^{131}Te β^- decay (33.25 h) 1975Ja03,1967Be48

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, I. Mitropolsky, A. Rodionov	NDS 107, 2715 (2006)	17-Jul-2006

Parent: ^{131}Te: E=182.265 *18*; $J^\pi=11/2^-$; $T_{1/2}$=33.25 h *25*; Q(β^-)=2234.9 *22*; %β^- decay=74.1 *5*

^{131}Te-%β^- decay: from 2002Re30.

1976De43: ^{131m}Te(β^-); measured $\gamma\gamma(\theta)$, and ce, ^{131}I deduced levels, J, π. Ge(Li) and Si(Li) detectors.

1975Ja03: ^{131}Te(β^-); measured Eγ, Iγ, $\gamma\gamma$ coincidences, ^{131}I deduced levels, J, π, log *ft*. Ge(Li) detectors.

1975Lh01: ^{131m}Te(β^-); measured $\gamma\gamma(\theta)$, I$\gamma(\theta$,t), deduced ^{131}I levels, J, π, δ. Ge(Li) detectors, nuclear orientation.

1975Lu01: ^{131m}Te(β^-); measured Eγ, Iγ, $\gamma\gamma(\theta)$, ^{131}I deduced levels, J, π, δ. Ge(Li) detectors.

1974Fu13: ^{131m}Te(β^-); measured Eγ, γ(t), isomeric branching. Ge(Li) detector.

1967Be48: ^{131m}Te(β^-); measured ce, ^{131}I deduced levels, J, π, α(exp). Six gap orange and $\pi\sqrt{2}$ iron free spectrometers.

1965De22: ^{131m}Te(β^-); measured Eγ, Iγ, $\beta^-\gamma$ and $\gamma\gamma$ coincidences, $\beta^-\gamma$(t), ce, ^{131}I deduced levels, J, π, $T_{1/2}$, E_{β^-},I_{β^-}, log *ft*. NaI(Tl), Ge(Li), anthracene and β-spectrometers.

1961Be20: Eγ, Iγ, β^- spectrum, $\beta^-\gamma$ and $\gamma\gamma$ coincidences and internal conversion data.

Isomeric branching=25.9% *5* (2002Re30). Others: 22.2% *16* (1975Ja03), 18% *2* (1974Fu13), 18% (1965De22).

The decay scheme and all data are from 1975Ja03, unless indicated otherwise. The J-assignments are summarized in comments. See 1975Lu01 and 1975Lh01 for details.

^{131}I Levels

E(level)†	J^π‡	$T_{1/2}$	Comments
0.0	$7/2^+$	8.02070 d *11*	$T_{1/2}$: from 1983Wa26. Others: 8.0213 d *9* (1980Ho17), 8.020 d *3* (1978La21), 8.116 d *26* (1971Zo02), 8.040 d *1* (1972Em01).
149.711 *10*	$5/2^+$	0.95 ns *5*	g=1.11 *20* (1967Ta07) $T_{1/2}$: from $\gamma\gamma$(t) (1965De22). Others: 0.9 ns *1* (1956De57), 0.76 ns *5* (1971Ma04), and 0.8 ns *1* (1959So16).
492.67 *21*	$3/2^+$,$5/2^+$		
602.066 *25*	$3/2^+$,$5/2^+$		$\gamma\gamma(\theta)$ consistent with J=3/2, 5/2 (1975Lu01).
773.673 *20*	$9/2^+$,$11/2^+$		$\gamma\gamma(\theta)$ consistent with J=9/2, 11/2 (1975Lu01); J=J(1797)−2 from $\gamma\gamma(\theta)$ (1975Lh01).
852.234 *19*	$9/2^+$		J=9/2 from $\gamma\gamma(\theta)$ (1975Lh01).
1005.72 *4*			
1059.708 *19*	$9/2^{(+)}$		$\gamma\gamma(\theta)$ consistent with J=7/2,9/2 (1975Lu01); J=9/2 from $\gamma(\theta)$ (1975Lh01).
1148.82 *4*	$5/2^+$,7/2,$9/2^+$		
1284.0 *3*			
1315.180 *22*	$5/2^+$,7/2,$9/2^+$		J=9/2 if J(1980)=11/2 and J(602)=5/2 from $\gamma\gamma(\theta)$ (1975Lh01).
1376.8 *4*			
1403.84 *14*	$3/2^+$,$5/2^+$		
1547.81 *4*			
1556.157 *22*	$^+$		J=13/2 if J(774)=11/2, J=11/2 if J(774)=9/2 (1975Lu01); J=J(1797) from $\gamma\gamma(\theta)$ (1975Lh01).
1596.450 *23*	$^+$		J=9/2 if J(774)=11/2, J=11/2 if J(774)=9/2 (1975Lu01); J=J(1797)−1 from $\gamma\gamma(\theta)$ (1975Lh01).
1622.6? *2*			
1646.001 *17*	$11/2^-$		J=11/2 from $\gamma\gamma(\theta)$ (1975Lh01).
1697.09 *10*			
1761.50 *9*			
1797.084 *20*	$9/2^-$,$11/2^-$,$13/2^-$	5.9 ns *2*	g=−0.16 *5* (1967Ta07) J=11/2 if J(774)=11/2, J=13/2 if J(774)=9/2 (1975Lu01); J=13/2 or 15/2 from $\gamma\gamma(\theta)$, J=15/2 if J(1980)=11/2 (1975Lh01). $T_{1/2}$: from $\gamma\gamma$(t) (1965De22).
1880.26 *10*			
1887.65 *5*	9/2,11/2,13/2		
1899.144 *19*	$9/2^-$,$11/2^-$,$13/2^-$		J=9/2 if J(774)=11/2, J=11/2 if J(774)=9/2 (1975Lu01); J=J(1797)−1 from $\gamma\gamma(\theta)$ (1975Lh01).

Continued on next page (footnotes at end of table)

^{131}Te β^- decay (33.25 h) 1975Ja03,1967Be48 (continued)

^{131}I Levels (continued)

E(level)[†]	J$^\pi$[‡]	Comments
1924.573 *22*	11/2$^-$	J=11/2 from $\gamma\gamma(\theta)$ (1976De43).
1931.934 *24*		
1936.15 *7*		
1974.25? *20*		
1980.271 *18*	9/2$^-$,11/2$^-$,13/2$^-$	J=7/2 to 13/2 (1975Lu01); J=11/2 from $\gamma(\theta)$ if 921γ is E1, J=J(1797)−2 from $\gamma\gamma(\theta)$ (1975Lh01).
2001.01 *3*	9/2,11/2	J=9/2 or 11/2 from $\gamma\gamma(\theta)$ 1975Lh01.
2011.043 *23*	9/2,11/2,13/2	
2063.32 *15*	9/2,11/2,13/2	
2114.21 *3*	9/2,11/2,13/2	
2168.45 *4*	9/2,11/2,13/2	
2170.73 *4*	9/2,11/2,13/2	
2176.63 *10*	9/2,11/2,13/2	
2241.67 *6*	9/2,11/2,13/2	
2270.64 *8*	9/2,11/2,13/2	
2332.7 *4*		

[†] From a least-squares fit to Eγ data.
[‡] From Adopted Levels; supporting arguments from this data set are indicated in comments.

