Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 135, 193 (2016)	31-May-2016

Q(β^-)=4110 *40*; S(n)=5740 *40*; S(p)=13110 *40*; Q(α)=−9390 *40* 2012Wa38
S(2n)=14460 *40*, S(2p)=25320 *40* (2012Wa38).
1970Ka04, 1970OsZZ: production and identification of ^{79}Ge activity.
Additional information 1.
Nuclear structure calculations: 2015Ka46, 2013Sr03, 2008Yo07 calculated levels, J, π.

^{79}Ge Levels

Cross Reference (XREF) Flags

- A ^{79}Ga β^- decay (2.847 s)
- B ^{79}Ge IT decay (39.0 s)
- C ^{80}Ga β^-n decay (1.9 s+1.3 s)

E(level)†	J$^\pi$‡	$T_{1/2}$	XREF	Comments
0.0	$(1/2)^-$	18.98 s *3*	ABC	%β^-=100 J$^\pi$: log *ft*=5.2 to $3/2^-$ ^{79}As g.s. Probable configuration=$p_{1/2}$. $T_{1/2}$: from 1991Kr15. Others: 19.1 s *3* (1974Gr29); 18.4 s *10* (1982FoZZ,1981Ho24); 19.1 s (1975Al11); 18.5 s *5* (1972MaWL); 18.5 s *2* (1970OsZZ).
185.95 *4*	$(7/2^+)$	39.0 s *10*	ABC	%β^-=96 *1*; %IT=4 *1* J$^\pi$: systematics. $7/2^+$ and $1/2^-$ isomers occur in several odd-mass nuclides in this region. $T_{1/2}$: from 1982FoZZ, 1981Ho24. Others: 47 s *2* (1974KrZG); 41.1 s *43* (1972De43); 40 s *4* (1970Va31); 40 s (1977Al17,1972MaWL); 42 s *2* (1970Ka04).
390.59 *6*	$(9/2^+)$		A C	J$^\pi$: γ to $(7/2^+)$; systematics.
464.73 *3*	$(5/2^-)$		A	J$^\pi$: γs to $(1/2)^-$ and $(7/2^+)$; systematics. $T_{1/2}$: <0.3 ns, probably from $\gamma\gamma$(t). Value given by 1981Ho24.
516.41 *3*	$(3/2^-,5/2^-)$		A	J$^\pi$: γ to $(1/2)^-$ and systematics.
607.16 *3*	$(5/2^-)$		A C	J$^\pi$: γs to $(1/2)^-$ and $(7/2^+)$; M1+E2 γ to $(5/2^-)$.
1045.09 *5*			A	
1087.78 *4*			A	
1104.40 *4*			A	
1187.31 *3*			A	
1473.63 *5*			A	
1556.38 *4*			A	
2049.95 *8*			A	
2070.13 *4*	$(1/2^-,3/2^-,5/2^-)$		A	
2140.32 *4*	$(1/2^-,3/2^-,5/2^-)$		A	
2387.9 *1*			A	
2487.38 *6*			A	
2513.58 *4*	$(1/2^-,3/2^-,5/2^-)$		A	
2774.59 *9*	$(1/2^-,3/2^-,5/2^-)$		A	
2779.37 *21*			A	
2827.26 *10*			A	
2894.94 *6*	$(1/2^-,3/2^-,5/2^-)$		A	
2998.81 *8*			A	
3168.02 *12*	$(1/2^-,3/2^-,5/2^-)$		A	
3196.7 *3*			A	
3205.41 *15*	$(1/2^-,3/2^-,5/2^-)$		A	
3289.81 *10*	$(1/2^-,3/2^-,5/2^-)$		A	

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Adopted Levels, Gammas (continued)

^{79}Ge Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	XREF	Comments
3318.97 *21*		A	
3352.34 *9*	(1/2$^-$,3/2$^-$,5/2$^-$)	A	
3421.08 *6*		A	
3440.50 *5*	(1/2$^-$,3/2$^-$,5/2$^-$)	A	
3783.77 *22*	(5/2$^-$)	A	J$^{\pi}$: γ to (7/2$^+$) and log *ft*=5.67 from (3/2$^-$).
3803.1 *3*		A	
3831.9 *5*		A	
3892.56 *21*	(1/2$^-$,3/2$^-$,5/2$^-$)	A	
3911.5 *3*	(1/2$^-$,3/2$^-$,5/2$^-$)	A	
4056.76 *13*	(1/2$^-$,3/2$^-$,5/2$^-$)	A	
4083.7 *3*	(5/2$^-$)	A	J$^{\pi}$: γ to (7/2$^+$) and log *ft*=5.65 from (3/2$^-$).
4184.3 *3*	(1/2$^-$,3/2$^-$,5/2$^-$)	A	
4277.7 *5*		A	

