^{123}I ε decay (13.2230 h) 1976Wa13,2012Ko47

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 174, 1 (2021)	15-Apr-2021

Parent: ^{123}I: E=0.0; J$^\pi$=5/2$^+$; $T_{1/2}$=13.2230 h *19*; Q(ε)=1228 *3*; %ε+%β^+ decay=100.0
^{123}I-J$^\pi$,$T_{1/2}$: From Adopted Levels of ^{123}I.
^{123}I-Q(ε): From 2021Wa16.

2012Ko47: radionuclide ^{123}I was produced at the IPEN Cyclone-30 cyclotron at the Nuclear Metrology Laboratory (LMN) at the Nuclear and Energy Research Institute (IPEN) , by means of ^{124}Xe(p,2n)^{123}Cs reaction, followed by ^{123}Cs decay. γ and X rays were detected by NaI(Tl) and HPGe detectors and electrons were detected by a gas-flow or pressured 4π proportional counter in 4πβ-γ coincidence systems. Measured Eγ, Iγ, E(X-ray), I(X-ray), Eβ, Iβ. Deduced γ-ray emission probabilities, 159γ conversion coefficient from the experimental extrapolation curve. Comparisons with available data.

1976Wa13: ^{123}I source was produced via ^{123}Te(p,n) on isotopically enriched targets at Lawrence Livermore Laboratory. γ rays were detected with ordinary and Compton-suppressed Ge(Li) spectrometers. Measured Eγ, Iγ. Deduced levels, J, π, β branching ratios, log *ft*. Comparisons with theoretical calculations. Systematics of neighboring Te isotopes.

1979Sc13: ^{123}I activity was obtained from the decay of ^{123}Xe produced by proton bombardment of iodine. γ rays were detected with a NaI detector. Measured Eγ, γ(θ,t). Deduced levels, J, π, γ-ray mixing ratios. Deduced magnetic moment of ^{123}I g.s. using the technique of nuclear magnetic resonance of oriented nuclei (NMR/ON).

1970Sp03: source of ^{123}I was produced by high-energy spallation of 3 GeV proton from the Princeton-Pennsylvania Accelerator on a natural lanthanum target. γ rays were detected with four Ge(Li) detectors. Measured Eγ, Iγ, γγ-coin. Deduced levels. Comparisons with available data.

1968Ra11: source of ^{123}I was produced by ^{121}Sb(^{4}He,2n) with 30 MeV ^{4}He beam from the MIT cyclotron on Sb metal (98.4% in ^{121}Sb). γ rays were detected with a Ge(Li) detector and a NaI(Tl) crystal. Measured Eγ, Iγ, γγ-coin. Deduced levels, J, π, β branching ratios, log *ft*. Comparisons with theoretical calculations. Systematics of neighboring Te isotopes.

1969Se09: ^{123}I source was produced via Te(p,xn) with 80 MeV proton beam from the synchrocyclotron at Orsay. γ rays were detected with a Ge(Li) detector and a NaI detector. Measured Eγ, Iγ, γγ-coin, γγ(θ). Deduced γ-ray mixing ratios. See 1967Se05 for deduced levels, J, π, β-decay branching ratios, log *ft*.

Others:
Iγ: 1960Gu02, 1986AgZW, 1986Fl03, 1987Ja13, 1990Ma24.
Parent $T_{1/2}$: 2012Re25, 2018Bo02, 2004Da05, 1973Ka45.

^{123}Te Levels

E(level)†	J$^\pi$‡	$T_{1/2}$‡	Comments
0.0	1/2$^+$		
159.00 *3*	3/2$^+$	196 ps *10*	
247.5	11/2$^-$	119.2 d *3*	Additional information 1. E(level): rounded value from Adopted Levels.
440.01 *4*	3/2$^+$	22 ps *4*	J$^\pi$: spin=3/2 from γγ(θ) in 1969Se09.
489.73 *8*	7/2$^+$	30.7 ns *4*	
505.34 *4*	5/2$^+$	13 ps *3*	J$^\pi$: spin=5/2 from γγ(θ) in 1969Se09.
532.82 *11*	(7/2$^-$)		
599.57 *15*	1/2$^+$		
687.97 *4*	3/2$^+$		J$^\pi$: spin=3/2 from γγ(θ) in 1969Se09; 5/2 from γ(θ) anisotropy in 1979Sc13.
697.53 *5*	(7/2)$^+$		J$^\pi$: spin=7/2 from γγ(θ) in 1969Se09.
769.27 *14*			
783.61 *4*	3/2$^+$	52 fs *+33−21*	J$^\pi$: spin=(3/2,5/2) from γγ(θ) in 1969Se09; 5/2 ruled out by γ(θ) anisotropy in 1979Sc13.
894.77 *8*	3/2$^+$,5/2$^+$	45 fs *+24−14*	
996.07 *12*	(5/2)$^-$		
1036.65 *12*	3/2$^+$	43 fs *+16−12*	
1068.16 *7*	3/2$^+$,5/2$^+$		