β^- radiations

E(decay)	E(level)	Iβ^-[†‡]	Log *ft*	Comments
(84.5[#] *22*)	2332.7	0.004 *5*	7.6 *6*	av Eβ=21.97 *61*
(146.5 *22*)	2270.64	0.66 *8*	6.11 *6*	av Eβ=39.24 *63*
(175.5 *22*)	2241.67	0.33 *5*	6.66 *7*	av Eβ=47.62 *65*
(240.5 *22*)	2176.63	0.27 *3*	7.18 *5*	av Eβ=67.15 *68*
(246.4 *22*)	2170.73	0.45 *4*	6.99 *4*	av Eβ=68.96 *68*
(248.7 *22*)	2168.45	0.97 *8*	6.67 *4*	av Eβ=69.66 *68*
(303.0 *22*)	2114.21	1.63 *23*	6.72 *7*	av Eβ=86.73 *71*
(353.8 *22*)	2063.32	0.36 *5*	7.60 *7*	av Eβ=103.28 *73*
(406.1 *22*)	2011.043	2.22 *20*	7.01 *4*	av Eβ=120.78 *75*
(416.2 *22*)	2001.01	5.3 *4*	6.66 *4*	av Eβ=124.20 *76*
(436.9 *22*)	1980.271	35.8 *7*	5.904 *12*	av Eβ=131.31 *76*
(442.9[#] *22*)	1974.25?	0.08 *3*	8.57 *17*	av Eβ=133.39 *77*
(481.0 *22*)	1936.15	0.044 *23*	8.95 *23*	av Eβ=146.67 *78*
(492.6 *22*)	1924.573	2.10 *12*	7.31 *3*	av Eβ=150.72 *78*
(518.0 *22*)	1899.144	16.1 *6*	6.501 *18*	av Eβ=159.78 *79*
(529.5 *22*)	1887.65	1.39 *9*	7.60 *3*	av Eβ=163.90 *79*
(620.1 *22*)	1797.084	0.7 *4*	8.13 *25*	av Eβ=196.96 *82*
(655.7 *22*)	1761.50	0.09 *6*	9.1 *3*	av Eβ=210.25 *83*
(771.2 *22*)	1646.001	2.5 *3*	7.91 *6*	av Eβ=254.37 *86*
(1357.5 *22*)	1059.708	0.36 *16*	9.66 *20*	av Eβ=495.76 *95*
(1411.4 *22*)	1005.72	0.18 *7*	10.03 *17*	av Eβ=519.06 *96*
(2417.2 *22*)	0.0	3.8 *4*	10.84[1u] *5*	av Eβ=963.48 *99* Eβ^-=2458 *9*: weighted average of 2457 *10* (1961Be20) and 2460 *15* (1965De22); Iβ^- from (1961Be20), others: 5% *3* (1975Ja03), 6% (1965De22).

[†] From net γ feeding of each level. The conversion of many low-energy γ's is not included. These, however, contribute ≤or≈30% to depopulation of level feeding.
[‡] For absolute intensity per 100 decays, multiply by 0.741 *5*.
[#] Existence of this branch is questionable.

^{131}Te β^- decay (33.25 h) 1975Ja03,1967Be48 (continued)

$\gamma(^{131}I)$

Iγ normalization: based on a total β^- branch of 74.1% *5*, relative Iβ^-=3.8% *4* of which goes to the ground state (1961Be20) and the Σ (Iγ(1+α) to g.s.)=96.2% *4*.

E_γ	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[a]	Comments
36.83[d] *3*	0.31 *4*	1924.573	11/2$^-$	1887.65	9/2,11/2,13/2			
51.00[d] *5*	0.16 *4*	1697.09		1646.001	11/2$^-$			
[x]52.59 *6*	0.14 *4*							
54.1 *1*	0.03 *2*	1059.708	9/2$^{(+)}$	1005.72				
[x]55.8 *1*	0.07 *3*							
[x]60.84 *7*	0.15 *4*							
62.38[d] *2*	0.94 *6*	2063.32	9/2,11/2,13/2	2001.01	9/2,11/2			
[x]63.2 *1*	0.11 *4*							
65.05[d] *8*	0.21 *5*	2001.01	9/2,11/2	1936.15				
[x]66.95 *5*	0.6 *1*							
73.32[d] *5*	0.69 *8*	2241.67	9/2,11/2,13/2	2168.45	9/2,11/2,13/2			
78.57 *8*	0.40 *8*	852.234	9/2$^+$	773.673	9/2$^+$,11/2$^+$			
79.19 *3*	3.3 *1*	2011.043	9/2,11/2,13/2	1931.934				E_γ: poor fit: level-energy difference is equal to 79.109 *19*.
81.14 *2*	105 *2*	1980.271	9/2$^-$,11/2$^-$,13/2$^-$	1899.144	9/2$^-$,11/2$^-$,13/2$^-$	M1[‡]	1.359	α(K)exp=1.25 *10* (1967Be48); K/L=9 *3* (1967Be48) α(K)=1.167 *17*; α(L)=0.1533 *22*; α(M)=0.0309 *5*; α(N+..)=0.00698 *10* α(N)=0.00625 *9*; α(O)=0.000730 *11* α(exp): α(K)exp=1.9 *3* (1965De22); K/L=10 *2* (1965De22).
86.43 *2*	3.8 *1*	2011.043	9/2,11/2,13/2	1924.573	11/2$^-$			E_γ: poor fit: level-energy difference is equal to 86.470 *16*.
[x]95.00 *12*	0.10 *5*							
[x]96.4 *2*	0.15 *6*							
98.3 *1*	0.35 *8*	1646.001	11/2$^-$	1547.81				
100.0 *1*	1.9 *1*	1980.271	9/2$^-$,11/2$^-$,13/2$^-$	1880.26				
101.6 *3*	4.4 *4*	2001.01	9/2,11/2	1899.144	9/2$^-$,11/2$^-$,13/2$^-$			
102.06 *1*	205 *4*	1899.144	9/2$^-$,11/2$^-$,13/2$^-$	1797.084	9/2$^-$,11/2$^-$,13/2$^-$	M1[‡]	0.706	α(K)exp=0.58 *5* (1967Be48); K/L=9 *3* (1967Be48) α(K)=0.607 *9*; α(L)=0.0794 *12*; α(M)=0.01600 *23*; α(N+..)=0.00362 *5* α(N)=0.00324 *5*; α(O)=0.000379 *6* α(exp): Other: α(K)exp=0.83 *10* (1965De22);K/L=10 *2* (1965De22).
103.3[d] *3*	1.2 *2*	2114.21	9/2,11/2,13/2	2011.043	9/2,11/2,13/2			
105.0[d] *2*	0.7 *1*	2168.45	9/2,11/2,13/2	2063.32	9/2,11/2,13/2			
109.4 *2*	0.9 *2*	602.066	3/2$^+$,5/2$^+$	492.67	3/2$^+$,5/2$^+$			
111.9 *2*	0.8 *2*	2011.043	9/2,11/2,13/2	1899.144	9/2$^-$,11/2$^-$,13/2$^-$			
113.5 *1*	0.3 *1*	2001.01	9/2,11/2	1887.65	9/2,11/2,13/2			
[x]123.7 *5*	0.10 *5*							

$^{131}_{53}I_{78}$-3

^{131}Te β^- decay (33.25 h) 1975Ja03,1967Be48 (continued)

$\gamma(^{131}I)$ (continued)

