^{118}I β^+ decay (13.7 min) 1985StZU

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	K. Kitao	NDS 75,99 (1995)	1-Feb-1993

Parent: ^{118}I: E=0.0; J$^\pi$=2$^-$; T$_{1/2}$=13.7 min *5*; Q(β^+)=7040 *80*; %β^+ decay=100.0

1985Sh04, 1985Sh16, 1985St29: ^{93}Nb(^{32}S,X), ^{93}Nb(^{34}S,X) E=175 MeV; on-line low temperature nuclear orientation, $\gamma\gamma(\theta)$, $\gamma\gamma$ coin.

1985StZU: Eγ and Iγ from the 13.7-min+8.5-min combined source. No experimental details were given, but these are the same as the procedure described in the above references.

1987Wa17, 1987WaZL: ce.

Others: 1965An05, 1967La18, 1969Ha08, 1969La17, 1969Sp07, 1970LaZX, 1985RiZV.

The decay scheme has been extracted by evaluator from the 13.7-min+8.5-min combined decay scheme proposed by 1985StZU. The following assumptions are made in separating the two decays: (1) levels deexciting to 0$^+$ levels (g.s. and 957.3 keV) and 2$^+$ levels (605.6 and 1150.7 keV) are populated by feedings from the 2$^-$ parent, and not from the (7$^-$) parent. (2) the J$^\pi$ values of levels at 1820, 2150, 2573, 3000, and 3400 keV are adopted as proposed in (α,2nγ). These levels are populated by feedings from the (7$^-$) parent, and not from the 2$^-$ parent. (3) levels deexciting to 6$^+$ levels (1820 and 2150 keV) are populated by feedings from the (7$^-$) parent, and not from the 2$^-$ parent.

^{118}Te Levels

E(level)†	J$^\pi$‡	E(level)†	J$^\pi$‡	E(level)†	E(level)†
0.0	0$^+$	1862.92 *24*	1,2$^+$	2372.7 *4*	2762.0 *4*
605.56 *19*	2$^+$	1891.7 *3*	(3)$^+$	2422?	2813.3? *6*
957.33 *24*	0$^+$	1944.34 *25*	3$^-$	2438.0 *4*	2852.2 *4*
1150.66 *19*	2$^+$	1976.1 *3*	(4$^+$)	2500.67 *25*	2862.6 *4*
1206.25 *23*	4$^+$	2020.4 *3*		2531.5 *4*	3253.33 *25*
1481.96 *19*	1$^+$,2$^+$	2229.6 *3*	(4)$^+$	2571.0 *3*	3438.8 *4*
1517.2 *3*	0$^+$	2285.2 *4*		2611.4 *4*	3602.2? *6*
1661.4 *4*		2322.2 *3*		2622.3 *4*	
1702.9 *3*	(4)$^+$	2352.6 *4*		2730.3 *4*	

† From a least-squares fit to E(γ's).
‡ From Adopted Levels.

ε,β^+ radiations

Eβ measurements: Eβ+=7000 from absorption (1965An05), Eβ+=5500 from scin singles spectrum; also reported from $\gamma\beta$+ coin: (4300β+)(612γ), (4900β+)(600γ), (5450β+ 150)(605γ) (1968La18), (5440β+ 100)(605γ) (1970BeYT).

