^{126}I β^- decay 1977Ja04,1998Fo05

History

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

Parent: ^{126}I: E=0.0; $J^\pi=2^-$; $T_{1/2}$=12.93 d *5*; Q(β^-)=1236 *4*; %β^- decay=47.3 *5*
^{126}I-%β^- decay: from I(β^-) and 4$\pi\beta\gamma$ (1998Fo05). Other: I(β^+)/I(β^-)=0.028 *1*; I(406β^+)/I(1110β^+)=0.29 (1955Ko14).
1977Ja04: ^{127}I(n,2n), Compton suppression spectrometer, semi γ.
1976Sa28: ^{126}Te(p,n) mass separations; $\gamma\gamma(\theta$,H,t).
1998Fo05: ^{127}I(n,2n); HPGe, scin, pc γ, β, K x ray; 4$\pi\beta\gamma$, Xγ coin.
See also ^{126}I ε decay.

^{126}Xe Levels

E(level)	J^π[†]	$T_{1/2}$	Comments
0.0	0^+		
388.634 *10*	2^+	41.3 ps *14*	$T_{1/2}$ from (β)(388.633γ)(t) (1963De21), g=0.22 *5*.
879.879 *10*	2^+		

[†] Spin and parity values are those given under Adopted Levels.

β^- radiations

E(decay)	E(level)	Iβ^-[†#]	Log *ft*	Comments
385 *5*	879.879	3.65 *6*	7.462 *19*	av Eβ=103.9 *17* E(decay): from $\beta\gamma$-coin (1955Ko14).
865 *5*	388.634	33.4 *6*	7.792 *14*	av Eβ=283.8 *20* Allowed shape (1955Ko14).
1250 *10*	0.0	10.3[‡] *7*	9.606[1u] *25*	av Eβ=452.5 *21* First-forbidden unique shape (1953Ma59,1955Ko14).

[†] From inensity balance at each level except where noted otherwise.
[‡] From ΣI(γ+ce)(to gs)=37.0% *5* and %β^-=47.3% *5*.
[#] Absolute intensity per 100 decays.

$\gamma(^{126}Xe)$

Iγ normalization: From I(388.6γ)=35.6 *5* per 100 decays of the parent (1998Fo05).

E_γ[†]	I_γ[‡@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ	α[&]	Comments
388.633 *11*	35.6 *5*	388.634	2^+	0.0	0^+	E2		0.0187	α(K)=0.01562 *22*; α(L)=0.00243 *4*; α(M)=0.000500 *7* α(N)=0.0001020 *15*; α(O)=1.199×10^{-5} *17* Mult.: from $\gamma\gamma(\theta)$; α(K)exp=0.016 *2* (1953Ma59); K/LM=6.7 *10* (1955Ko14).
491.243 *11*	2.88 *4*	879.879	2^+	388.634	2^+	M1+E2	+9.1 *+43−23*	0.00946	α(K)=0.00800 *12*; α(L)=0.001164 *17*; α(M)=0.000238 *4* α(N)=4.87×10^{-5} *7*; α(O)=5.84×10^{-6} *9* Mult.: from $\gamma\gamma(\theta)$; α(K)exp=0.0061 (1971Zh01).

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^{126}I β^- decay 1977Ja04,1998Fo05 (continued)

$\gamma(^{126}Xe)$ (continued)

E_γ [†]	I_γ [‡@]	E_i(level)	J_i^π	E_f	J_f^π	Comments
879.876 *13*	0.743 *13*	879.879	2^+	0.0	0^+	δ: from 1971Ta04. Other: 1971Gr14; +27 *+30−9*.

[†] From 1977Ja04. The evaluators have added 10 eV in quadrature to the uncertainties of 1977Ja04 to account for the uncertainty in calibration.
[‡] From 1998Fo05.
[#] $\gamma\gamma(\theta)$ data from 1959Sa05, 1960As04, 1971Gr14, and 1971Ta04.
[@] 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.

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Decay Scheme

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