

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, Ameenah R. Farhan		NDS 107,1923 (2006)	30-Apr-2006

Q(β^-)=-2562.4 17; S(n)=10196.24 6; S(p)=11012.1 17; Q(α)=-6282.6 20 2012Wa38
 Note: Current evaluation has used the following Q record -2562.5 1710196.22 6 11012.123 -6282.725 2003Au03.
 Giant-dipole resonance work (photonuclear reactions) has been reported by 1976Ca06, 1975Mc06, 1973McZP, 1973Mc15.
 Nuclear structure calculations: 2004Br44.
 Additional information 1.
 Mass measurements: 1993Hy02, 1985E101, 1977De20, 1976De21, 1964Ba03, 1963Ri07.

⁷⁴Ge Levels

Levels populated in reactions with XREF=Y:

- ⁷⁴Ge(⁶Li,⁶Li),(⁶Li,⁶Li'): 0, 596.
- ⁷⁴Ge(¹⁶O,¹⁶O'),(¹⁸O,¹⁸O'): 0, 596, 1200.
- ⁷⁵As(n,d): 0, 596, 1200, 1470, 2200.
- ⁷⁷Se(n, α) E=th: 0, 596.

Cross Reference (XREF) Flags

A ⁷⁴ Ga β^- decay (8.12 min)	K ⁷³ Ge(n, γ) E=290-318 eV	U ⁷⁵ As(d, ³ He)
B ⁷⁴ As ϵ decay (17.77 d)	L ⁷³ Ge(n, γ) E=332-367 eV	V ⁷⁶ Ge(p,t)
C ⁷⁰ Zn(⁶ Li,d)	M ⁷³ Ge(n, γ) E=380-426 eV	W ⁷⁸ Se(d, ⁶ Li)
D ⁷¹ Ga(α ,p)	N ⁷³ Ge(d,p)	X ¹⁹² Os(⁸² Se,X γ)
E ⁷² Ge(t,p)	O ⁷⁴ Ge(γ , γ'),(pol γ , γ')	Y ⁷⁴ Ge(⁶ Li, ⁶ Li),(⁶ Li, ⁶ Li')
F ⁷² Ge(α , ² He)	P ⁷⁴ Ge(n,n' γ)	Z ⁷⁴ Ge(¹⁶ O, ¹⁶ O'),(¹⁸ O, ¹⁸ O')
G ⁷³ Ge(n, γ) E=th	Q ⁷⁴ Ge(p,p'),(pol p,p')	Others:
H ⁷³ Ge(n, γ) E=102.6 eV	R ⁷⁴ Ge(pol d,d')	AA ⁷⁵ As(n,d)
I ⁷³ Ge(n, γ) E=224 eV	S ⁷⁴ Ge(α , α')	AB ⁷⁷ Se(n, α) E=th
J ⁷³ Ge(n, γ) E=240 eV	T Coulomb excitation	

E(level) [†]	J π^{\ddagger}	T _{1/2} [#]	XREF	Comments
0.0 ^j	0 ⁺	stable	ABCDEFGHIJKLMN OPQRSTUVWXYZ	XREF: Others: AA, AB <r ² > ^{1/2} =4.0744 fm I2 (2004An14).
595.850 ^j 6	2 ⁺	12.41 ps 9	AB DEFGHI MNOPQRSTUVWXYZ	XREF: Others: AA, AB μ =+0.87 4 (1984Pa20,1989Ra17) Q =-0.19 2 (2000To12) μ : transient-field PAC (1984Pa20). Others: +0.70 4 (1987La20), +0.70 24 (1977Fa07). See also 2005St24 compilation. Q : reorientation effect in Coul. ex. (2000To12). Other: -0.25 6 (1980Le16,1989Ra17). See also 2005St24 compilation. β_2 =0.290, 0.298 from (¹⁶ O, ¹⁶ O') (1979Fe03,1976Co04). β_2 (from (pol d,d'))=0.28 (1978Sz08), 0.197 I0 (1985Se05). β_2 (from (p,p'))=0.29 (1982Ta16). β_2 (from (pol p,p'))=0.208 I0 (1985Se05), 0.27 I (1986MoZR). J^π : L=2 in (t,p), (p,p'), (d,d'), (α , α') and (d, ⁶ Li). T _{1/2} from B(E2) in Coul. ex. Others: 11.8 ps +11-10 (DSA method in (n,n' γ)) (1988DoZU), 13 ps 2 from (γ , γ') (1956Me13). 2001Ra27 adopted 12.50 ps 25.

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Adopted Levels, Gammas (continued)

⁷⁴Ge Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF							Comments
1204.205 7	2 ⁺	5.4 ps 8	AB	E	GH	K	OPQRSTU	VW	Z	XREF: Others: AA, AB μ=+0.82 24 (1984Pa20,1989Ra17) Q=+0.26 6 (2000To12) μ: transient-field PAC (1984Pa20). See also 2005St24 compilation. β ₂ =0.07 from (p,p') (1982Ta16). J ^π : L=2 in (t,p), (p,p'), (d,d'), (α,α'), (p,t) and (d, ⁶ Li). T _{1/2} from DSA method in (n,n'γ). Other: 5.9 ps 9 from B(E2)'s in Coul. ex.
1463.759 ^j 8	4 ⁺	1.53 ps 10	AB	DE	FGHI	KLMN	PQRSTU	VW		J ^π : L=4 in (p,p'), (d,d') and (α,α'). T _{1/2} from B(E2) in Coul. ex. β ₄ =0.02 from (p,p') (1982Ta16), -0.015 15 from (pol p,p') (1986MoZR).
1482.81 4	0 ⁺	6 ps +15-3	ABCDEF	G			OPQ	ST	VW	J ^π : γγ(θ) in ⁷⁴ As ε decay and (γ,γ'). L=0 in (t,p), (⁶ Li,d) and (α,α'). T _{1/2} from B(E2) in Coul. ex.
1697.140 8	(3) ⁺		AB	E	GHI	L	PQ		UV	XREF: E(?). J ^π : L(d, ³ He)=(1+3) and γ(θ) of 493γ and 1101γ in (n,n'γ).
1724.954 14	(0 ⁺)				G			R		J ^π : L(d,d')=(0) for E=1720 20.
1913 14	0 ⁺			E			N			XREF: N(?). J ^π : L(t,p)=0.
2165 4	(1 ⁻)			E				Q	V	J ^π : L(p,t)=1 and L(p,p')=(1). L(t,p)=0 inconsistent with J ^π =(1 ⁻).
2165.259 8	(3,4) ⁺		A		GHI	LM	PQ		U	J ^π : γ to 2 ⁺ and strong primary γ from 4 ⁺ , 5 ⁺ . The L=3 group in (d, ³ He) at 2168 10 probably corresponds to this level rather than to the 2165 level of J ^π =(1 ⁻). L(p,p')=(1) for a doublet E=2165 5, the second component is probably L=4.
2197.933 24	2 ⁺		AB	E	G I		OPQR		UV	XREF: Others: AA J ^π : γ's to 0 ⁺ and 4 ⁺ , L=2 in (t,p), (p,p') and (p,t). L=(4) for a 2210 group in (d,d') inconsistent with J ^π =2 ⁺ .
2227.77 10	0 ⁺			E	G		OPQ		U	XREF: Others: AA J ^π : γγ(θ) in (γ,γ') and L(t,p)=0.
2300					C					
2403.5 4	1 ^{&}	0.0004 eV 1						O		
2490? 5								N		
2536.310 13	3 ⁻	0.24 [@] ps +14-10	A	E	GH	KLMN	PQRS		V	β ₃ =0.16 ((p,p'),1982Ta16), 0.15 1 ((pol p,p'),1986MoZR). B(E3)(p,p')=0.020 7 (2002Ki06,evaluation). J ^π : L=3 in (t,p), (p,p'), (d,d') and (α,α').
2569.329 ^j 14	(6 ⁺)				G IJ		P		X	J ^π : yrast population in (⁸² Se,x).
2572 5	4 ⁺			E			N Q S		V	XREF: E(?). J ^π : L(p,t)=4; L(α,α')=(4). L(p,p')=(3) inconsistent with J ^π =4 ⁺ , but assignment perturbed by ⁷⁰ Ge impurity.
2600.32 9	(1,2,3) ⁺	0.31 [@] ps +12-10		E	G		OPQ		VW	XREF: W(?). J ^π : L=2 in (p,p'). L=(0) for 2610 in (t,p) and L=(1) for 2605 in (p,t) inconsistent

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Adopted Levels, Gammas (continued)

<u>⁷⁴Ge Levels (continued)</u>					
E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF	Comments	
2669.62 4	4 ⁺		E G I N PQRS V	with J ^π =2 ⁺ .	
2690.6 3	1&	0.0015 eV 3	O	J ^π : L=4 in (t,p), (p,p') and (α,α').	
2693.68 4	(3,4 ⁺)	0.052 [@] ps +24-16	A e GHI K n Pq s v	XREF: e(?). J ^π : γ's to 2 ⁺ and primaries from thermal capture and from two J ^π =4 ⁺ neutron resonances gives J ^π =3,4 ⁺ . If L(p,p')=(2+3) for E=2690 5 corresponds to this level, then J ^π =(3 ⁻). L(α,α')=(1) for E=2695 10 inconsistent with J ^π =3,4 ⁺ .	
2696.918 10	(2 ⁺)		e G n Pq s v	XREF: e(?). J ^π : γ to 4 ⁺ and no feeding from thermal capture and from any of the five neutron resonances studied. L(α,α')=(1) for E=2695 10 inconsistent with J ^π =2 ⁺ .	
2711 6	(4 ⁺)		EF	J ^π : L(t,p)=(4).	
2750.61 23	0 ⁺		C E PQ	J ^π : L(t,p)=0.	
2828.507 11	4 ⁺		GHIJ LM PQ	J ^π : L(p,p')=4.	
2833.41 15	(2 ⁺)	0.009 [@] ps +4-3	e Pqr uv	E(level): it appears that 2833 and 2836 are two different levels the first populated in (n,n'γ) and the second in (n,γ) E=th, although, existence of a doublet near this energy does not seem definitive. The γ rays in both reactions proceed to the same final levels but are about 3 keV different in energy. Also the branching ratios are different in the two reactions. J ^π : L=2 in (t,p) and (p,t) for a probable doublet. L(p,p')=4 for a doublet E=2833 5, the second component is probably L=2.	
2835.923 24	(2 ⁺)		e G qr uv	E(level),J ^π : see comment for 2833 level.	
2842 5	(3 ⁻ & 5 ⁻)		N S	J ^π : L(α,α')=(3+5) and L(d,p)=1.	
2856.04 25	0 ⁺		E PQ UV	XREF: E(?). J ^π : L(p,t)=0.	
2878.14 17	(5 ⁻)		PQ	J ^π : L(p,p')=(5).	
2925.45 9	(3,4 ⁺)		G P	J ^π : γ to 2 ⁺ , possible γ to (3) ⁺ and primary from thermal capture.	
2935.475 12	3 ⁻		E GHI KLMn P s u	J ^π : L(d,p)=1 and γ to 4 ⁺ . L(d, ³ He)=1+3 and L(α,α')=(3+5).	
2936.8	(5 ⁻)		n PQ s u	J ^π : L(p,p')=(5), L(d,p)=1, L(d, ³ He)=1+3 and L(α,α')=(3+5).	
2938.7 2	2 ⁺	0.26 [@] ps +15-7	P V	J ^π : L(p,t)=2.	
2949.48 10	(3 ⁻)		A E G P r	J ^π : log ft=5.7 from (3 ⁻) and γ to 2 ⁺ . L(d,d')=(3). L(t,p)=4 inconsistent with J ^π .	
2961.0 2	(5 ⁻)		PQrS	J ^π : L(α,α')=(5).	
2973.472 13	(3)		A GH KL PQ	J ^π : γ to 0 ⁺ , primaries from thermal capture and from two J ^π =4 ⁺ neutron resonances.	
2999.2	2 ⁺		OPQ S U	J ^π : γ from 1 ⁻ in (γ,γ') and L=2 in (p,p'), (α,α').	

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Adopted Levels, Gammas (continued)

<u>⁷⁴Ge Levels (continued)</u>						
E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF			Comments
3017 3	2 ⁺		E	Q S UV		J ^π : L=2 in (t,p), (p,t) and L=(2) in (p,p'). L=1(+3) in (d, ³ He).
3032.8 2	1&	0.0112 eV 6		O		
3034.00 3	(3,4 ⁺)	0.059 [@] ps +10-7	A	G I K M P		J ^π : γ's to 2 ⁺ and primaries from thermal capture and from J ^π =4 ⁺ neutron resonance.
3048.564 24	4 ⁺		E GH	PQ S V		J ^π : L=4 in (t,p), (p,p'), (p,t) and (α,α').
3060.1 5	(2 ⁺ to 6 ⁺)			H K M P		J ^π : primary γ from 4 ⁺ .
3081.321 15	(3 ⁺)	0.21 [@] ps +7-5	A	GHI KLM PQR UV		J ^π : L=1+3 in (d, ³ He), L=(3,4) in (d,d'), γ to 4 ⁺ and primaries from thermal capture and from J ^π =4 ⁺ neutron resonance. In (p,p'), either the L=(5) assignment for a 3081 group is incorrect or there is a different level near this energy.
3092.2 2	1 ⁽⁺⁾ &	0.0104 eV 11		O		
3104.506 19	5 ⁻		E GHIJ LM	PQ S		J ^π : L=5 in (t,p) and (α,α').
3118.0 5	3 ⁻ ,4 ⁻ ,5 ⁻ ,6 ⁻			N P		J ^π : L(d,p)=1.
3139.32 22				P		
3140.30 4	3 ⁻		A	E GHI K PQRS V		J ^π : L=3 in (t,p), (p,p') and (α,α').
3175.47 3	3 ⁻	0.097 [@] ps +35-28	A	GH PQ S U		J ^π : L=3 in (α,α') and (p,p').
3199.5	2 ⁺	0.024 ps +8-4		PQ S UV		J ^π : L=2 in (α,α'), (p,t) and (p,p').
3211.8? 7			A			
3224.680 13	4 ⁺		E G	Q S UV		L(p,t)=2+5 unresolved doublet. J ^π : L=4 in (t,p), (α,α') and (p,p'). J ^π : L(d,p)=4.
3242 5	≤9 ⁺			N		J ^π : γ to 4 ⁺ , possible γ to 0 ⁺ .
3271.51 5	(2 ⁺)		GHI KL	Q		
3276.3 2	1&	0.0013 eV 4		O		
3293 5	3 ⁻ ,4 ⁻ ,5 ⁻ ,6 ⁻			N		J ^π : L(d,p)=1.
3315.72 3	4 ⁺			S U		J ^π : L(α,α')=4.
3342.94 7	(3 ⁻ ,4 ⁺)		A	Q V		J ^π : L(p,t)=3 for E=3342 10 and L(p,p')=4 for E=3342 4.
3356 3	0 ⁺		E			J ^π : L(t,p)=0.
3358.517 22	(2 ⁺ ,3,4 ⁺) ^b		G L			
3360 4	5 ⁻			Q S V		J ^π : L(p,t)=5.
3372.4 5	2 ⁺ ,3 ⁺ ,4 ⁺ ,5 ⁺ ,6 ⁺		G IJ MN			J ^π : L(d,p)=2 and primaries from 4 ⁺ ,5 ⁺ .
3381.74 5	3 ⁻		A	GH Q S uV		J ^π : L=3 in (p,p'), (α,α') and (p,t).
3392.618 18	2 ⁺		E G K M	Qr uV		E(level): E(p,p')=3401 5, E(p,t)=3400 10.
3409.931 25	(3,4 ⁺)		GHI	r U		J ^π : L=2 in (t,p), (p,t) and (p,p'). J ^π : possible γ's to 4 ⁺ , (2 ⁺) and primaries from thermal capture and from J ^π =4 ⁺ neutron resonance.
3423.8 6	(2 to 6) ^a			G I M		
3436.3 9	(2 to 6) ^a		E G J			J ^π : L=(0,1) in (t,p) inconsistent with J=2 to 6. The level in (t,p) may be different.
3478.37 3	(2,3) ⁺		A	GHI L Q S UV		E(level): E(p,t)=3490.
3501.4 10	4		E	Lm QrS V		J ^π : L=1+3 in (d, ³ He) and γ to 4 ⁺ . J ^π : L=4 in (p,p') and (p,t).

