

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne	NDS 110,2081 (2009)	1-Mar-2009

$Q(\beta^-) = -7.66 \times 10^3$ 7; S(n)=12007 11; S(p)=2259 10; $Q(\alpha) = -342$ 11 [2012Wa38](#)

Note: Current evaluation has used the following Q record -7640 701200E1 122210 40-27E1 15 [2003Au03](#).

$Q(\beta^-)$ from [2005Ka34](#); $\% \epsilon p = 1.2$ 1 ([2005Ka34](#)).

Mass excess: -74637 10 ([2007Ma92](#)).

S(p)=2249 11 ([2007Ma92](#)).

 ^{103}In LevelsCross Reference (XREF) Flags

- A** ^{103}In IT decay
B ^{103}Sn ϵ decay (7.0 s)
C (HL,xn γ)

E(level) [‡]	J π [‡]	T _{1/2}	XREF	Comments
0.0	(9/2) ⁺	65 s 7	ABC	$\% \epsilon + \% \beta^+ = 100$ T _{1/2} : from 188 γ -, 202 γ -decay curves (1978Lh01); on-line mass spectrometry. J π : J=9/2 from analogy to ^{111}In , ^{109}In , ^{107}In and ^{105}In g.s. $\pi = +$ from logft=5.9 to (7/2) ⁺ .
631.7 1	(1/2) ⁻	34 s 2	A	$\% \epsilon + \% \beta^+ = 67$; $\% \text{IT} = 33$ T _{1/2} : 34 s 2 (1997Sz04) γ -decay curve. J π : suggested from statistics and Moszkowski estimates.
1077.59 17	(11/2 ⁺)		BC	
1272.85 16	(13/2 ⁺)		BC	
1355.80 10			B	
1396.81 10			B	
1428.91 10	(9/2 ⁺)		B	
1669.64 18			B	
1795.3 3	(17/2 ⁺)	0.13 ns 2	C	T _{1/2} : from recoil distance method (1996IsZZ).
1908.5 5			B	
2025.0 3			B	
2110.3 4	(19/2 ⁺)		C	
2148.92 23			B	
2176.83 14			B	
2209.2 3			B	
2320.1 6			B	
2812.7 4			B	
2925.5 4	(21/2 ⁺)		C	
3247.9 4	(23/2 ⁺)		C	
3280.6 3			B	
3462.1 4			B	
3686.8 5	(25/2 ⁺)		C	
4192.4 5	(23/2 ⁻)		C	
4589.9 5	(25/2 ⁻)		C	
4810.8 6	(27/2 ⁺)		C	
5098.3 6	(25/2 ⁻)		C	
5342.6 7	(27/2 ⁻)		C	
5570.6 6	(27/2 ⁻)		C	
5703.8 7	(29/2 ⁻)		C	
5852.6 6	(29/2 ⁻)		C	
6192.0 8	(31/2 ⁻)		C	

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Adopted Levels, Gammas (continued) ^{103}In Levels (continued)

<u>E(level)[‡]</u>	<u>J^π[†]</u>	<u>XREF</u>
6229.0 7	(31/2 ⁻)	C
6303.4 8		C

[†] $J^\pi(\text{g.s.})=(9/2^+)$ and first excited state and $J^\pi(631.7 \text{ keV level})=(1/2^-)$ assumed from systematics and theory. All other J^π 's are tentative and based on $\gamma(\theta)$, cascades and intercascade transitions.

[‡] If possible weighted average of ^{103}Sn ε decay and (HI,xn γ) data if not from either of the data sets or ^{103}In IT decay.

