

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	J. Katakura, Z. D. Wu		NDS 109,1655 (2008)	1-Apr-2008

Q(β^-)=7.36×10³ 3; S(n)=5.51×10³ 4; S(p)=1.075×10⁴ 3; Q(α)=-7.64×10³ 3 [2012Wa38](#)

Note: Current evaluation has used the following Q record 7360 505520 5010850 60-7650 90 [2003Au03](#).

¹²⁴In Levels

Cross Reference (XREF) Flags

- A ¹²⁴Cd β^- decay
- B ¹²⁴Sn(t,³He)

E(level) [†]	J ^{π}	T _{1/2}	XREF	Comments
0.0	(1) ⁺	3.12 s 9	AB	$\% \beta^- = 100$ $\mu = +4.043$ 11; Q = +0.614 68 Configuration = ((π g _{9/2})(ν d _{3/2})) (1979Fo10) $\langle r^2 \rangle^{1/2} = 4.665$ fm 6 (2004An14 , evaluation). J ^{π} : from systematics in even A In isotopes, log ft = 5.14 to 3214.4-keV 2 ⁺ state in ¹²⁴ Sn. T _{1/2} : weighted average of 3.3 s 3 (γ multiscaling) (1983Ta02), 3.09 s 10 (γ multiscaling) (1986Go10) and 3.2 s 3 (γ multiscaling) (1974Fo23); others: 3.6 s 10 (1964Ka20). μ : from collinear fast-beam LASER spectroscopy (1989Ra17). 1987Eb02 gave measurement. See also 2005St24 compilation. Q: from collinear fast-beam LASER spectroscopy (1989Ra17). 1987Eb02 gave measurement. Sternheimer correction was included. See also 2005St24 compilation.
36.53 4 <50	(1,2) ⁺ (8 ⁻)	3.7 s 2	A	J ^{π} : (M1) γ to (1) ⁺ ; E1 γ from (2) ⁻ . $\% \beta^- = 100$ $\mu = +3.888$ 9; Q = +0.664 9 Configuration = ((π g _{9/2})(ν h _{11/2})) (1979Fo10). E(level): Q(β^-) difference of the 3.11-s and 3.7-s ¹²⁴ In isomers (1987Sp09); systematics of odd-odd In isotopes strongly supports E(level) above the ground state. Other: 190 220 (1978Al18). J ^{π} : J ^{π} = 7, 8, 9 was proposed by 1987Eb02 from collinear fast-beam LASER spectroscopy; systematics of odd-odd In isotopes strongly support 8 ⁻ . T _{1/2} : from γ multiscaling (1986Go10); other: 2.4 s 3 (1974Fo23). μ : from collinear fast-beam LASER spectroscopy (1987Eb02 , 1989Ra17). 1987Eb02 gave measurement. Evaluation of hyperfine structure was made under assumption of J = 8. See also 2005St24 compilation. Q: from collinear fast-beam LASER spectroscopy (1987Eb02 , 1989Ra17). 1987Eb02 gave measurement. Sternheimer correction was included. Evaluation of hyperfine structure was made under assumption of J = 8. See also 2005St24 compilation.
122 15			B	
179.88 4	(2) ⁻		AB	J ^{π} : E1 γ to (1) ⁺ .
242.68 1	(1) ⁺	50 ns 6	A	J ^{π} : E1 γ to (2) ⁻ . T _{1/2} : from $\beta\gamma(t)$ in ¹²⁴ Cd β^- decay (1974Fo23).
365 20			B	Broad peak in (t, ³ He).
555 20			B	

[†] For γ -connecting levels from a least-squares fit to the adopted E γ 's. Others from (t,³He).

Adopted Levels, Gammas (continued)

$\gamma(^{124}\text{In})$								
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. ‡	$\alpha^\#$	Comments
36.53	(1,2) ⁺	36.50 5	100	0.0	(1) ⁺	(M1)	9.42	$\alpha(\text{K})=8.13$ 12; $\alpha(\text{L})=1.046$ 16; $\alpha(\text{M})=0.203$ 3; $\alpha(\text{N+..})=0.0399$ 6
179.88	(2) ⁻	143.33 5	26 3	36.53	(1,2) ⁺	E1	0.0626	$\alpha(\text{N})=0.0371$ 6; $\alpha(\text{O})=0.00272$ 4 $\alpha(\text{K})=0.0544$ 8; $\alpha(\text{L})=0.00668$ 10; $\alpha(\text{M})=0.001288$ 18; $\alpha(\text{N+..})=0.000248$ 4
		179.91 5	100 10	0.0	(1) ⁺	E1	0.0330	$\alpha(\text{N})=0.000233$ 4; $\alpha(\text{O})=1.561 \times 10^{-5}$ 22 $\alpha(\text{K})=0.0287$ 4; $\alpha(\text{L})=0.00349$ 5; $\alpha(\text{M})=0.000674$ 10; $\alpha(\text{N+..})=0.0001303$ 19
242.68	(1) ⁺	62.80 10	100	179.88	(2) ⁻	E1	0.646	$\alpha(\text{N})=0.0001220$ 18; $\alpha(\text{O})=8.36 \times 10^{-6}$ 12 $\text{B}(\text{E1})(\text{W.u.})=1.33 \times 10^{-5}$ 16 $\alpha(\text{K})=0.557$ 9; $\alpha(\text{L})=0.0727$ 11; $\alpha(\text{M})=0.01400$ 21; $\alpha(\text{N+..})=0.00264$ 4 $\alpha(\text{N})=0.00249$ 4; $\alpha(\text{O})=0.0001498$ 22

[†] From ^{124}Cd β^- decay.

[‡] From $\alpha(\text{K})\text{exp}$ in ^{124}Cd β^- decay.

[#] 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, Gammas**Level Scheme**

Intensities: Relative photon branching from each level

