

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	S. Ohya	NDS 111,1619 (2010)	20-Jan-2009

$Q(\beta^-)=401.3$; $S(n)=6170.2.4$; $S(p)=1.076\times 10^4.4$; $Q(\alpha)=-5203.9.14$ [2012Wa38](#)

Note: Current evaluation has used the following Q record 390.6 216170.3 3 10758 40-5205 3 [2009AuZZ](#).

 ^{121}Sn LevelsCross Reference (XREF) Flags

A	^{121}In β^- decay (23.1 s)	E	$^{120}\text{Sn}(n,\gamma)$	I	$^{122}\text{Sn}(p,d)$ IAS
B	^{121}In β^- decay (3.88 min)	F	$^{120}\text{Sn}(d,p)$	J	$^{122}\text{Sn}(p,d)$
C	^{121}Sn IT decay	G	$^{120}\text{Sn}(d,p\gamma)$	K	$^{124}\text{Sn}(^{80}\text{Se}, ^{80}\text{Se}3n\gamma)$
D	$^{119}\text{Sn}(t,p)$	H	$^{120}\text{Sn}(t,d)$		

E(level) [†]	J ^π	T _{1/2}	XREF	Comments
0.0	3/2 ⁺	27.03 h 4	A B C D E F	

Adopted Levels, Gammas (continued)

^{121}Sn Levels (continued)				
E(level) [†]	J ^π	T _{1/2}	XREF	Comments
excitation in in-beam spectroscopy.				
1337 4			F	
1350.0 38	(7/2 ⁺ , 9/2 ⁺)		EF	J ^π : L=(4) in (d,p).
1403.5 5	5/2 ⁺		B DEFGH J	XREF: G(1404.9). J ^π : L=2 in (pol p,p) IAR; J=5/2 is consistent with analyzing power in (pol p,p) IAR.
1432 8			D	
1450 4			F	
1498 4			F	
1537 4			F	
1571 4			F	
1653.2 5	1/2 ⁺ , 3/2		E	J ^π : γ to 5/2 ⁺ . Fed by primary γ from 1/2 ⁻ resonance.
1710.0 16	(3/2) ⁺		EF H J	J ^π : L=2 in (p,d); J=(3/2) from J-dependence of L=2 in (p,d).
1758.3 9	(⁺)		FG	J ^π : (E2,M1) γ to 3/2 ⁺ , 5/2 ⁺ .
1864 4			E H	
1876 10	9/2 ⁻ , 11/2 ⁻		D	J ^π : L=5 in (t,p).
1877.0 10	1/2 ⁻ , 3/2 ⁻		EF	XREF: F(1866). J ^π : L=1 in (d,p).
1910 5	1/2<			

Adopted Levels, Gammas (continued) ^{121}Sn Levels (continued)

E(level) [†]	J ^π	T _{1/2}	XREF	Comments
				(pol p,p) IAR.
2652.0 12			E	
2658	(23/2 ⁻) [‡]		K	J ^π : γ to (19/2 ⁻).
2666 2	7/2 ⁻		DEF H	J ^π : L=3 in (pol p,p) IAR, J=7/2 is consistent with analyzing power in (pol p,p) IAR.
2700 10	5/2 ⁻ , 7/2 ⁻		D F H J	J ^π : L=3 in (d,p), (t,d), (t,p).
2713.0 16	7/2 ⁺ , 9/2 ⁺		E J	J ^π : L=4 in (p,d).
2748 7			F H	
2777 7			D F	
2804.0 25	(3/2) ⁺		EF J	J ^π : L=2 in (p,d); J=(3/2) from J-dependence of L=2 in (p,d).
2811 15			D	
2834	(27/2 ⁻) [‡]	0.167 μs 25	K	J ^π : γ to (23/2 ⁻). T _{1/2} : from γ decay in $^{124}\text{Sn}(^{80}\text{Se}, ^{80}\text{Se}^3\text{n}\gamma)$.
2849.0 14	(5/2 ⁻ , 7/2 ⁻)		E J	J ^π : L=(3) in (p,d).
2864.3 5	(1/2, 3/2)		B D	J ^π : log ft=6.2 from 1/2 ⁻ ^{121}In . γ to 1/2 ⁺ .
2915 7	(5/2 ⁻ , 7/2 ⁻)	</		

Adopted Levels, Gammas (continued) ^{121}Sn Levels (continued)