Continued on next page (footnotes at end of table)

^{123}I ε decay (13.2230 h) 1976Wa13,2012Ko47 (continued)

^{123}Te Levels (continued)

† From a least-squares fit to γ-ray energies, assuming ΔEγ=0.3 keV where not given.
‡ From Adopted Levels.

ε,β^+ radiations

E(decay)	E(level)	Iε‡	Log *ft*	I(ε+β^+)†‡	Comments
(160 *3*)	1068.16	0.0079 *8*	7.55 *5*	0.0079 *8*	εK=0.8057 *14*; εL=0.1522 *11*; εM+=0.0421 *4*
(191 *3*)	1036.65	0.0028 *11*	8.2 *2*	0.0028 *11*	εK=0.8166 *9*; εL=0.1439 *7*; εM+=0.03946 *21*
(232 *3*)	996.07	0.0036 *5*	8.3 *1*	0.0036 *5*	εK=0.8256 *6*; εL=0.1371 *4*; εM+=0.03732 *13*
(333 *3*)	894.77	0.074 *3*	7.31 *2*	0.074 *3*	εK=0.8373 *3*; εL=0.12818 *18*; εM+=0.03453 *6*
(444 *3*)	783.61	0.150 *4*	7.27 *2*	0.150 *4*	εK=0.8434 *2*; εL=0.1235 *1*; εM+=0.03307 *3*
(459 *3*)	769.27	0.0037 *7*	8.9 *1*	0.0037 *7*	εK=0.8440 *2*; εL=0.12306 *9*; εM+=0.03294 *3*
(530 *3*)	697.53	0.406 *13*	7.00 *2*	0.406 *13*	εK=0.8463; εL=0.12130 *7*; εM+=0.03239 *2*
(540 *3*)	687.97	1.51 *5*	6.45 *2*	1.51 *5*	εK=0.8466; εL=0.12110 *6*; εM+=0.03233 *2*
(695 *3*)	532.82	0.0044 *5*	9.21 *5*	0.0044 *5*	εK=0.8497; εL=0.11871 *4*; εM+=0.03159 *2*
(723 *3*)	505.34	0.405 *11*	7.28 *1*	0.405 *11*	εK=0.8501; εL=0.11840 *4*; εM+=0.03149 *1*
(738 *3*)	489.73	0.0026 *14*	9.5 *3*	0.0026 *14*	εK=0.8503; εL=0.11824 *4*; εM+=0.03144 *1*
(788 *3*)	440.01	0.424 *13*	7.34 *2*	0.424 *13*	εK=0.8510; εL=0.11775 *3*; εM+=0.031290 *9* Iε: 0.015 *16* with a 95% confidence level from a direct measurement by 1990Ma24.
(1069 *3*)	159.00	97.0 *5*	5.255 *4*	97.0 *5*	εK=0.8534; εL=0.11590 *2*; εM+=0.030717 *5*

† From γ+ce intensity balance at each level.
‡ Absolute intensity per 100 decays.

γ(^{123}Te)

Iγ normalization: From ΣI(γ+ce to g.s.+247.5 levels)=100. No direct ε decay to g.s. and 247.5 level is expected.