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Adopted Levels, Gammas (continued)

⁷⁴Ge Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF				Comments
			GHI	K	n	rS	
3515.441 13	(3,4 ⁺)						J ^π : γ's to (2 ⁺), (4 ⁺) and primaries from thermal capture and from two J ^π =4 ⁺ neutron resonances. If same as L=3 in (d,p) then J ^π =(3 ⁻). If same as L=(4) in (d,d') then J ^π =(4 ⁺).
3557.9 3	1 ^{(-)&}	0.050 eV 8				O	
3566.75 8	(2 ⁺ ,3,4 ⁺)		A				J ^π : γ to 2 ⁺ and log ft=7.3 from (3 ⁻).
3578.93 3	2 ⁺			E G		Q S UV	J ^π : L=2 in (t,p) and (p,t).
3603? 5						N	
3617 7	0 ⁺		C			Q S V	J ^π : L=0 in (p,t) and (α,α').
3629 7	(6 ⁺)			F		Q S V	XREF: F(3590). J ^π : L=(6) in (α,α'), L=7,6 in (p,t) and L=6+8 or 6+7 in (α, ² He). L(p,p')=(5) inconsistent with J ^π .
3639.5? 2			A				
3642 2	(4 ⁺)			E			J ^π : L(t,p)=(4).
3647 ^d 10	1 ⁻		a			q S	J ^π : L(α,α')=1.
3647 ^{de} 10	2 ⁺		a	g		q V	J ^π : L(p,t)=2.
3647.9 7	1 ⁺ &	0.028 eV 6				O	
3654.4 ^e 11	(4 ⁺ ,5 ⁺)			g	L N		J ^π : L(d,p)=(0).
3681 ^j 1	(8 ⁺)						J ^π : yrast cascade in (⁸² Se,X).
3683 4	5 ⁻			E		v	J ^π : L(t,p)=5.
3685.42 12	(2 to 5 ⁺)			G		q v	J ^π : γ to (3 ⁺) and primary from thermal capture. If same as L=4 in (p,p') then J ^π =4 ⁺ .
3691.79 4	3 ⁻			G		q S v	J ^π : L(α,α')=3. L(p,p')=4 inconsistent with J ^π .
3696.59 9	(3,4) ^c		A	H JKL	n	s v	J ^π : log ft=6.6 from (3 ⁻). Feeding from 4 ⁺ and 5 ⁺ resonances.
3700 10	(0 ⁺)					Q	J ^π : L(p,p')=(0).
3707.20 14	(3,4,5) ^c			G IJ	n	s v	J ^π : γ to 3 ⁻ and primaries from thermal capture and from 4 ⁺ and 5 ⁺ resonances.
3716.7 4	(1 ⁻ ,2 ⁺) ^c		A		n	s v	J ^π : γ's to 0 ⁺ , (3 ⁻).
3720.79 5	(3,4 ⁺)		A	G	n		J ^π : log ft=6.3 from (3 ⁻) and primary from thermal capture.
3733 7	4 ⁺			E	n	Q S	J ^π : L(t,p)=4. L(p,p')=3 is not consistent with J ^π .
3743.348 23	(3 ⁻ ,4 ⁺)			G	n		J ^π : γ to 5 ⁻ and possible γ to (3,4 ⁺).
3748 5	2 ⁺				n	Q S V	J ^π : L=2 in (p,t) and (p,p').
3771.74 5	(2 ⁺ ,3,4 ⁺) ^b			GH	L		
3778 5	0 ⁺		E			Q S V	J ^π : L=0 in (t,p) and (p,t).
3783.41 5	(2 ⁺ ,3,4 ⁺) ^b			G			
3790.90 8	(3,4 ⁺)			G I			J ^π : γ to (2 ⁺) and primaries from thermal capture and from J ^π =4 ⁺ ,5 ⁺ neutron resonances.
3806.772 23	3 ⁻			GH		S	J ^π : L(α,α')=3.
3807.03 11			A				
3828.23 ^f 10	(1 ⁻ to 4 ⁺) ^f		A				J ^π : γ's to 2 ⁺ and 3 ⁻ .
3832.23 ^f 5	(2 ⁺ ,3,4 ⁺) ^{bf}			G			
3835.27 ^f 4	(2 ⁺ ,3,4 ⁺) ^{bf}			GHI	KL		
3853 10						S	
3870	(6 ⁺ ,7 ⁻ ,8 ⁺)			F			J ^π : L(α, ² He)=6+7 or 6+8 for 3590+3870.
3874.17 4	2 ⁺			E G		Q V	J ^π : γ to 3 ⁻ ; L(p,t)=2; L(p,p')=(2) assuming the same levels are populated in (p,t), (p,p') and (n,γ) E=th.

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Adopted Levels, Gammas (continued)

⁷⁴Ge Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF				Comments
3874.9 3	1+&	0.099 eV 18					
3876 ^h 10	3 ⁻					S	J ^π : L(α,α')=3.
3889.69 3	(2 ⁺ ,3,4 ⁺)			G			J ^π : γ to 4 ⁺ .
3895.01 6	(2,3,4 ⁺)		A				J ^π : γ's to 2 ⁺ , (3) ⁺ and (3 ⁻ ,4 ⁺).
3897.98 4	(2 ⁺ to 6 ⁺)			G			J ^π : possible γ to 4 ⁺ .
3916 5	0 ⁺			E		Q V	J ^π : L=0 in (t,p), (p,t).
3932.98 ^g 4	(1 ⁺ ,2,3,4 ⁺) ^g			G			J ^π : γ to (2 ⁺ ,3,4 ⁺).
3941.09 ^g 16	(2 ⁺ ,3 ⁻) ^g			G			J ^π : γ's to (3) ⁺ and (4) ⁺ .
3949.80 ^g 10	(2 ⁺ ,3,4 ⁺) ^{bg}		A				
3958.03 20	3 ⁻			GHI L		S	J ^π : L(α,α')=3.
3975.86 9	(2 ⁺)			G			J ^π : γ's to 0 ⁺ , (3 ⁺), (3 ⁻).
3976.23 9	(2,3,4 ⁺)		A				J ^π : γ's to 2 ⁺ , (3) ⁺ and log ft=6.0 from (3 ⁻).
3995.05 10	(2 ⁺ ,3,4 ⁺)		A				J ^π : γ to 2 ⁺ and log ft 6.7 from (3 ⁻).
3995.83 6	(2 ⁺)			GHI	n		J ^π : γ's to 0 ⁺ , 2 ⁺ and 4 ⁺ .
3999 10	5 ⁻				n	S	J ^π : L(α,α')=5.
4006.8 4	1&	0.044 eV 6					
4008 10	(0 ⁺)					Q S	J ^π : L(p,p')=(0).
4022.94 7	2 ⁺		E G				J ^π : L(t,p)=2.
4024 7	5 ⁻					Q S V	J ^π : L=5 in (α,α') and (p,t).
4030.1 5	(2 ⁺ ,3,4 ⁺) ^b			G L			
4045.43 4				G		S	XREF: G(?).
4064.66 3	(2 to 5) ^a			G			J ^π : γ to 3.
4069 5	3 ⁻ ,4 ⁻ ,5 ⁻ ,6 ⁻				N		J ^π : L(d,p)=1.
4083 10	(0 ⁺)					Q	J ^π : L(p,p')=(0).
4084.9 5	1+&	0.060 eV 8					
4085 10	4 ⁺		E			Q S V	J ^π : L=4 in (α,α'). σ(θ) for (p,t) and (t,p) peaks can't T _{1/2} be fit by a single L value.
4093 10	(5 ⁻)			G		Q	E(level): E=4094.02 4 for a tentative level in (n,γ).
4119 5	3 ⁻ ,4 ⁻ ,5 ⁻ ,6 ⁻			G	N		J ^π : L(p,p')=(5). E(level): E=4114.16 4 for a tentative level in (n,γ).
4130	(7 ⁻ ,8 ⁺)		F				J ^π : L(d,p)=1.
4138 10	2 ⁺			G		Q V	J ^π : L(α, ² He)=(7,8). E(level): E=4137.27 6 for a tentative level in (n,γ).
4144.48 ⁱ 10				G			J ^π : L(p,t)=2.
4155.25 ⁱ 13				G			
4164 10	2 ⁺					Q V	J ^π : L(p,t)=2.
4171.5 3	1&						
4174 4	3 ⁻		E		N	Q	J ^π : L(t,p)=3 and L(d,p)=1.
4191.32 ⁱ 5				G			
4201.55 8	2 ⁺		A	E		Q V	J ^π : L(t,p)=2.
4202.94 ⁱ 5				G			
4204.67 16	(2 ⁺ to 5 ⁻)			G KL			J ^π : γ's to 4 ⁺ and 3 ⁻ .
4217.30 5	(2 ⁺ ,3,4 ⁺) ^b			G			
4222.9 3	(2 ⁺ ,3 ⁺ ,4 ⁺)		A				J ^π : log ft=7.1 from (3 ⁻).
4224.9 8	1-&	0.090 eV 10					
4234.77 6	(3,4 ⁺)			GH L			E(level): this level may be the same as 4235.33 seen in. J ^π : primary γ's from thermal capture and from J ^π =4 ⁺ neutron resonance.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

⁷⁴Ge Levels (continued)

E(level) [†]	J ^{π‡}	T _{1/2} [#]	XREF				Comments
4235.33 13	(2,3,4) ⁺		A		N Q		J ^π : γ to 2 ⁺ and L(d,p)=2.
4239 10	0 ⁺			G		V	E(level): E=4238.19 6 for a tentative level in (n,γ).
4273 10	(0 ⁺)					Q V	J ^π : L(p,t)=0. J ^π : L(p,t)=(0).
4276.4?i 3				G			
4290 7	2 ⁺			E G		V	E(level): E=4292.28 6 for a tentative level in (n,γ).
4305.8 13	1&	0.047 eV 7				O	J ^π : L=2 in (t,p) and (p,t).
4320 10	4 ⁺			E		Q V	J ^π : L=4 in (p,t) and L=(4) in (t,p).
4339.67 5	(2 ⁺)			G			J ^π : γ to 0 ⁺ .
4342.6 3	1&					O	
4344.25?i 5				G			
4353 5	4 ⁺			E		N Q	J ^π : L(t,p)=4.
4367.2 5	(1 ⁻ to 5 ⁻)		A				J ^π : γ to (3 ⁻).
4368.15 7	(2 ⁺)			G		q	J ^π : γ to 0 ⁺ .
4387 5	2 ⁺			E		N q V	J ^π : L=2 in (p,t), L=(2) in (t,p) and (d,p).
4408.58 10	(4 ⁺) ^a			G		V	J ^π : L(p,t)=0,4.
4413.54 10	2 ⁺			E G		N	J ^π : L=2 in (t,p) and (d,p).
4439.98 5	(2,3,4) ^a			G			J ^π : γ to (2 ⁺).
4442.18 5	(2 ⁺ ,3,4 ⁺) ^b			G			
4477.49 6	(0 ⁺ to 4 ⁺)		A				J ^π : γ to 2 ⁺ .
4493 7	4 ⁺			E		N V	J ^π : L=4 in (t,p) and (p,t).
4527.89 4	(2 ⁺)			G			J ^π : γ to 0 ⁺ .
4535 10	0 ⁺					V	J ^π : L(p,t)=0.
4538 10	2 ⁺			E			J ^π : L(t,p)=2.
4544 5	4 ⁺ ,5 ⁺					N	J ^π : L(d,p)=0.
4586 9	4 ⁺			E			J ^π : L(t,p)=4.
4591 10	2 ⁺					V	J ^π : L(p,t)=2.
4594 5	3 ⁻ ,4 ⁻ ,5 ⁻ ,6 ⁻					N	J ^π : L(d,p)=1.
4611.42 16	(2 ⁻ ,3 ⁻ ,4 ⁻)		A				J ^π : log ft=5.7 from (3 ⁻).
4630.43 7	(2 ⁺)			E G		N V	J ^π : L(p,t)=(2).
4664 10	4 ⁺					V	J ^π : L(p,t)=4.
4685 6	(0 ⁺)			E		V	J ^π : L(p,t)=(0).
4698.29 13	(2 ⁻ ,3 ⁻ ,4 ⁻)		A				J ^π : log ft=5.0 from (3 ⁻).
4731 5	4 ⁺ ,5 ⁺					N	J ^π : L(d,p)=0.
4767 11	(0 ⁺ ,1 ⁻)			E			J ^π : L(t,p)=(0,1).
4824 5	4 ⁺ ,5 ⁺					N	J ^π : L(d,p)=0.
4840.92 13	(2 ⁺)			G			J ^π : γ to 0 ⁺ .
4853 8	(0 ⁺ ,2 ⁺)			E			J ^π : L(t,p)=(0+2).
4874 5						N	
4920 10	(2 ⁺)					V	J ^π : L(p,t)=(2).
4951 10	(2 ⁺)					V	J ^π : L(p,t)=(2).
4972.55 9	(2 ⁺)			G			J ^π : γ to 0 ⁺ .
4981 5						N	
5021 10	(2 ⁺)					V	J ^π : L(p,t)=(2).
5062 5	4 ⁺ ,5 ⁺					N	J ^π : L(d,p)=0.
5107.82?i 5				G			
5131.45 8	(2 to 6) ^a			G			
5147 5	4 ⁺ ,5 ⁺					N V	J ^π : L(d,p)=0. L(p,t)=5 is reported by 1972IsZV for E=5313; however, in the work of 1977Gu12, the 5148 peak is not fit by any single L value.
5288.5				G			J ^π : (2 ⁺ ,3 ⁺) proposed by 2000PoZV in (n,γ).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