E_γ	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[a]	Comments
[x]125.2 *3*	0.22 *8*							
126.1 *3*	0.15 *8*	1887.65	9/2,11/2,13/2	1761.50				
127.4[d] *4*	0.6 *2*	1924.573	11/2$^-$	1797.084	9/2$^-$,11/2$^-$,13/2$^-$			
[x]130.5[@] *1*	1.8 *2*							
[x]132.2[d] *1*	0.12 *8*							
134.86 *2*	18.3 *6*	1931.934		1797.084	9/2$^-$,11/2$^-$,13/2$^-$			
137.6 *2*	2 *1*	1899.144	9/2$^-$,11/2$^-$,13/2$^-$	1761.50				
149.3 *3*	2.0 *5*	1697.09		1547.81				
149.71 *1*	131 *17*	149.711	5/2$^+$	0.0	7/2$^+$	M1[‡]	0.241	α(K)exp=0.21 *1* (1967Be48); K/L=7.9 *4* (1967Be48) α(K)=0.207 *3*; α(L)=0.0269 *4*; α(M)=0.00543 *8*; α(N+..)=0.001228 *18* α(N)=0.001099 *16*; α(O)=0.0001287 *18* α(exp): Others: 0.205 *7* (1965De22)$0.26 *5* (1961Be20)$ K/L=6.8 *3* (1965De22).
151.2 *2*	2.0 *8*	1797.084	9/2$^-$,11/2$^-$,13/2$^-$	1646.001	11/2$^-$			
155.9[d] *2*	1.0 *6*	2270.64	9/2,11/2,13/2	2114.21	9/2,11/2,13/2			
159.66 *4*	3.3 *4*	2170.73	9/2,11/2,13/2	2011.043	9/2,11/2,13/2			
169.7 *2*	0.8 *2*	2170.73	9/2,11/2,13/2	2001.01	9/2,11/2			
[x]172.0 *2*	0.3 *1*							
177.2[d] *2*	1.7 *3*	1974.25?		1797.084	9/2$^-$,11/2$^-$,13/2$^-$			
182.25 *2*	19 *5*	2114.21	9/2,11/2,13/2	1931.934		D+Q		
183.11 *8*	4.0 *5*	1980.271	9/2$^-$,11/2$^-$,13/2$^-$	1797.084	9/2$^-$,11/2$^-$,13/2$^-$			
188.13 *5*	5.5 *3*	2168.45	9/2,11/2,13/2	1980.271	9/2$^-$,11/2$^-$,13/2$^-$			
189.76 *4*	13 *1*	2114.21	9/2,11/2,13/2	1924.573	11/2$^-$			
190.52 *6*	3.0 *4*	2170.73	9/2,11/2,13/2	1980.271	9/2$^-$,11/2$^-$,13/2$^-$			
200.63 *2*	195 *3*	1797.084	9/2$^-$,11/2$^-$,13/2$^-$	1596.450	$^+$	E1[‡]	0.0292	α(K)exp=0.026 *4* (1967Be48) α(K)=0.0253 *4*; α(L)=0.00319 *5*; α(M)=0.000638 *9*; α(N+..)=0.0001425 *20* α(N)=0.0001279 *18*; α(O)=1.459×10^{-5} *21* α(K)exp: Other: 0.031 *5* (1965De22).
203.4[d] *4*	0.5 *2*	2001.01	9/2,11/2	1797.084	9/2$^-$,11/2$^-$,13/2$^-$			
207.5 *1*	1.0 *3*	1059.708	9/2$^{(+)}$	852.234	9/2$^+$			
[x]210.3 *3*	0.4 *1*							
211.9[d] *4*	0.3 *1*	1974.25?		1761.50				
213.98 *3*	11.0 *5*	2011.043	9/2,11/2,13/2	1797.084	9/2$^-$,11/2$^-$,13/2$^-$			
227.7[d] *4*	0.4 *3*	1924.573	11/2$^-$	1697.09				
230.65 *5*	5.0 *3*	2241.67	9/2,11/2,13/2	2011.043	9/2,11/2,13/2			
232.3 *1*	2.4 *3*	2168.45	9/2,11/2,13/2	1936.15				
235.0[d] *2*	0.4 *3*	2170.73	9/2,11/2,13/2	1936.15				
240.93 *1*	196 *2*	1797.084	9/2$^-$,11/2$^-$,13/2$^-$	1556.157	$^+$	E1[‡]	0.01776	α(K)exp=1.8×10^{-2} *6* (1967Be48)

^{131}Te β^- decay (33.25 h) 1975Ja03,1967Be48 (continued)

$\gamma(^{131}I)$ (continued)

E_γ	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[a]	Comments
								α(K)=0.01536 *22*; α(L)=0.00193 *3*; α(M)=0.000385 *6*; α(N+..)=8.63×10^{-5} *12* α(N)=7.74×10^{-5} *11*; α(O)=8.88×10^{-6} *13* α(K)exp: Other: 1.7×10^{-2} *5* (1965De22).
253.17 *2*	16.8 *3*	1899.144	9/2$^-$,11/2$^-$,13/2$^-$	1646.001	11/2$^-$			
255.44 *7*	8.0 *3*	1315.180	5/2$^+$,7/2,9/2$^+$	1059.708	9/2$^{(+)}$			
261.4 *2*	0.4 *1*	2241.67	9/2,11/2,13/2	1980.271	9/2$^-$,11/2$^-$,13/2$^-$			
267.2[d] *3*	0.4 *3*	2241.67	9/2,11/2,13/2	1974.25?				
269.2[bd] *3*	≤2.8[b]	1646.001	11/2$^-$	1376.8				I$_\gamma$: 2.8 *6* is the total intensity of this γ transition seen from the 1646 and 2168 levels.
269.2[bd] *3*	≤2.8[b]	2168.45	9/2,11/2,13/2	1899.144	9/2$^-$,11/2$^-$,13/2$^-$			
278.56 *2*	46 *1*	1924.573	11/2$^-$	1646.001	11/2$^-$	M1[‡]	0.0453	α(K)exp=0.036 *7* (1976De43) α(K)=0.0391 *6*; α(L)=0.00499 *7*; α(M)=0.001003 *14*; α(N+..)=0.000227 *4* α(N)=0.000203 *3*; α(O)=2.39×10^{-5} *4*
281.4 *3*	0.9 *5*	2168.45	9/2,11/2,13/2	1887.65	9/2,11/2,13/2			
283.2 *2*	10 *1*	1980.271	9/2$^-$,11/2$^-$,13/2$^-$	1697.09				
290.3 *2*	2.0 *3*	2270.64	9/2,11/2,13/2	1980.271	9/2$^-$,11/2$^-$,13/2$^-$			
296.8 *3*	1.3 *2*	1148.82	5/2$^+$,7/2,9/2$^+$	852.234	9/2$^+$			
302.7 *2*	1.0 *3*	1899.144	9/2$^-$,11/2$^-$,13/2$^-$	1596.450	$^+$			
303.9 *2*	1.0 *2*	2001.01	9/2,11/2	1697.09				
309.47 *6*	9.7 *9*	1315.180	5/2$^+$,7/2,9/2$^+$	1005.72				
[x]323.7 *4*	0.4 *2*							
331.2 *6*	0.8 *3*	1646.001	11/2$^-$	1315.180	5/2$^+$,7/2,9/2$^+$			
334.27 *1*	247 *3*	1980.271	9/2$^-$,11/2$^-$,13/2$^-$	1646.001	11/2$^-$	M1,E2[‡]	0.0283 *5*	α(K)exp=2.6×10^{-2} *3* (1967Be48) α(K)=0.0240 *5*; α(L)=0.0034 *4*; α(M)=0.00070 *8*; α(N+..)=0.000156 *16* α(N)=0.000140 *15*; α(O)=1.57×10^{-5} *10* α(K)exp: Other: 2.6×10^{-2} *5* (1965De22).
335.44 *7*	3.5 *6*	1931.934		1596.450	$^+$			
342.92[cd] *5*	<2[c]	492.67	3/2$^+$,5/2$^+$	149.711	5/2$^+$			I$_\gamma$: the result of intensity balance calculation (1975Ja03).
342.92[c] *5*	10[c] *3*	1899.144	9/2$^-$,11/2$^-$,13/2$^-$	1556.157	$^+$			
345.9 *3*	2.5 *8*	2270.64	9/2,11/2,13/2	1924.573	11/2$^-$			
351.3 *1*	5.4 *5*	1899.144	9/2$^-$,11/2$^-$,13/2$^-$	1547.81				
353.5 *3*	2.0 *9*	2241.67	9/2,11/2,13/2	1887.65	9/2,11/2,13/2			
354.7 *1*	5.9 *3*	2001.01	9/2,11/2	1646.001	11/2$^-$			E$_\gamma$: poor fit: level-energy difference is equal to 355.01 *3*.
357.4[d] *3*	0.5 *2*	1980.271	9/2$^-$,11/2$^-$,13/2$^-$	1622.6?				
362.3[d] *4*	2 *1*	1646.001	11/2$^-$	1284.0				
364.98 *10*	31 *4*	2011.043	9/2,11/2,13/2	1646.001	11/2$^-$			
375.8 *3*	0.3 *1*	1931.934		1556.157	$^+$			
377.8[bd] *3*	≤1.0[b]	1974.25?		1596.450	$^+$			I$_\gamma$: 1.0 *7* is the total intensity of this γ transition seen from both the 1974 and the 2001 levels.