E_γ[‡]	I_γ[‡a]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	δ[@]	α[†]	Comments
159.00 *5*	100	159.00	3/2+	0.0	1/2+	M1+E2	+0.079 *11*	0.187	%Iγ=83.60 *19* α(K)=0.1611 *23*; α(L)=0.0209 *3*; α(M)=0.00417 *6* α(N)=0.000824 *12*; α(O)=8.91×10^{-5} *13* B(M1)(W.u.)=0.0234 *11*; B(E2)(W.u.)=2.5 *5* E_γ: weighted average of 159.1 *1* (1968Ra11), 159.0 *3* (1970Sp03), and 158.97 *5* (1976Wa13). Other: 159 *1* (1967Se05). δ: 0.18 *+8−14* from α(exp)=0.1905 *32* (2012Ko47), using the BrIccMixing program.
174.2 *3*	0.0010 *3*	1068.16	3/2+,5/2+	894.77	3/2+,5/2+	[M1,E2]		0.19 *5*	%Iγ=0.0008 *3* α(K)=0.16 *4*; α(L)=0.028 *13*; α(M)=0.006 *3* α(N)=0.0011 *5*; α(O)=0.00011 *4* I_γ: weighted average of 0.0010 *3* (1976Wa13) and 0.0012 *6* (2012Ko47).
182.62 *6*	0.0156 *7*	687.97	3/2+	505.34	5/2+	[M1,E2]		0.17 *4*	%Iγ=0.0130 *6* α(K)=0.14 *3*; α(L)=0.024 *10*; α(M)=0.0048 *21* α(N)=0.0009 *4*; α(O)=9.E−5 *3* E_γ: weighted average of 183.7 *10* (1968Ra11), 183.0 *7* (1970Sp03), and 182.61 *6* (1976Wa13). Other: 183 *1* (1967Se05). I_γ: weighted average of 0.03 *2* (1968Ra11), 0.03 *1* (1970Sp03), 0.0155 *7* (1976Wa13), and 0.018 *7* (2012Ko47). Other: 0.026 (1967Se05).
[x]190.7 *1*	0.0006 *2*								%Iγ=0.00050 *17*
192.18 *7*	0.0212 *13*	697.53	(7/2)+	505.34	5/2+	[M1,E2]		0.14 *3*	%Iγ=0.0177 *11* α(K)=0.117 *21*; α(L)=0.020 *8*; α(M)=0.0040 *16* α(N)=0.0008 *3*; α(O)=7.6×10^{-5} *24* E_γ: weighted average of 192.7 *10* (1968Ra11), 193 *1* (1970Sp03), and 192.17 *7* (1976Wa13). Other: 192 *1* (1967Se05). I_γ: weighted average of 0.03 *2* (1968Ra11), 0.03 *2* (1970Sp03), 0.0238 *11* (1976Wa13), and 0.0194 *9* (2012Ko47). Other: 0.023 (1967Se05).
197.23[#]	0.0004 *2*	894.77	3/2+,5/2+	697.53	(7/2)+	[M1,E2]		0.13 *3*	%Iγ=0.00033 *17* α(K)=0.108 *19*; α(L)=0.018 *7*; α(M)=0.0037 *14* α(N)=0.0007 *3*; α(O)=7.0×10^{-5} *21*
198.23	0.004 *1*	687.97	3/2+	489.73	7/2+	[E2]		0.1545	%Iγ=0.0033 *9* α(K)=0.1242 *18*; α(L)=0.0243 *4*; α(M)=0.00497 *7* α(N)=0.000952 *14*; α(O)=8.92×10^{-5} *13* I_γ: other: 0.003 *5* for 198.2γ+197.2γ (2012Ko47).

From ENSDF

γ(^{123}Te) (continued)