⁷⁴Ge Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF		Comments
5323 5	4 ⁺ ,5 ⁺			N	J ^π : L(d,p)=0.
5352 10				V	
5434.8 5	1- ^{&}	0.40 eV 3		O	
5435.76 ⁱ 7			G	N	XREF: N(5440).
5485.1 12	1 ^{&}	0.075 eV 11		O	
5493.1 10	1 ^{&}	0.087 eV 17		O	
5510.3			G		J ^π : (3 ⁻ ,4 ⁻) proposed by 2000PoZV in (n,γ).
5514.8 8	1 ^{&}	0.23 eV 4		O	
5580 10	(0 ⁺)			V	J ^π : L(p,t)=(0).
5617 5				N	
5717 5				N	
5743.7 10	1 ^{&}	0.110 eV 13		O	
5758.76 ⁱ 4			G		
5766.7 4	1 ⁽⁺⁾ ^{&}	0.167 eV 26		O	
5787 5				N	
5850 5				N	
5926.86 ⁱ 6			G	N	XREF: N(5930).
5934.16 ⁱ 9			G		
6017.4 24	1- ^{&}	0.120 eV 15		NO	XREF: N(?). Γ from 1970Mo26.
6190?				N	
6200	(6 ⁺ ,8 ⁺)		F		J ^π : L(α, ² He)=(6,8).
6330?	(4 ⁺ ,5 ⁺)			N	J ^π : L(d,p)=(0).
6445.1 11	1 ^{&}	0.39 eV 11		O	
6477.9 6	1- ^{&}	0.226 eV 21		O	
6530?				N	
6650.3 3	1- ^{&}	0.92 eV 7		O	
6660.5 5	1- ^{&}	0.337 eV 20		O	
6680?				N	
6732.7 8	1 ⁺ ^{&}	0.29 eV 3		O	
6862.00 ⁱ 7			G		
6942.6 6	1- ^{&}	0.35 eV 3		O	
6992.70 ⁱ 6			G		
7150.8 16	1- ^{&}	0.58 eV 9		O	
7173.18 ⁱ 4			G		
7264.6 6	1- ^{&}	0.81 eV 3		O	
7275.90 ⁱ 4			G		
7359.39 ⁱ 9			G		
7379.9 10	1 ^{&}	0.25 eV 4		O	
7445.3 11	1 ^{&}			O	
7493.60 ⁱ 6			G		
7506.7 10	1 ⁽⁻⁾ ^{&}	0.40 eV 3		O	
7550.7 7	1- ^{&}	0.80 eV 11		O	
7578.96 ⁱ 5			G		
7616.0 8	1 ^{&}			O	
7621.77 ⁱ 7			G		
7652.1 6	1- ^{&}	1.51 eV 12		O	
7702.02 ⁱ 5			G		

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Adopted Levels, Gammas (continued)

⁷⁴Ge Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF
7882.23? ⁱ 4			G
7980.64? ⁱ 6			G
8219.0 8	1&	0.36 eV 5	0
8250.2 8	1&	0.33 eV 8	0
8361.1 12	1&	0.88 eV 18	0
8375.70? ⁱ 8			G
8440.13? ⁱ 9			G
8560.09? ⁱ 6			G
8873.33? ⁱ 7			G
8928.00? ⁱ 8			G
9004.38? ⁱ 6			G
9133.79? ⁱ 8			G
9457.91? ⁱ 5			G

[†] In (p,p'), level energies above 3600 are too high by 10-30 keV, the evaluators have considered this deviation in establishing the level correspondences. See (n,γ) E=th for many additional levels that are considered as tentative. The 2630 and 3050 groups in (α,²He) cannot be associated uniquely with any of the levels here due to the poor resolution in this reaction and high level density in this energy region.

[‡] When arguments are based on L values in particle-transfer reactions, L(d,p) is from 9/2⁺ ⁷³Ge target; and L(d,³He) is from 3/2⁻ ⁷⁵As target.

[#] Γ are from (γ,γ').

@ From (n,n'γ).

& From γγ(θ) and γ(pol) in (γ,γ'),(pol γ,γ').

^a Primary γ from 4⁺,5⁺.

^b γ's to 2⁺ and 4⁺.

^c L(p,t)=(2) for E=3607 10.

^d E=3639.77 10 with probable J^π=1,2⁺ is reported in β⁻ decay.

^e E=3651.93 3 with probable J^π=1⁺,2,3,4,5⁺ is reported in (n,γ) E=th.

^f L=2 for E(t,p)=3824 5, L=(2) for E(p,p')=3825 10, L=4 for E(p,p')=3849 10, L=3+5 for E(α,α')=3836 10, L=1+3 for E(d,³He)=3837 10 and L=1 for E(d,p)=3841 5 probably correspond to any of these levels.

^g L=2 for E(t,p)=3953 8, L=4 for E(p,p')=3966 10, L=(3+5) for E(α,α')=3948 10, L=3 for E(p,t)=3935 3 and L=3 for E(p,t)=3950 3 probably correspond to any of these levels.

^h E=3874.17 4 is reported in (n,γ), and probably corresponds to either the 3874 or 3876 levels.

ⁱ For γ rays from this level see ⁷³Ge(n,γ) E=th.

^j Band(A): g.s. band.

Adopted Levels, Gammas (continued) $\gamma(^{74}\text{Ge})$

Gammas are known mainly from ^{74}Ga β^- decay and $^{73}\text{Ge}(n,\gamma)$ E=thermal. Low energy γ 's are from curved-crystal spectrometer data in (n, γ). See (n, γ) E=th for many additional γ rays from tentative levels.

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult. \dagger	δ	Comments
595.850	2 ⁺	595.847 6	100	0.0	0 ⁺	E2		B(E2)(W.u.)=33.0 4
1204.205	2 ⁺	608.353 5	100 1	595.850	2 ⁺	E2+M1	+3.4 4	Mult.: from $\gamma(\text{pol},\theta)$. B(M1)(W.u.)=0.00099 15; B(E2)(W.u.)=43 6
1463.759	4 ⁺	1204.208 12	46 3	0.0	0 ⁺	E2		δ : from $\gamma\gamma(\theta)$ in ^{74}As ε decay. Other: +2.2 3 from (n,n' γ). B(E2)(W.u.)=0.71 11
1482.81	0 ⁺	867.898 6	100	595.850	2 ⁺	E2		B(E2)(W.u.)=41 3
		887.19 7	100	595.850	2 ⁺	E2		B(E2)(W.u.)=9 +9-6
		1482.6		0.0	0 ⁺	E0		From ce data (1983Pa10). $I_{(\gamma+ce)}$: <0.006 from ^{74}As ε decay. $q_K^2(\text{E0/E2}) < 0.12$, $X(\text{E0/E2}) < 0.052$, $\rho^2(\text{E0}) > 0.032$ (2005Ki02, evaluation).
1697.140	(3) ⁺	233.395 12	2.1 2	1463.759	4 ⁺			
		492.936 6	58 1	1204.205	2 ⁺	(M1+E2)	+1.3 4	δ : from $\gamma(\theta)$ in (n,n' γ) (1970Ch15). Other: 2.0 +3-6 or 0.75 +15-6 (1987Do14). Mult.: D+Q from $\gamma(\theta)$. ΔJ^π =no from placement in level scheme.
		1101.267 12	100 1	595.850	2 ⁺	(M1+E2)	+0.34 5	δ : from $\gamma(\theta)$ in (n,n' γ) (1970Ch15). Other: 0.47 5 (1987Do14). Mult.: D+Q from $\gamma(\theta)$. ΔJ^π =no from placement in level scheme.
1724.954	(0 ⁺)	520.744 12	100	1204.205	2 ⁺			
2165.259	(3,4) ⁺	468.11 3	6.5 3	1697.140	(3) ⁺			
		701.487 6	42.7 3	1463.759	4 ⁺			
		961.055 10	100 1	1204.205	2 ⁺	(M1(+E2))	0.01 1	δ : from $\gamma(\theta)$ in (n,n' γ) (1987Do14). Mult.: D+Q from $\gamma(\theta)$. ΔJ^π =no from placement in level scheme.
2197.933	2 ⁺	715.17 3	35 2	1482.81	0 ⁺			
		734.17 4	25 4	1463.759	4 ⁺			
		993.67 6	100 5	1204.205	2 ⁺	(E2+M1)	-2.8 2	δ : $\gamma\gamma(\theta)$ in ^{74}As ε . Mult from ΔJ^π . Mult.: D+Q from $\gamma(\theta)$. ΔJ^π =no from placement in level scheme.
		1602.0 2	45 4	595.850	2 ⁺			
		2197.95 8	82 10	0.0	0 ⁺			
2227.77	0 ⁺	1021.9 1	38	1204.205	2 ⁺			
		1631.89 12	100	595.850	2 ⁺			
2403.5	1	2403.5 4		0.0	0 ⁺			
2536.310	3 ⁻	839.152 14	2.8 3	1697.140	(3) ⁺			
		1332.12 7	31 2	1204.205	2 ⁺			
		1940.53 15	100 2	595.850	2 ⁺	(E1(+M2))	+0.02 2	δ : from $\gamma(\theta)$ in (n,n' γ) (1987Do14). Mult.: D+Q from $\gamma(\theta)$. ΔJ^π =yes from placement in level scheme.
2569.329	(6 ⁺)	1105.562 12	100	1463.759	4 ⁺			
2600.32	(1,2,3) ⁺	2004.45 9	100 9	595.850	2 ⁺			
2669.62	4 ⁺	972.38 5	22 1	1697.140	(3) ⁺			

Adopted Levels, Gammas (continued)

γ(⁷⁴Ge) (continued)

<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_γ</u>	<u>I_γ</u>	<u>E_f</u>	<u>J_f^π</u>	<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_γ</u>	<u>I_γ</u>	<u>E_f</u>	<u>J_f^π</u>
2669.62	4 ⁺	1205.88 9	74 9	1463.759	4 ⁺	3032.8	1	1828.6		1204.205	2 ⁺
		2073.85 7	100 10	595.850	2 ⁺			3032.8 2		0.0	0 ⁺
2690.6	1	2690.6 3		0.0	0 ⁺	3034.00	(3,4 ⁺)	497.62 10	51 5	2536.310	3 ⁻
2693.68	(3,4 ⁺)	1489.35 5	100 2	1204.205	2 ⁺			1337.18 ^{#c} 10	<85	1697.140	(3) ⁺
		2098.00 7	31 3	595.850	2 ⁺			1570.26 10	51 2	1463.759	4 ⁺
2696.918	(2 ⁺)	531.650 9	8.3 2	2165.259	(3,4) ⁺			1829.86 10	100 3	1204.205	2 ⁺
		999.781 12	100 1	1697.140	(3) ⁺			2438.45 [#] 14	14 2	595.850	2 ⁺
		1233.23 15	6.0 6	1463.759	4 ⁺	3048.564	4 ⁺	850.64 5	33 1	2197.933	2 ⁺
2750.61	0 ⁺	1546.4 3	100 15	1204.205	2 ⁺			883.25 3	100 3	2165.259	(3,4) ⁺
		2154.6 3	100 15	595.850	2 ⁺			1844.62 10	100 10	1204.205	2 ⁺
2828.507	4 ⁺	663.19 6	1.2 1	2165.259	(3,4) ⁺			3048.5 4	9 2	0.0	0 ⁺
		1131.360 9	100 2	1697.140	(3) ⁺	3060.1	(2 ⁺ to 6 ⁺)	1596 1	100	1463.759	4 ⁺
2833.41	(2 ⁺)	667.8 3	35 3	2165.259	(3,4) ⁺	3081.321	(3 ⁺)	545.01 [‡] 1	11.8 3	2536.310	3 ⁻
		1135.9 2	20 3	1697.140	(3) ⁺			916.07 [‡] 5	20 1	2165.259	(3,4) ⁺
		2237.9 2	100 4	595.850	2 ⁺			1384.11 [‡] 8	57 3	1697.140	(3) ⁺
2835.923	(2 ⁺)	670.59 7	5.8 6	2165.259	(3,4) ⁺			1617.64 8	100 4	1463.759	4 ⁺
		1138.79 6	100 6	1697.140	(3) ⁺	3092.2	1 ⁽⁺⁾	1888.0		1204.205	2 ⁺
		2240.1 3	23 3	595.850	2 ⁺			3092.2 2		0.0	0 ⁺
2856.04	0 ⁺	1651.8 3	100 20	1204.205	2 ⁺	3104.506	5 ⁻	939.23 2	100 2	2165.259	(3,4) ⁺
		2260.0 4	100 20	595.850	2 ⁺			1640.8 1	47 3	1463.759	4 ⁺
2878.14	(5 ⁻)	712.8 2	100 13	2165.259	(3,4) ⁺	3118.0	3 ⁻ ,4 ⁻ ,5 ⁻ ,6 ⁻	182.4 2	100 5	2935.475	3 ⁻
		1414.4 2	67 13	1463.759	4 ⁺			1654.1 2	12 2	1463.759	4 ⁺
2925.45	(3,4 ⁺)	1228.29 9	100 4	1697.140	(3) ⁺	3139.32		1675.6 2	100	1463.759	4 ⁺
		1721.3 2	19 1	1204.205	2 ⁺	3140.30	3 ⁻	604.21 10	100 7	2536.310	3 ⁻
2935.475	3 ⁻	399.08 3	0.42 3	2536.310	3 ⁻			942.47 7	45 2	2197.933	2 ⁺
		770.212 12	14.0 2	2165.259	(3,4) ⁺			975.1 3	9.4 10	2165.259	(3,4) ⁺
		1471.72 3	100 1	1463.759	4 ⁺			1443.38 ^{dc} 7	<125 ^d	1697.140	(3) ⁺
2938.7	2 ⁺	2342.8 2	100	595.850	2 ⁺			1676.77 14	25 1	1463.759	4 ⁺
2949.48	(3 ⁻)	784.3 [#] 2	1.5 2	2165.259	(3,4) ⁺	3175.47	3 ⁻	141.52 [‡] 3	21 6	3034.00	(3,4) ⁺
		1744.9 2	10.8 3	1204.205	2 ⁺			481.7 ^{‡&e} 1	56 12	2693.68	(3,4) ⁺
		2353.46 19	100 3	595.850	2 ⁺			639.10 [#] 10	65 4	2536.310	3 ⁻
2961.0	(5 ⁻)	1756.7 2	100	1204.205	2 ⁺			1478.2 3	24 3	1697.140	(3) ⁺
2973.472	(3)	437.20 [‡] 3	0.8 1	2536.310	3 ⁻			1971.0 2	16 4	1204.205	2 ⁺
		808.23 [‡] 2	33 1	2165.259	(3,4) ⁺			2580.07 ^a 10	100 5	595.850	2 ⁺
		1509.66 9	100 2	1463.759	4 ⁺	3199.5	2 ⁺	663.2 2	100 10	2536.310	3 ⁻
		2973.1 [‡] 4	2.5 3	0.0	0 ⁺			2603.6 2	100 10	595.850	2 ⁺
2999.2	2 ⁺	777 [@] 4		2227.77	0 ⁺	3211.8?		2616.67 ^e 9		595.850	2 ⁺
		1794.3 1	30 5	1204.205	2 ⁺			3211.11 ^{de} 11	<i>d</i>	0.0	0 ⁺
		2402.7 1	100 8	595.850	2 ⁺	3224.680	4 ⁺	251.22 1	34 1	2973.472	(3)
		2999 1	25 5	0.0	0 ⁺			289.19 1	100 2	2935.475	3 ⁻

Adopted Levels, Gammas (continued)

