

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	H. Iimura, J. Katakura, S. Ohya		NDS 180, 1 (2022)	1-Oct-2021

Q(β⁻)=3670 30; S(n)=6210 30; S(p)=7790 30; Q(α)=-5250 60 **2021Wa16**

¹²⁶Sb Levels

Cross Reference (XREF) Flags

- A** ¹²⁶Sb IT decay (19.15 min)
- B** ¹²⁶Sn β⁻ decay
- C** ⁹Be(²³⁸U,Fγ)

E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF	Comments
0.0	(8 ⁻)	12.35 d 6	ABC	%β ⁻ =100 μ=1.28 7 J ^π : log ft=8.57 23 to 7 ⁻ ¹²⁶ Te level and (E3) γ from the (5 ⁺), 17.7-keV isomer. T _{1/2} : from weighted av of 12.2 d 1 (1961Ha39), 12.5 d 2 (1962Dr01), 12.4 d 1 (1967Ha27) and 12.4 d 1 (1971Or04); Other: 12.47 d (1972Pa13). μ: from static nuclear orientation (1972Kr15,2019StZV).
17.7 3	(5 ⁺)	19.15 min 9	AB	%β ⁻ =81.4 6; %IT=18.6 6 J ^π : log ft=5.74 5 to 6 ⁺ ¹²⁶ Te level limits J ^π =5,6,7, but 5 ⁺ is preferred since this is the highest spin possible for a positive parity state with the available neutron (h _{11/2} ,d _{3/2} ,s _{1/2}) and proton (g _{7/2} ,d _{5/2} ,s _{1/2}) shell-model orbitals. For J ^π =6 ⁺ B(M2)=2.7E-7 is unreasonably small. J ^π =7 ⁺ is clearly ruled out since an E1 would not have such a long lifetime. T _{1/2} : weighted av of 19.0 min 2 (1962Dr01), 19.2 min 1 (1967Ha27), 19 min 1 (1970Mu16) 19.0 min 3 (1971Or04), and 19.6 min 10 (1972Pa13). Other: 18.8 min (1956Fr31).
40.4 3	(3 ⁻)	≈11 s	B	%β ⁻ ,%IT: from 2010Fe02 . Other: %β ⁻ =86 4, %IT=14 4 (1971Or04). %IT=100 J ^π : 22.7-keV, (M2) γ to (5 ⁺), no γ to (8 ⁻). T _{1/2} : The authors of 1976Sm01 give 11.1 s 10.5 by a computer analysis.
83.0 3	(2 ⁻ ,3 ⁻ ,4 ⁻)	5.1 ns 3	B	J ^π : 42.64-keV, (M1) γ to (3 ⁻); 21.6-keV, E1 γ from (3 ⁺).
104.6 3	(3 ⁺)	553 ns 5	B	J ^π : 86.94-keV, (E2) γ to (5 ⁺); 64.28-keV, (E1) γ to (3 ⁻).
127.9 3	(2 ⁺)	78.0 ns 5	B	J ^π : 87.59-keV, (E1) γ to (3 ⁻), log ft=12 from 0 ⁺ .
671.3 10	(9 ⁻)		C	
1044.8 10	(10 ⁻)		C	
1689.4 13	(11 ⁺)	60 ns 20	C	T _{1/2} : from γ-fragment(t) in ⁹ Be(²³⁸ U,Fγ) (2019Bi04).
1810.7 17	(13 ⁺)	90 ns 16	C	T _{1/2} : from γ-fragment(t) in ⁹ Be(²³⁸ U,Fγ) (2019Bi04).
2006.2 13	(12 ⁻)		C	
2191.2 17	(12 ⁺)		C	
2359.1 17	(14 ⁻)		C	
2682.6 20	(13 ⁺)		C	
2802.4 20	(15 ⁻)		C	
2812.7 22	(14 ⁺)		C	
2911.8 20	(15 ⁺)		C	
3214.3 22	(16 ⁻)		C	
3637.8 24	(17 ⁻)		C	
4135 3	(18 ⁻)		C	

[†] From least-squares fit to Eγ's.

Adopted Levels, Gammas (continued)

¹²⁶Sb Levels (continued)

‡ Spin and parity assignments below 150-keV level are based on multiplicities of γ -transitions, $T_{1/2}$ in ¹²⁶Sn β^- decay and shell model. Spin and parity assignments over 150-keV level are from 2019Bi04 based on decay patterns and systematics.

From $\beta\gamma(t)$ or $\gamma\gamma(t)$ in ¹²⁶Sn β^- decay, unless indicated otherwise.