E_γ[‡]	I_γ[‡a]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	δ[@]	α[†]	Comments
206.80[#]	0.004 *1*	894.77	$3/2^+,5/2^+$	687.97	$3/2^+$	[M1,E2]		0.112 *22*	%Iγ=0.0033 *9* α(K)=0.093 *15*; α(L)=0.015 *6*; α(M)=0.0031 *11* α(N)=0.00060 *21*; α(O)=6.0×10^{-5} *17*
207.80[#]	0.0013 *4*	697.53	$(7/2)^+$	489.73	$7/2^+$	[M1,E2]		0.111 *21*	%Iγ=0.0011 *4* α(K)=0.092 *15*; α(L)=0.015 *6*; α(M)=0.0031 *11* α(N)=0.00059 *20*; α(O)=5.9×10^{-5} *17* I_γ: other: 0.0046 *5* for 207.8γ+206.8γ (2012Ko47).
247.97 *5*	0.0829 *18*	687.97	$3/2^+$	440.01	$3/2^+$	(M1+E2)		0.064 *8*	%Iγ=0.0693 *16* α(K)=0.054 *5*; α(L)=0.0083 *21*; α(M)=0.0017 *5*; α(N+..)=0.00039 *10* E_γ: weighted average of 248.3 *5* (1968Ra11), 248.4 *5* (1970Sp03), and 247.96 *5* (1976Wa13). Other: 248 *1* (1967Se05). I_γ: weighted average of 0.08 *1* (1968Ra11), 0.07 *2* (1970Sp03), 0.085 *3* (1976Wa13), and 0.0824 *18* (2012Ko47). Other: 0.070 (1967Se05). δ: −0.55 to −0.14, or −2.1 to −1.0 from $\delta^2/(1+\delta^2)$=0.02 to 0.23 or 0.48 to 0.81 (δ<0), respectively, from γ(θ) anisotropy in 1979Sc13, with J(688)=5/2.
257.51 *15*	0.0018 *5*	697.53	$(7/2)^+$	440.01	$3/2^+$	[E2]		0.0637	%Iγ=0.0015 *5* α(K)=0.0525 *8*; α(L)=0.00902 *13*; α(M)=0.00183 *3* α(N)=0.000353 *5*; α(O)=3.43×10^{-5} *5* I_γ: other: %Iγ=0.00016 *4* in Table 3 of 2012Ko47 could be a misprint.
[x]259.0 *2*	0.0011 *5*								%Iγ=0.0009 *5*
278.36 *12*	0.0027 *5*	783.61	$3/2^+$	505.34	$5/2^+$	[M1,E2]		0.045 *4*	%Iγ=0.0023 *5* α(K)=0.038 *3*; α(L)=0.0057 *12*; α(M)=0.00114 *24* α(N)=0.00022 *5*; α(O)=2.3×10^{-5} *4*
281.03 *5*	0.086 *3*	440.01	$3/2^+$	159.00	$3/2^+$	M1+E2	−0.24[&] *+10−14*	0.0409 *8*	%Iγ=0.072 *3* α(K)=0.0352 *6*; α(L)=0.00454 *17*; α(M)=0.00091 *4* α(N)=0.000179 *7*; α(O)=1.93×10^{-5} *6* E_γ: others: 281.0 *5* (1968Ra11), 281.3 *5* (1970Sp03), 282 *1* (1967Se05). Other: 282 *1* (1967Se05), 275 *10* (1960Gu02). I_γ: weighted average of 0.08 *1* (1968Ra11), 0.08 *3* (1970Sp03), 0.095 *3* (1976Wa13), and 0.0841 *16* (2012Ko47). Other: 0.053 (1967Se05), 0.14 *3* (1960Gu02). δ: from A_2=−0.26 *3* of 281γ-159γ(θ) (1969Se09), also giving other possible δ=−1.9 *5* which is less likely since it would require a much larger B(E2)(W.u.). Others:

From ENSDF

γ(^{123}Te) (continued)