[†] From least-squares fit to Eγ data.
[‡] For most levels J^{π} is limited to ≤ 7/2 as these are populated by β^- decay of ^{79}Ga (g.s. J$^{\pi}$=3/2$^{(-)}$). Those with log *ft*<5.9 from 3/2$^{(-)}$ are limited to (1/2$^-$,3/2$^-$,5/2$^-$).

$\gamma(^{79}Ge)$

E$_i$(level)	J$_i^{\pi}$	E$_{\gamma}$	I$_{\gamma}$	E$_f$	J$_f^{\pi}$	Mult.[†]	δ[†]	α[‡]	Comments
185.95	(7/2$^+$)	186.02 *7*	100	0.0	(1/2)$^-$	[E3]		0.423	B(E3)(W.u.)=0.0076 *3*
390.59	(9/2$^+$)	204.68 *5*	100	185.95	(7/2$^+$)	[M1,E2]		0.032 *20*	
464.73	(5/2$^-$)	278.83 *10*	1.27 *12*	185.95	(7/2$^+$)				
		464.79 *5*	100	0.0	(1/2)$^-$				
516.41	(3/2$^-$,5/2$^-$)	516.41 *7*	100	0.0	(1/2)$^-$				
607.16	(5/2$^-$)	90.75 *7*	74 *6*	516.41	(3/2$^-$,5/2$^-$)	M1+E2	0.8 *2*	0.48 *13*	
		142.46 *5*	100 *7*	464.73	(5/2$^-$)	M1+E2	0.9 *8*	0.11 *8*	
		421.27 *5*	42 *3*	185.95	(7/2$^+$)				
		607.20 *5*	82 *4*	0.0	(1/2)$^-$				
1045.09		437.98 *5*	100	607.16	(5/2$^-$)				
		580.4 *1*	9 *2*	464.73	(5/2$^-$)				
1087.78		571.35 *5*	61 *4*	516.41	(3/2$^-$,5/2$^-$)				
		697.27 *7*	57 *4*	390.59	(9/2$^+$)				
		901.76 *5*	100 *6*	185.95	(7/2$^+$)				
1104.40		918.39 *5*	83 *7*	185.95	(7/2$^+$)				
		1104.38 *5*	100	0.0	(1/2)$^-$				
1187.31		580.23 *5*	1.9 *2*	607.16	(5/2$^-$)				
		670.88 *5*	11.5 *8*	516.41	(3/2$^-$,5/2$^-$)				
		722.55 *5*	5.4 *3*	464.73	(5/2$^-$)				
		1187.28 *5*	100 *4*	0.0	(1/2)$^-$				
1473.63		1008.93 *5*	100	464.73	(5/2$^-$)				
1556.38		949.24 *5*	22 *2*	607.16	(5/2$^-$)				
		1039.97 *5*	47 *5*	516.41	(3/2$^-$,5/2$^-$)				
		1091.66 *5*	100 *4*	464.73	(5/2$^-$)				
2049.95		1585.20 *7*	100	464.73	(5/2$^-$)				
2070.13	(1/2$^-$,3/2$^-$,5/2$^-$)	882.65 *8*	2.9 *3*	1187.31					
		1025.09 *5*	8.5 *5*	1045.09					
		1462.96 *5*	100 *6*	607.16	(5/2$^-$)				
		1553.79 *10*	3.9 *4*	516.41	(3/2$^-$,5/2$^-$)				
		1605.41 *5*	67 *3*	464.73	(5/2$^-$)				
		2070.00 *10*	18 *2*	0.0	(1/2)$^-$				

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Adopted Levels, Gammas (continued)