^{131}Te β^- decay (33.25 h) 1975Ja03,1967Be48 (continued)

$\gamma(^{131}I)$ (continued)

E_γ	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[a]	Comments
377.8[bd] 3	≤1.0[b]	2001.01	9/2,11/2	1622.6?				
379.3 3	0.5 2	2176.63	9/2,11/2,13/2	1797.084	9/2$^-$,11/2$^-$,13/2$^-$			
383.90 7	5.2 8	1980.271	9/2$^-$,11/2$^-$,13/2$^-$	1596.450	$^+$			
403.3 4	0.8 3	1005.72		602.066	3/2$^+$,5/2$^+$			
408.2[d] 3	1.6 8	2332.7		1924.573	11/2$^-$			
417.4 2	7.2 5	2063.32	9/2,11/2,13/2	1646.001	11/2$^-$			
432.40 7	17.1 7	1980.271	9/2$^-$,11/2$^-$,13/2$^-$	1547.81				
452.30 4	40 10	602.066	3/2$^+$,5/2$^+$	149.711	5/2$^+$	M1,E2[‡]	0.0123 9	α(K)exp=1.4×10^{-2} 5 (1967Be48) α(K)=0.0105 9; α(L)=0.001416 22; α(M)=0.000286 4; α(N+..)=6.41×10^{-5} 12 α(N)=5.75×10^{-5} 10; α(O)=6.6×10^{-6} 3 α(K)exp: Other: 1.00×10^{-2} 25 (1965De22).
462.92 5	47 1	1315.180	5/2$^+$,7/2,9/2$^+$	852.234	9/2$^+$			
468.16 9	8.1 8	2114.21	9/2,11/2,13/2	1646.001	11/2$^-$			
492.65[d] 5	2 4	492.67	3/2$^+$,5/2$^+$	0.0	7/2$^+$			
[x]506.8 2	2.3 4							
524.8 1	3.5 4	2170.73	9/2,11/2,13/2	1646.001	11/2$^-$			
530.7 1	2.7 5	2176.63	9/2,11/2,13/2	1646.001	11/2$^-$			
541.4 1	2.9 6	1315.180	5/2$^+$,7/2,9/2$^+$	773.673	9/2$^+$,11/2$^+$			
546.7 2	1.0 2	1148.82	5/2$^+$,7/2,9/2$^+$	602.066	3/2$^+$,5/2$^+$			
558.1[d] 2	0.6 2	2114.21	9/2,11/2,13/2	1556.157	$^+$			
572.7 2	1.1 6	1887.65	9/2,11/2,13/2	1315.180	5/2$^+$,7/2,9/2$^+$			
579.8 3	2.0 6	2176.63	9/2,11/2,13/2	1596.450	$^+$			
586.30 3	51 2	1646.001	11/2$^-$	1059.708	9/2$^{(+)}$	D[#]		
597.0 2	1.3 5	2001.01	9/2,11/2	1403.84	3/2$^+$,5/2$^+$			
602.09 4	8 3	602.066	3/2$^+$,5/2$^+$	0.0	7/2$^+$			
609.4 1	3.6 4	1924.573	11/2$^-$	1315.180	5/2$^+$,7/2,9/2$^+$			
637.3[d]	≤0.8	1697.09		1059.708	9/2$^{(+)}$			
[x]657.2 2	0.8 4							
665.05 3	112 2	1980.271	9/2$^-$,11/2$^-$,13/2$^-$	1315.180	5/2$^+$,7/2,9/2$^+$	D[#]		
681.9 3	0.8 2	1284.0		602.066	3/2$^+$,5/2$^+$			
685.9 1	4.0 3	2001.01	9/2,11/2	1315.180	5/2$^+$,7/2,9/2$^+$			
695.62 8	10.3 8	1547.81		852.234	9/2$^+$			
702.50 7	10.1 5	852.234	9/2$^+$	149.711	5/2$^+$			
713.10 4	37 4	1315.180	5/2$^+$,7/2,9/2$^+$	602.066	3/2$^+$,5/2$^+$	Q[#]		
738.8 2	1.7 3	1887.65	9/2,11/2,13/2	1148.82	5/2$^+$,7/2,9/2$^+$			
744.20 4	41 1	1596.450	$^+$	852.234	9/2$^+$	(E2)[#]	0.00303	α(K)=0.00260 4; α(L)=0.000343 5; α(M)=6.91×10^{-5} 10; α(N+..)=1.551×10^{-5} 22 α(N)=1.391×10^{-5} 20; α(O)=1.598×10^{-6} 23
749.0[d] 8	0.4 2	2063.32	9/2,11/2,13/2	1315.180	5/2$^+$,7/2,9/2$^+$			

$^{131}_{53}I_{78}$-6

^{131}Te β^- decay (33.25 h) 1975Ja03,1967Be48 (continued)

$\gamma(^{131}I)$ (continued)