E_γ[‡]	I_γ[‡a]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[@]	α[†]	Comments
									-0.08 to 0, or +3.4 to +4.9 from $\delta^2/(1+\delta^2)<0.007$ (δ<0) or 0.92 to 0.96 (δ>0), respectively, from γ(θ) anisotropy in 1979Sc13.
285.32 *11*	0.0051 *5*	532.82	(7/2$^-$)	247.5	11/2$^-$				%Iγ=0.0043 *5*
295.19[#]	0.0019	894.77	3/2$^+$,5/2$^+$	599.57	1/2$^+$				%Iγ=0.001588 *4* E_γ,I_γ: From author's FIG.4; not given in table 2 (1976Wa13). Other: Iγ<0.00084 (2012Ko47).
329.38 *17*	0.0031 *7*	769.27		440.01	3/2$^+$				%Iγ=0.0026 *6*
330.70 *8*	0.0139 *7*	489.73	7/2$^+$	159.00	3/2$^+$	[E2]		0.0282	%Iγ=0.0116 *6* α(K)=0.0236 *4*; α(L)=0.00370 *6*; α(M)=0.000748 *11* α(N)=0.0001450 *21*; α(O)=1.447×10^{-5} *21* I_γ: other: 0.0149 *6* for 330.7γ+329.4γ (2012Ko47).
343.73 *14*	0.0051 *5*	783.61	3/2$^+$	440.01	3/2$^+$				%Iγ=0.0043 *5*
346.36 *5*	0.144 *3*	505.34	5/2$^+$	159.00	3/2$^+$	M1+E2	+0.07[&] *8*	0.0236	%Iγ=0.120 *3* α(K)=0.0204 *3*; α(L)=0.00257 *4*; α(M)=0.000511 *8* α(N)=0.0001012 *15*; α(O)=1.102×10^{-5} *16* E_γ: weighted average of 346.6 *5* (1968Ra11), 347.0 *5* (1970Sp03), and 346.35 *5* (1976Wa13). Others: 346 *1* (1967Se05), 340 *10* (1960Gu02). I_γ: weighted average of 0.16 *3* (1960Gu02), 0.12 *2* (1968Ra11), 0.11 *3* (1970Sp03), 0.151 *5* (1976Wa13), and 0.142 *3* (2012Ko47). Other: 0.087 (1967Se05). δ: from A_2=+0.006 *30* of 346γ-159γ(θ) in 1969Se09, also giving other possible δ=+3.4 *+13−8* which is less likely since it would require a much larger B(E2)(W.u.). Others: +0.20 to +0.29 from $\delta^2/(1+\delta^2)$=0.04 to 0.08 (δ>0) from γ(θ) anisotropy in 1979Sc13, with J(688)=5/2.
405.02 *13*	0.0032 *4*	894.77	3/2$^+$,5/2$^+$	489.73	7/2$^+$				%Iγ=0.0027 *4* I_γ: weighted average of 0.0035 *7* (1976Wa13) and 0.0031 *4* (2012Ko47).
437.5 *3*	0.0009 *9*	1036.65	3/2$^+$	599.57	1/2$^+$				%Iγ=0.0008 *8*
440.02 *5*	0.464 *12*	440.01	3/2$^+$	0.0	1/2$^+$	M1+E2	−2.1 *1*	0.01199	%Iγ=0.388 *10* α(K)=0.01021 *15*; α(L)=0.001432 *20*; α(M)=0.000287 *4* α(N)=5.62×10^{-5} *8*; α(O)=5.83×10^{-6} *9* E_γ: weighted average of 440.4 *5* (1968Ra11), 440.2 *4* (1970Sp03), and 440.02 *5* (1976Wa13). Others: 440 *1* (1967Se05), 439.2 (1969Se09), 440.0 (1987Ja13), 435 *10* (1960Gu02). I_γ: weighted average of 0.42 *2* (1968Ra11), 0.42 *8* (1970Sp03), 0.514 *17* (1976Wa13), 0.464 *9* (2012Ko47), 0.450 *15* (1987Ja13), and 0.44 *9* (1960Gu02). Other: 0.255 (1967Se05). δ: +0.14 to +0.20, or −4.9 to −2.5 from $\delta^2/(1+\delta^2)$=0.02 to 0.04 (δ>0) or 0.86 to 0.96 (δ<0), respectively, from γ(θ) anisotropy in 1979Sc13.
454.76 *15*	0.0041 *3*	894.77	3/2$^+$,5/2$^+$	440.01	3/2$^+$				%Iγ=0.0034 *3*

From ENSDF

γ(^{123}Te) (continued)