$\gamma(^{79}Ge)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π
2140.32	(1/2⁻,3/2⁻,5/2⁻)	953.02 *5*	17.0 *11*	1187.31	
		1052.46 *7*	4.6 *3*	1087.78	
		1533.13 *8*	2.4 *3*	607.16	(5/2⁻)
		1623.88 *5*	62 *3*	516.41	(3/2⁻,5/2⁻)
		2140.20 *10*	100 *5*	0.0	(1/2)⁻
2387.9		1923.13 *10*	66 *8*	464.73	(5/2⁻)
		2387.9 *2*	100	0.0	(1/2)⁻
2487.38		1300.16 *6*	64 *5*	1187.31	
		1382.79 *9*	100 *8*	1104.40	
		1970.78 *16*	69 *8*	516.41	(3/2⁻,5/2⁻)
2513.58	(1/2⁻,3/2⁻,5/2⁻)	957.25 *5*	27 *2*	1556.38	
		1039.97 *5*	12 *3*	1473.63	
		1326.18 *7*	24 *2*	1187.31	
		1906.41 *10*	4.5 *4*	607.16	(5/2⁻)
		1997.09 *10*	100 *5*	516.41	(3/2⁻,5/2⁻)
		2048.73 *10*	45 *3*	464.73	(5/2⁻)
2774.59	(1/2⁻,3/2⁻,5/2⁻)	2167.3 *3*	8.3 *30*	607.16	(5/2⁻)
		2258.16 *10*	100 *5*	516.41	(3/2⁻,5/2⁻)
		2774.5 *2*	87 *5*	0.0	(1/2)⁻
2779.37		2314.6 *2*	100	464.73	(5/2⁻)
2827.26		1639.90 *11*	100	1187.31	
		2310.9 *2*	69 *17*	516.41	(3/2⁻,5/2⁻)
2894.94	(1/2⁻,3/2⁻,5/2⁻)	824.84 *6*	19.8 *12*	2070.13	(1/2⁻,3/2⁻,5/2⁻)
		2287.71 *10*	100 *6*	607.16	(5/2⁻)
		2430.0 *2*	92 *6*	464.73	(5/2⁻)
2998.81		1953.69 *7*	100	1045.09	
		2534.1 *2*	89 *11*	464.73	(5/2⁻)
3168.02	(1/2⁻,3/2⁻,5/2⁻)	2560.9 *2*	10.8 *11*	607.16	(5/2⁻)
		2703.3 *2*	42 *3*	464.73	(5/2⁻)
		3167.8 *2*	100 *6*	0.0	(1/2)⁻
3196.7		2731.9 *3*	100	464.73	(5/2⁻)
3205.41	(1/2⁻,3/2⁻,5/2⁻)	2598.2 *2*	100 *6*	607.16	(5/2⁻)
		2740.7 *3*	68 *6*	464.73	(5/2⁻)
		3205.3 *3*	81 *5*	0.0	(1/2)⁻
3289.81	(1/2⁻,3/2⁻,5/2⁻)	1816.19 *11*	9 *1*	1473.63	
		2682.4 *2*	38 *3*	607.16	(5/2⁻)
		2825.1 *2*	100 *5*	464.73	(5/2⁻)
3318.97		2802.5 *2*	100	516.41	(3/2⁻,5/2⁻)
3352.34	(1/2⁻,3/2⁻,5/2⁻)	1211.87 *10*	12.3 *12*	2140.32	(1/2⁻,3/2⁻,5/2⁻)
		2165.5 *2*	71 *5*	1187.31	
		2836.0 *2*	48 *3*	516.41	(3/2⁻,5/2⁻)
		3352.2 *3*	100 *7*	0.0	(1/2)⁻
3421.08		1864.68 *5*	100	1556.38	
3440.50	(1/2⁻,3/2⁻,5/2⁻)	1300.16 *6*	9 *1*	2140.32	(1/2⁻,3/2⁻,5/2⁻)
		1884.10 *5*	100 *5*	1556.38	
		2253.16 *10*	64 *4*	1187.31	
		2975.5 *3*	8.1 *6*	464.73	(5/2⁻)
3783.77	(5/2⁻)	3319.0 *3*	100	464.73	(5/2⁻)
		3597.7 *3*	87 *11*	185.95	(7/2⁺)
3803.1		3287.0 *4*	100	516.41	(3/2⁻,5/2⁻)
		3802.7 *4*	51 *9*	0.0	(1/2)⁻
3831.9		3367.1 *5*	100	464.73	(5/2⁻)
3892.56	(1/2⁻,3/2⁻,5/2⁻)	3375.9 *3*	100 *6*	516.41	(3/2⁻,5/2⁻)
		3428.1 *4*	74 *6*	464.73	(5/2⁻)
		3892.4 *4*	82 *6*	0.0	(1/2)⁻
3911.5	(1/2⁻,3/2⁻,5/2⁻)	3304.4 *4*	65 *9*	607.16	(5/2⁻)