E(decay)	E(level)	Iβ^+†	Iε†	Log *ft*	I($\varepsilon+\beta^+$)†	Comments
(3.60×10^3 *8*)	3438.8	0.35 *4*	0.15 *2*	7.38 *7*	0.50 *5*	av Eβ=1167 *37*; εK=0.254 *18*; εL=0.0333 *23*; εM+=0.0088 *6*
(3.79×10^3 *8*)	3253.33	1.03 *7*	0.36 *3*	7.04 *6*	1.39 *8*	av Eβ=1249 *38*; εK=0.220 *15*; εL=0.0288 *20*; εM+=0.0076 *6*
(4.18×10^3 *8*)	2862.6	0.24 *2*	0.054 *7*	7.94 *7*	0.29 *3*	av Eβ=1432 *38*; εK=0.161 *11*; εL=0.0211 *14*; εM+=0.0056 *4*
(4.19×10^3 *8*)	2852.2	0.54 *6*	0.12 *2*	7.59 *7*	0.66 *7*	av Eβ=1436 *38*; εK=0.160 *11*; εL=0.0209 *14*; εM+=0.0055 *4*
(4.28×10^3 *8*)	2762.0	0.24 *2*	0.050 *6*	8.00 *7*	0.29 *3*	av Eβ=1479 *38*; εK=0.149 *10*; εL=0.0195 *13*; εM+=0.0051 *4*
(4.31×10^3 *8*)	2730.3	<0.20	<0.041	>8.1	<0.24	av Eβ=1494 *38*; εK=0.146 *10*; εL=0.0190 *12*; εM+=0.0050 *4*

Continued on next page (footnotes at end of table)

