Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 113,1735 (2012)	1-Mar-2012

Q(β^-)=−1.57×10^4 *syst*; S(n)=1.568×10^4 *7*; S(p)=4891.2 *7*; Q(α)=−2299 *4* 2012Wa38
Note: Current evaluation has used the following Q record −15458 syst 15680 *67* 4892.4 *15* −2299 4 2011AuZZ.
ΔQ(β-)=307.
Q(εp)=1179 syst, ΔQ(εp)=5 (2011AuZZ).
α: Additional information 1.

^{68}Se Levels

Cross Reference (XREF) Flags

- A ^{12}C(^{58}Ni,2nγ)
- B ^{58}Ni(^{12}C,2nγ)
- C ^{40}Ca(^{36}Ar,2$\alpha\gamma$)
- D Coulomb excitation

E(level)†	J$^\pi$‡	T$_{1/2}$	XREF	Comments
0@	0$^+$	35.5 s *7*	ABCD	%ε+%β^+=100 T$_{1/2}$: From delayed $\gamma\gamma$ timing (1994Ba50). Others : 1.6 min *4* (1976La15), 3.2 h *2* (1972Bi05).
853.75@ *21*	2$^+$	2.8 ps *4*	ABCD	B(E2)↑=0.22 *3* T$_{1/2}$: deduced from B(E2)=0.22 *3* in Coulomb Ex. and adopted γ-ray properties.
1196.7? *10*	(2$^+$)#		B	
1593.9& *5*	2$^+$		A C	
1942.1@ *3*	4$^+$		ABC	
2433.3 *8*			A	
2545.1& *4*	4$^+$		ABC	
2766.0? *9*	(6$^+$)#		B	
3073.5 *8*			A	
3303.7@ *4*	6$^+$		A C	
3571.2 *8*	(5$^-$)#		AB	
3705.7& *4*	6$^+$		A C	
4198.5 *10*	(7$^-$)#		AB	
4752.3& *4*	8$^+$		A C	
4870.7@ *11*	8$^+$		A	
5959.7& *5*	10$^+$		A C	
6603.8?@ *15*	10$^+$		A	
7331.8& *6*	12$^+$		A C	
8823.7& *7*	14$^+$		A C	
9871.4 *8*	16$^+$		C	
11040.0a *9*	18$^+$		C	
12797.1a *10*	(20$^+$)		C	
15185.2a *22*	(22$^+$)		C	
18075a *4*	(24$^+$)		C	
21201?a *5*	(26$^+$)		C	

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Adopted Levels, Gammas (continued)

^{68}Se Levels (continued)

† From least-squares fit to Eγ's, by evaluator; ΔE=1 keV assumed for γ's where uncertainty is not stated.
‡ From ^{40}Ca(^{36}Ar,2αγ), except where noted. Based on γ(θ) and assumed band structure.
# Suggested from systematics of neighboring even-even nuclei (1998Sk02).
@ Band(A): g.s. band (oblate). Oblate deformation suggested by small moment of inertia, lack of observed backbend, and band properties of neighboring odd-a nuclei.
& Band(B): Side band (prolate). Prolate deformation suggested by large moment of inertia and observed backbend.
a Band(C): Band based on 18^+ level.

γ(^{68}Se)

E_i(level)	J_i^π	E_γ†	I_γ‡	E_f	J_f^π	Mult.#	α	Comments
853.75	2^+	853.71 *22*	100	0	0^+	E2	0.000618 *9*	α(K)=0.000550 *8*; α(L)=5.79×10^{-5} *9*; α(M)=9.00×10^{-6} *13*; α(N+..)=7.65×10^{-7} *11* B(E2)(W.u.)=27 *4* E_γ: from weighted average of 853.9 *3* (1990Li25), 854.2 *3* (1998Sk02), and 853.4 *2* (2003Fi07).
1196.7?	(2^+)	343@a	100	853.75	2^+			
1593.9	2^+	740 *1*		853.75	2^+			
		1594 *1*		0	0^+			
1942.1	4^+	1088.3 *2*	100	853.75	2^+	Q		
2433.3		2433&	100	0	0^+			
2545.1	4^+	602&a		1942.1	4^+			
		951.1 *5*	<23	1593.9	2^+			
		1691.7 *5*	100 *23*	853.75	2^+			
2766.0?	(6^+)	823.9@a *8*	100	1942.1	4^+			
3073.5		640&		2433.3				
		2220&		853.75	2^+			
3303.7	6^+	1361.5 *3*	100	1942.1	4^+	Q		
3571.2	(5^-)	1629.1@ *7*	100	1942.1	4^+			
3705.7	6^+	1160.7 *3*	100 *22*	2545.1	4^+	Q		
		1764 *1*	74 *22*	1942.1	4^+			
4198.5	(7^-)	627.3@ *6*	100	3571.2	(5^-)			
4752.3	8^+	1046.7 *3*	75 *31*	3705.7	6^+	Q		
		1448.5 *3*	100 *17*	3303.7	6^+	Q		
4870.7	8^+	1567	100	3303.7	6^+			
5959.7	10^+	1207.4 *3*	100	4752.3	8^+	Q		
6603.8?	10^+	1733a	100	4870.7	8^+			
7331.8	12^+	1372.0 *3*	100	5959.7	10^+	Q		
8823.7	14^+	1491.9 *3*	100	7331.8	12^+	Q		
9871.4	16^+	1047.7 *5*	100	8823.7	14^+	Q		
11040.0	18^+	1168.6 *3*	100	9871.4	16^+	Q		
12797.1	(20^+)	1757.1 *5*	100	11040.0	18^+			
15185.2	(22^+)	2388 *2*	100	12797.1	(20^+)			
18075	(24^+)	2890 *3*	100	15185.2	(22^+)			
21201?	(26^+)	3126a *4*	100	18075	(24^+)			

