

$^{127}\text{Xe } \varepsilon \text{ decay (36.4 d)}$     [1967Ge10](#),[1968Sc14](#),[1977Ge10](#)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	A. Hashizume	NDS 112,1647 (2011)	1-Oct-2009

Parent:  $^{127}\text{Xe}$ : E=0.0;  $J^\pi=1/2^+$ ;  $T_{1/2}=36.4$  d  $I$ ;  $Q(\varepsilon)=662.3$  20; % $\varepsilon$  decay=100

[1967Ge10](#):  $^{126}\text{Xe}(n,\gamma)$  mass separation, magnetic spectrometer ce, semi  $\gamma$ ,  $\gamma\gamma(t)$ ,  $\gamma\gamma(\theta)$ .

[1974Co05](#):  $^{127}\text{I}(p,n)$ , semi  $\gamma$ , absolute photon intensity measurement.

[1977Ge10](#):  $^{126}\text{Xe}(n,\gamma)$ , semi  $\gamma$ , absolute photon intensity measurement.

Others:  $\gamma\gamma(\theta)$ : [1964Jh02](#), [1966Le09](#), [1970Le16](#).

The level scheme is that proposed by [1967Ge10](#) and [1968Sc14](#).

 $^{127}\text{I}$  Levels

E(level) <sup>†</sup>	$J^\pi$ <sup>‡</sup>	$T_{1/2}$ <sup>‡</sup>	Comments
0.0	$5/2^+$	stable	
57.609 11	$7/2^+$	1.86 ns 11	$T_{1/2}$ : from (ce(K) $145\gamma$ )(K x ray)(t) ( <a href="#">1965Ge04</a> ). Others: 1.5 ns 3 ( <a href="#">1964Jh02</a> ), 2.0 ns 2 ( <a href="#">1962Th12</a> ).
202.860 8	$3/2^+$	0.39 ns 1	$(\varepsilon K)(\omega(K))=0.750$ 16 ( <a href="#">1964Br26</a> ). $T_{1/2}$ : unweighted av of 0.38 ns 1 ( <a href="#">1966Ge13</a> ) and 0.40 ns 1 ( <a href="#">1968Ko01</a> ) from $\gamma\gamma(t)$ .
374.992 9	$1/2^+$	$\leq 0.135$ ns	$T_{1/2}$ : from $X\gamma(t)$ , $c\gamma(t)$ ( <a href="#">1968Ko01</a> ). $(\varepsilon K)(\omega(K))=0.705$ 4 ( <a href="#">1964Br26</a> ).
618.4 3	$3/2^+$		

<sup>†</sup> From a least-squares fit to E( $\gamma$ 's).

<sup>‡</sup> From Adopted Levels.

 $\varepsilon$  radiations

E(decay)	E(level)	$I\varepsilon$ <sup>†</sup>	Log ft	Comments
(43.9 23)	618.4	0.0143 9	7.41 10	$\varepsilon K=0.31$ 7; $\varepsilon L=0.52$ 5; $\varepsilon M+=0.170$ 18
(287.3 23)	374.992	47.6 14	6.210 15	$\varepsilon K=0.8303$ 3; $\varepsilon L=0.13317$ 19; $\varepsilon M+=0.03654$ 6
(459.4 23)	202.860	53.0 14	6.607 13	$\varepsilon K=0.8418$ ; $\varepsilon L=0.12441$ 7; $\varepsilon M+=0.03377$ 2

<sup>†</sup> Absolute intensity per 100 decays.

<sup>127</sup>Xe  $\varepsilon$  decay (36.4 d)    1967Ge10,1968Sc14,1977Ge10 (continued) $\gamma(^{127}\text{I})$ 

I $\gamma$  normalization: No direct  $\varepsilon$  decay to g.s. is assumed. The uncertainty of I(202.86 $\gamma$ ) is assumed 2%. Total transition intensity is obtained by using conversion coefficients calculated by BrIcc (evaluator). (I(202.86 $\gamma$ )/100  $\varepsilon$  decays)=70.6 22 from absolute measurement; (I(202.86 $\gamma$ )/100  $\varepsilon$  decays)=68.3 4 from relative photon intensity measurement combined with theoretical HSIcc conversion coefficients and from decay scheme (1977Ge10).  
 I(K x ray)/I(0.2029 $\gamma$ )=1.17 7 (1958Fo48).