^{118}I β^+ decay (13.7 min) 1985StZU (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+†	Iϵ†	Log *ft*	I($\epsilon+\beta^+$)†	Comments
(4.42×10^3 *8*)	2622.3	0.35 *3*	0.066 *8*	7.91 *6*	0.42 *4*	av Eβ=1544 *38*; ϵK=0.134 *9*; ϵL=0.0176 *11*; ϵM+=0.0046 *3*
(4.43×10^3 *8*)	2611.4	0.606 *8*	0.112 *7*	7.68 *5*	0.718 *4*	av Eβ=1549 *38*; ϵK=0.133 *9*; ϵL=0.0174 *11*; ϵM+=0.0046 *3*
(4.47×10^3 *8*)	2571.0	<0.45	<0.080	>7.8	<0.53	av Eβ=1568 *38*; ϵK=0.129 *8*; ϵL=0.0169 *11*; ϵM+=0.0045 *3*
(4.51×10^3 *8*)	2531.5	<0.28	<0.048	>8.1	<0.33	av Eβ=1587 *38*; ϵK=0.126 *8*; ϵL=0.0164 *10*; ϵM+=0.0043 *3*
(4.54×10^3 *8*)	2500.67	1.43 *10*	0.239 *22*	7.37 *6*	1.67 *11*	av Eβ=1601 *38*; ϵK=0.123 *8*; ϵL=0.0161 *10*; ϵM+=0.0042 *3*
(4.60×10^3 *8*)	2438.0	<0.31	<0.049	>8.1	<0.36	av Eβ=1631 *38*; ϵK=0.118 *7*; ϵL=0.0153 *10*; ϵM+=0.00404 *25*
(4.67×10^3 *8*)	2372.7	0.79 *9*	0.12 *1*	7.70 *7*	0.91 *10*	av Eβ=1662 *38*; ϵK=0.112 *7*; ϵL=0.0146 *9*; ϵM+=0.00386 *23*
(4.69×10^3 *8*)	2352.6	0.17 *3*	0.026 *4*	8.37 *8*	0.20 *3*	av Eβ=1671 *38*; ϵK=0.111 *7*; ϵL=0.0144 *9*; ϵM+=0.00381 *23*
(4.72×10^3 *8*)	2322.2	0.55 *4*	0.079 *7*	7.89 *5*	0.63 *4*	av Eβ=1686 *38*; ϵK=0.108 *7*; ϵL=0.0141 *9*; ϵM+=0.00372 *22*
(4.75×10^3 *8*)	2285.2	0.22 *3*	0.031 *4*	8.31 *7*	0.25 *3*	av Eβ=1703 *38*; ϵK=0.106 *6*; ϵL=0.0138 *8*; ϵM+=0.00363 *21*
(4.81×10^3 *8*)	2229.6	0.60 *5*	0.080 *9*	7.90 *6*	0.68 *6*	av Eβ=1729 *38*; ϵK=0.102 *6*; ϵL=0.0133 *8*; ϵM+=0.00349 *20*
(5.02×10^3 *8*)	2020.4	1.70 *15*	0.194 *21*	7.55 *6*	1.89 *17*	av Eβ=1828 *38*; ϵK=0.088 *5*; ϵL=0.0115 *7*; ϵM+=0.00303 *17*
(5.06×10^3 *8*)	1976.1	1.19 *9*	0.132 *12*	7.73 *6*	1.32 *10*	av Eβ=1849 *38*; ϵK=0.086 *5*; ϵL=0.0112 *7*; ϵM+=0.00294 *16*
(5.10×10^3 *8*)	1944.34	7.26 *6*	0.79 *4*	6.96 *4*	8.05 *5*	av Eβ=1864 *38*; ϵK=0.084 *5*; ϵL=0.0109 *6*; ϵM+=0.00288 *16*
(5.15×10^3 *8*)	1891.7	1.95 *14*	0.203 *18*	7.56 *5*	2.15 *15*	av Eβ=1889 *38*; ϵK=0.081 *5*; ϵL=0.0106 *6*; ϵM+=0.00278 *15*
(5.18×10^3 *8*)	1862.92	2.15 *19*	0.219 *23*	7.53 *6*	2.37 *21*	av Eβ=1903 *38*; ϵK=0.080 *5*; ϵL=0.0104 *6*; ϵM+=0.00273 *15*
(5.34×10^3 *8*)	1702.9	2.37 *17*	0.217 *19*	7.56 *5*	2.59 *18*	av Eβ=1979 *38*; ϵK=0.072 *4*; ϵL=0.0094 *5*; ϵM+=0.00247 *13*
(5.38×10^3 *8*)	1661.4	0.32 *4*	0.029 *4*	8.45 *7*	0.35 *4*	av Eβ=1999 *38*; ϵK=0.070 *4*; ϵL=0.0091 *5*; ϵM+=0.00240 *13*
(5.52×10^3 *8*)	1517.2	0.51 *4*	0.041 *4*	8.31 *5*	0.55 *4*	av Eβ=2067 *39*; ϵK=0.064 *4*; ϵL=0.0083 *5*; ϵM+=0.00220 *11*
(5.56×10^3 *8*)	1481.96	5.9 *6*	0.47 *5*	7.26 *6*	6.4 *6*	av Eβ=2084 *39*; ϵK=0.063 *4*; ϵL=0.0082 *4*; ϵM+=0.00215 *11*
(5.83×10^3 *8*)	1206.25	3.9 *8*	0.26 *5*	7.55 *9*	4.2 *8*	av Eβ=2216 *39*; ϵK=0.053 *3*; ϵL=0.0070 *4*; ϵM+=0.00183 *9* E(β^+)=4900 from (β^+)(600γ) coin (1968La18).
(5.89×10^3 *8*)	1150.66	6.2 *11*	0.40 *7*	7.38 *9*	6.6 *12*	av Eβ=2243 *39*; ϵK=0.0517 *25*; ϵL=0.0067 *4*; ϵM+=0.00177 *9*
(6.08×10^3 *8*)	957.33	1.1 *3*	0.14 *4*	10.02[1u] *12*	1.2 *3*	av Eβ=2318 *38*; ϵK=0.099 *5*; ϵL=0.0130 *6*; ϵM+=0.00342 *16*
(6.43×10^3 *8*)	605.56	32.8 *14*	1.54 *9*	6.87 *4*	34.3 *15*	av Eβ=2504 *39*; ϵK=0.0385 *17*; ϵL=0.00501 *22*; ϵM+=0.00132 *6* E(β^+)=5440 *100* (1970BeYT), 5450 *150* (1968La18).
(7.04×10^3 *8*)	0.0	16.7	1.27	9.3[1u]	18.0	av Eβ=2769 *38*; ϵK=0.0604 *24*; ϵL=0.0079 *4*; ϵM+=0.00209 *9*

† Absolute intensity per 100 decays.

$\gamma(^{118}Te)$

Iγ normalization: From I(ε+β^+ to g.s.)=18.0 % assumed based on systematics of log $f^{1u}t$ value for feeding from 2^- parent to 0^+ g.s..

