^{119}Te ε decay (16.05 h) 1975Du04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. M. Symochko, E. Browne, J. K. Tuli	NDS 110,2945 (2009)	1-Dec-2008

Parent: ^{119}Te: E=0.0; $J^\pi=1/2^+$; $T_{1/2}$=16.05 h *5*; Q(ε)=2293.0 *20*; %ε+%$β^+$ decay=100.0

Additional information 1.

1975Du04: Sn(α,xn) E=54 MeV; mass separation; semi, scin γ, γγ, Xγ(t).

1975Me23: ^{120}Te(γ,n); semi γ, γγ.

1967Gr14: ^{116}Sn(α,n) E<18 MeV; chem; semi, scin γ, ce, γγ, γγ(θ).

Others: 1967Be04, 1960Ko12.

The decay scheme is that proposed by 1975Du04.

^{119}Sb Levels

E(level)†	J^π	$T_{1/2}$‡	Comments
0.0	$5/2^+$	38.19 h *22*	
270.44 *4*	$7/2^+$		
644.03 *4*	$1/2^+$	5.2 ps *48*	$T_{1/2}$: <10 ps from (644γ)(x)(t) (1975Du04).
699.87 *5*	$3/2^+$,$5/2^+$		
1327.25 *11*	$(1/2^-)$		
1338.69 *10*	$3/2^+$		
1413.21 *7*	$3/2^-$		
1487.61 *7*	$(3/2^+)$		
1749.64 *6*	$3/2^+$		
1821.13 *8*	$1/2^+$		
1875.32 *20*	$(1/2^+,3/2)$		

† E(levels) are based on a least-squares fit by the evaluators to the E(γ′s).

‡ From Adopted Levels.

ε,$β^+$ radiations

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+β+)†	Comments
(417.7 *20*)	1875.32		0.042 *17*	7.82 *18*	0.042 *17*	εK=0.8445; εL=0.1230; εM+=0.03250
(471.9 *20*)	1821.13		0.95 *10*	6.57 *5*	0.95 *10*	εK=0.8465; εL=0.1214; εM+=0.03201
(543.4 *20*)	1749.64		4.5 *3*	6.03 *3*	4.5 *3*	εK=0.8486; εL=0.1199; εM+=0.03153
(805.4 *20*)	1487.61		0.60 *6*	7.26 *5*	0.60 *6*	εK=0.8529; εL=0.1166; εM+=0.03053
(879.8 *20*)	1413.21		1.26 *9*	7.02 *4*	1.26 *9*	εK=0.8536; εL=0.1160; εM+=0.03036
(954.3 *20*)	1338.69		0.28 *6*	7.74 *10*	0.28 *6*	εK=0.8542; εL=0.1156; εM+=0.03022
(965.8 *20*)	1327.25		0.13 *3*	8.09 *10*	0.13 *3*	εK=0.8543; εL=0.1155; εM+=0.03020
(1593.1 *20*)	699.87	0.16 *1*	9.5 *6*	6.66 *3*	9.7 *6*	av Eβ=261.2 *9*; εK=0.8431; εL=0.1116; εM+=0.02908
(1649.0 *20*)	644.03	1.89 *3*	80.7 *5*	5.767 *4*	82.6 *5*	av Eβ=285.4 *9*; εK=0.8376; εL=0.1107; εM+=0.02885

† Absolute intensity per 100 decays.

$\gamma(^{119}Sb)$

Iγ normalization: from Σ Ti(to g.s. and 270-keV level)=100%, excluding the 270-keV γ ray.

