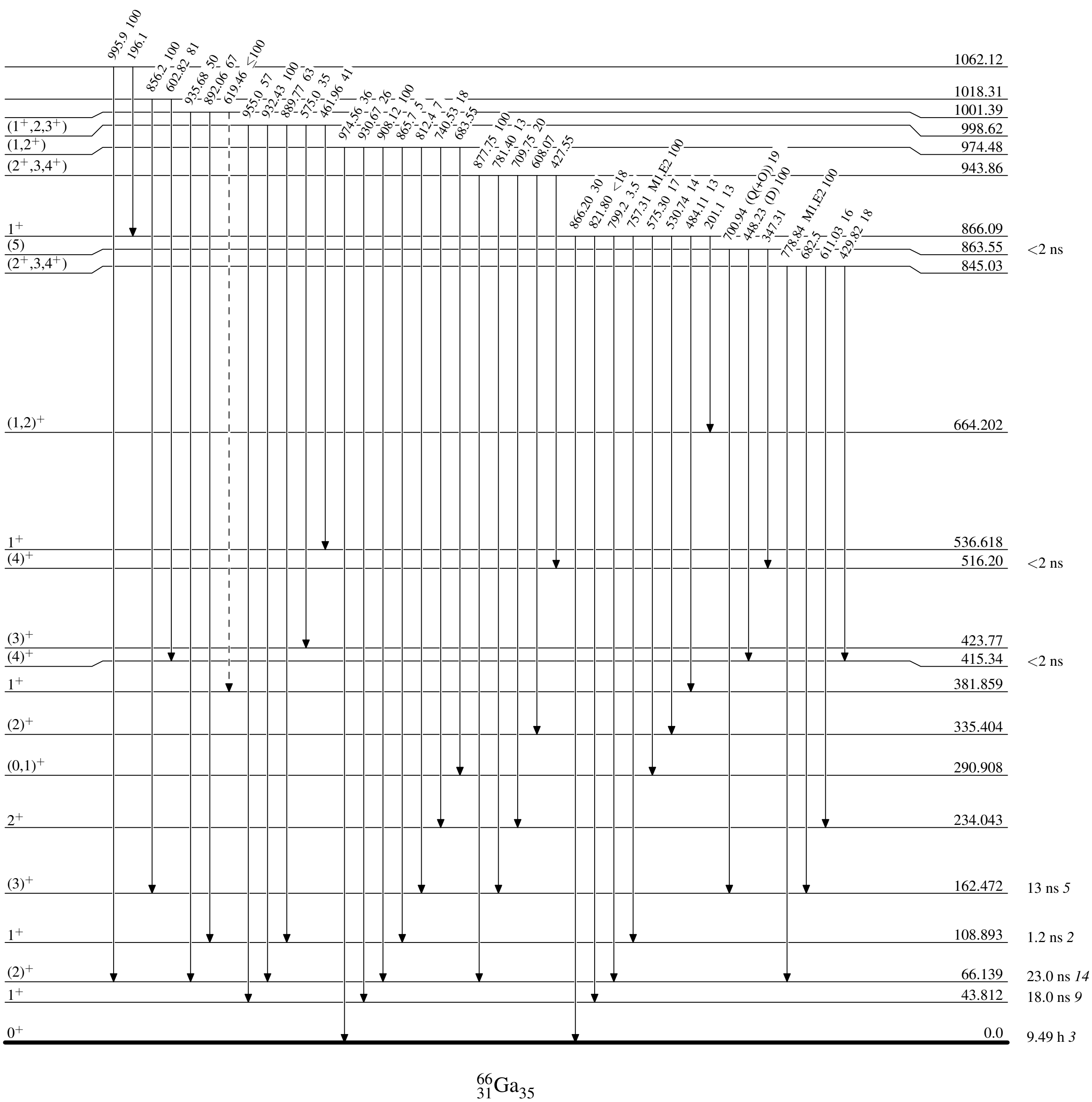
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