E_γ[†]	I_γ[&e]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[c]	δ	$I_{(\gamma+ce)}$[e]	Comments
331.0 *3*	0.30 *3*	1481.96	$1^+,2^+$	1150.66	2^+				
351.7 *3*	2.43 *25*	957.33	0^+	605.56	2^+				
366.5 *3*	0.25 *3*	1517.2	0^+	1150.66	2^+				
496.8 *3*	0.82[a] *8*	1702.9	$(4)^+$	1206.25	4^+	M1+E2	+1.0 *+3−2*		δ: from (α,2nγ).
524.4 *3*	0.88 *10*	1481.96	$1^+,2^+$	957.33	0^+				
528.4[f] *3*	0.13 *1*	2229.6	$(4)^+$	1702.9	$(4)^+$				
545.0 *3*	10.5 *11*	1150.66	2^+	605.56	2^+	M1+E2	+17 *+27−7*		Mult.,δ: from γ-linear pol (1985RiZV).
551.8 *3*	1.55[a] *16*	1702.9	$(4)^+$	1150.66	2^+	E2			
560	0.010 *2*	1517.2	0^+	957.33	0^+	E0[d]		0.010[b] *2*	E_γ: 1987Wa17 deduced intensity of 560γ: Iγ=0.3 *1* and α(K)exp=0.026 *8*; α(K)(M2)=0.019. However, existence of the γ has not been confirmed by other authors.
600.6 *3*	8.4[a] *8*	1206.25	4^+	605.56	2^+	E2			
605.6 *3*	81.1[a]	605.56	2^+	0.0	0^+	E2			
626.7[‡] *3*	<0.14	2571.0		1944.34	3^-				
685.2 *3*	0.42[a] *4*	1891.7	$(3)^+$	1206.25	4^+				
712.5 *3*	0.45 *5*	1862.92	$1,2^+$	1150.66	2^+				
719.6[‡f] *3*	<0.34	2422?		1702.9	$(4)^+$				
738.1 *3*	<0.35[a]	1944.34	3^-	1206.25	4^+				
741.2 *3*	1.38[a] *14*	1891.7	$(3)^+$	1150.66	2^+	M1+E2	−9.5		Mult.,δ: from (α,2nγ), $\Delta\delta$=+40-190.
770.0 *3*	0.44[a] *4*	1976.1	(4^+)	1206.25	4^+				
793.7 *3*	<0.09[a]	1944.34	3^-	1150.66	2^+				
840.0 *3*	0.32 *3*	2322.2		1481.96	$1^+,2^+$				
869.7 *3*	0.30 *3*	2020.4		1150.66	2^+				
[x]874.1[#]									
876.4 *3*	5.86 *60*	1481.96	$1^+,2^+$	605.56	2^+	M1+E2	−0.58 *+5−6*		Mult.,δ: from γ-linear pol (1985RiZV).
905.7 *3*	0.25 *3*	1862.92	$1,2^+$	957.33	0^+				
911.6 *3*	0.32 *3*	1517.2	0^+	605.56	2^+				
957	0.023 *3*	957.33	0^+	0.0	0^+	E0[d]		0.023[b] *3*	E_γ: 1987Wa17 deduced intensity of 957γ: Iγ=0.3 *1* and α(K)exp=0.08 *2*; α(K)(M2)=0.0044. However, existence of the 957γ has not been confirmed by other authors.
1018.0 *3*	0.36 *4*	2500.67		1481.96	$1^+,2^+$				
1023.2 *3*	0.56 *6*	2229.6	$(4)^+$	1206.25	4^+				
1055.8 *3*	0.37 *4*	1661.4		605.56	2^+				
1079.0 *3*	0.15 *2*	2229.6	$(4)^+$	1150.66	2^+				
1097.5 *3*	0.34[a] *3*	1702.9	$(4)^+$	605.56	2^+				
1150.6 *3*	3.9[a] *4*	1150.66	2^+	0.0	0^+	E2			

$^{118}_{52}Te_{66}$-3

$\gamma(^{118}$Te) (continued)