E_γ[‡]	I_γ[ad]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[b]	δ[c]	α[†]	Comments
149.36[#]	0.034[#]	1487.61	(3/2$^+$)	1338.69	3/2$^+$	[M1,E2]		0.30 *10*	α(K)=0.24 *7*; α(L)=0.046 *24*; α(M)=0.009 *5*; α(N+..)=0.0019 *10* α(N)=0.0017 *9*; α(O)=0.00015 *7*
270.45 *4*	0.14 *3*	270.44	7/2$^+$	0.0	5/2$^+$	M1+E2	−0.118 *16*	0.0411	α(K)=0.0355 *5*; α(L)=0.00448 *7*; α(M)=0.000885 *13*; α(N+..)=0.000188 *3* α(N)=0.0001709 *25*; α(O)=1.688×10^{-5} *24* Mult.: from L-subshell ratio in 4.7-d ^{119}Te ε decay.
429.50 *10*	0.10 *3*	699.87	3/2$^+$,5/2$^+$	270.44	7/2$^+$	[E2]		0.01207	α(K)=0.01026 *15*; α(L)=0.001460 *21*; α(M)=0.000291 *4*; α(N+..)=6.04×10^{-5} *9* α(N)=5.53×10^{-5} *8*; α(O)=5.13×10^{-6} *8*
627.72[#]	0.017[#]	1327.25	(1/2$^-$)	699.87	3/2$^+$,5/2$^+$	[E1]		0.001501 *21*	α=0.001501 *21*; α(K)=0.001307 *19*; α(L)=0.0001566 *22*; α(M)=3.08×10^{-5} *5*; α(N+..)=6.51×10^{-6} α(N)=5.92×10^{-6} *9*; α(O)=5.84×10^{-7} *9*
639[@e] *1*		1338.69	3/2$^+$	699.87	3/2$^+$,5/2$^+$				
644.01 *4*	100	644.03	1/2$^+$	0.0	5/2$^+$	[E2]		0.00391 *6*	α(K)exp=0.0036 *4* α=0.00391 *6*; α(K)=0.00336 *5*; α(L)=0.000442 *7*; α(M)=8.75×10^{-5} *13*; α(N+..)=1.84×10^{-5} *3* α(N)=1.675×10^{-5} *24*; α(O)=1.606×10^{-6} *23*
683.21 *10*	0.13 *3*	1327.25	(1/2$^-$)	644.03	1/2$^+$	[E1]		0.001249 *18*	α=0.001249 *18*; α(K)=0.001088 *16*; α(L)=0.0001300 *19*; α(M)=2.55×10^{-5} *4*; α(N+..)=5.41×10^{-6} α(N)=4.92×10^{-6} *7*; α(O)=4.86×10^{-7} *7*
694.5 *3*	0.11 *4*	1338.69	3/2$^+$	644.03	1/2$^+$				
699.85 *6*	12.0 *6*	699.87	3/2$^+$,5/2$^+$	0.0	5/2$^+$	M1,E2		0.0035 *4*	α(K)exp=0.0033 *4* α=0.0035 *4*; α(K)=0.0030 *4*; α(L)=0.00038 *3*; α(M)=7.5×10^{-5} *6*; α(N+..)=1.59×10^{-5} *12* α(N)=1.45×10^{-5} *11*; α(O)=1.42×10^{-6} *13*
713.2 *2*	0.07 *2*	1413.21	3/2$^-$	699.87	3/2$^+$,5/2$^+$				
769.30 *15*	0.13 *3*	1413.21	3/2$^-$	644.03	1/2$^+$				
787.76 *10*	0.32 *5*	1487.61	(3/2$^+$)	699.87	3/2$^+$,5/2$^+$				
[x]794.8 *4*	0.07 *2*								
843.57 *8*	0.35 *5*	1487.61	(3/2$^+$)	644.03	1/2$^+$				
1050[&e] *1*		1749.64	3/2$^+$	699.87	3/2$^+$,5/2$^+$				
1105.57 *8*	0.66 *8*	1749.64	3/2$^+$	644.03	1/2$^+$				
1121.30 *10*	0.24 *5*	1821.13	1/2$^+$	699.87	3/2$^+$,5/2$^+$				
1177.04 *10*	0.85 *10*	1821.13	1/2$^+$	644.03	1/2$^+$				
1216.87[#]	0.0005[#]	1487.61	(3/2$^+$)	270.44	7/2$^+$				
1327.38[#]	0.010[#]	1327.25	(1/2$^-$)	0.0	5/2$^+$				

$^{119}_{51}Sb_{68}$-2

^{119}Te ε decay (16.05 h) 1975Du04 (continued)

γ(^{119}Sb) (continued)

E_γ ‡	I_γ ad	E_i(level)	J_i^π	E_f	J_f^π	Mult. b	α †	Comments
1338.70 *10*	0.27 *5*	1338.69	$3/2^+$	0.0	$5/2^+$			
1413.19 *8*	1.30 *10*	1413.21	$3/2^-$	0.0	$5/2^+$			
1479.5 *4*	0.04 *2*	1749.64	$3/2^+$	270.44	$7/2^+$	[E2]	0.000678 *10*	α=0.000678 *10*; α(K)=0.000526 *8*; α(L)=6.33×10^{-5} *9*; α(M)=1.245×10^{-5} *18*; α(N+..)=7.62×10^{-5} *11* α(N)=2.40×10^{-6} *4*; α(O)=2.38×10^{-7} *4*; α(IPF)=7.35×10^{-5} *11*
1487.36#	0.001#	1487.61	$(3/2^+)$	0.0	$5/2^+$			
x1700.7 *4*	0.03 *1*							
1749.65 *8*	4.7 *3*	1749.64	$3/2^+$	0.0	$5/2^+$	M1,E2	0.00065 *3*	α(K)exp=0.00040 *8* α=0.00065 *3*; α(K)=0.00041 *3*; α(L)=4.9×10^{-5} *4*; α(M)=9.6×10^{-6} *7*; α(N+..)=0.000180 *5* α(N)=1.85×10^{-6} *13*; α(O)=1.85×10^{-7} *14*; α(IPF)=0.000178 *5*
1821.3 *3*	0.04 *2*	1821.13	$1/2^+$	0.0	$5/2^+$	[E2]	0.000621 *9*	α=0.000621 *9*; α(K)=0.000354 *5*; α(L)=4.21×10^{-5} *6*; α(M)=8.27×10^{-6} *12*; α(N+..)=0.000217 *3* α(N)=1.597×10^{-6} *23*; α(O)=1.591×10^{-7} *23*; α(IPF)=0.000215 *3*
1875.30 *20*	0.05 *2*	1875.32	$(1/2^+,3/2)$	0.0	$5/2^+$			

† Additional information 2.
‡ From 1975Du04, except as noted.
# From 1975Me23. Intensity normalized to the strongest γ's from each level.
@ Expected transitions which may be obscured by the intense 644γ (1975Du04).
& Expected transitions which may be obscured by the 1048γ from 4.7 d ^{119}Te ε decay (1975Du04).
a Relative to I(644.01γ)=100.
b From α(K)exp by 1967Gr14, unless otherwise noted.
c From Adopted Levels.
d For absolute intensity per 100 decays, multiply by 0.841 *5*.
e Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

$^{119}_{51}Sb_{68}$-3

^{119}Te ε decay (16.05 h) 1975Du04

Decay Scheme

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

Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)
- Coincidence