Legend

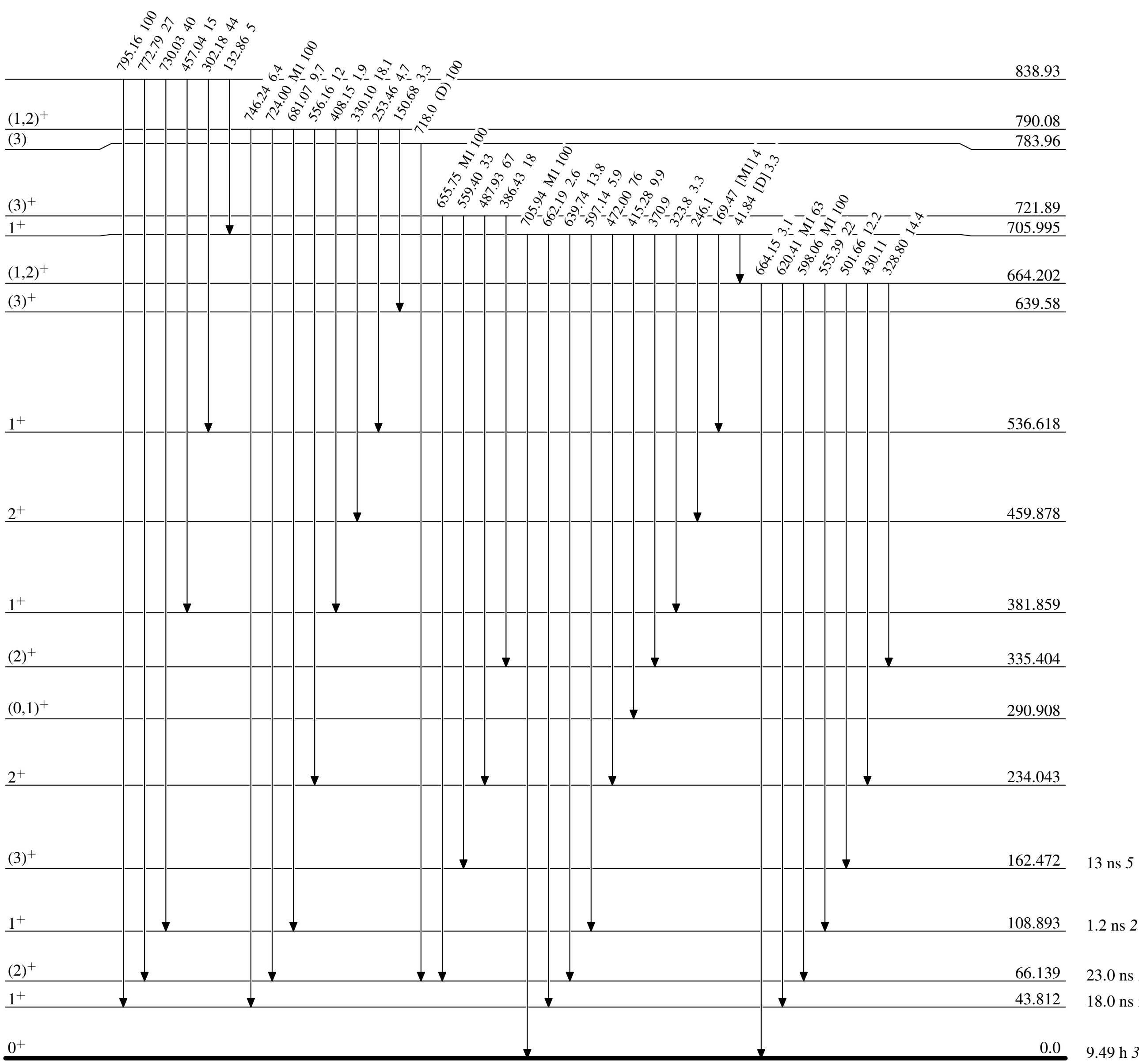
γ Decay (Uncertain)