E_γ	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ	α[a]	Comments
773.67 *3*	986 *10*	773.673	9/2$^+$,11/2$^+$	0.0	7/2$^+$	M1,E2[‡]		0.0032 *5*	α(K)exp=1.8×10^{-3} *9* (1967Be48) α(K)=0.0027 *4*; α(L)=0.00035 *4*; α(M)=7.0×10^{-5} *8*; α(N+..)=1.57×10^{-5} *17* α(N)=1.41×10^{-5} *15*; α(O)=1.64×10^{-6} *20* α(K)exp: Other: 2.2×10^{-3} *4* (1965De22).
774.1 *1*	14 *2*	1547.81		773.673	9/2$^+$,11/2$^+$				
782.49 *4*	201 *3*	1556.157	$^+$	773.673	9/2$^+$,11/2$^+$	(E2)[#]		0.00268	α(K)=0.00231 *4*; α(L)=0.000302 *5*; α(M)=6.08×10^{-5} *9*; α(N+..)=1.365×10^{-5} *20* α(N)=1.224×10^{-5} *18*; α(O)=1.410×10^{-6} *20*
793.75 *3*	358 *5*	1646.001	11/2$^-$	852.234	9/2$^+$	(E1)[#]		1.02×10^{-3}	α(K)=0.000886 *13*; α(L)=0.0001071 *15*; α(M)=2.14×10^{-5} *3*; α(N+..)=4.83×10^{-6} *7* α(N)=4.32×10^{-6} *6*; α(O)=5.07×10^{-7} *8*
801.6 *2*	0.5 *2*	1403.84	3/2$^+$,5/2$^+$	602.066	3/2$^+$,5/2$^+$				
822.78 *4*	158 *2*	1596.450	$^+$	773.673	9/2$^+$,11/2$^+$	(M1+E2)[#]		0.0027 *4*	α(K)=0.0024 *4*; α(L)=0.00030 *4*; α(M)=6.0×10^{-5} *7*; α(N+..)=1.36×10^{-5} *16* α(N)=1.21×10^{-5} *14*; α(O)=1.42×10^{-6} *18*
844.9 *2*	4 *1*	1697.09		852.234	9/2$^+$				
848.9[d] *2*	1.0 *3*	1622.6?		773.673	9/2$^+$,11/2$^+$				
852.21[c] *3*	533[c] *11*	852.234	9/2$^+$	0.0	7/2$^+$	M1,E2[‡]		0.0025 *4*	α(K)exp=2.2×10^{-3} *5* (1965De22) α(K)=0.0022 *3*; α(L)=0.00027 *3*; α(M)=5.5×10^{-5} *6*; α(N+..)=1.25×10^{-5} *14* α(N)=1.12×10^{-5} *13*; α(O)=1.31×10^{-6} *16*
852.21[c] *3*	10[c] *5*	2001.01	9/2,11/2	1148.82	5/2$^+$,7/2,9/2$^+$				
856.05 *6*	16 *1*	1005.72		149.711	5/2$^+$				
865.1 *2*	5 *1*	1924.573	11/2$^-$	1059.708	9/2$^{(+)}$				
872.3 *3*	2.6 *3*	1646.001	11/2$^-$	773.673	9/2$^+$,11/2$^+$				
881.6 *3*	0.9 *3*	1887.65	9/2,11/2,13/2	1005.72					
910.00 *3*	85 *2*	1059.708	9/2$^{(+)}$	149.711	5/2$^+$	Q[#]			
920.62 *5*	31 *2*	1980.271	9/2$^-$,11/2$^-$,13/2$^-$	1059.708	9/2$^{(+)}$	D[#]			
923.4 *2*	3.0 *6*	1697.09		773.673	9/2$^+$,11/2$^+$				
930.0[d] *4*	0.5 *3*	1936.15		1005.72					
941.27 *5*	20.2 *7*	2001.01	9/2,11/2	1059.708	9/2$^{(+)}$				
987.8 *1*	4.0 *3*	1761.50		773.673	9/2$^+$,11/2$^+$				
995.1 *3*	2.3 *4*	2001.01	9/2,11/2	1005.72					
999.2 *1*	4.4 *5*	1148.82	5/2$^+$,7/2,9/2$^+$	149.711	5/2$^+$				
1003.6[d] *2*	0.7 *4*	2063.32	9/2,11/2,13/2	1059.708	9/2$^{(+)}$				
1005.7 *2*	1.9 *4*	1005.72		0.0	7/2$^+$				

$^{131}_{53}I_{78}$-7

^{131}Te β^- decay (33.25 h) 1975Ja03,1967Be48 (continued)

$\gamma(^{131}I)$ (continued)

E_γ	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ	α[a]	Comments
1023.6 *2*	1.6 *2*	1797.084	9/2$^-$,11/2$^-$,13/2$^-$	773.673	9/2$^+$,11/2$^+$				
1027.8[d] *4*	0.2 *1*	1880.26		852.234	9/2$^+$				
1035.4 *2*	2.7 *2*	1887.65	9/2,11/2,13/2	852.234	9/2$^+$				
1059.69 *4*	40 *1*	1059.708	9/2$^{(+)}$	0.0	7/2$^+$	(M1+E2)[#]	+1.2 *+9−5*	0.00151 *11*	α(K)=0.00131 *9*; α(L)=0.000162 *10*; α(M)=3.25×10^{-5} *20*; α(N+..)=7.4×10^{-6} *5* α(N)=6.6×10^{-6} *4*; α(O)=7.7×10^{-7} *5* δ: from $\gamma(\theta)$ (1975Lh01). Mult.: D+Q from $\gamma(\theta)$ (1975Lh01); probably (M1+E2) from large δ.
1072.3 *2*	0.6 *1*	1924.573	11/2$^-$	852.234	9/2$^+$				
1108.3 *3*	0.6 *2*	2168.45	9/2,11/2,13/2	1059.708	9/2$^{(+)}$				
1114.1 *3*	0.3 *1*	1887.65	9/2,11/2,13/2	773.673	9/2$^+$,11/2$^+$				
1125.46 *4*	295 *6*	1899.144	9/2$^-$,11/2$^-$,13/2$^-$	773.673	9/2$^+$,11/2$^+$				
1127.96 *6*	25 *2*	1980.271	9/2$^-$,11/2$^-$,13/2$^-$	852.234	9/2$^+$				
1134.2[d] *4*	0.2 *1*	1284.0		149.711	5/2$^+$				
1148.89[c] *7*	<13[c]	1148.82	5/2$^+$,7/2,9/2$^+$	0.0	7/2$^+$				
1148.89[c] *7*	39[c] *8*	2001.01	9/2,11/2	852.234	9/2$^+$	D+Q			
1150.90 *9*	17 *2*	1924.573	11/2$^-$	773.673	9/2$^+$,11/2$^+$				
1162.7 *2*	0.7 *2*	2168.45	9/2,11/2,13/2	1005.72					
1165.5 *1*	3.6 *3*	1315.180	5/2$^+$,7/2,9/2$^+$	149.711	5/2$^+$				
1181.4 *4*	0.3 *2*	2241.67	9/2,11/2,13/2	1059.708	9/2$^{(+)}$				
1206.60 *4*	252 *4*	1980.271	9/2$^-$,11/2$^-$,13/2$^-$	773.673	9/2$^+$,11/2$^+$	(E1)[#]		0.00046	α=0.00046; α(K)=0.00040 *1*
1211.0 *2*	1.6 *3*	2063.32	9/2,11/2,13/2	852.234	9/2$^+$				
1227.8[bd] *5*	≤0.2[b]	1376.8		149.711	5/2$^+$				I_γ: 0.2 *1* is the total intensity of this γ transition seen from both the 1377 and 2001 levels.
1227.8[bd] *5*	≤0.2[b]	2001.01	9/2,11/2	773.673	9/2$^+$,11/2$^+$				
1237.32 *5*	17.0 *8*	2011.043	9/2,11/2,13/2	773.673	9/2$^+$,11/2$^+$				
1254.2 *4*	0.7 *1*	1403.84	3/2$^+$,5/2$^+$	149.711	5/2$^+$				
1315.16 *8*	18 *2*	1315.180	5/2$^+$,7/2,9/2$^+$	0.0	7/2$^+$				
1316.2 *2*	2.5 *9*	2168.45	9/2,11/2,13/2	852.234	9/2$^+$				
1318.3 *2*	1.0 *2*	2170.73	9/2,11/2,13/2	852.234	9/2$^+$				
1333.8 *3*	1.4 *2*	1936.15		602.066	3/2$^+$,5/2$^+$				
1340.6 *1*	2.6 *3*	2114.21	9/2,11/2,13/2	773.673	9/2$^+$,11/2$^+$				
1376.8 *4*	1.1 *2*	1376.8		0.0	7/2$^+$				
1389.6 *3*	0.4 *1*	2241.67	9/2,11/2,13/2	852.234	9/2$^+$				
1394.83 *9*	2.8 *2*	2168.45	9/2,11/2,13/2	773.673	9/2$^+$,11/2$^+$				
1403.6 *6*	0.3 *2*	1403.84	3/2$^+$,5/2$^+$	0.0	7/2$^+$				
1496.5 *4*	1.5 *2*	1646.001	11/2$^-$	149.711	5/2$^+$				
1547.75 *9*	1.8 *2*	1547.81		0.0	7/2$^+$				
1646.01 *5*	32 *1*	1646.001	11/2$^-$	0.0	7/2$^+$				