E(level) [†]	J ^π	T _{1/2}	XREF	Comments
3520 15	(5/2 ⁻ , 7/2, 9/2 ⁺)		D H	J ^π : L=(3,4) in (t,p), (t,d). E(level): average of 3532 15 from (t,p) and 3507 15 from (t,d).
3532 15			D	
3579 9			F H	
3613 15			H	
3620 9	(5/2 ⁻ , 7/2 ⁻)		D F	J ^π : L=(3) in (d,p).
3658 15			H	
3680.0 13	3/2 ⁻		EF H	J ^π : L=1 in (d,p), 3/2 is consistent with analyzing power in (pol p,p) IAR.
3730 10	1/2 ⁻ , 3/2 ⁻		F H	J ^π : L=1 in (d,p).
3762.5 17	1/2 ⁻ , 3/2 ⁻		EF	J ^π : L=1 in (d,p).
3798 10	1/2 ⁻ , 3/2 ⁻		F	J ^π : L=1 in (d,p).
3814 10	1/2 ⁻ , 3/2 ⁻		F	J ^π : L=1 in (d,p).
3857 10	1/2 ⁻ , 3/2 ⁻		F	J ^π : L=1 in (d,p).
3875 10	1/2 ⁻ , 3/2 ⁻		F	J ^π : L=1 in (d,p).
3932.5 15	1/2 ⁻ , 3/2 ⁻		EF	J ^π : L=1 in (d,p).
3960 10	1/2 ⁻ , 3/2 ⁻			

Adopted Levels, Gammas (continued)

$\gamma(^{121}\text{Sn})$									
$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\dagger$	E_f	J_f^π	Mult. [‡]	δ	$\alpha^\#$	Comments
6.31	11/2 ⁻	6.29 8	100	0.0	3/2 ⁺	[M4]		8.7×10 ¹⁰ 10	$\alpha(\text{L})=5.6\times 10^{10}$ 6; $\alpha(\text{M})=2.6\times 10^{10}$ 3; $\alpha(\text{N}+..)=4.7\times 10^9$ 6 $\alpha(\text{N})=4.7\times 10^9$ 6; $\alpha(\text{O})=1.38\times 10^7$ 14 B(M4)(W.u.)=6.02 19 E_γ : from energy difference between 919.28 γ and 925.57 γ . B(M4)(W.u.) using $E_\gamma^9 \times' (1+\alpha)=1.345\times 10^{18}$ 20. $\alpha(\text{K})=2.07$ 3; $\alpha(\text{L})=0.266$ 4; $\alpha(\text{M})=0.0522$ 8; $\alpha(\text{N}+..)=0.01064$ 15 $\alpha(\text{N})=0.00980$ 14; $\alpha(\text{O})=0.000844$ 12
60.34	1/2 ⁺	60.34 2	100	0.0	3/2 ⁺	M1		2.40	$\alpha(\text{K})=0.0033$ 3; $\alpha(\text{L})=0.000411$ 21; $\alpha(\text{M})=8.1\times 10^{-5}$ 4; $\alpha(\text{N}+..)=1.64\times 10^{-5}$ 10 $\alpha(\text{N})=1.51\times 10^{-5}$ 8; $\alpha(\text{O})=1.29\times 10^{-6}$ 12
663.63	7/2 ⁻ , 9/2 ⁻	657.32 7	100	6.31	11/2 ⁻	M1,E2		0.0038 3	$\$

Adopted Levels, Gammas (continued)

$\gamma(^{121}\text{Sn})$ (continued)									
$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\dagger$	E_f	J_f^π	Mult. [‡]	$\alpha^\#$	Comments	
								$\alpha(\text{N})=4.4\times 10^{-6}$ 4; $\alpha(\text{O})=3.9\times 10^{-7}$ 4; $\alpha(\text{IPF})=4.7\times 10^{-7}$ 4	
1121.2	5/2 ⁺	1060.7 10	11	60.34	1/2 ⁺				
		1121.2 5	100	0.0	3/2 ⁺				
1157	(15/2 ⁻)	1151		6.31	11/2 ⁻				
1247	(13/2 ⁻)	1241		6.31	11/2 ⁻				
1403.5	5/2 ⁺	1403.5 5	100	0.0	3/2 ⁺				
1653.2	1/2 ⁺ , 3/2	553.2 10	51	1101.52	3/2 ⁺				
		782.9 10	100	869.25	5/2 ⁺				
		1653.0 5	93	0.0	3/2 ⁺				

Adopted Levels, Gammas (continued)

$\gamma(^{121}\text{Sn})$ (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>
2864.3	(1/2,3/2)	2864.3 7	91 37	0.0	3/2 ⁺
3120.1		3059.7 14	100	60.34	1/2 ⁺

† From ¹²¹In β⁻ decay (23.1 s, 3.88 min); others from ¹²⁰Sn(n,γ).
‡ From conversion electron data in ¹²¹In β⁻ decay (23.1 s, 8.3 s), unless noted otherwise.
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