 $\gamma(^{74}\text{Ge})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π
3224.680	4 ⁺	396.18 3	26 2	2828.507	4 ⁺	3639.5?		3639.45 ^{de} 13	<160 ^d	0.0	0 ⁺
3271.51	(2 ⁺)	1043.6 3	8 2	2227.77	0 ⁺	3647.9	1 ⁺	3647.9 7		0.0	0 ⁺
		1546.7 4	4 1	1724.954	(0 ⁺)	3681	(8 ⁺)	1112		2569.329	(6 ⁺)
		1807.5 1	100 10	1463.759	4 ⁺	3685.42	(2 to 5 ⁺)	604.10 12	100	3081.321	(3 ⁺)
3276.3	1	3276.3 2		0.0	0 ⁺	3691.79	3 ⁻	657.84 4	5.2 3	3034.00	(3,4 ⁺)
3315.72	4 ⁺	746.40 4	13 1	2569.329	(6 ⁺)			756.24 9	4.6 5	2935.475	3 ⁻
		1150.43 4	100 3	2165.259	(3,4) ⁺			1022.05 10	10 2	2669.62	4 ⁺
3342.94	(3 ⁻ ,4 ⁺)	1177.42 18	29 3	2165.259	(3,4) ⁺	3696.59	(3,4)	521.0 5	19 4	3175.47	3 ⁻
		2138.62 10	100 5	1204.205	2 ⁺			1160.33 10	100 7	2536.310	3 ⁻
		2747.13 10	100 6	595.850	2 ⁺			1999.3 2	64 6	1697.140	(3) ⁺
3358.517	(2 ⁺ ,3,4 ⁺)	530.01 2	100 4	2828.507	4 ⁺			2231.9 5	16 15	1463.759	4 ⁺
		1160.5 2	98 10	2197.933	2 ⁺	3707.20	(3,4,5)	1170.88 14	100	2536.310	3 ⁻
3381.74	3 ⁻	2785.83 5	100	595.850	2 ⁺	3716.7	(1 ⁻ ,2 ⁺)	540.9 5	100 18	3175.47	3 ⁻
3392.618	2 ⁺	311.32 3	16 1	3081.321	(3 ⁺)			3717.1 7	18 6	0.0	0 ⁺
		556.68 3	7.5 6	2835.923	(2 ⁺)	3720.79	(3,4 ⁺)	545.5 [#] 5	3.7 11	3175.47	3 ⁻
		695.69 2	30.0 6	2696.918	(2 ⁺)			1184.4 [#] 2	16 2	2536.310	3 ⁻
		1227.2 2	100 1	2165.259	(3,4) ⁺			2023.6 3	30 7	1697.140	(3) ⁺
3409.931	(3,4 ⁺)	574.03 4	5.1 4	2835.923	(2 ⁺)			2257.0 1	100 3	1463.759	4 ⁺
		581.47 4	3.1 6	2828.507	4 ⁺	3743.348	(3 ⁻ ,4 ⁺)	472.04 16	32 10	3271.51	(2 ⁺)
		712.99 5	7.4 4	2696.918	(2 ⁺)			567.92 7	8 3	3175.47	3 ⁻
		1712.96 12	100 6	1697.140	(3) ⁺			638.83 2	100 3	3104.506	5 ⁻
3478.37	(2,3) ⁺	1945.9 2	16 2	1463.759	4 ⁺	3771.74	(2 ⁺ ,3,4 ⁺)	723.21 5	7.7 7	3048.564	4 ⁺
		302.98 3	10 2	3175.47	3 ⁻			1573.75 9	100 4	2197.933	2 ⁺
		429.73 [‡] 5	8 2	3048.564	4 ⁺			2307.5 6	3.6 7	1463.759	4 ⁺
		444.2 [#] 5	4 2	3034.00	(3,4 ⁺)			2567.4 1	24 3	1204.205	2 ⁺
		942.15 [‡] 10	7 3	2536.310	3 ⁻	3783.41	(2 ⁺ ,3,4 ⁺)	467.68 6	43 10	3315.72	4 ⁺
		1312.81 11	51 4	2165.259	(3,4) ⁺			2579.15 ^b 8	100	1204.205	2 ⁺
3515.441	(3,4 ⁺)	2014.50 6	100 5	1463.759	4 ⁺	3790.90	(3,4 ⁺)	519.47 9	5.4 14	3271.51	(2 ⁺)
		541.96 1	76 2	2973.472	(3)			1254.47 10	100 3	2536.310	3 ⁻
		579.97 1	96 2	2935.475	3 ⁻	3806.772	3 ⁻	291.33 2	24 3	3515.441	(3,4 ⁺)
		679.4 1	8 2	2835.923	(2 ⁺)			2342.89 12	75 1	1463.759	4 ⁺
		686.90 6	9 1	2828.507	4 ⁺			3210.94 8	100 4	595.850	2 ⁺
		1350.19 12	100 7	2165.259	(3,4) ⁺	3807.03		2109.8 ^e 6		1697.140	(3) ⁺
3557.9	1 ⁽⁻⁾	2962.1		595.850	2 ⁺			3211.11 ^d 11	<i>d</i>	595.850	2 ⁺
		3557.9 3		0.0	0 ⁺	3828.23	(1 ⁻ to 4 ⁺)	484.9 3	100 5	3342.94	(3 ⁻ ,4 ⁺)
3566.75	(2 ⁺ ,3,4 ⁺)	2362.36 13	15 2	1204.205	2 ⁺			652.5 5	6 3	3175.47	3 ⁻
		2970.92 10	100 4	595.850	2 ⁺			1134.5 3	36 4	2693.68	(3,4 ⁺)
3578.93	2 ⁺	643.44 3	64 3	2935.475	3 ⁻			1630.7 10	9 8	2197.933	2 ⁺
		2115.5 4	51 6	1463.759	4 ⁺			2131.5 4	19 1	1697.140	(3) ⁺
		3578.9 2	100 6	0.0	0 ⁺			2625.3 ^e 4	7 1	1204.205	2 ⁺
3639.5?		3043.6 ^e 4	100 20	595.850	2 ⁺			3232.34 11	56 7	595.850	2 ⁺

Adopted Levels, Gammas (continued)

$\gamma(^{74}\text{Ge})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π
3832.23	(2 ⁺ ,3,4 ⁺)	560.68 3	13 1	3271.51	(2 ⁺)	3995.05	(2 ⁺ ,3,4 ⁺)	3992.4 ^e 10	7 2	0.0	0 ⁺
		692.46 ^c 8	10 2	3140.30	3 ⁻	3995.83	(2 ⁺)	212.40 [‡] 7	6 2	3783.41	(2 ⁺ ,3,4 ⁺)
		996.1 3	24 7	2835.923	(2 ⁺)			2532.03 [‡] 7	100 10	1463.759	4 ⁺
		1003.5 2	55 14	2828.507	4 ⁺			2790.4 ^c 4	11 1	1204.205	2 ⁺
		2368.17 9	100 10	1463.759	4 ⁺			3996.1 2	21 2	0.0	0 ⁺
3835.27	(2 ⁺ ,3,4 ⁺)	476.75 5	23 6	3358.517	(2 ⁺ ,3,4 ⁺)	4006.8	1	4006.8 4		0.0	0 ⁺
		786.8 3	13 2	3048.564	4 ⁺	4022.94	2 ⁺	443.94 12	22 6	3578.93	2 ⁺
		2630.96 20	24 3	1204.205	2 ⁺			1087.56 10	100 10	2935.475	3 ⁻
		3239.35 7	100 4	595.850	2 ⁺			3426.95 11	57 3	595.850	2 ⁺
3874.17	2 ⁺	182.40 2	6.1 5	3691.79	3 ⁻	4030.1	(2 ⁺ ,3,4 ⁺)	1460.8 6	100 29	2569.329	(6 ⁺)
		1338.05 8	100 10	2536.310	3 ⁻			3434.2 6	12 4	595.850	2 ⁺
3874.9	1 ⁺	3874.9 3		0.0	0 ⁺	4064.66	(2 to 5)	174.96 1	17 3	3889.69	(2 ⁺ ,3,4 ⁺)
3889.69	(2 ⁺ ,3,4 ⁺)	146.33 3	17 4	3743.348	(3 ⁻ ,4 ⁺)			654.79 4	46 2	3409.931	(3,4 ⁺)
		841.1 2	100 8	3048.564	4 ⁺			2601.0 2	100 13	1463.759	4 ⁺
3895.01	(2,3,4 ⁺)	551.8 5	11 3	3342.94	(3 ⁻ ,4 ⁺)	4084.9	1 ⁺	4084.9 5		0.0	0 ⁺
		1357.9 ^c 2	32 3	2536.310	3 ⁻	4171.5	1	4171.5 3		0.0	0 ⁺
		2197.95 10	33 3	1697.140	(3) ⁺	4201.55	2 ⁺	504.7 5	15 4	3696.59	(3,4)
		2690.96 9	100 3	1204.205	2 ⁺			1024.6 ^c 5	21 4	3175.47	3 ⁻
		3298.93 10	35 4	595.850	2 ⁺			2004.6 ^c 2	76 7	2197.933	2 ⁺
		3895.0 ^e 4	4 1	0.0	0 ⁺			2036.2 4	25 6	2165.259	(3,4) ⁺
3897.98	(2 ⁺ to 6 ⁺)	419.61 2	100	3478.37	(2,3) ⁺			2504.2 2	100 11	1697.140	(3) ⁺
3932.98	(1 ⁺ ,2,3,4 ⁺)	189.63 3	6 1	3743.348	(3 ⁻ ,4 ⁺)			2737.86 16	15 2	1463.759	4 ⁺
		212.17 5	9 2	3720.79	(3,4 ⁺)			2997.2 5	15 2	1204.205	2 ⁺
		1236.12 17	100 18	2696.918	(2 ⁺)			3605.35 12	55 7	595.850	2 ⁺
		1767.7 7	13 1	2165.259	(3,4) ⁺	4204.67	(2 ⁺ to 5 ⁻)	159.28 3	40 9	4045.43	
3941.09	(2 ⁺ ,3 ⁻)	1112.6 2	100 13	2828.507	4 ⁺			933.4 4	74 32	3271.51	(2 ⁺)
		1776.1 4	99 10	2165.259	(3,4) ⁺			1269.2 2	100 13	2935.475	3 ⁻
		2243.7 3	32 3	1697.140	(3) ⁺			1534.9 3	32 6	2669.62	4 ⁺
3949.80	(2 ⁺ ,3,4 ⁺)	471.1 5	55 7	3478.37	(2,3) ⁺	4217.30	(2 ⁺ ,3,4 ⁺)	1136.0 3	24 5	3081.321	(3 ⁺)
		809.3 3	42 9	3140.30	3 ⁻			1381.6 2	28 4	2835.923	(2 ⁺)
		999.9 2	37 13	2949.48	(3 ⁻)			2019.1 2	64 9	2197.933	2 ⁺
		2486.3 4	11 6	1463.759	4 ⁺			2753.62 12	100 9	1463.759	4 ⁺
		3354.03 12	100 8	595.850	2 ⁺	4222.9	(2 ⁺ ,3 ⁺ ,4 ⁺)	3018.8 4	100 15	1204.205	2 ⁺
3958.03	3 ⁻	1261.1 2	100	2696.918	(2 ⁺)			3626.7 4	50 22	595.850	2 ⁺
3975.86	(2 ⁺)	1282.1 3	100 15	2693.68	(3,4) ⁺	4224.9	1 ⁻	4224.9 8		0.0	0 ⁺
		2278.7 1	12 2	1697.140	(3) ⁺	4235.33	(2,3,4) ⁺	258.8 5	67 17	3976.23	(2,3,4 ⁺)
		2771.6 3	65 6	1204.205	2 ⁺			3030.3 5	100 28	1204.205	2 ⁺
		3975.7 2	50 4	0.0	0 ⁺			3639.45 ^d 13	<44 ^d	595.850	2 ⁺
3976.23	(2,3,4 ⁺)	2279.05 9	100 4	1697.140	(3) ⁺	4305.8	1	4305.8 13		0.0	0 ⁺
		2771.8 4	4.7 8	1204.205	2 ⁺	4339.67	(2 ⁺)	122.37 2	6.5 13	4217.30	(2 ⁺ ,3,4 ⁺)
3995.05	(2 ⁺ ,3,4 ⁺)	2790.79 10	100 9	1204.205	2 ⁺			618.90 8	4.8 11	3720.79	(3,4 ⁺)

Adopted Levels, Gammas (continued)

γ(⁷⁴Ge) (continued)

