Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 105,223 (2005)	22-Jun-2005

Q(β^-)=2679 *4*; S(n)=8.08×10^3 *4*; S(p)=14277 *3*; Q(α)=−9657 *3* 2012Wa38
Note: Current evaluation has used the following Q record $ 2644 19 *8100* 90 *14*.29E310 −9800 *80* 2003Au03.
Mass excess measurement: −69325 *40* (1983Wi14), −69380 *60* (1981BeZE).
Additional information 1.

^{80}Ge Levels

Cross Reference (XREF) Flags

A	^{80}Ga β^- decay (1.676 s)	D	^{82}Se(^{18}O,^{20}Ne), (^{14}C,^{16}O)
B	^{81}Ga β^-n decay (1.217 s)	E	^{198}Pt(^{82}Se,Xγ),^{192}Os(^{82}Se,Xγ)
C	Coulomb excitation		

E(level)†	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0&	0$^+$	29.5 s *4*	ABCDE	%β^-=100 T$_{1/2}$: from 1974Gr29. Others: 24.5 s *10* (1982FoZZ), 29 s (1981Gi17), 26.8 s 16 (1981ZeZY), 28 s *4* (1974KrZG), 24.5 s *10* (1972De43), 24 s *1* (1970OsZZ).
659.15& *4*	2$^+$	16.4 ps *32*	ABCDE	J$^\pi$: level is Coulomb excited from 0$^+$ g.s.; syst of even-even nuclides. T$_{1/2}$: from B(E2)=0.139 *27* (2005Pa23).
1573.56 *4*	(2$^+$)		AB D	J$^\pi$: γ's to 0$^+$ and 2$^+$; possible allowed/first-forbidden β transition from (3).
1742.59& *5*	(4$^+$)@		A DE	
1972.16 *5*			A D	
2265.77 *5*			A D	
2851.93 *5*			A D	
2978.35& *7*	(6$^+$)‡#@		A DE	
3036.95 *6*			A D	
3423.00 *6*			A d	
3423.66 *6*			A d	
3445.11& *8*	(8$^+$)‡#@	2.95 ns *6*	A dE	T$_{1/2}$: $\beta\gamma\gamma$(t) (2005MaZW). Other: >0.4 ns from ^{198}Pt(^{82}Se,Xγ) (1999Ma21). Possibly $\nu g_{9/2}^{-2}$ isomer.
3498.33 *14*			A d	
3515.41 *6*			A d	
3685.89 *6*			A D	
3913.73 *11*			A D	
3982.64 *8*			A	
3987.89 *6*			A	
4025.84 *8*			A	
4323.85 *5*			A	
4413.15 *7*			A	
4532.58 *7*			A	
4851.13 *9*			A	
4992.70 *7*			A	
5232.74 *9*			A	
5338.18 *14*			A	
5451.26 *17*			A	
5568.01 *12*			A	
5573.20 *7*			A	
5800.48 *8*			A	
6047.14 *21*			A	
6155.32 *21*			A	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{80}Ge Levels (continued)

† From least-squares fit to Eγ's.
‡ Spin for most levels is likely to be <5 since direct population from ^{80}Ga β^- is indicated (probable J(^{80}Ga g.s.)=3).
# Population of this state from ^{80}Ga β^- is unlikely if J=(3) for ^{80}Ga g.s.; there might Be a high-spin isomer (possibly J=7) in ^{80}Ga which may account for the population of (6^+) and (8^+) states.
@ As proposed in 1999Ma21 and 2004Po06 from systematics of decay of 8^+ isomers in N=48 isotones from ^{80}Ge to ^{94}Pd. The parentheses have been added by the evaluator.
& Band(A): yrast structure.