<u>$\gamma(^{103}\text{In})$</u>							Comments
<u>$E_i(\text{level})$</u>	<u>J_i^π</u>	<u>E_γ[†]</u>	<u>I_γ[†]</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.[‡]</u>	
631.7	(1/2 ⁻)	631.7 1		0.0	(9/2 ⁺)	(M4)	Mult.: suggested from comparable situation in $^{105,107,109,111}\text{In}$ and similar B(M4)(W.u.) values, e.g. 11.0 for ^{103}In and 13.7 for ^{105}In where M4 character of this transition is well established.
1077.59	(11/2 ⁺)	1077.5 3	100	0.0	(9/2 ⁺)	D+Q	
1272.85	(13/2 ⁺)	195.1 3	3.6 6	1077.59	(11/2 ⁺)	D	
		1272.9 2	100 2	0.0	(9/2 ⁺)	Q	
1355.80		1355.8 1	100	0.0	(9/2 ⁺)		
1396.81		1396.8 1	100	0.0	(9/2 ⁺)		
1428.91	(9/2 ⁺)	351.3 2	60 7	1077.59	(11/2 ⁺)		
		1428.9 1	100 7	0.0	(9/2 ⁺)		
1669.64		314.0 2	100 5	1355.80			
		1669.3 3	11 2	0.0	(9/2 ⁺)		
1795.3	(17/2 ⁺)	522.4 2	100	1272.85	(13/2 ⁺)	Q	
1908.5		830.6 2	72 13	1077.59	(11/2 ⁺)		
		1908.5 5	100 25	0.0	(9/2 ⁺)		
2025.0		355.4 2	100 9	1669.64			
		627.4 14	11 5	1396.81			
2110.3	(19/2 ⁺)	315.0 2	100	1795.3	(17/2 ⁺)	D	
2148.92		752.1 2	100	1396.81			
2176.83		821.0 1	100	1355.80			
2209.2		853.0 5	85 13	1355.80			
		2209.3 3	100 25	0.0	(9/2 ⁺)		
2320.1		964.3 6	100	1355.80			
2812.7		635.4 5	40 10	2176.83			
		2813.2 5	100 20	0.0	(9/2 ⁺)		
2925.5	(21/2 ⁺)	815.3 2	100 3	2110.3	(19/2 ⁺)	D	
		1130.2 7	5.0 17	1795.3	(17/2 ⁺)	Q	
3247.9	(23/2 ⁺)	322.5 2	100.0 24	2925.5	(21/2 ⁺)	D	
		1137.5 3	29.3 24	2110.3	(19/2 ⁺)	Q	
3280.6		1610.9 2	100	1669.64			
3462.1		2106.3 3	7 1	1355.80			
3686.8	(25/2 ⁺)	438.9 2	100	3247.9	(23/2 ⁺)	D	
4192.4	(23/2 ⁻)	1266.9 3	100	2925.5	(21/2 ⁺)	(E1)	
4589.9	(25/2 ⁻)	397.5 3	100 5	4192.4	(23/2 ⁻)	D	
		1342.0 4	49 6	3247.9	(23/2 ⁺)	(E1)	
4810.8	(27/2 ⁺)	1124.1 4	100	3686.8	(25/2 ⁺)	D	
5098.3	(25/2 ⁻)	1850.3 4	100	3247.9	(23/2 ⁺)	(E1)	
5342.6	(27/2 ⁻)	752.7 4	100	4589.9	(25/2 ⁻)	D	
5570.6	(27/2 ⁻)	472.2 5	23 7	5098.3	(25/2 ⁻)	D	
		981.2 5	35 7	4589.9	(25/2 ⁻)	D	
		1883.7 4	100 15	3686.8	(25/2 ⁺)	(E1)	
5703.8	(29/2 ⁻)	361.2 3	100	5342.6	(27/2 ⁻)	D	

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Adopted Levels, Gammas (continued) $\gamma(^{103}\text{In})$ (continued)

<u>$E_i(\text{level})$</u>	<u>J_i^π</u>	<u>$E_\gamma^\dagger$</u>	<u>$I_\gamma^\dagger$</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.[‡]</u>
5852.6	(29/2 ⁻)	282.0 3	100 7	5570.6	(27/2 ⁻)	D
		1041.9 4	40 5	4810.8	(27/2 ⁺)	(E1)
6192.0	(31/2 ⁻)	488.2 4	100	5703.8	(29/2 ⁻)	Q
6229.0	(31/2 ⁻)	376.4 3	100	5852.6	(29/2 ⁻)	D
6303.4		450.8 5	100	5852.6	(29/2 ⁻)	

[†] From $^{50}\text{Cr}(^{58}\text{Ni},3\text{p}2\text{n})$ with $E(^{50}\text{Cr})=261$ MeV or from ^{103}Sn ε decay.

[‡] From measured R values in (HI,xn) ([1997Ko51](#)). No identification of non-stretched and mixed transitions possible. E1's considered as tentative by the evaluator as only from $\gamma(\theta)$, M1 cannot be excluded. Some of the transitions marked by D might be mixed D+Q transitions, very probably M1+E2.

Adopted Levels, Gammas**Level Scheme**

Intensities: Type not specified

Legend

-  $I_\gamma < 2\% \times I_\gamma^{\max}$
 $I_\gamma < 10\% \times I_\gamma^{\max}$
 $I_\gamma > 10\% \times I_\gamma^{\max}$