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Adopted Levels, Gammas (continued)

$\gamma(^{79}Ge)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π
3911.5	$(1/2^-,3/2^-,5/2^-)$	3446.5 *4*	100	464.73	$(5/2^-)$
4056.76	$(1/2^-,3/2^-,5/2^-)$	2500.3 *2*	29 *3*	1556.38	
		2869.3 *2*	100 *6*	1187.31	
		3011.9 *3*	15.1 *13*	1045.09	
4083.7	$(5/2^-)$	3619.1 *4*	100 *11*	464.73	$(5/2^-)$
		3897.5 *4*	100	185.95	$(7/2^+)$
4184.3	$(1/2^-,3/2^-,5/2^-)$	3668.4 *4*	100	516.41	$(3/2^-,5/2^-)$
		4183.6 *4*	26 *3*	0.0	$(1/2)^-$
4277.7		3090.3 *5*	100	1187.31	

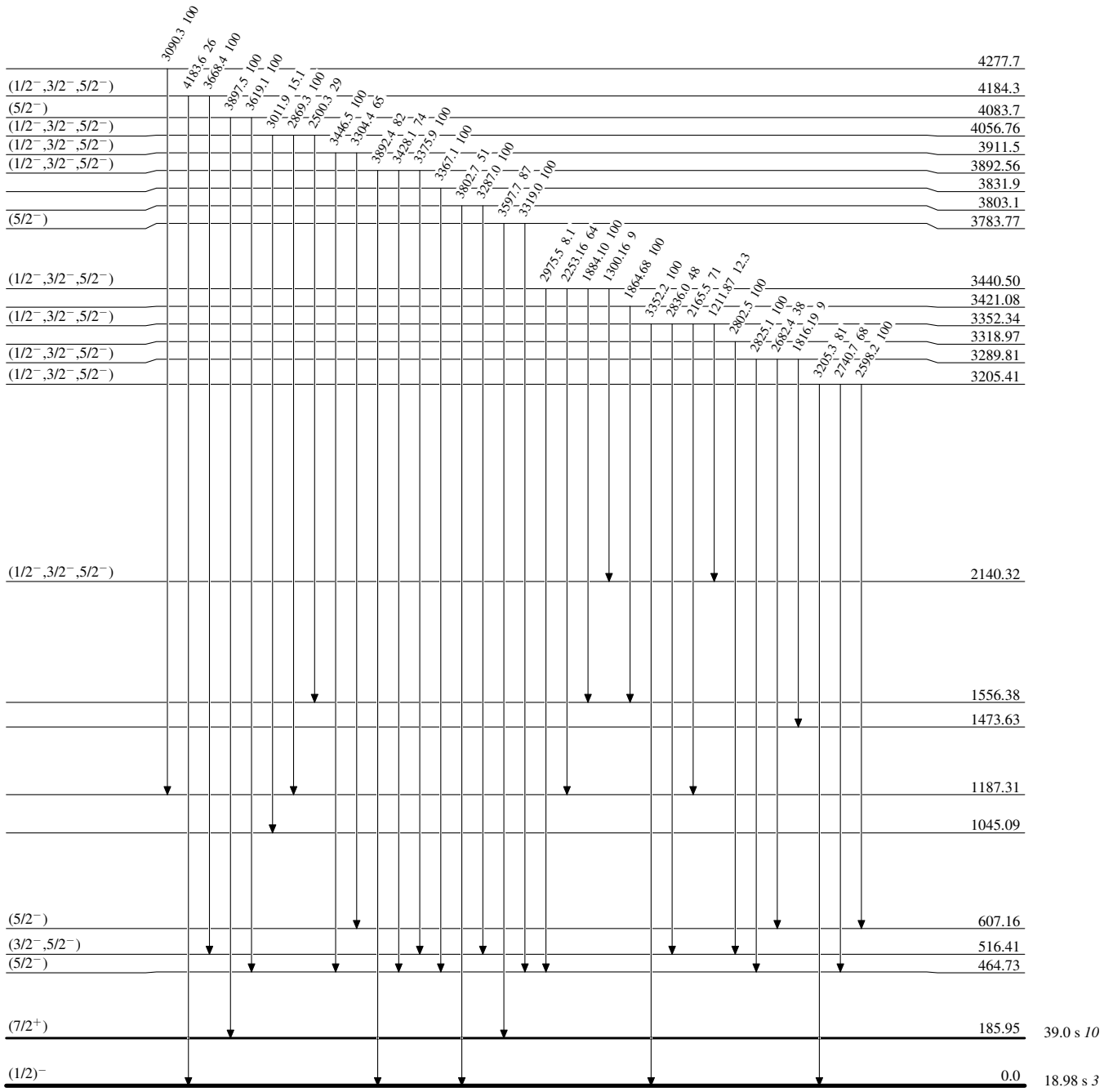
† From ce data in ^{79}Ga β^- decay.