γ(^{80}Ge)

E_i(level)	J_i^π	E_γ‡	I_γ‡	E_f	J_f^π	Mult.	Comments
659.15	2^+	659.14 *4*	100	0.0	0^+	[E2]	B(E2)(W.u.)=13.6 *27*
1573.56	(2^+)	914.47 *5*	100 *4*	659.15	2^+		
		1573.57 *5*	83 *4*	0.0	0^+		
1742.59	(4^+)	1083.47 *4*	100	659.15	2^+		
1972.16		399.5 *5*	6 *1*	1573.56	(2^+)		
		1313.00 *4*	100 *4*	659.15	2^+		
2265.77		523.18 *4*	100 *3*	1742.59	(4^+)		
		692.22 *5*	4.5 *2*	1573.56	(2^+)		
2851.93		586.16 *3*	28 *2*	2265.77			
		1109.36 *4*	100 *3*	1742.59	(4^+)		
2978.35	(6^+)	1235.74 *6*	100	1742.59	(4^+)		
3036.95		771.16 *5*	53 *2*	2265.77			
		1064.80 *6*	100 *6*	1972.16			
		1294.37 *8*	78 *6*	1742.59	(4^+)		
3423.00		571.06 *4*	100	2851.93			
3423.66		1158.01 *18*	31 *3*	2265.77			
		1850.10 *5*	62 *4*	1573.56	(2^+)		
		2764.45 *10*	100 *6*	659.15	2^+		
3445.11	(8^+)	466.76 *4*	100	2978.35	(6^+)	[E2]	B(E2)(W.u.)=0.422 *9*
3498.33		519.98 *12*	100	2978.35	(6^+)		
3515.41		1249.76 *8*	18 *2*	2265.77			
		1772.67 *14*	100 *7*	1742.59	(4^+)		
3685.89		707.63 *14*	5.4 *5*	2978.35	(6^+)		
		834.04 *5*	100 *5*	2851.93			
3913.73		1941.54 *9*	100	1972.16			
3982.64		1130.70 *6*	100	2851.93			
3987.89		1135.96 *4*	100	2851.93			
4025.84		1047.5 *10*	23 *8*	2978.35	(6^+)		
		2283.22 *6*	100 *5*	1742.59	(4^+)		
4323.85		808.45 *4*	20 *1*	3515.41			
		1471.93 *5*	18 *1*	2851.93			
		2351.59 *10*	11 *1*	1972.16			
		2581.35 *10*	30 *1*	1742.59	(4^+)		
		2750.35 *11*	17 *1*	1573.56	(2^+)		
		3664.37† *7*	100 *5*	659.15	2^+		
4413.15		989.51 *4*	100 *5*	3423.66			
		1561	27	2851.93			
4532.58		1680.58 *5*	100	2851.93			
4851.13		1999.20 *10*	46 *3*	2851.93			
		3108.44 *10*	100 *5*	1742.59	(4^+)		
4992.70		1004.79 *4*	40 *2*	3987.89			
		1306.89 *6*	100 *5*	3685.89			
		2140.54 *13*	39 *3*	2851.93			
5232.74		1244.84 *7*	100	3987.89			

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{80}Ge)$ (continued)

