^{115}Te ε decay (6.7 min) 1974Ch51,1975WiZX,1976Wi11

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 113, 2391 (2012)	1-Sep-2012

Parent: ^{115}Te: E<20; J^π=(1/2)$^+$; $T_{1/2}$=6.7 min *4*; Q(ε)=4940 *30*; %ε+%β^+ decay=100.0

^{115}Te-%ε+%β^+ decay: M3 isomeric transition unobserved.

γ spectra are for mass separated ^{115}Te(5.8-min + 6.7-min) mixtures. Isomer assignments are from $T_{1/2}(\gamma)$, $\gamma\gamma$-coin, $(\gamma)(\gamma^{\pm})$-coin (1975WiZX).

See drawings for partial-level scheme and preliminary intensity balance.

1974Ch51 analyzed dependence of Iγ(6.7-min 770γ)/Iγ(5.8-min 1380γ) ratio on Eα via ^{112}Sn(α,n) E=12-29 MeV; low J for 770γ parent deduced.

^{115}Sb Levels

E(level)	J^π	E(level)	J^π	E(level)	J^π	E(level)	J^π
0.0	5/2$^+$	1071.7	3/2$^+$	2074.4		2659.9	(3/2)$^+$
723.6	7/2$^+$	1098.7	7/2$^+$	2104.4	(3/2)$^+$	2709.8	(3/2)$^+$
770.4	1/2$^+$	1504.2	(3/2)$^+$	2215.1	3/2$^+$	2764.0	1/2$^+$,3/2$^+$

ε,β^+ radiations

E(decay)	E(level)	Iβ^+ †	Iε†	Log *ft*	I($\varepsilon+\beta^+$)†	Comments
(2.20×10^3 *3*)	2764.0		≈7	≈4.8	≈7	εK= 0.774; εL= 0.1017; εM+= 0.02649
(2.25×10^3 *3*)	2709.8		≈5	≈5.0	≈5	εK= 0.758; εL= 0.0996; εM+= 0.02594
(2.30×10^3 *3*)	2659.9	≈1	≈11	≈4.6	≈12.0	av Eβ= 380 *30*; εK= 0.802 *14*; εL= 0.1056 *19*; εM+= 0.0275 *5*
(2.74×10^3 *3*)	2215.1	≈2	≈7	≈5.0	≈9.0	av Eβ= 580 *30*; εK= 0.664 *24*; εL= 0.087 *3*; εM+= 0.0226 *8*
(2.86×10^3 *3*)	2104.4	≈2	≈5	≈5.2	≈7.0	av Eβ= 630 *30*; εK= 0.621 *24*; εL= 0.081 *4*; εM+= 0.0211 *9*
(2.89×10^3 *3*)	2074.4	≈2	≈4	≈5.3	≈6.0	av Eβ= 640 *30*; εK= 0.609 *24*; εL= 0.080 *4*; εM+= 0.0207 *9*
(3.46×10^3 *3*)	1504.2	≈3	≈3	≈5.7	≈6.0	av Eβ= 900 *30*; εK= 0.393 *21*; εL= 0.051 *3*; εM+= 0.0133 *7*
(3.89×10^3 *3*)	1071.7	≈10	≈4	≈5.6	≈14.0	av Eβ= 1100 *30*; εK= 0.271 *15*; εL= 0.0352 *19*; εM+= 0.0092 *5*
(4.19×10^3 *3*)	770.4	≈26	≈8	≈5.4	≈34.0	av Eβ= 1240 *30*; εK= 0.210 *11*; εL= 0.0273 *15*; εM+= 0.0071 *4*

† Absolute intensity per 100 decays.

$\gamma(^{115}$Sb)

Iγ normalization: for I(γ+ce)=100 to g.s.; negligible IT decay is assumed.

Relative activation yield of ^{115}Te isomers (6.7 min/5.8 min) differs by a factor of 2 (1972Sh37 vs 1975WiZX), which is useful in parent assignments.