‡ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

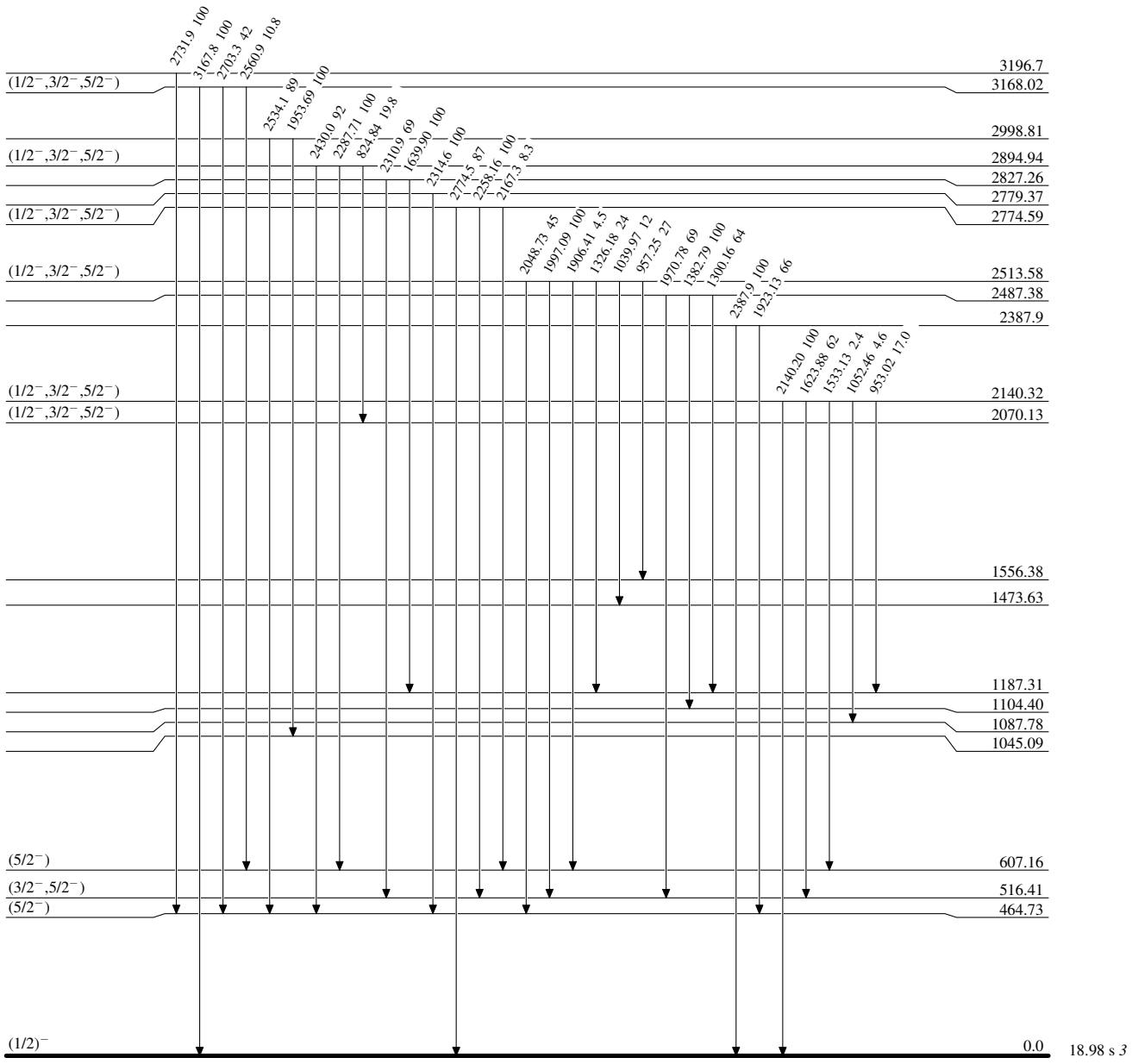


$^{79}_{32}Ge_{47}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