E $_{\gamma}^{\dagger}$	I $_{\gamma}^{\ddagger a}$	E $_i$ (level)	J $^{\pi}_i$	E $_f$	J $^{\pi}_f$	Mult.	$\delta^{\&}$	$\alpha^{\#}$	I $_{(\gamma+ce)}^a$	Comments
57.61 2	1.79 10	57.609	7/2 $^{+}$	0.0	5/2 $^{+}$	M1+E2	-0.083 5	3.72	8.5 5	K/L=6.8 (1967Ge10); L/M=4.7 6 (1967Ge10); M/N+O=5.4 +41-19 (1967Ge10); ce(K)/( $\gamma$ +ce)=0.669 6; ce(L)/( $\gamma$ +ce)=0.0951 18; ce(M)/( $\gamma$ +ce)=0.0193 4; ce(N)/( $\gamma$ +ce)=0.00432 9 ce(N)/( $\gamma$ +ce)=0.00388 8; ce(O)/( $\gamma$ +ce)=0.000443 9 ce(K)/(I $_{\gamma}$ +I $_{ce}$ )=0.669 6; ce(L)/(I $_{\gamma}$ +I $_{ce}$ )=0.0951 18; ce(M)/(I $_{\gamma}$ +I $_{ce}$ )=0.0193 4; ce(N)/(I $_{\gamma}$ +I $_{ce}$ )=0.00432 9. From L1:L2:L3=1.0:0.118 4:0.068 4 (1967Ge10). I $_{(\gamma+ce)}$ : from I( $\gamma$ +ce)(145 $\gamma$ ). K/L=3.6 3; L/M=4.9 9; M/N+O=4.3 +19-12 (1967Ge10) $\alpha$ (K)=0.357 5; $\alpha$ (L)=0.0906 13; $\alpha$ (M)=0.0189 3; $\alpha$ (N..)=0.00405 6 $\alpha$ (N)=0.00369 6; $\alpha$ (O)=0.000362 5 L1:L2:L3=1.0:0.76 10:0.87 11 (1967Ge10). Mult.: from L1:L2:L3. K/L=7.6 5; L/M=4.8 6 (1967Ge10) $\alpha$ (K)=0.1419 20; $\alpha$ (L)=0.0185 3; $\alpha$ (M)=0.00373 6; $\alpha$ (N..)=0.000843 12 $\alpha$ (N)=0.000754 11; $\alpha$ (O)=8.82×10 $^{-5}$ 13 L1:L2:L3=1.0:0.066 3:0.016 4, M/N+O+=4.0 +9-7 (1967Ge10). K/L=6.5 1; L/M=5.5 5; M/N+O=2.3 4 (1967Ge10) $\alpha$ (K)=0.0965 17; $\alpha$ (L)=0.0142 5; $\alpha$ (M)=0.00289 10; $\alpha$ (N..)=0.000645 20 $\alpha$ (N)=0.000580 18; $\alpha$ (O)=6.50×10 $^{-5}$ 17 L1:L2:L3=1.0:0.160 15:0.121 13 (1967Ge10). K/L=5.4 5 (1967Ge10) $\alpha$ (K)=0.01671 24; $\alpha$ (L)=0.00257 4; $\alpha$ (M)=0.000524 8; $\alpha$ (N..)=0.0001158 17 $\alpha$ (N)=0.0001044 15; $\alpha$ (O)=1.144×10 $^{-5}$ 16 L1:L2:L3=1.0:0.26 5:0.17 5 (1967Ge10). E $_{\gamma}$ : from <sup>127</sup> Te $\beta^-$ decay (1970Ap02).
145.252 10	6.28 19	202.860	3/2 $^{+}$	57.609	7/2 $^{+}$	E2		0.471		From ENSDF
172.132 10	37.4 11	374.992	1/2 $^{+}$	202.860	3/2 $^{+}$	M1+E2	-0.085 6	0.1649 24		
202.860 10	100	202.860	3/2 $^{+}$	0.0	5/2 $^{+}$	M1+E2	+0.52 5	0.1143 22		
374.991 12	25.2 8	374.992	1/2 $^{+}$	0.0	5/2 $^{+}$	E2		0.0199		
618.4 3	0.0208 12	618.4	3/2 $^{+}$	0.0	5/2 $^{+}$					

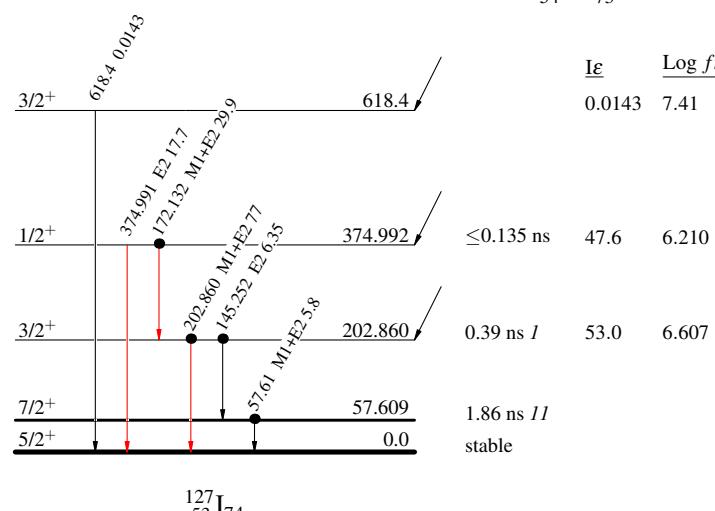
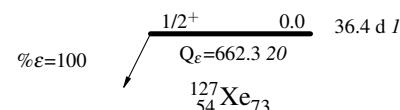
$^{127}\text{Xe } \varepsilon \text{ decay (36.4 d)}$    [1967Ge10](#),[1968Sc14](#),[1977Ge10](#) (continued) $\gamma(^{127}\text{I})$  (continued)<sup>†</sup> [1977Ge10](#).<sup>‡</sup> I $_{\gamma}$ 's are relative to I(202.86 $\gamma$ )=100 ([1977Ge10](#)).<sup>#</sup> Theoretical conversion coefficients are calculated using BrIcc code for the multipolarity indicated.<sup>@</sup> From L1:L2:L3.<sup>&</sup> From Adopted Levels, gammas.<sup>a</sup> For absolute intensity per 100 decays, multiply by 0.687  $I_{12}$ .

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## Legend

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

## Decay Scheme

Intensities:  $I_{(\gamma+ce)}$  per 100 parent decays $^{127}_{53}\text{I}_{74}$