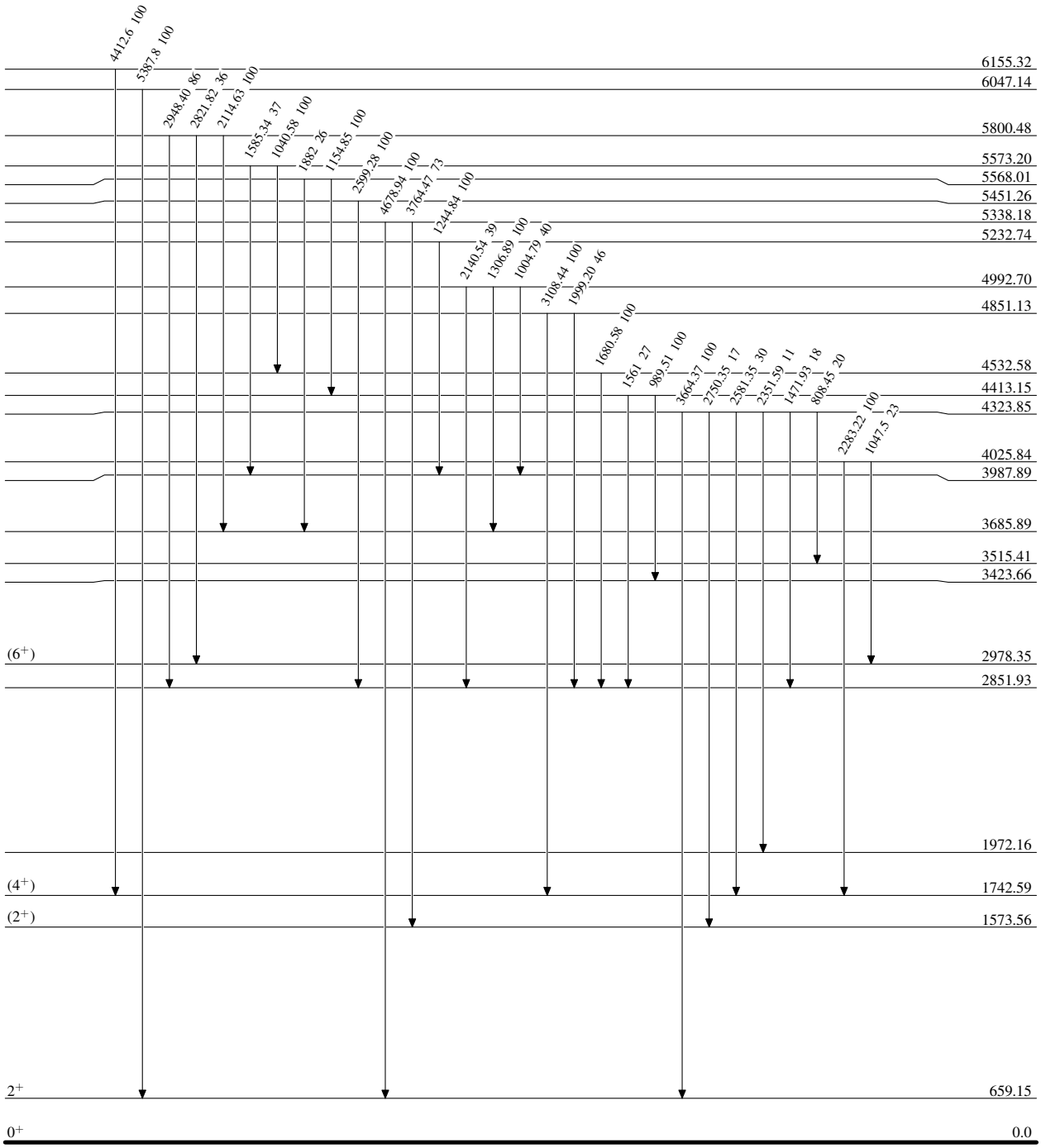
E_i(level)	J_i^π	E_γ ‡	I_γ ‡	E_f	J_f^π	E_i(level)	E_γ ‡	I_γ ‡	E_f	J_f^π
5338.18		3764.47 *18*	73 *6*	1573.56	(2^+)	5573.20	1585.34 *5*	37 *2*	3987.89	
		4678.94 *20*	100 *6*	659.15	2^+	5800.48	2114.63 *7*	100 *4*	3685.89	
5451.26		2599.28 *16*	100	2851.93			2821.82 *20*	36 *4*	2978.35	(6^+)
5568.01		1154.85 *9*	100 *7*	4413.15			2948.40 *10*	86 *4*	2851.93	
		1882	26	3685.89		6047.14	5387.8 *2*	100	659.15	2^+
5573.20		1040.58 *4*	100 *4*	4532.58		6155.32	4412.6 *2*	100	1742.59	(4^+)

† Poor fit in level scheme; level-energy difference=3664.70.
‡ From ^{80}Ga β^- decay.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

