

¹⁸¹W ε decay 1979In02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	S. -c. Wu	NDS 106, 367 (2005)	31-Aug-2005

Parent: ¹⁸¹W: E=0.0; J^π=9/2⁺; T_{1/2}=121.2 d 2; Q(ε)=188 5; %ε decay=100.0

1979In02: Radioactivity ¹⁸¹W; Si(Li), Ge(Li) detectors; measured I(L X-ray), I_γ. ¹⁸¹Ta deduced levels, ICC, mixing ratios.

Other references: 1969GuZW, 1965Mu01, 1961Mu03. Also see ¹⁸¹Hf β⁻ decay.

¹⁸¹Ta Levels

E(level)	J ^π †	T _{1/2}	Comments
0.0	7/2 ⁺	stable	
6.24 2	9/2 ⁻	6.05 μs 12	T _{1/2} : from time spectrum of coincidence between X-ray and the 6.21 γ (1981Mo15); other value: 6.8 4 μs (1961Cl15,1961Ha15).
136.28 2	9/2 ⁺		
158.56 3	11/2 ⁻		

† From Adopted Levels.

ε radiations

E(decay)	E(level)	Iε [†]	Log ft	Comments
(29 5)	158.56	0.0185 10	7.8 4	εL= 0.6 4; εM+= 0.43 21
(52 5)	136.28	0.086 3	7.78 18	εL= 0.68 23; εM+= 0.32 9
180 6	6.24	74 4	6.59 7	εK= 0.68 8; εL= 0.239 19; εM+= 0.081 6
(188 5)	0.0	26 4	7.09 12	E(decay): from 1983Se17, other: 187 10 1966Ra03. Bremsstrahlung endpoint. εK= 0.69 8; εL= 0.233 18; εM+= 0.079 6

† Absolute intensity per 100 decays.

γ(¹⁸¹Ta)

I_γ normalization: from measured I_γ and K-electron capture probability.

Intensities of L and K x rays (1983Se17).

x-ray	I(%)
L1	0.418 20
La+L(n)	9.45 25
Lb	10.49 27
Lg	1.91 6
Ka2	19.0 5
Ka1	33.1 6
Kb1'	10.8 3
Kb2'	2.85 10

For other x-ray data, see 1955Bi66, 1961Jo15, 1961Mu03, 1966Ra03, and 1979In02.

E _γ †	I _γ ‡#	E _f (level)	J _i ^π	E _f	J _f ^π	Mult.	α [@]	Comments
6.24 2	1.03 3	6.24	9/2 ⁻	0.0	7/2 ⁺	E1	70.5 25	α: anomalous transition, α from ¹⁸¹ Hf β ⁻ decay. Mult.: M1:M2:M3:M45=186 19:333 33:100:167 17, N1:N2:N3:N45=22 11:33 16:100: 14 7, from 1969Bi12.

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^{181}W ε decay **1979In02** (continued) $\gamma(^{181}\text{Ta})$ (continued)

E_γ †	I_γ ‡#	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	δ	α @	Comments
136.28 2	0.0311 10	136.28	9/2 ⁺	0.0	7/2 ⁺	M1+E2	+0.396 11	1.75 1	$\alpha(\text{K})= 1.388 20$; $\alpha(\text{L})= 0.282 6$; $\alpha(\text{M})= 0.0656 14$; $\alpha(\text{N+..})= 0.0195 4$ Mult., δ : from Adopted Levels.
152.32 2	0.083 3	158.56	11/2 ⁻	6.24	9/2 ⁻	M1+E2	0.5 2	1.23 8	$\alpha(\text{K})= 0.97 10$; $\alpha(\text{L})= 0.205 19$; $\alpha(\text{M})= 0.048 5$; $\alpha(\text{N+..})= 0.0142 14$ δ : $\alpha(\text{K})_{\text{exp}}=0.97 9$ from $I_\gamma(136)/I_\gamma(153)=0.38 1$ and $\text{ce}(\text{K})(153)/\text{ce}(\text{K})(136)=1.83 2$ assuming $\alpha(\text{K})(136)=1.39$.

† From 1979In02.

‡ Weighted average of I_γ values from 1979In02 and 1983Se17.

Absolute intensity per 100 decays.

@ 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.

^{181}W ϵ decay 1979In02

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

Legend

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