<u>E_i(level)</u>	<u>J^π_i</u>	<u>E_γ</u>	<u>I_γ</u>	<u>E_f</u>	<u>J^π_f</u>	<u>E_i(level)</u>	<u>J^π_i</u>	<u>E_γ</u>	<u>I_γ</u>	<u>E_f</u>	<u>J^π_f</u>
4339.67	(2 ⁺)	648.2 2	4.8 11	3691.79	3 ⁻	4611.42	(2 ⁻ ,3 ⁻ ,4 ⁻)	2074.14 ^c 25	100 14	2536.310	3 ⁻
		1258.37 8	100 4	3081.321	(3 ⁺)	4630.43	(2 ⁺)	516.27 12	100 33	4119	3 ⁻ ,4 ⁻ ,5 ⁻ ,6 ⁻
		1739.2 6	67 16	2600.32	(1,2,3) ⁺			2094.0 2	9 1	2536.310	3 ⁻
		2111.9 2	20 2	2227.77	0 ⁺			2905.23 9	23 2	1724.954	(0 ⁺)
4342.6	1	4342.6 3		0.0	0 ⁺			4034.70 10	16 1	595.850	2 ⁺
4367.2	(1 ⁻ to 5 ⁻)	1024.3 5	100 20	3342.94	(3 ⁻ ,4 ⁺)			4630.6 7	1.7 6	0.0	0 ⁺
		1417.6 7	80 7	2949.48	(3 ⁻)	4698.29	(2 ⁻ ,3 ⁻ ,4 ⁻)	1131.52 14	100 6	3566.75	(2 ⁺ ,3,4 ⁺)
4368.15	(2 ⁺)	1009.64 8	47 10	3358.517	(2 ⁺ ,3,4 ⁺)			2004.6 2	57 6	2693.68	(3,4 ⁺)
		1263.6 3	100 13	3104.506	5 ⁻	4840.92	(2 ⁺)	685.66 3	21 1	4155.25?	
		1394.8 5	27 7	2973.472	(3)			966.7 2	48 9	3874.17	2 ⁺
		1539.58 10	32 3	2828.507	4 ⁺			1482.5 4	100 19	3358.517	(2 ⁺ ,3,4 ⁺)
		2202.4 7	8 2	2165.259	(3,4) ⁺			1735.9 ^{dc} 9	90 ^d 24	3104.506	5 ⁻
		4368.4 5	5.7 10	0.0	0 ⁺			2171.3 2	8.6 3	2669.62	4 ⁺
4413.54	2 ⁺	606.87 ^d 13	100 ^d 24	3806.772	3 ⁻			2675.9 4	14 3	2165.259	(3,4) ⁺
		2716.2 2	11 1	1697.140	(3) ⁺			3377.0 2	40 3	1463.759	4 ⁺
		2949.6 2	22 3	1463.759	4 ⁺			4245.0 5	32 6	595.850	2 ⁺
4439.98	(2,3,4)	100.31 1	16 4	4339.67	(2 ⁺)			4840.9 9	71 3	0.0	0 ⁺
		1058.0 3	24 5	3381.74	3 ⁻	4972.55	(2 ⁺)	1200.9 ^d 2	100 ^d 33	3771.74	(2 ⁺ ,3,4 ⁺)
		1839.9 4	45 5	2600.32	(1,2,3) ⁺			1393.3 ^d 3	13 ^d 2	3578.93	2 ⁺
		2742.9 2	100 10	1697.140	(3) ⁺			2037.03 11	38 3	2935.475	3 ⁻
4442.18	(2 ⁺ ,3,4 ⁺)	606.87 ^d 13	100 ^d 24	3835.27	(2 ⁺ ,3,4 ⁺)			3275.5 3	6 1	1697.140	(3) ⁺
		750.37 5	10 1	3691.79	3 ⁻			3489.9 3	10 2	1482.81	0 ⁺
		1049.50 ^d 9	21 ^d 2	3392.618	2 ⁺			4972.0 4	20 2	0.0	0 ⁺
		1303.0 ^{dc} 3	15 ^d 2	3140.30	3 ⁻	5131.45	(2 to 6)	691.48 8	10 3	4439.98	(2,3,4)
		1393.3 ^d 3	16 ^d 3	3048.564	4 ⁺			1735.9 ^d 9	100 ^d 26	3392.618	2 ⁺
		1872.82 13	38 3	2569.329	(6 ⁺)			2082.3 6	15 3	3048.564	4 ⁺
4477.49	(0 ⁺ to 4 ⁺)	999.9 ^c 2		3478.37	(2,3) ⁺			2562.13 13	95 8	2569.329	(6 ⁺)
		1134.5 3		3342.94	(3 ⁻ ,4 ⁺)			2965.9 3	33 4	2165.259	(3,4) ⁺
		1337.18 10		3140.30	3 ⁻			3668.0 4	37 6	1463.759	4 ⁺
		1443.38 ^d 7	<i>d</i>	3034.00	(3,4) ⁺	5434.8	1 ⁻	5434.8 5		0.0	0 ⁺
		3274.1 12		1204.205	2 ⁺	5485.1	1	5485.1 12		0.0	0 ⁺
4527.89	(2 ⁺)	784.55 3	100 2	3743.348	(3 ⁻ ,4 ⁺)	5493.1	1	5493.1 10		0.0	0 ⁺
		1049.50 ^d 9	71 ^d 6	3478.37	(2,3) ⁺	5514.8	1	5514.8 8		0.0	0 ⁺
		1303.0 ^d 3	49 ^d 6	3224.680	4 ⁺	5743.7	1	5743.7 10		0.0	0 ⁺
		1958.1 4	16 3	2569.329	(6 ⁺)	5766.7	1 ⁽⁺⁾	5766.7 4		0.0	0 ⁺
		2362.7 4	24 3	2165.259	(3,4) ⁺	6017.4	1 ⁻	3017 4	4.9 25	2999.2	2 ⁺
		3044.8 2	47 5	1482.81	0 ⁺			3418 4	2.4 12	2600.32	(1,2,3) ⁺
		3064.5 9	8 3	1463.759	4 ⁺			3789 4	9.8 24	2227.77	0 ⁺
4611.42	(2 ⁻ ,3 ⁻ ,4 ⁻)	1471.7 2	72 8	3140.30	3 ⁻			3818 4	22.0 24	2197.933	2 ⁺

Adopted Levels, Gammas (continued)

$\gamma(^{74}\text{Ge})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult. [†]	$E_i(\text{level})$	J_i^π	E_γ	E_f	J_f^π
6017.4	1 ⁻	4301 ^e 4		1724.954	(0 ⁺)		7150.8	1 ⁻	7150.8 16	0.0	0 ⁺
		4532 4	14.6 24	1482.81	0 ⁺		7264.6	1 ⁻	7264.6 6	0.0	0 ⁺
		4812 4	39 5	1204.205	2 ⁺		7379.9	1	7379.9 10	0.0	0 ⁺
		5422 4	100 10	595.850	2 ⁺	E1	7445.3	1	7445.3 11	0.0	0 ⁺
		6018 4	46 5	0.0	0 ⁺	E1	7506.7	1 ⁽⁻⁾	7506.7 10	0.0	0 ⁺
6445.1	1	6445.1 11		0.0	0 ⁺		7550.7	1 ⁻	7550.7 7	0.0	0 ⁺
6477.9	1 ⁻	6477.9 6		0.0	0 ⁺		7616.0	1	7616.0 8	0.0	0 ⁺
6650.3	1 ⁻	6650.3 3		0.0	0 ⁺		7652.1	1 ⁻	7652.1 6	0.0	0 ⁺
6660.5	1 ⁻	6660.5 5		0.0	0 ⁺		8219.0	1	8219.0 8	0.0	0 ⁺
6732.7	1 ⁺	6732.7 8		0.0	0 ⁺		8250.2	1	8250.2 8	0.0	0 ⁺
6942.6	1 ⁻	6942.6 6		0.0	0 ⁺		8361.1	1	8361.1 12	0.0	0 ⁺

[†] From measured $T_{1/2}$ of levels and RUL of Weisskopf estimates for transitions of E2 or M2 multipolarity.

[‡] Reported in (n, γ) E=th only.

[#] Reported in ⁷⁴Ga β^- only.

[@] Reported in (γ,γ') only.

[&] Placement in (n, γ) uncertain since no γ seen in ⁷⁴Ga β^- .

^a Poor energy fit. Possible a doublet. See 3783 level.

^b Most probably a doublet. The second component belongs with the 3175 level.

^c Poor energy fit.

^d Multiply placed with undivided intensity.

^e Placement of transition in the level scheme is uncertain.

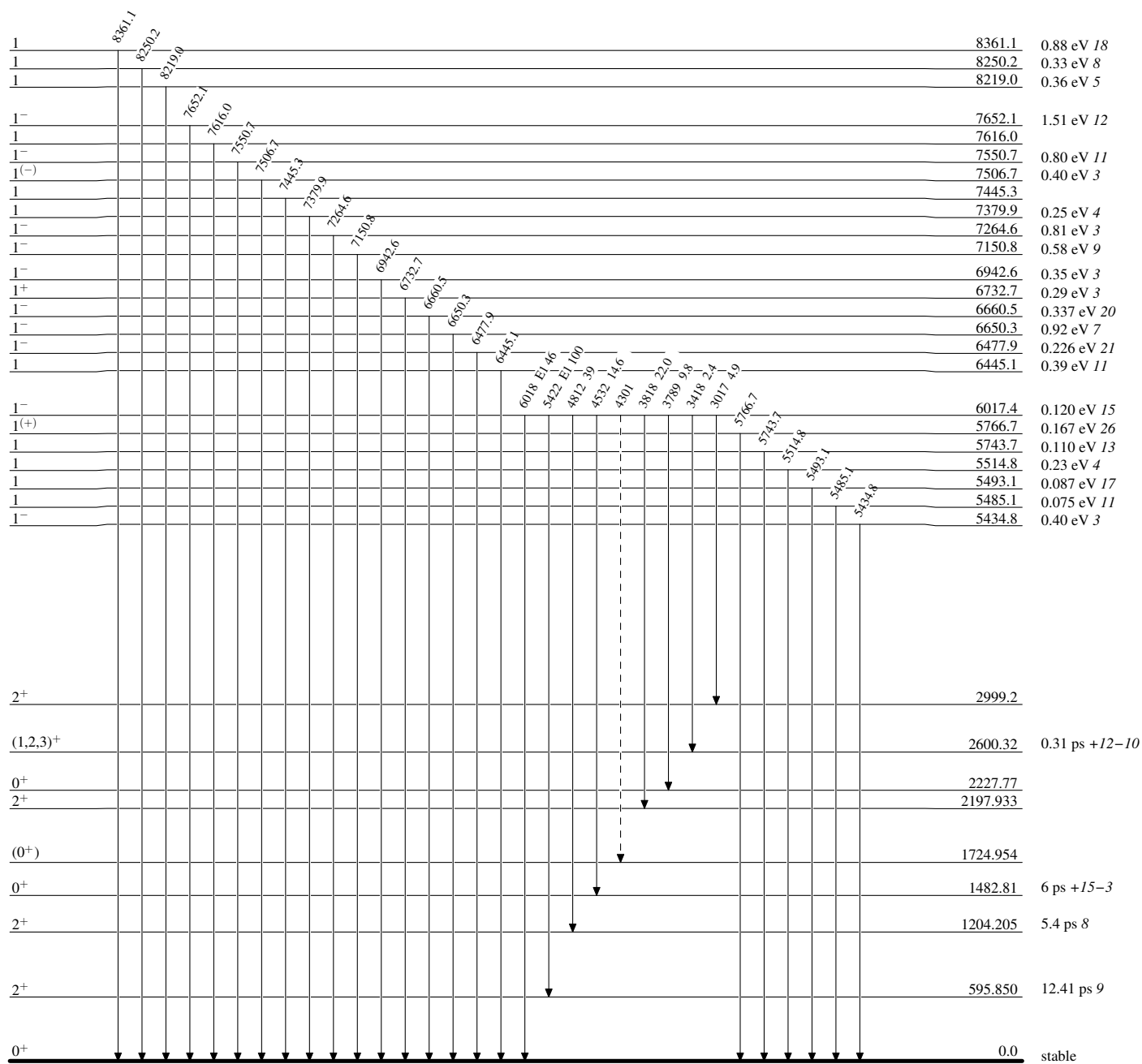
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

-----▶ γ Decay (Uncertain)

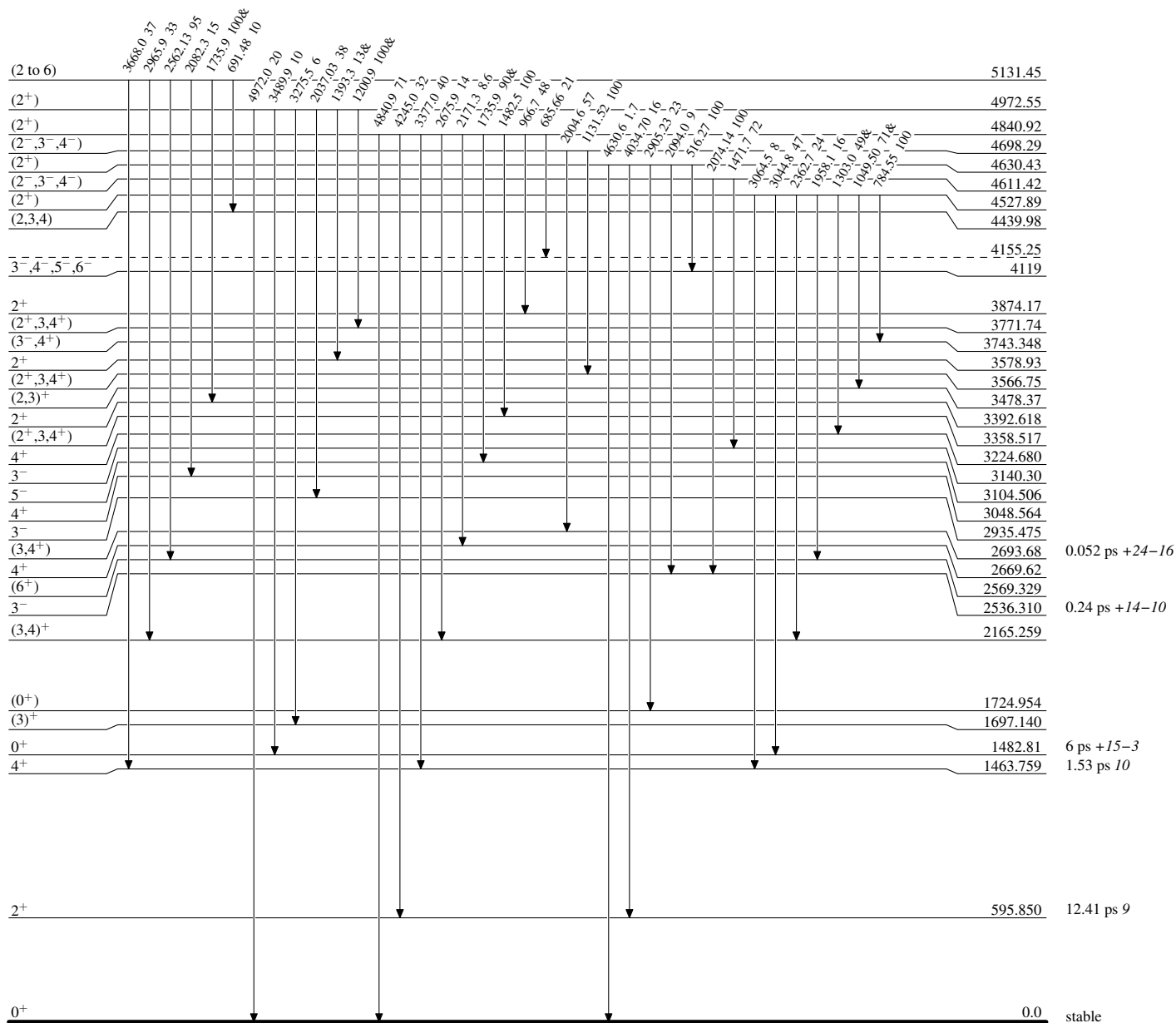


$^{74}_{32}\text{Ge}_{42}$

Adopted Levels, Gammas

Level Scheme (continued)

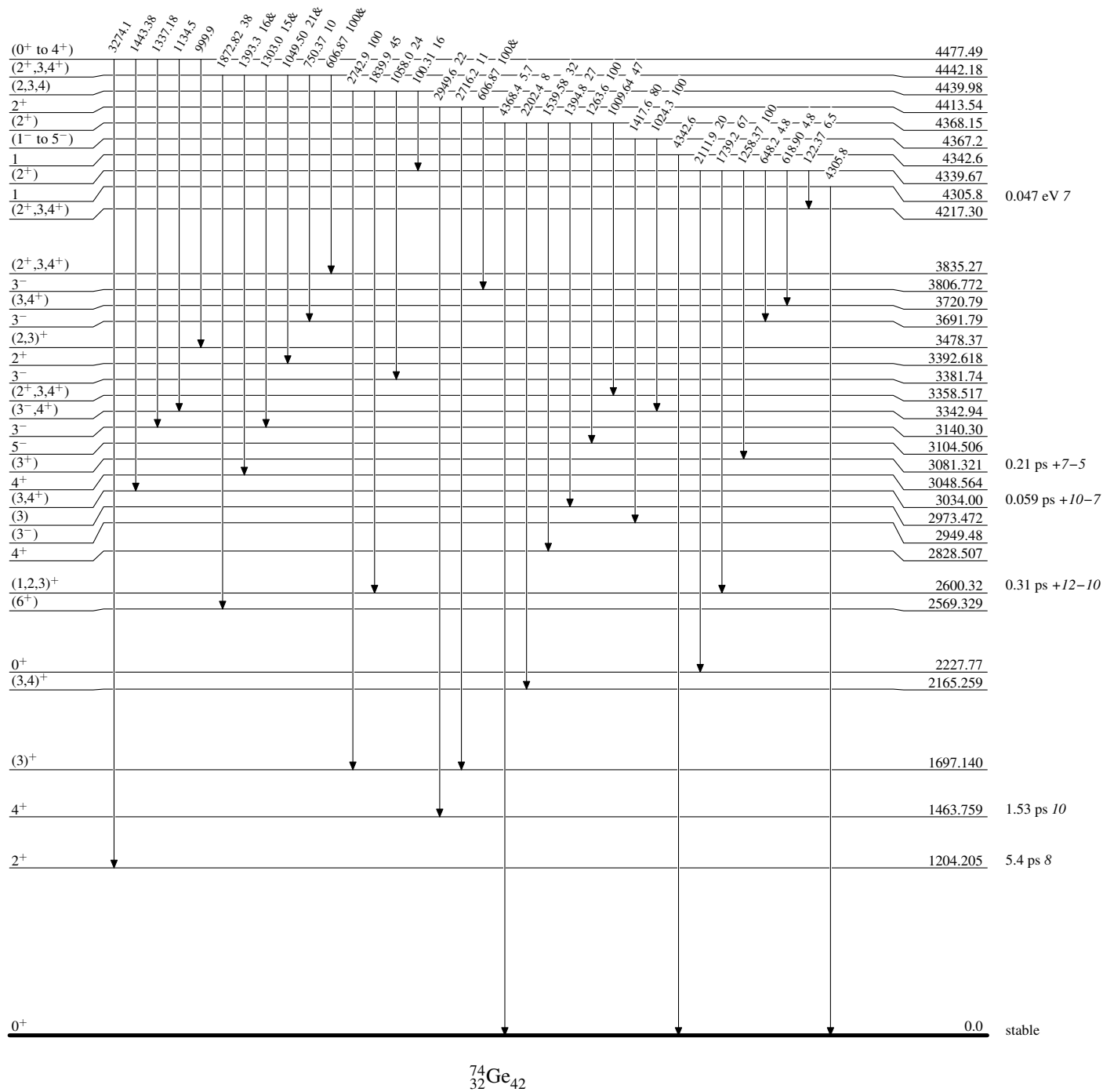
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