$^{131}_{53}I_{78}$-8

^{131}Te β^- decay (33.25 h) 1975Ja03,1967Be48 (continued)

$\gamma(^{131}I)$ (continued)

E_γ	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	E_γ	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π
1696.8 *5*	0.4 *1*	1697.09		0.0	$7/2^+$	1980.3 *3*	0.8 *2*	1980.271	$9/2^-$,$11/2^-$,$13/2^-$	0.0	$7/2^+$
1830.6[d] *4*	0.2 *1*	1980.271	$9/2^-$,$11/2^-$,$13/2^-$	149.711	$5/2^+$	2000.94 *6*	52 *1*	2001.01	9/2,11/2	0.0	$7/2^+$
1880.1 *3*	1.6 *2*	1880.26		0.0	$7/2^+$	2168.54 *9*	9.0 *5*	2168.45	9/2,11/2,13/2	0.0	$7/2^+$
1887.70 *7*	35 *1*	1887.65	9/2,11/2,13/2	0.0	$7/2^+$	2270.65 *9*	9.9 *5*	2270.64	9/2,11/2,13/2	0.0	$7/2^+$
1924.1 *3*	0.10 *5*	1924.573	$11/2^-$	0.0	$7/2^+$	2332.7 *4*	0.07 *1*	2332.7		0.0	$7/2^+$
1936.15 *9*	1.9 *2*	1936.15		0.0	$7/2^+$						

† From adopted gammas; supporting arguments from this data set are given in comments.
‡ From ce data of 1967Be48, 1965De22 or 1961Be20.
# From $\gamma(\theta)$ and ΔJ^π of initial and final levels.
@ Possibly a doublet.
& For absolute intensity per 100 decays, multiply by 0.0373 *7*.
[a] 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.
[b] Multiply placed with undivided intensity.
[c] Multiply placed with intensity suitably divided.
[d] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