E_γ[†]	I_γ[&e]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[c]	δ	$I_{(\gamma+ce)}$[e]	Comments
1171.7 3	0.34 3	2322.2		1150.66	2^+				
[x]1231.2[#]									
1231.7[‡] 3	<0.38	2438.0		1206.25	4^+				
1257.0 3	2.10 20	1862.92	$1,2^+$	605.56	2^+				
1286.3 3	0.45[a] 5	1891.7	$(3)^+$	605.56	2^+				
1325.2[‡] 3	<0.34	2531.5		1206.25	4^+				
1338.8 3	<8.11[a]	1944.34	3^-	605.56	2^+	E1+M2	+0.03 +5−7		Mult.: from γ-linear pol (1985RiZV) and α(K)exp. δ: from γ-linear pol. Other: −0.025 35 from $\gamma\gamma(\theta)$ (1985Sh04). α(K)exp=0.0002 1 (1985Sh04).
1350.3 3	0.75 8	2500.67		1150.66	2^+				
1364.7[‡] 3	<0.41	2571.0		1206.25	4^+				
1370.4 3	0.94[a] 9	1976.1	(4^+)	605.56	2^+				
1390.4 3	0.32 3	3253.33		1862.92	$1,2^+$				
1414.9 3	1.67 17	2020.4		605.56	2^+				
1460.7 3	0.75	2611.4		1150.66	2^+				
1482.0 3	0.72 7	1481.96	$1^+,2^+$	0.0	0^+				
1517	0.0009 5	1517.2	0^+	0.0	0^+	E0[d]		0.0009[b] 5	E_γ: 1987Wa17 deduced intensity of 1517γ: Iγ=0.13 4 and α(K)exp=0.006 3; α(K)(M2)=0.0014. However, existence of the γ has not been confirmed by other authors.
1524.0[‡] 3	<0.25	2730.3		1206.25	4^+				
1662.6[f] 3	0.27 3	2813.3?		1150.66	2^+				
1679.6 3	0.26 3	2285.2		605.56	2^+				
1747.0 3	0.21 3	2352.6		605.56	2^+				
1767.1 3	0.95 10	2372.7		605.56	2^+				
1771.8 3	0.44 4	3253.33		1481.96	$1^+,2^+$				
1895.5 3	0.63 6	2500.67		605.56	2^+				
2016.7 3	0.44 4	2622.3		605.56	2^+				
2102.2 3	0.69 7	3253.33		1150.66	2^+				
2120.2[f] 3	0.28 3	3602.2?		1481.96	$1^+,2^+$				
2156.4 3	0.30 3	2762.0		605.56	2^+				
2246.6 3	0.69 7	2852.2		605.56	2^+				
2257.0 3	0.30 3	2862.6		605.56	2^+				
2288.1 3	0.52 5	3438.8		1150.66	2^+				
[x]2327.3[#]									
[x]2648.1[@]									
[x]2769.3[#]									
[x]2854.2[#]									
[x]2932.9[#]									

$^{118}_{52}Te_{66}$-4

$\gamma(^{118}$Te) (continued)

† From 1985StZU; uncertainty of 0.3 keV was assumed (evaluator).
‡ Isomeric assignment is uncertain.
# Reported in 1985Sh16 only. No intensity was given by authors.
@ Reported in 1985Sh16 and 1985St29. No intensity was given by authors.
& From 1985StZU. Relative to I(605.6γ)=100 for the combined source, unless otherwise noted. Uncertainty of 10% was assumed (evaluator).
[a] From Iγ=Iγ(1985StZU)−Iγ(8.5 min activity).
[b] Calculated by Ice(E0)=icek(K)(E0)(1.12) for a correction L1-shell contribution. Values are relative to I(606.5γ)=100.
[c] From on-line nuclear orientation (1985StZU) unless otherwise noted.
[d] Mult confirmed by α(K)exp value for a spurious, hypothetical γ in corresponding energy region: the value is greater than the theoretical M2 (1987Wa17).
[e] For absolute intensity per 100 decays, multiply by 0.957 *5*.
[f] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