$E_i(\text{level})$	J_i^π	$\gamma(^{126}\text{Sb})$		E_f	J_f^π	Mult.‡	$\alpha^\&$	Comments
		E_γ^\dagger	$I_\gamma^\dagger@$					
17.7	(5 ⁺)	17.7 3	100	0.0	(8 ⁻)	(E3)	3.2×10 ⁵ 4	B(E3)(W.u.)=0.0009 3 $\alpha(L)=2.4\times 10^5$ 3; $\alpha(M)=5.9\times 10^4$ 7; $\alpha(N)=1.06\times 10^4$ 12; $\alpha(O)=6.5\times 10^2$ 8
40.4	(3 ⁻)	22.70 7	100	17.7	(5 ⁺)	(M2)	718 15	B(M2)(W.u.) $\approx 2.6\times 10^{-5}$ $\alpha(L)=570$ 12; $\alpha(M)=122.9$ 25; $\alpha(N)=23.5$ 5; $\alpha(O)=2.09$ 5
83.0	(2 ⁻ ,3 ⁻ ,4 ⁻)	42.641 10	100	40.4	(3 ⁻)	(M1)	7.27 10	B(M1)(W.u.)=0.0067 5 $\alpha(K)=6.26$ 9; $\alpha(L)=0.816$ 12; $\alpha(M)=0.1616$ 23; $\alpha(N)=0.0311$ 5; $\alpha(O)=0.00305$ 5
104.6	(3 ⁺)	21.646 10	12.9 13	83.0	(2 ⁻ ,3 ⁻ ,4 ⁻)	(E1)	2.09 3	B(E1)(W.u.)=1.13×10 ⁻⁶ 14 $\alpha(L)=1.689$ 24; $\alpha(M)=0.332$ 5
		64.281 10	100 12	40.4	(3 ⁻)	(E1)	0.651 9	B(E1)(W.u.)=3.35×10 ⁻⁷ 22 $\alpha(K)=0.559$ 8; $\alpha(L)=0.0748$ 11; $\alpha(M)=0.01468$ 21
		86.938 10	92 9	17.7	(5 ⁺)	(E2)	2.71 4	B(E2)(W.u.)=0.92 12 $\alpha(K)=1.83$ 3; $\alpha(L)=0.706$ 10; $\alpha(M)=0.1462$ 21; $\alpha(N+.)=0.266$ 4
127.9	(2 ⁺)	23.280 10	17.3 7	104.6	(3 ⁺)	(M1)	6.07 9	$\alpha(L)=4.89$ 7; $\alpha(M)=0.969$ 14; $\alpha(N)=0.187$ 3 B(M1)(W.u.)=0.00110 7
		87.567 10	100	40.4	(3 ⁻)	(E1)	0.274 4	B(E1)(W.u.)=1.47×10 ⁻⁶ 3 $\alpha(K)=0.237$ 4; $\alpha(L)=0.0372$ 6; $\alpha(M)=0.00453$ 7; $\alpha(N+.)=0.00136$ 16
671.3	(9 ⁻)	671.2 10	100	0.0	(8 ⁻)	(M1)#		
1044.8	(10 ⁻)	373.5 10	40 6	671.3	(9 ⁻)	(M1)#		
		1044.9 10	100 8	0.0	(8 ⁻)	(E2)#		
1689.4	(11 ⁺)	644.6 10	100	1044.8	(10 ⁻)	[E1]		B(E1)(W.u.)=1.7×10 ⁻⁸ 6
1810.7	(13 ⁺)	121.3 10	100	1689.4	(11 ⁺)	[E2]	0.83 3	B(E2)(W.u.)=3.5 7
2006.2	(12 ⁻)	961.4 10	100	1044.8	(10 ⁻)	(E2)#		
2191.2	(12 ⁺)	501.8 10	100	1689.4	(11 ⁺)			
2359.1	(14 ⁻)	352.9 10	100	2006.2	(12 ⁻)	(E2)#		
2682.6	(13 ⁺)	491.4 10	100	2191.2	(12 ⁺)			
2802.4	(15 ⁻)	443.3 10	100	2359.1	(14 ⁻)	(M1)#		
2812.7	(14 ⁺)	130.1 10	100	2682.6	(13 ⁺)			
2911.8	(15 ⁺)	1101.1 10	100	1810.7	(13 ⁺)			
3214.3	(16 ⁻)	411.9 10	100	2802.4	(15 ⁻)			
3637.8	(17 ⁻)	423.5 10	100	3214.3	(16 ⁻)			
4135	(18 ⁻)	497.6 10	100	3637.8	(17 ⁻)			

† γ data below 100 keV are from β^- decay of ¹²⁶Sn (1976Sm01). γ data over 100 keV are from ⁹Be(²³⁸U,F γ) (2019Bi04).