Adopted Levels, Gammas

Level Scheme (continued)

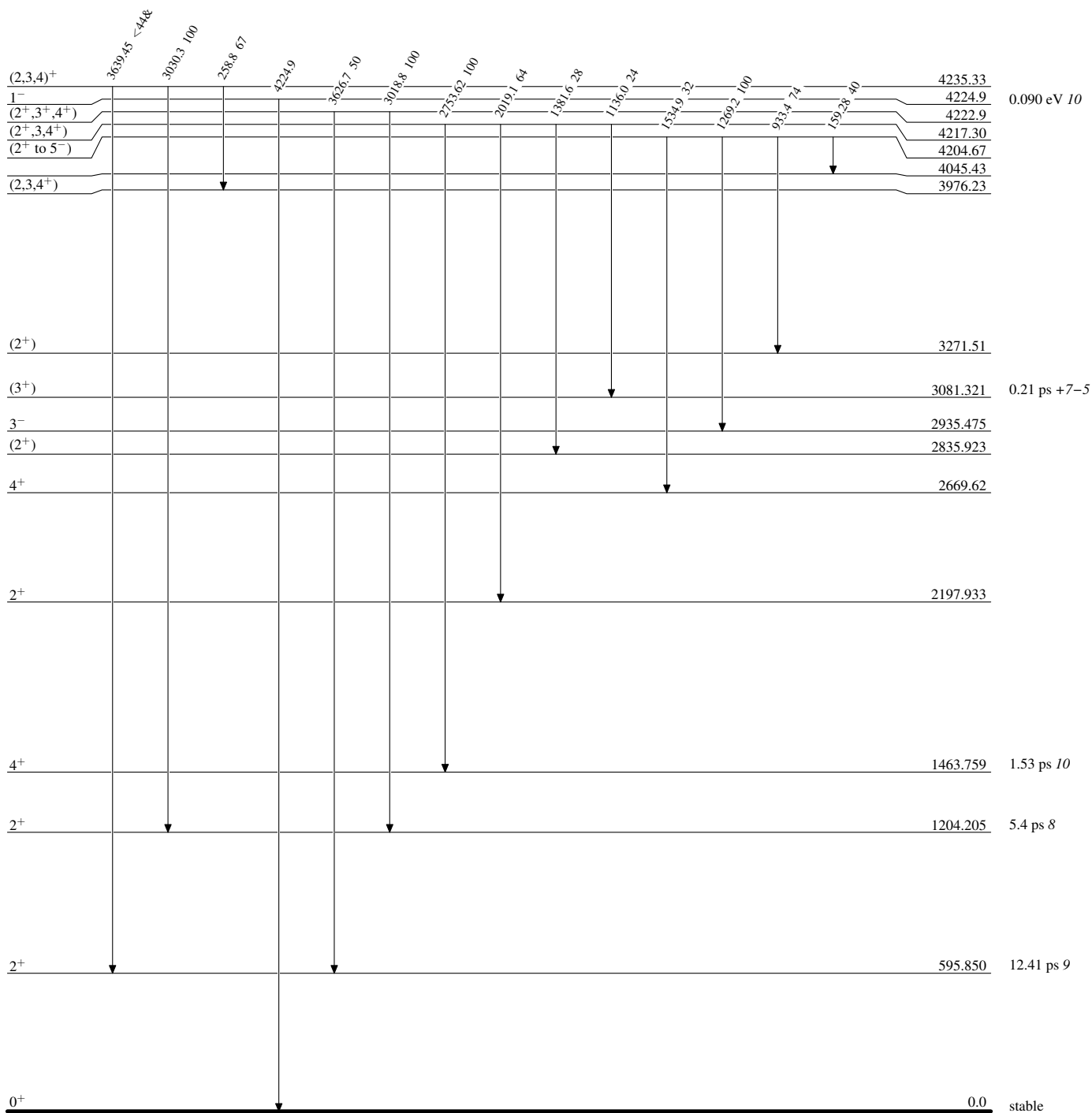
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



Adopted Levels, Gammas

Level Scheme (continued)

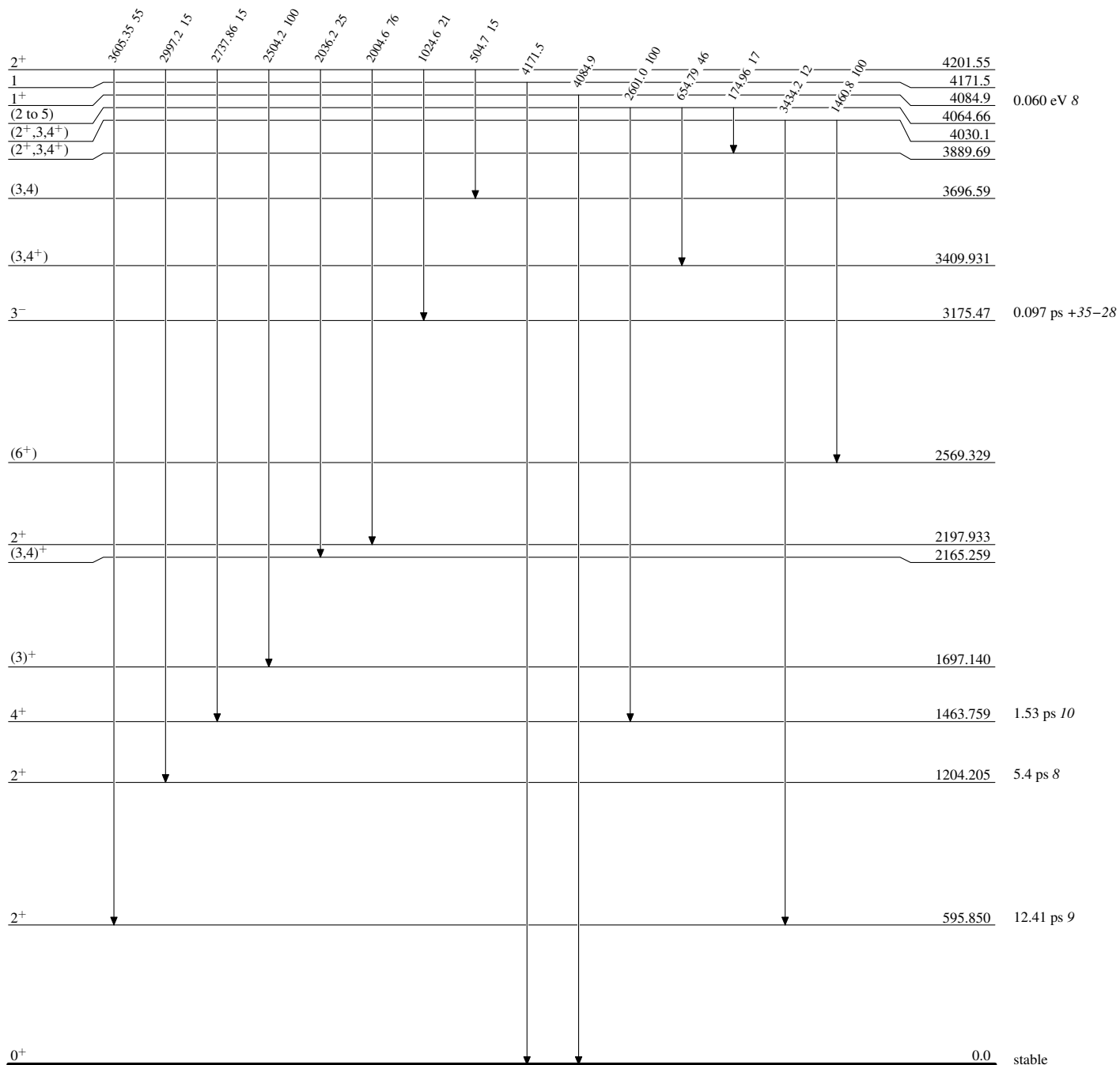
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



$^{74}_{32}\text{Ge}_{42}$

Adopted Levels, Gammas**Level Scheme (continued)**

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

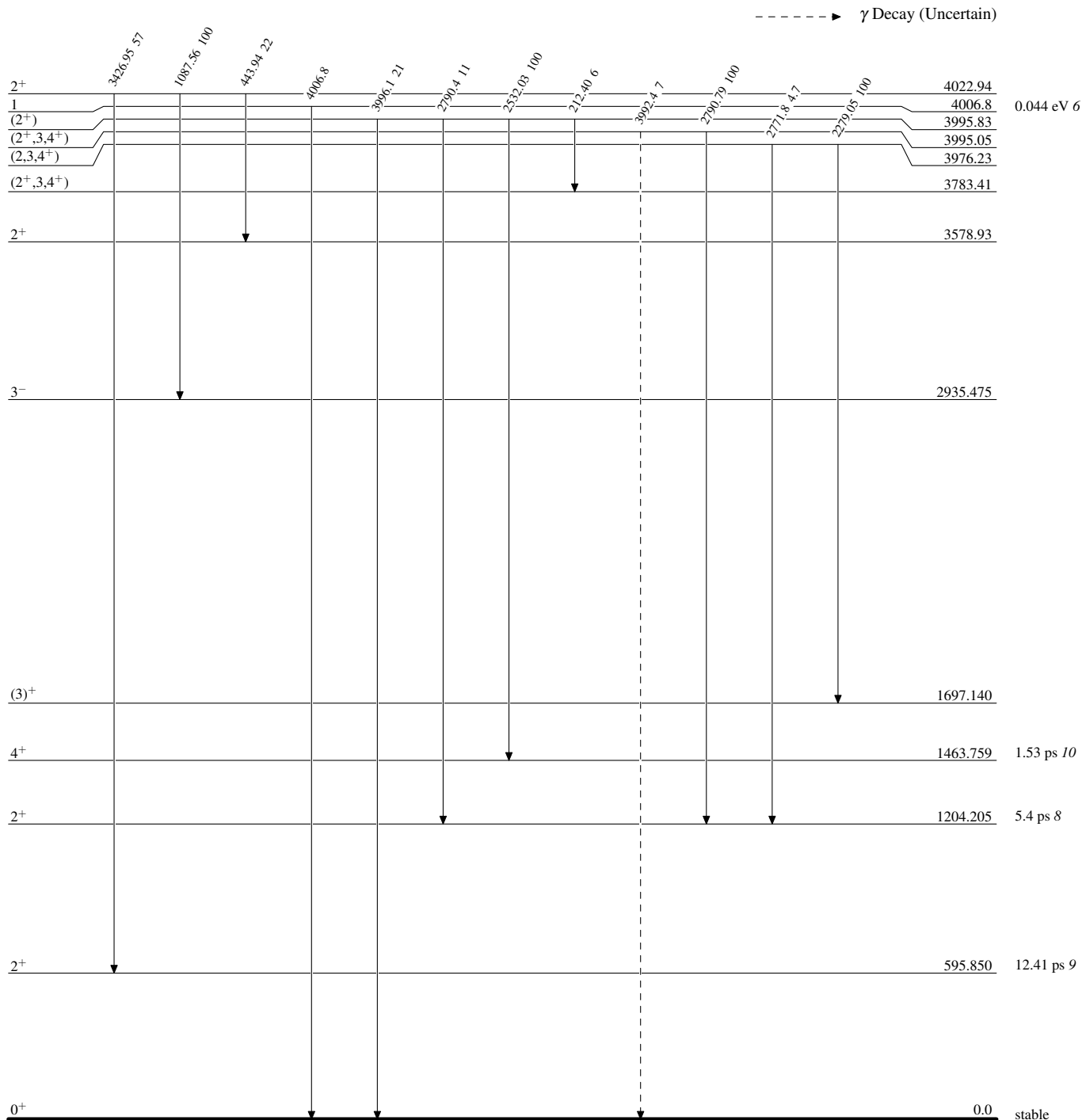
 $^{74}_{32}\text{Ge}_{42}$

Adopted Levels, Gammas

Level Scheme (continued)