† From ^{40}Ca(^{36}Ar,2αγ), except where noted.
‡ Relative intensity branches from ^{40}Ca(^{36}Ar,2αγ).
# From γ(θ) in ^{40}Ca(^{36}Ar,2αγ).

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Adopted Levels, Gammas (continued)

$\gamma(^{68}Se)$ (continued)

@ From $^{58}Ni(^{12}C,2n\gamma)$.
& From $^{12}C(^{58}Ni,2n\gamma)$.
a Placement of transition in the level scheme is uncertain.

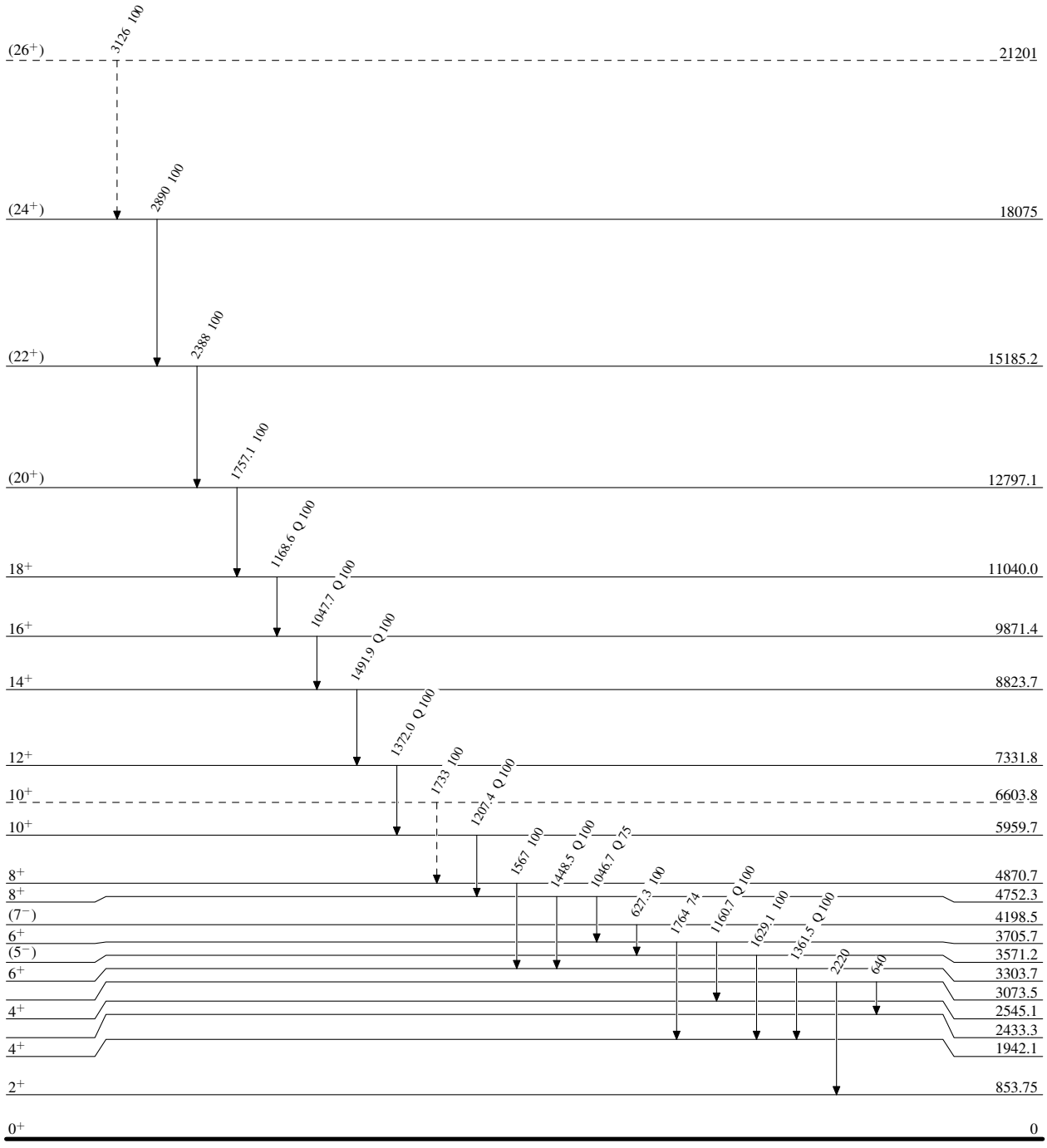
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{68}_{34}Se_{34}$