‡ From α estimated from I_{ce}/β and I_γ (1976Sm01) and reduced transition probabilities, unless indicated otherwise.

From ⁹Be(²³⁸U,F γ) (2016Re03).

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Adopted Levels, Gammas (continued)

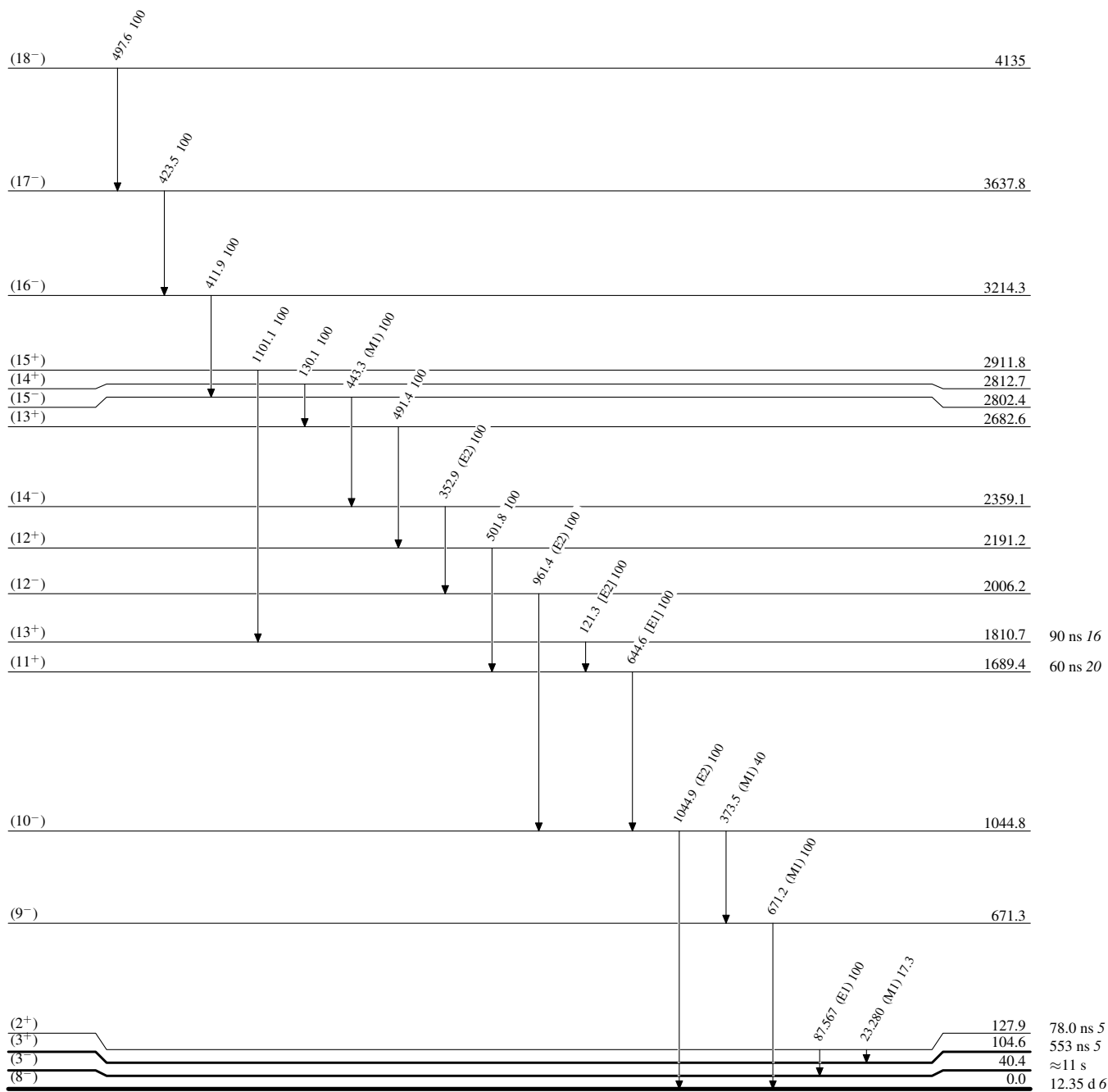
$\gamma(^{126}\text{Sb})$ (continued)

@ Relative photon branching from each level.

& 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, GammasLevel Scheme

Intensities: Relative photon branching from each level

 $^{126}_{51}\text{Sb}_{75}$

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

Intensities: Relative photon branching from each level