Eγ	Iγ†	E$_i$(level)	J_i^π	E$_f$	J_f^π
^{x}303.1 *4*	0.9 *3*				
405.9 *5*	0.8 *3*	1504.2	(3/2)$^+$	1098.7	7/2$^+$
548.7 *2*	1.2 *2*	2764.0	1/2$^+$,3/2$^+$	2215.1	3/2$^+$

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^{115}Te ε decay (6.7 min) 1974Ch51,1975WiZX,1976Wi11 (continued)

γ(^{115}Sb) (continued)

E_γ	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Comments
555.7 *3*	0.55 *12*	2659.9	$(3/2)^+$	2104.4	$(3/2)^+$	
570.0 *14*	0.7 *5*	2074.4		1504.2	$(3/2)^+$	
x610.6 *2*	1.3 *2*					
689.4 *3*	1.3 *3*	2764.0	$1/2^+,3/2^+$	2074.4		
723.6 *1*	6 *CA*	723.6	$7/2^+$	0.0	$5/2^+$	I_γ: calc to balance summed Iγ′s to 723.6 level.
770.4 *1*	11.4 *4*	770.4	$1/2^+$	0.0	$5/2^+$	E_γ: other: 770.44 *5* (1974Ch51).
780.5 *4*	0.7 *2*	1504.2	$(3/2)^+$	723.6	$7/2^+$	
x1031.9 *2*	2.6 *3*					
1071.7 *3*	4.3 *3*	1071.7	$3/2^+$	0.0	$5/2^+$	E_γ: other: 1071.64 *15* (1974Ch51). I_γ: from Iγ(1072γ)=5.1 *4* (^{115}Te isomer + g.s. decays) − Iγ(g.s.)=0.8.
1098.7 *1*	3 *CA*	1098.7	$7/2^+$	0.0	$5/2^+$	
1115.3 *6*	0.7 *3*	2215.1	$3/2^+$	1098.7	$7/2^+$	
1143.4 *5*	0.5 *3*	2215.1	$3/2^+$	1071.7	$3/2^+$	
1155.7 *4*	0.9 *3*	2659.9	$(3/2)^+$	1504.2	$(3/2)^+$	
x1184.9 *8*	0.2 *1*					
1205.5 *4*	1.1 *3*	2709.8	$(3/2)^+$	1504.2	$(3/2)^+$	
x1279.3 *2*	3.4 *4*					E_γ: others: 1273.3 *5* (1974Ch51), 1277 *1* (1972Sh37).
1350.8 *2*	2.6 *3*	2074.4		723.6	$7/2^+$	
x1408.1 *3*	1.1 *2*					
1491.7 *3*	1.1 *2*	2215.1	$3/2^+$	723.6	$7/2^+$	
1504.1 *2*	3.4 *3*	1504.2	$(3/2)^+$	0.0	$5/2^+$	E_γ: other: 1504.50 *15* (1974Ch51).
1561.7 *4*	1.2 *3*	2659.9	$(3/2)^+$	1098.7	$7/2^+$	
x1654.8 *4*	2.1 *3*					
1936.0 *3*	1.1 *2*	2659.9	$(3/2)^+$	723.6	$7/2^+$	
1986.2 *5*	0.42 *15*	2709.8	$(3/2)^+$	723.6	$7/2^+$	
2104.4 *2*	2.8 *3*	2104.4	$(3/2)^+$	0.0	$5/2^+$	
2215.3 *4*	1.9 *3*	2215.1	$3/2^+$	0.0	$5/2^+$	E_γ: other: 2216.0 *3* (1974Ch51).
2659.9 *8*	0.18 *5*	2659.9	$(3/2)^+$	0.0	$5/2^+$	

† For absolute intensity per 100 decays, multiply by ≈3.0.

x γ ray not placed in level scheme.

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Decay Scheme

Intensities: Relative I_γ