Legend

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

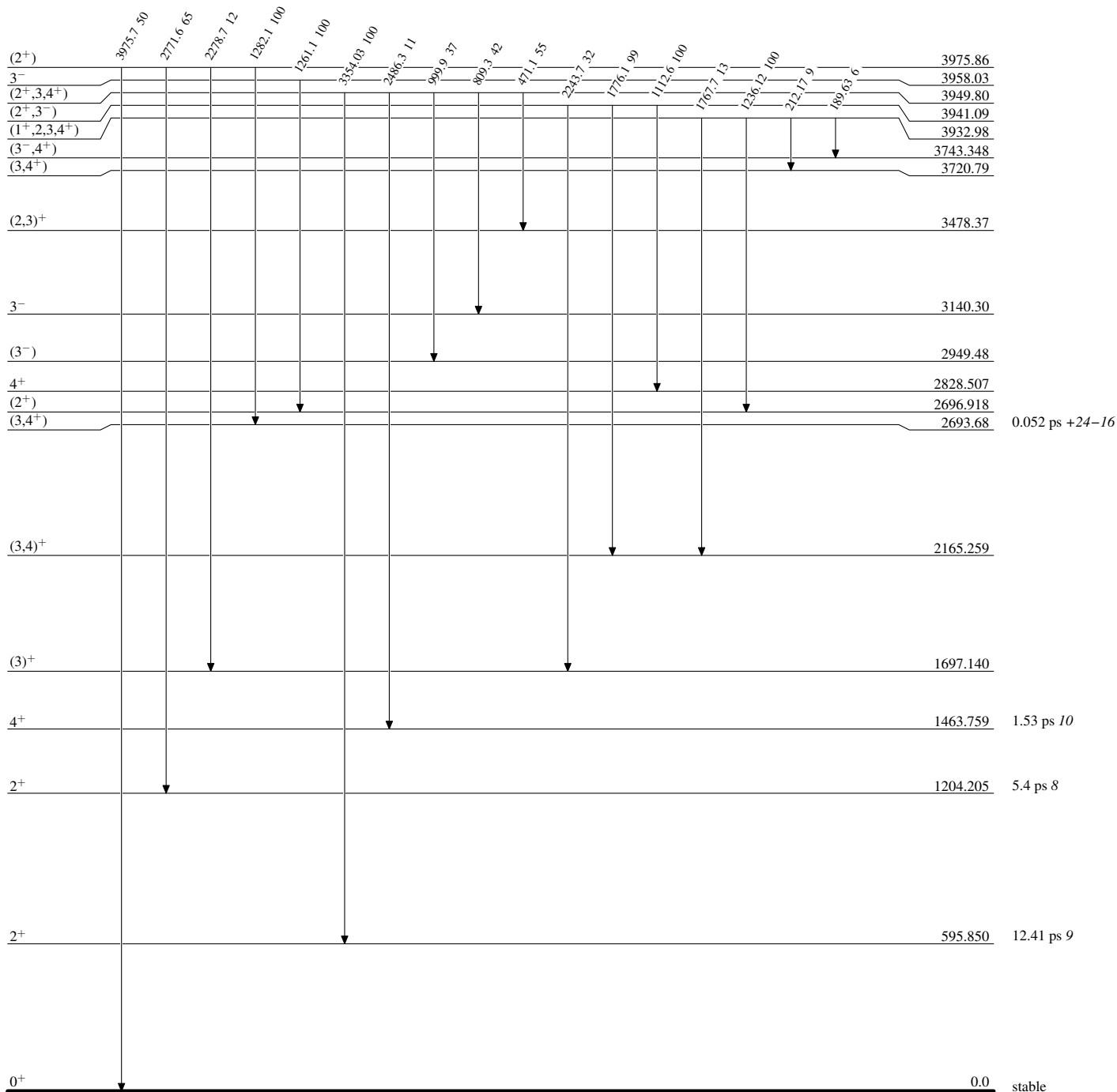


$^{74}_{32}\text{Ge}_{42}$

Adopted Levels, Gammas

Level Scheme (continued)

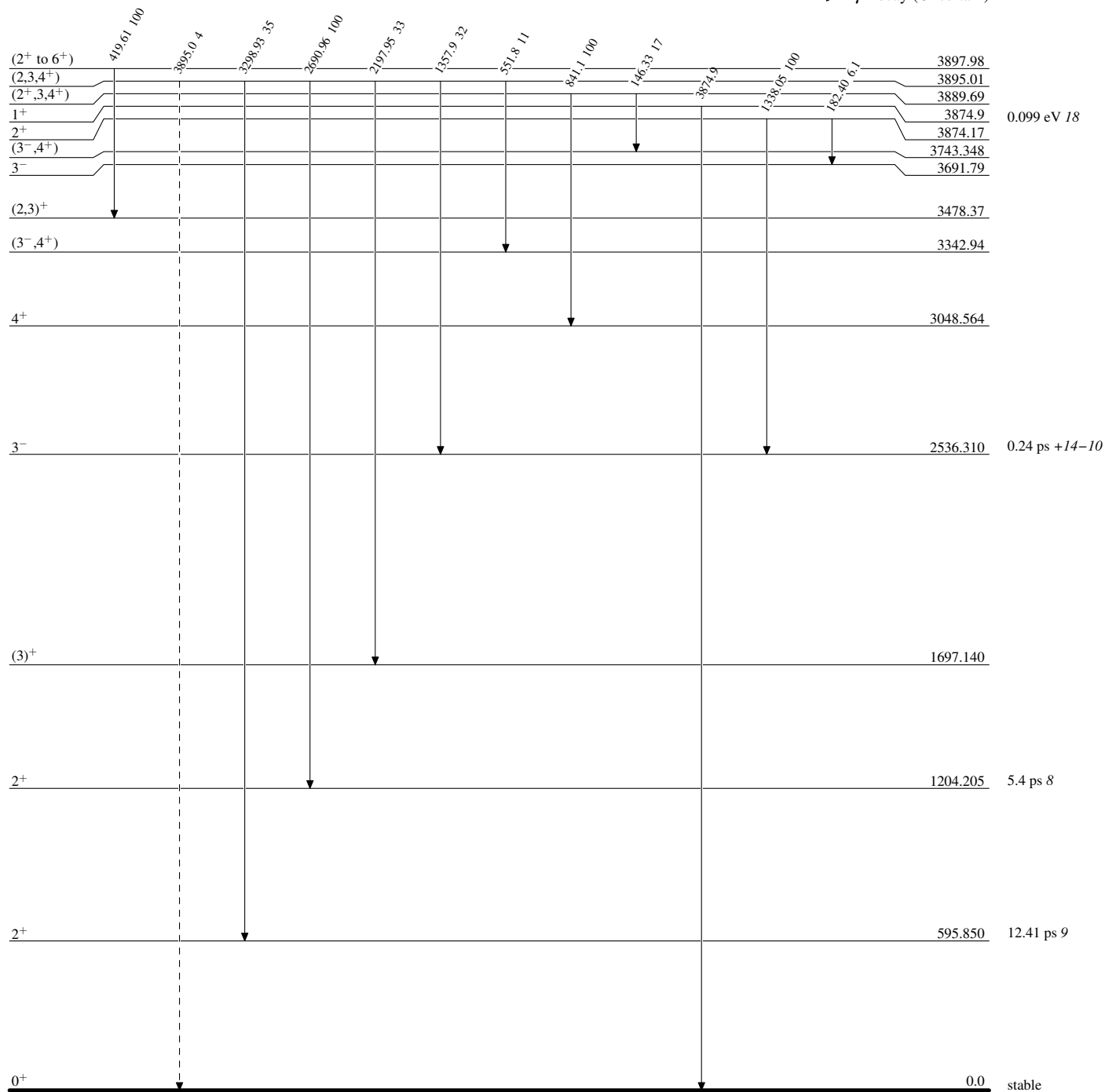
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



Adopted Levels, Gammas**Level Scheme (continued)**

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

Legend

-----▶ γ Decay (Uncertain) $^{74}_{32}\text{Ge}_{42}$

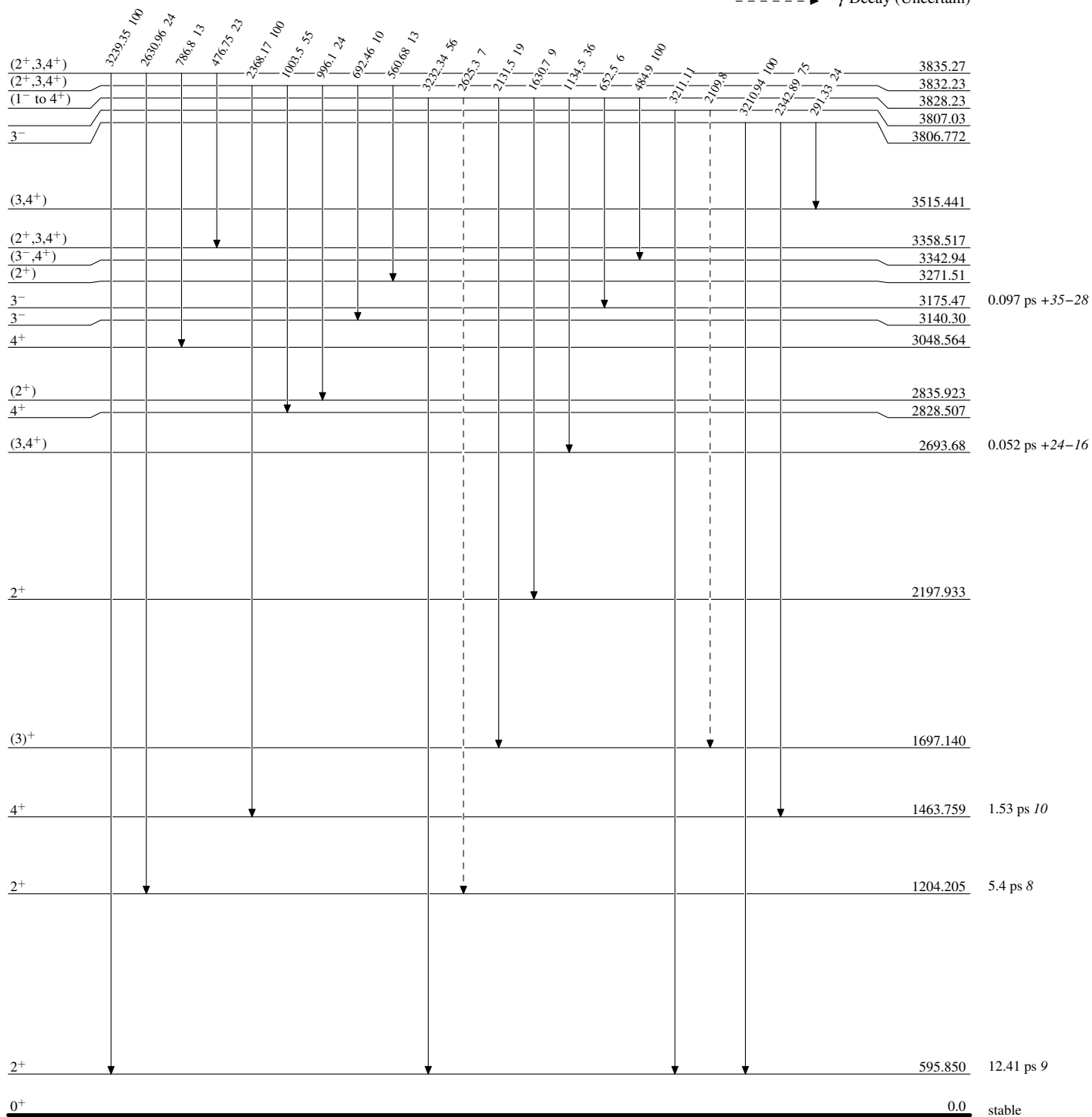
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

Legend

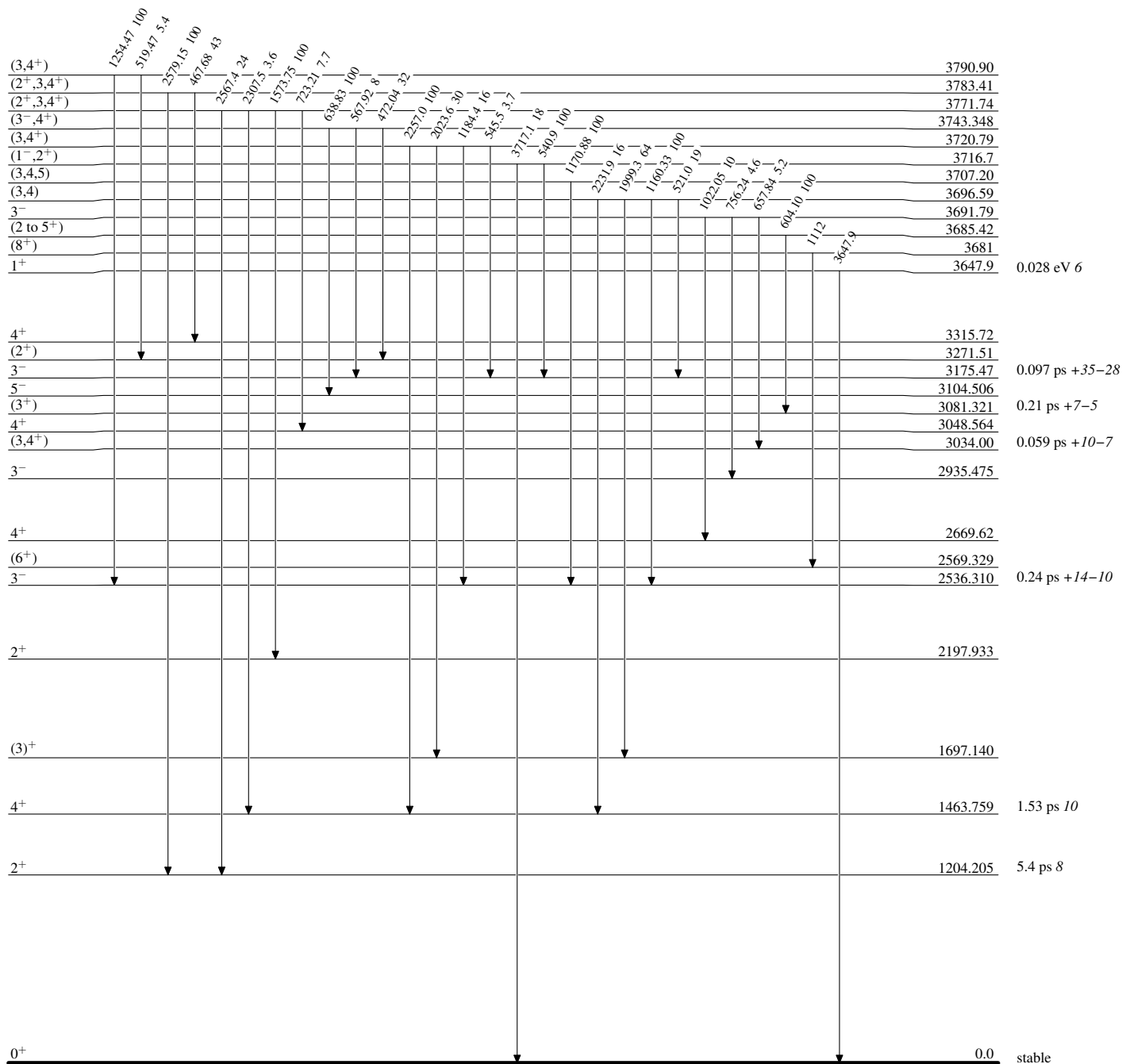
-----▶ γ Decay (Uncertain)