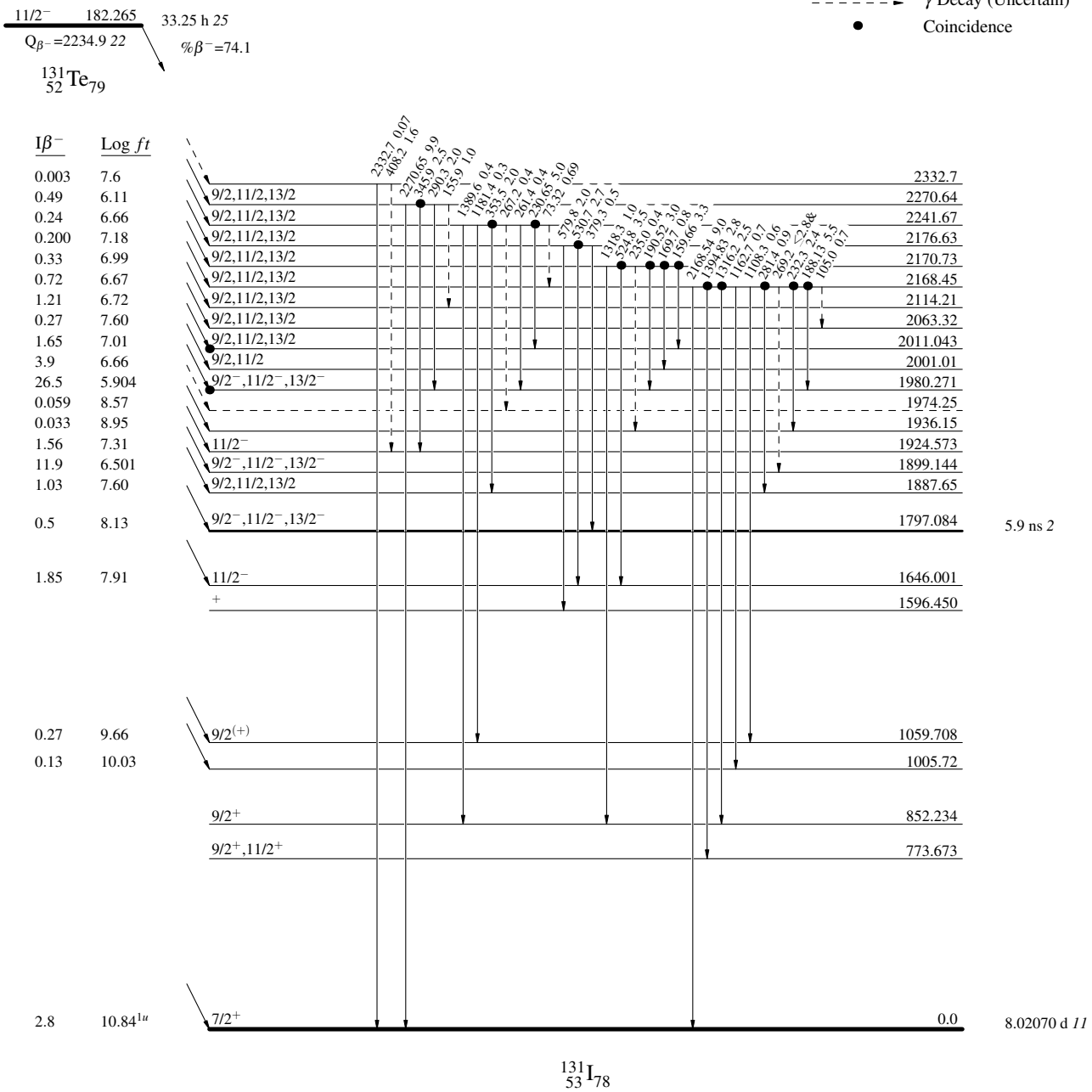
$^{131}_{53}I_{78}$-9

^{131}Te β^- decay (33.25 h) 1975Ja03,1967Be48

Decay Scheme

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

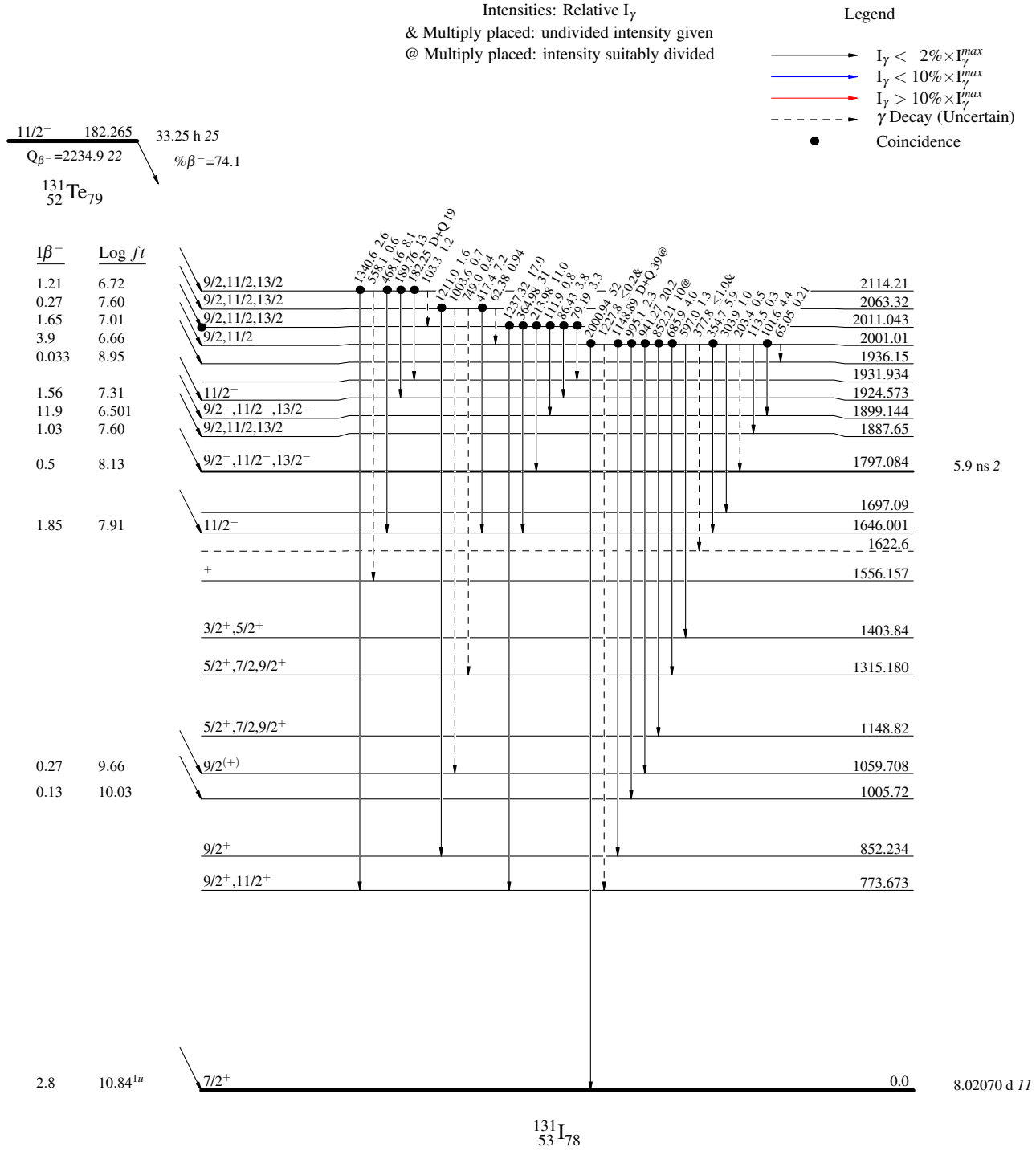
Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)
Coincidence