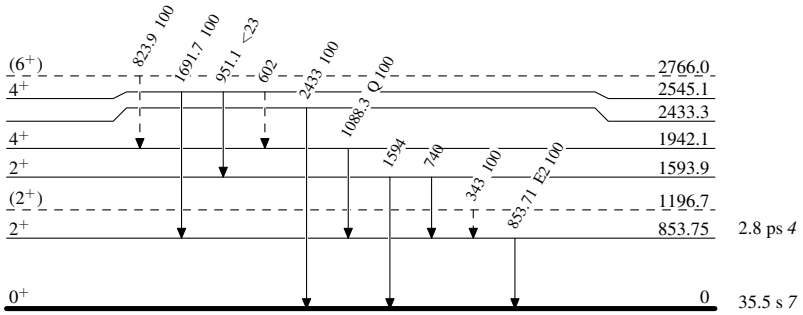
Adopted Levels, Gammas

Legend

Level Scheme (continued)

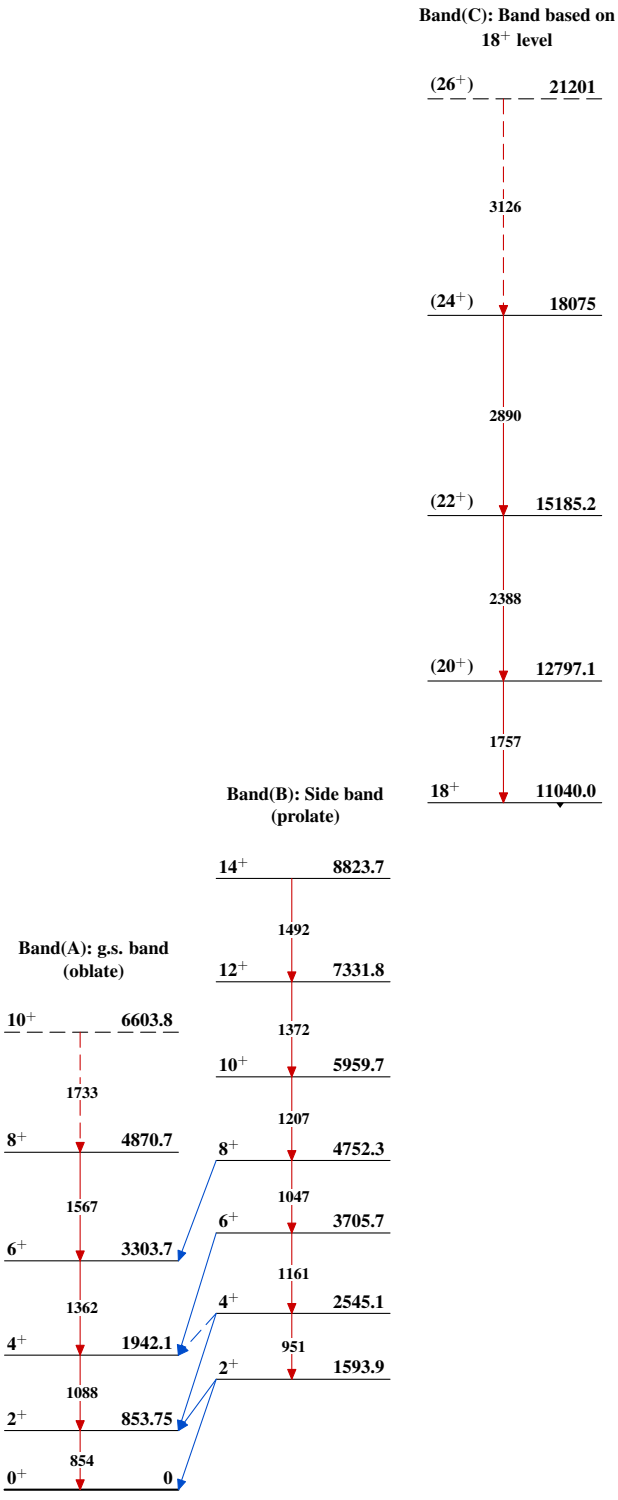
Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{68}_{34}Se_{34}$

Adopted Levels, Gammas



$^{68}_{34}Se_{34}$