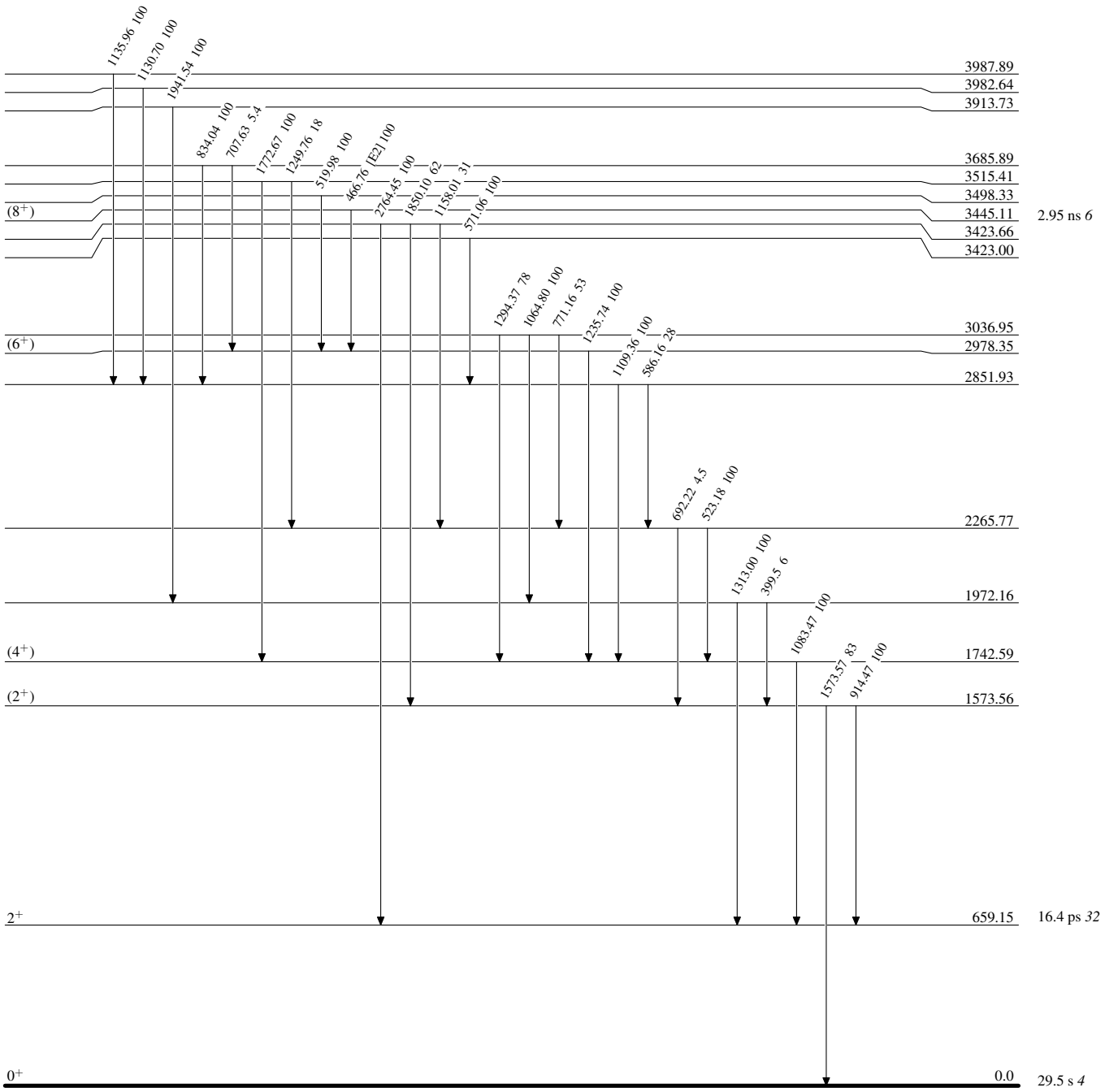


$^{80}_{32}Ge_{48}$

Adopted Levels, Gammas

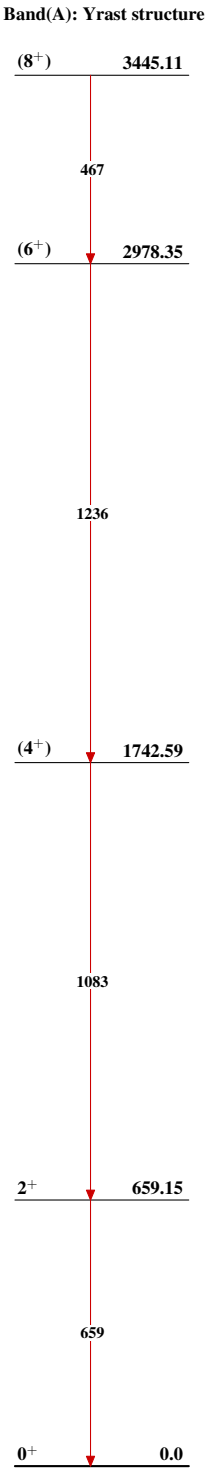
Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{80}_{32}Ge_{48}$

Adopted Levels, Gammas



$^{80}_{32}Ge_{48}$