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



$^{74}_{32}\text{Ge}_{42}$

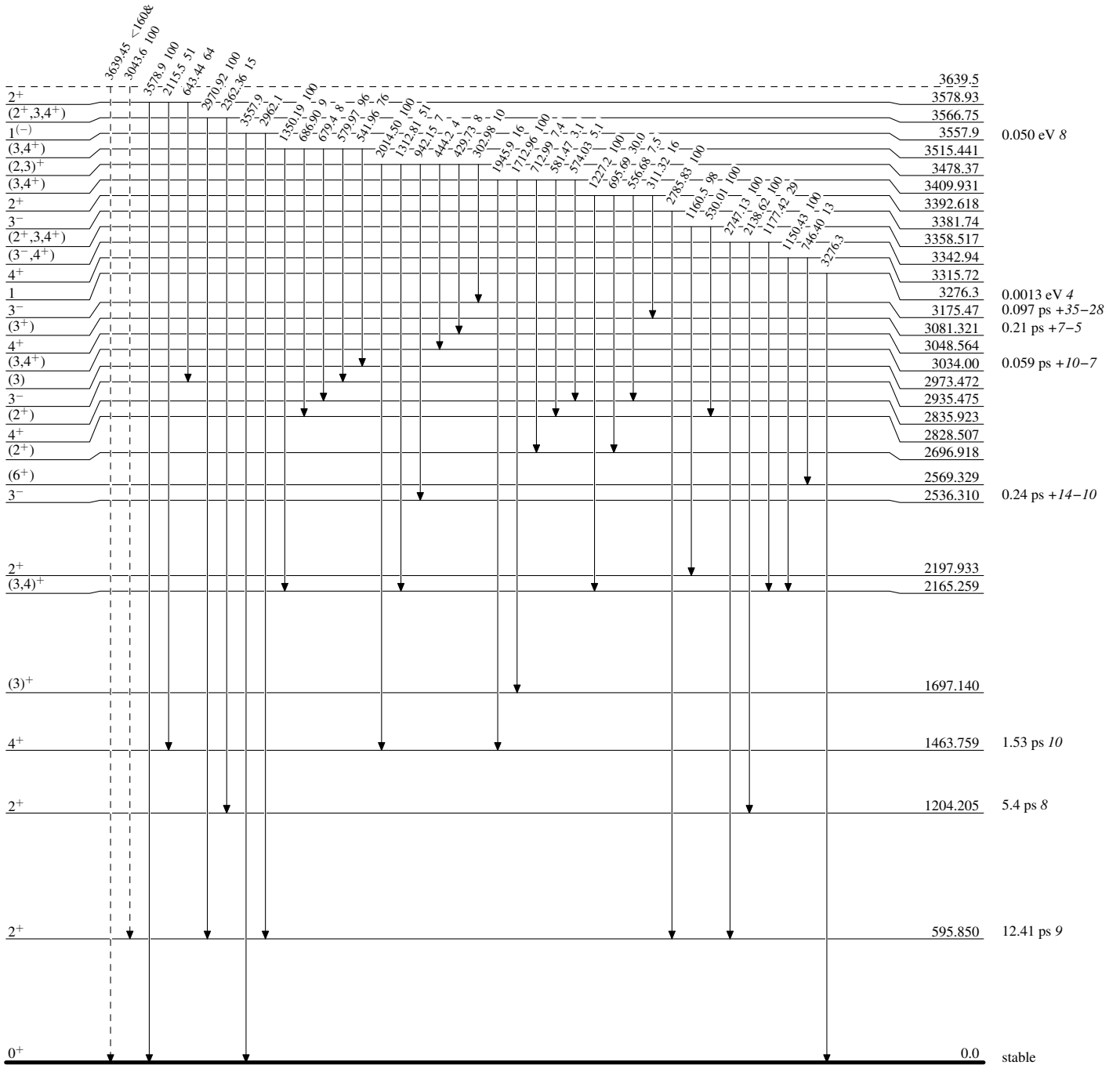
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

-----▶ γ Decay (Uncertain)



$^{74}_{32}\text{Ge}_{42}$

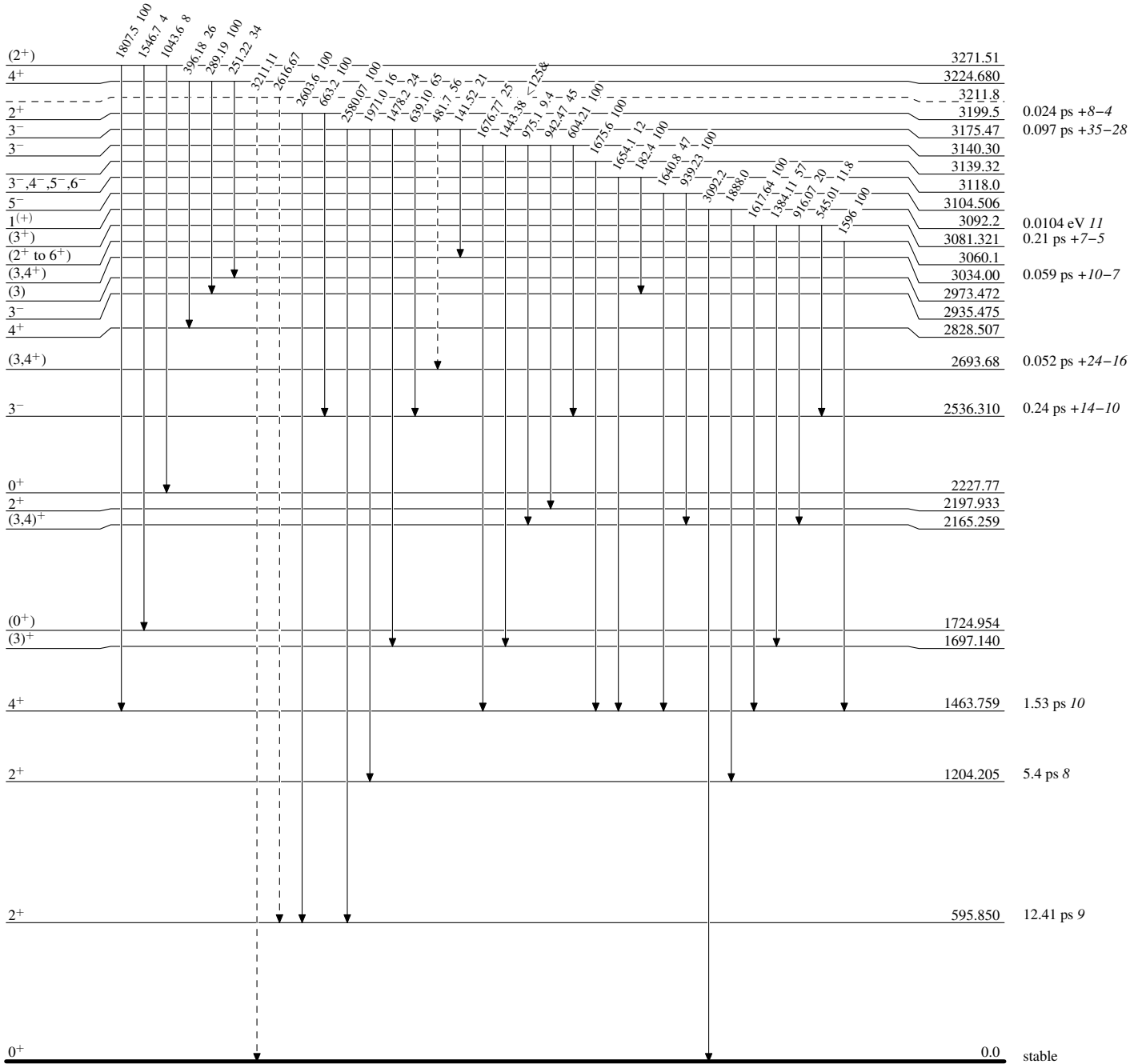
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

-----▶ γ Decay (Uncertain)

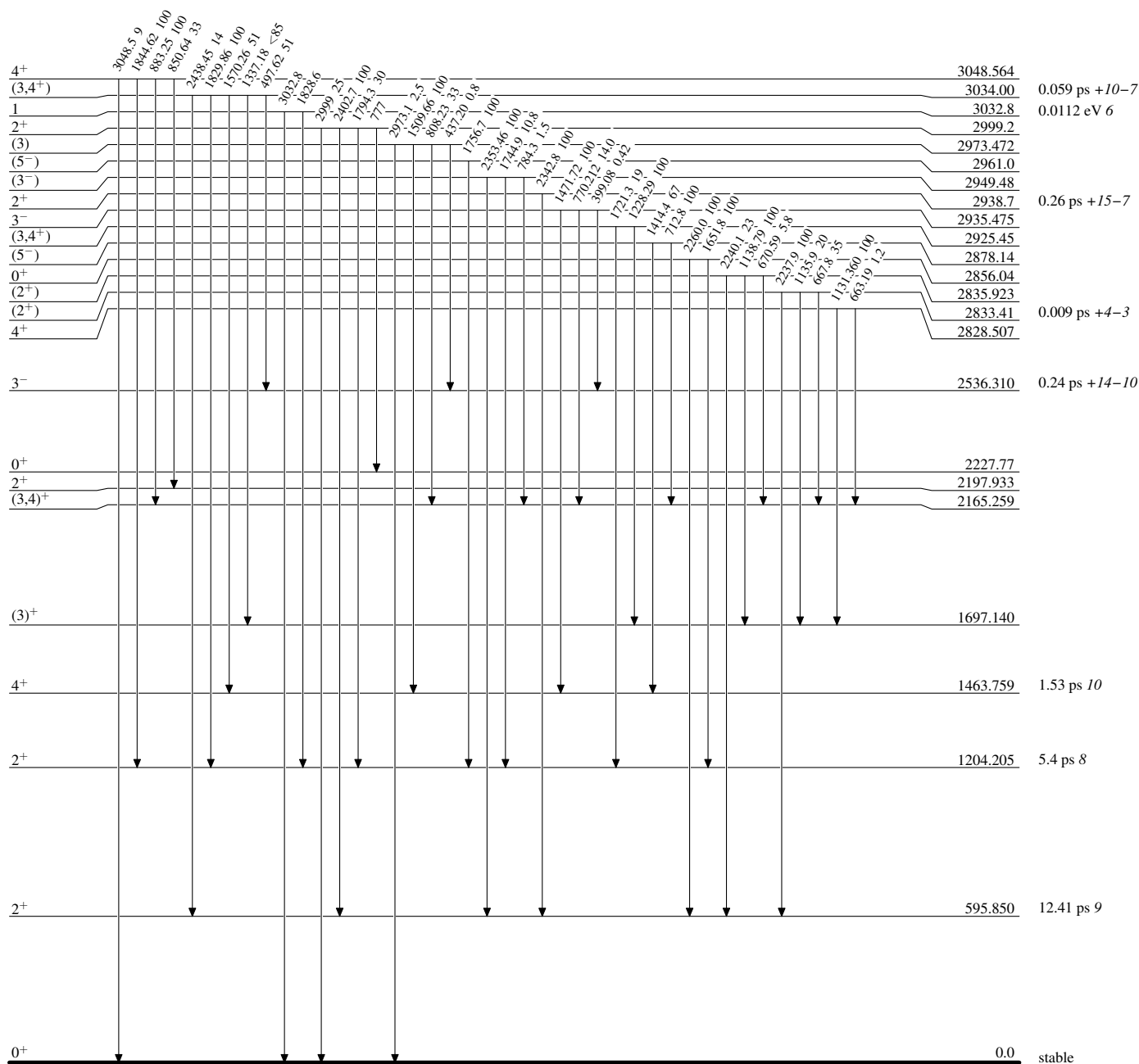


$^{74}_{32}\text{Ge}_{42}$

Adopted Levels, Gammas

Level Scheme (continued)

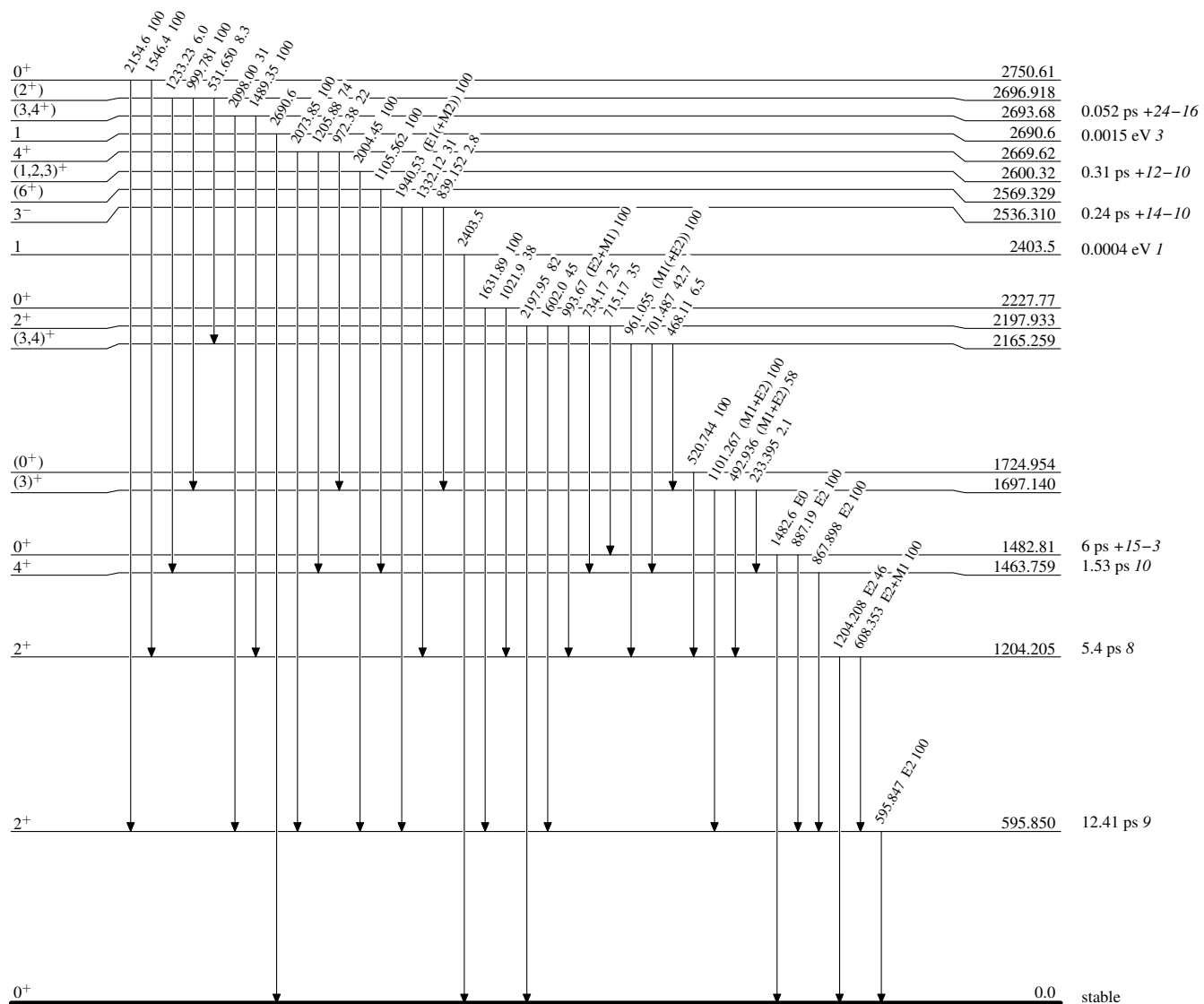
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



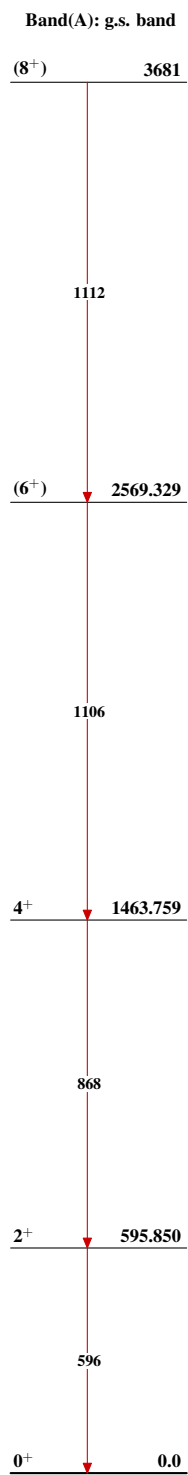
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



$^{74}\text{Ge}_{42}$

Adopted Levels, Gammas $^{74}_{32}\text{Ge}_{42}$