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

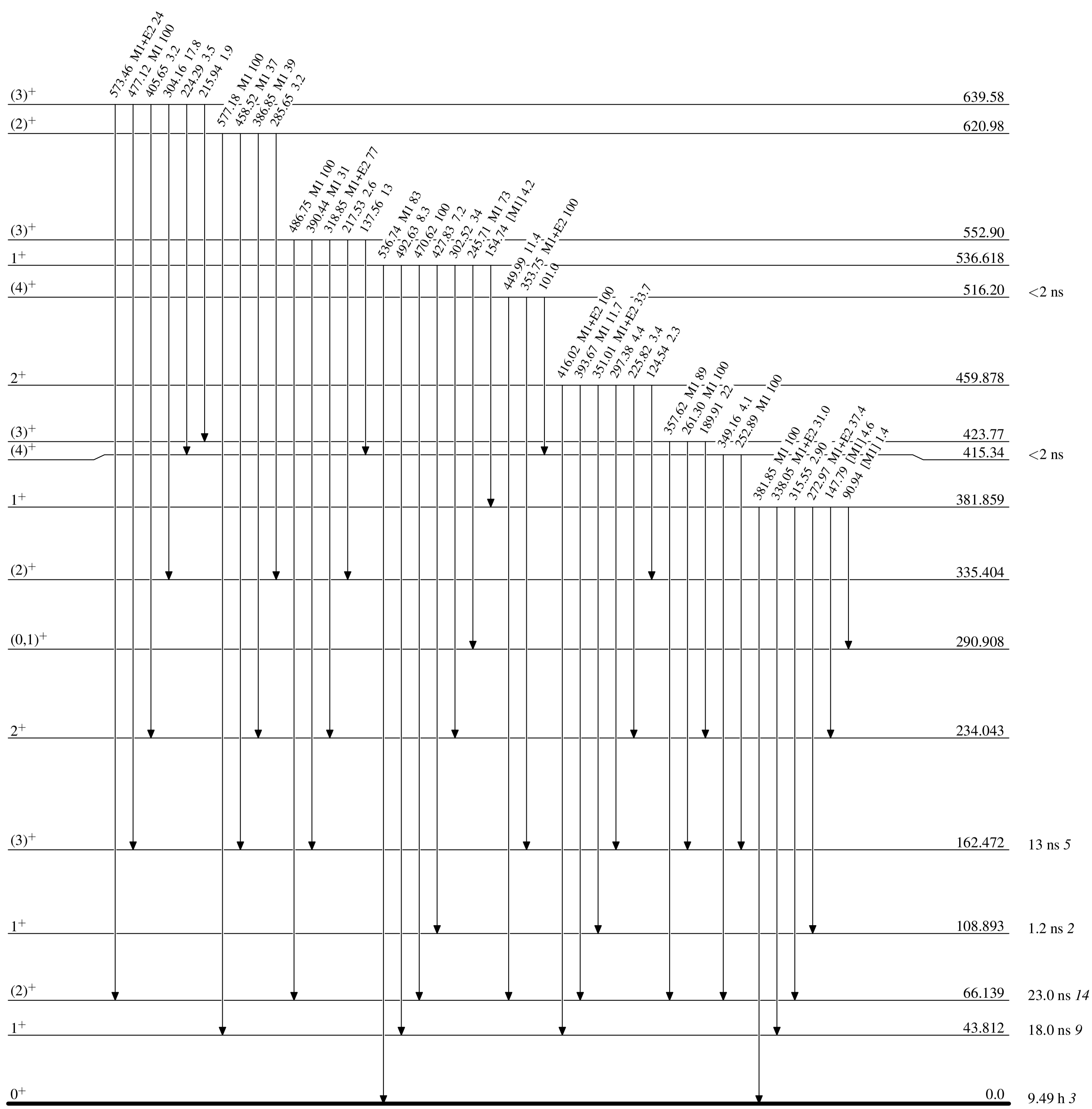


$^{66}_{31}Ga_{35}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

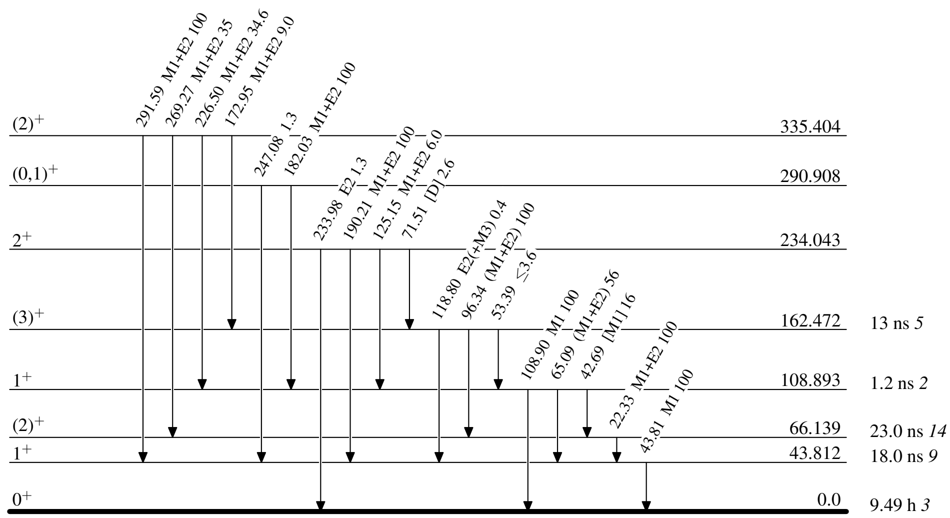


$^{66}_{31}Ga_{35}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{66}_{31}Ga_{35}$