^{131}Te β^- decay (33.25 h) 1975Ja03,1967Be48

Decay Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

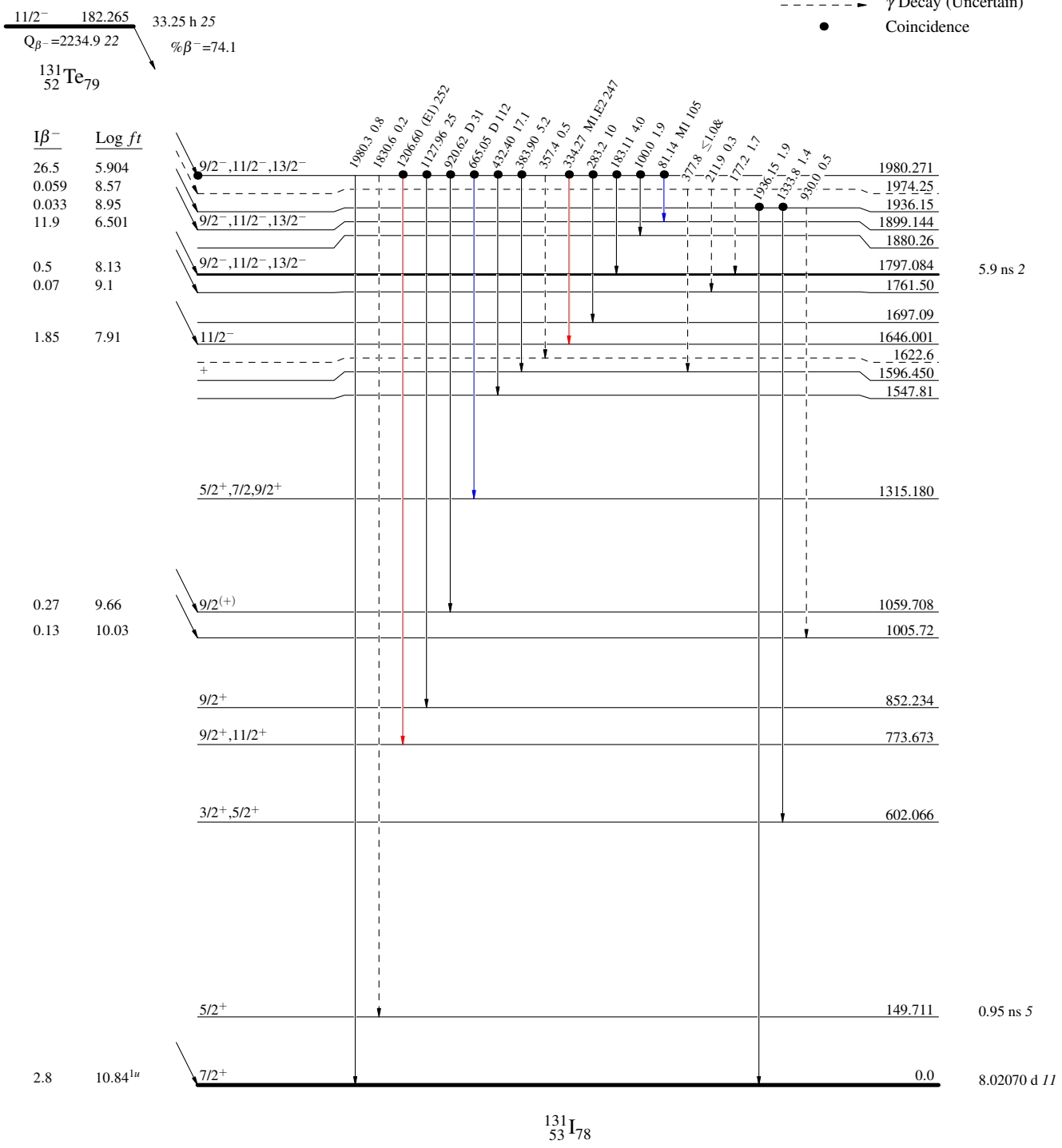


^{131}Te β^- decay (33.25 h) 1975Ja03,1967Be48

Decay Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

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

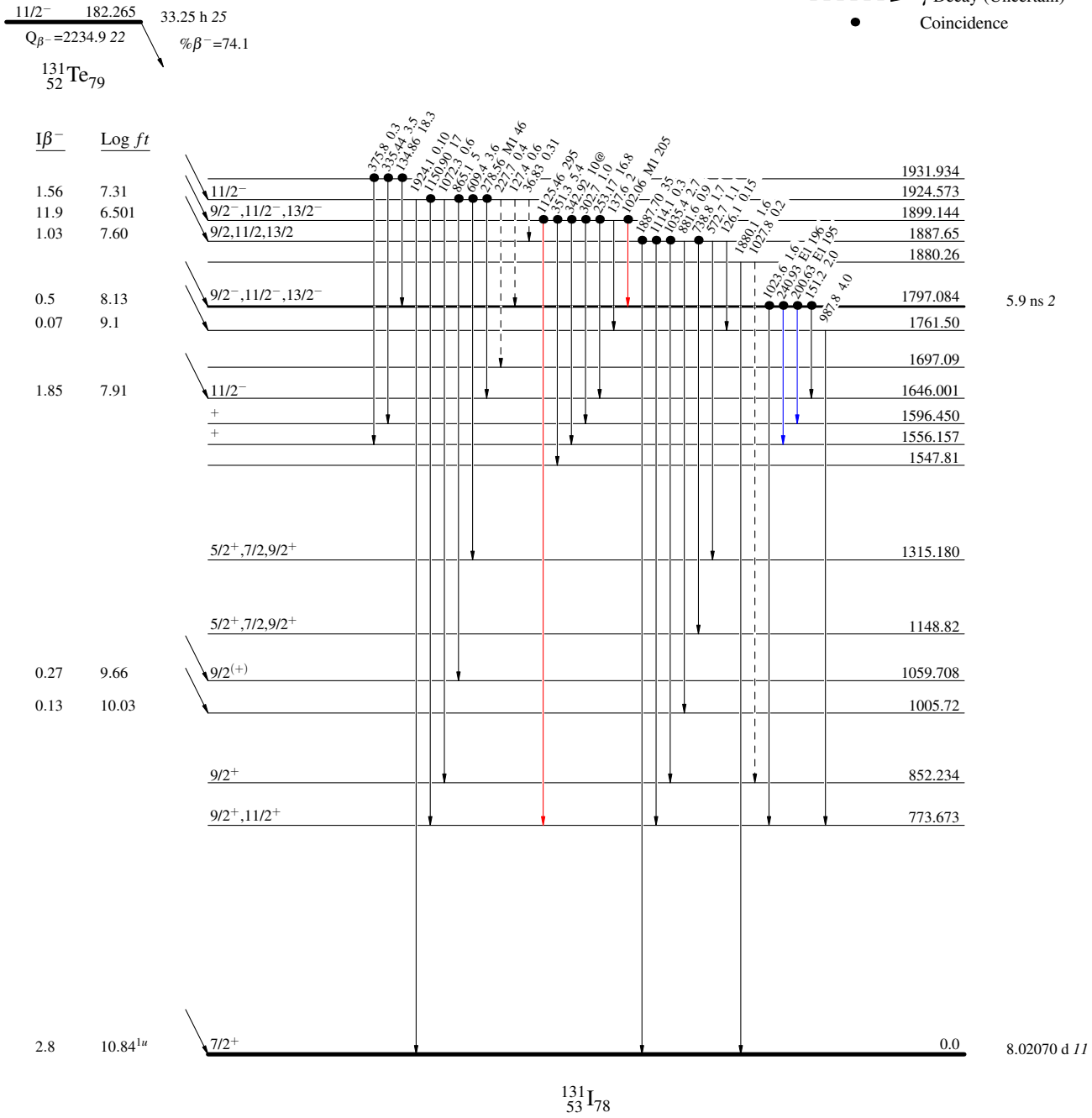


^{131}Te β^- decay (33.25 h) 1975Ja03,1967Be48

Decay Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

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

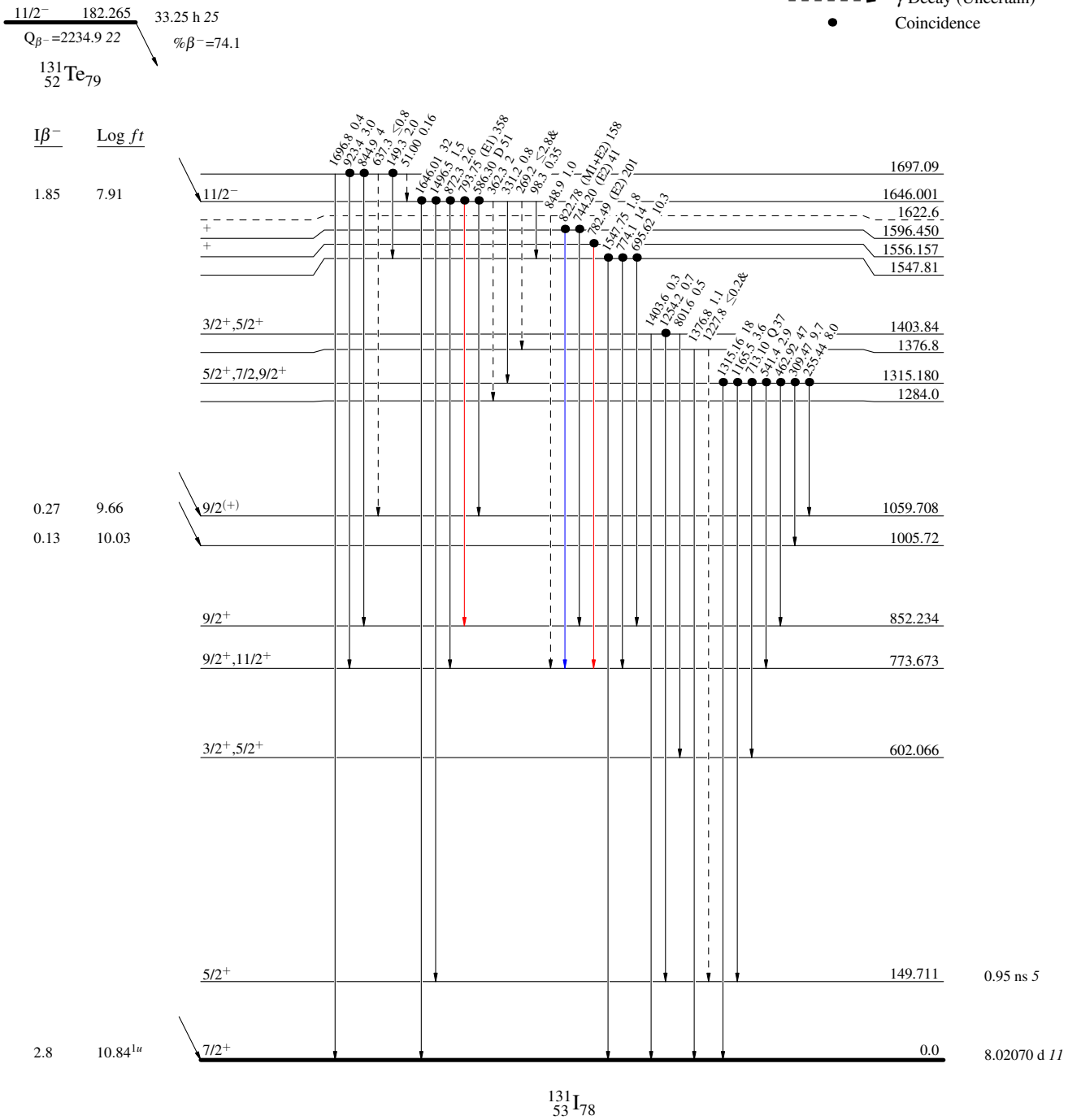


^{131}Te β^- decay (33.25 h) 1975Ja03,1967Be48

Decay Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

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



^{131}Te β^- decay (33.25 h) 1975Ja03,1967Be48

Decay Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

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