E_γ[‡]	I_γ[‡a]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	α[†]	Comments
								I_γ: weighted average of 0.0047 *6* (1976Wa13) and 0.00396 *24* (2012Ko47).
505.33 *5*	0.344 *9*	505.34	5/2$^+$	0.0	1/2$^+$	(E2)		%Iγ=0.288 *8* E_γ: others: 505.6 *6* (1968Ra11), 505.6 *5* (1970Sp03), 505 *1* (1967Se05), 500 *10* (1960Gu02). I_γ: weighted average of 0.31 *5* (1968Ra11), 0.32 *8* (1970Sp03), 0.379 *12* (1976Wa13), 0.337 *6* (2012Ko47), and 0.28 *6* (1960Gu02). Other: 0.193 (1967Se05). Mult.: Q from γ(θ) anisotropy in 1979Sc13.
528.97 *5*	1.52 *12*	687.97	3/2$^+$	159.00	3/2$^+$	(M1+E2)		%Iγ=1.27 *10* E_γ: weighted average of 529.0 *4* (1968Ra11), 529.3 *4* (1970Sp03), and 528.96 *5* (1976Wa13). Others: 529.0 (1987Ja13), 530 *10* (1960Gu02). I_γ: unweighted average of 1.27 *11* (1968Ra11), 1.26 *24* (1970Sp03), 1.67 *5* (1976Wa13), 1.49 *3* (2012Ko47), 1.411 *29* (1987Ja13), and 2.0 *3* (1960Gu02). Other: 0.780 (1967Se05). δ: −0.09 *6* or −2.8 *+6−7* deduced (by the evaluator) from A_2=−0.19 *2* of 529γ-159γ(θ) in 1969Se09, using adopted δ(E2/M1)=+0.079 *11* for 159γ, with J(688)=3/2. Others: +0.44 to +0.64, or +4 to +10 from $\delta^2/(1+\delta^2)$=0.16 to 0.29 or 0.94 to 0.99 (δ>0), respectively, from γ(θ) anisotropy in 1979Sc13, with J(688)=5/2.
538.54 *5*	0.37 *4*	697.53	(7/2)$^+$	159.00	3/2$^+$			%Iγ=0.31 *4* E_γ: others: 538.5 *5* (1968Ra11), 538.5 *5* (1970Sp03), 538 *1* (1967Se05), 538.0 (1987Ja13). I_γ: unweighted average of 0.32 *2* (1968Ra11), 0.31 *6* (1970Sp03), 0.458 *15* (1976Wa13), 0.411 *7* (2012Ko47) and 0.379 *16* (1987Ja13). Other: 0.195 (1967Se05).
556.05 *13*	0.0030 *3*	996.07	(5/2)$^-$	440.01	3/2$^+$			%Iγ=0.0025 *3* I_γ: weighted average of 0.0037 *5* (1976Wa13) and 0.00288 *24* (2012Ko47).
562.79 *12*	0.00108 *16*	1068.16	3/2$^+$,5/2$^+$	505.34	5/2$^+$			%Iγ=0.00090 *14* I_γ: weighted average of 0.0013 *5* (1976Wa13) and 0.00106 *16* (2012Ko47).
[x]574[b] *1*	0.007							%Iγ=0.005852 *13* E_γ,I_γ: from 1967Se05 only.
578.26 *20*	0.0019 *5*	1068.16	3/2$^+$,5/2$^+$	489.73	7/2$^+$			%Iγ=0.0016 *5* I_γ: weighted average of 0.0018 *5* (1976Wa13) and 0.0024 *10* (2012Ko47).
599.69 *16*	0.0031 *4*	599.57	1/2$^+$	0.0	1/2$^+$			%Iγ=0.0026 *4* I_γ: from 2012Ko47. Other: 0.0031 *11* (1976Wa13).
610.05 *23*	0.0013 *4*	769.27		159.00	3/2$^+$			%Iγ=0.0011 *4* I_γ: other: <0.00012 (2012Ko47).
624.58 *5*	0.093 *3*	783.61	3/2$^+$	159.00	3/2$^+$	M1+E2	0.0050 *6*	%Iγ=0.078 *3* α(K)=0.0043 *5*; α(L)=0.00055 *4*; α(M)=0.000109 *8* α(N)=2.16×10^{-5} *15*; α(O)=2.32×10^{-6} *21* E_γ: weighted average of 624.9 *5* (1968Ra11), 624.9 *5* (1970Sp03), and 624.57 *5* (1976Wa13). Other: 624 *1* (1967Se05). I_γ: weighted average of 0.08 *1* (1968Ra11), 0.07 *2* (1970Sp03), 0.100 *3* (1976Wa13), and 0.0910 *17* (2012Ko47). Other: 0.044 (1967Se05).

$^{123}_{52}$Te$_{71}$-6

γ(^{123}Te) (continued)