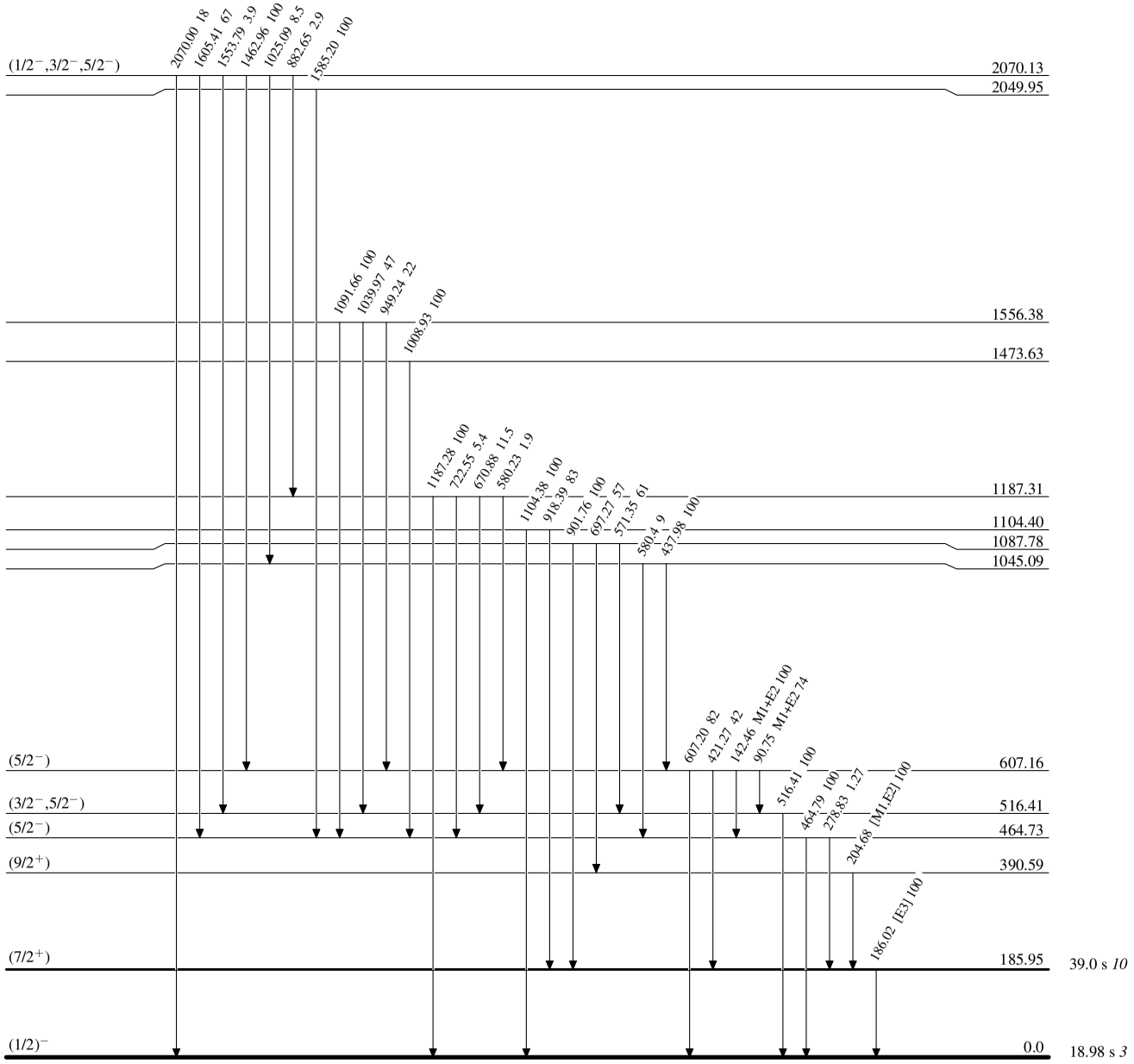


$^{79}_{32}Ge_{47}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{79}_{32}Ge_{47}$