E_γ[‡]	I_γ[‡a]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	Comments
							δ: +0.10 to +0.18, or +2.3 to +4.9 from $\delta^2/(1+\delta^2)$=0.01 to 0.03 or 0.84 to 0.96 (δ>0), respectively, from $\gamma(\theta)$ anisotropy in 1979Sc13.
628.26 *22*	0.0019 *3*	1068.16	3/2$^+$,5/2$^+$	440.01	3/2$^+$		%Iγ=0.0016 *3*
687.94 *8*	0.0321 *9*	687.97	3/2$^+$	0.0	1/2$^+$		%Iγ=0.0268 *8* E_γ: weighted average of 687.7 *6* (1968Ra11), 687.7 *5* (1970Sp03), and 687.95 *8* (1976Wa13). Other: 688 *1* (1967Se05). I_γ: weighted average of 0.03 *1* (1968Ra11), 0.04 *2* (1970Sp03), 0.0321 *18* (1976Wa13), and 0.0321 *9* (2012Ko47). Others: 0.017 (1967Se05), <0.08 (1960Gu02).
735.87 *11*	0.056 *7*	894.77	3/2$^+$,5/2$^+$	159.00	3/2$^+$		%Iγ=0.047 *6* E_γ: unweighted average of 736.10 *6* (1968Ra11), 735.6 *6* (1970Sp03), 735.78 *7* (1976Wa13), and 736 *1* (1967Se05). I_γ: unweighted average of 0.04 *1* (1968Ra11), 0.05 *2* (1970Sp03), 0.074 *3* (1976Wa13), and 0.0593 *11* (2012Ko47). Other: 0.029 (1967Se05).
^{x}760.85 *20*	0.00075 *25*						%Iγ=0.00063 *21*
783.60 *6*	0.0634 *20*	783.61	3/2$^+$	0.0	1/2$^+$	M1+E2	%Iγ=0.0530 *17* E_γ: weighted average of 784.4 *6* (1968Ra11), 784.0 *6* (1970Sp03), and 783.59 *6* (1976Wa13). Other: 784 *1* (1967Se05). I_γ: weighted average of 0.05 *1* (1968Ra11), 0.05 *2* (1970Sp03), 0.071 *3* (1976Wa13), and 0.0624 *12* (2012Ko47). Other: 0.030 (1967Se05). δ: +0.20 to +0.33, or −4.9 to −3.0 from $\delta^2/(1+\delta^2)$=0.04 to 0.10 (δ>0) or 0.90 to 0.96 (δ<0), respectively, from $\gamma(\theta)$ anisotropy in 1979Sc13.
837.10 *20*	0.00056 *10*	996.07	(5/2)$^-$	159.00	3/2$^+$		%Iγ=0.00047 *9* I_γ: weighted average of 0.0006 *1* (1976Wa13) and 0.00049 *13* (2012Ko47).
877.52 *17*	0.00086 *11*	1036.65	3/2$^+$	159.00	3/2$^+$		%Iγ=0.00072 *10* E_γ: Value of 887.52 listed in author′s table 2 is a misprint. See FIG.4. I_γ: weighted average of 0.0013 *8* (1976Wa13) and 0.00085 *11* (2012Ko47).
894.8 *2*	0.00084 *9*	894.77	3/2$^+$,5/2$^+$	0.0	1/2$^+$		%Iγ=0.00070 *8* I_γ: weighted average of 0.0011 *3* (1976Wa13) and 0.00082 *9* (2012Ko47).
^{x}898.2 *2*	0.0007 *4*						%Iγ=0.0006 *4*
909.12 *12*	0.00155 *11*	1068.16	3/2$^+$,5/2$^+$	159.00	3/2$^+$		%Iγ=0.00130 *10* I_γ: weighted average of 0.0016 *3* (1976Wa13) and 0.00154 *11* (2012Ko47).
1036.63 *17*	0.00092 *7*	1036.65	3/2$^+$	0.0	1/2$^+$		%Iγ=0.00077 *6* I_γ: weighted average of 0.0012 *3* (1976Wa13) and 0.00091 *7* (2012Ko47).
1068.12 *15*	0.00145 *25*	1068.16	3/2$^+$,5/2$^+$	0.0	1/2$^+$		%Iγ=0.00121 *21* I_γ: unweighted average of 0.0017 *1* (1976Wa13) and 0.00120 *10* (2012Ko47).

[†] Additional information 2.

[‡] From 1976Wa13, unless otherwise noted. Intensities quoted as from 2012Ko47 are deduced by the evaluator by normalizing their absolute intensities to I(159γ)=100. For values from 1976Wa13, a 3% uncertainty has been added in quadruture by the evaluator to the quoted uncertainties in 1976Wa13 to account for the uncertainty in efficiency calibration, which is normally 2%−3% and is considered not included by 1976Wa13, since some of their uncertainties are

γ(^{123}Te) (continued)

unrealistically small (<1%).

[#] From energy difference of E(levels).

[@] From Adopted Gammas. Values from this study are given in comments.

[&] Adopted value is deduced (by the evaluator) from A_4=0 and A_2 (given in comments) of γ-159$\gamma(\theta)$ in 1969Se09 with adopted δ(E2/M1)=+0.079 *11* for 159γ.

[a] For absolute intensity per 100 decays, multiply by 0.8360 *19*.

[b] Placement of transition in the level scheme is uncertain.

[x] γ ray not placed in level scheme.

^{123}I ε decay (13.2230 h) 1976Wa13,2012Ko47

Decay Scheme

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

Legend