$^{118}_{52}$Te$_{66}$-5

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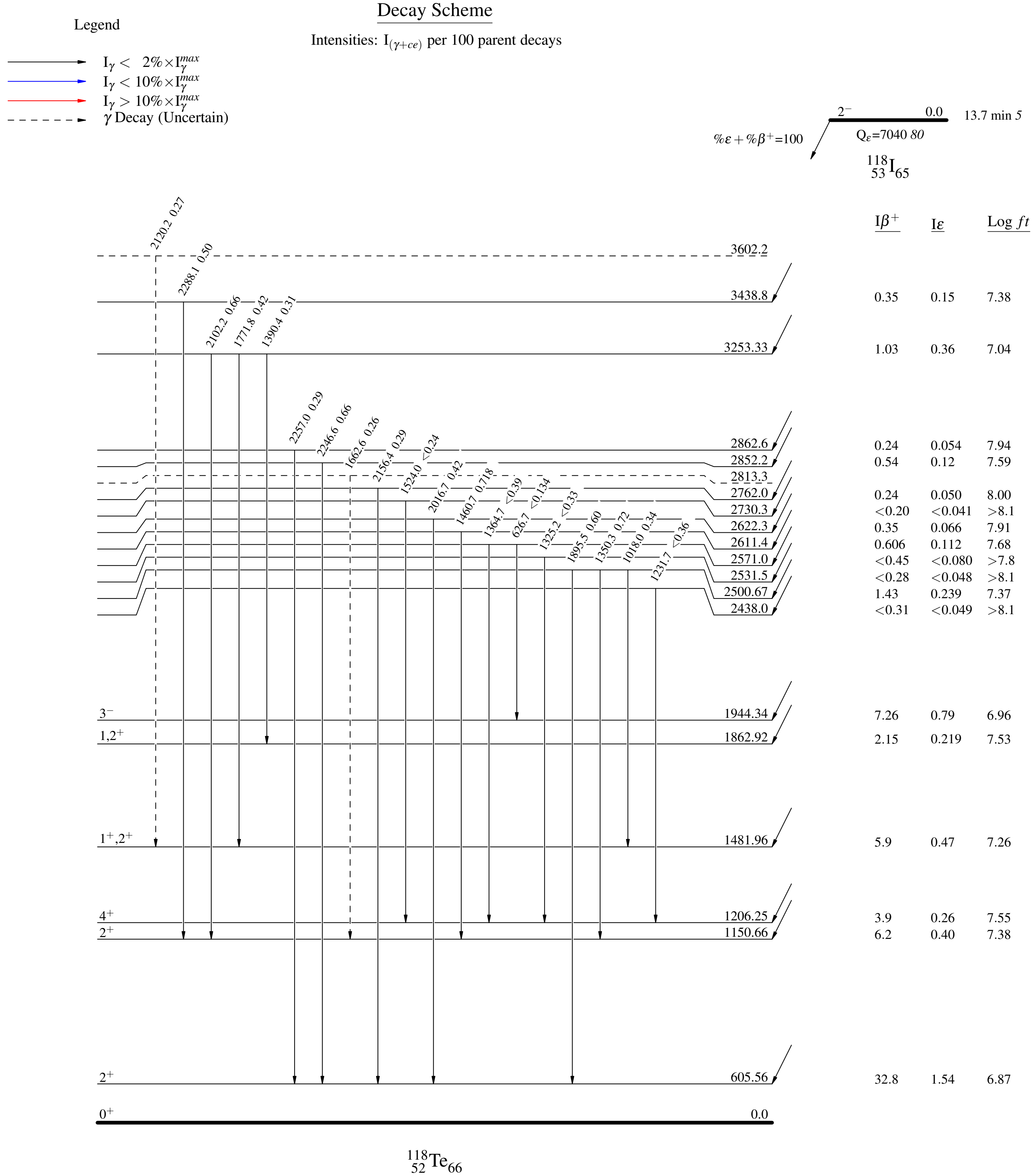
Decay Scheme

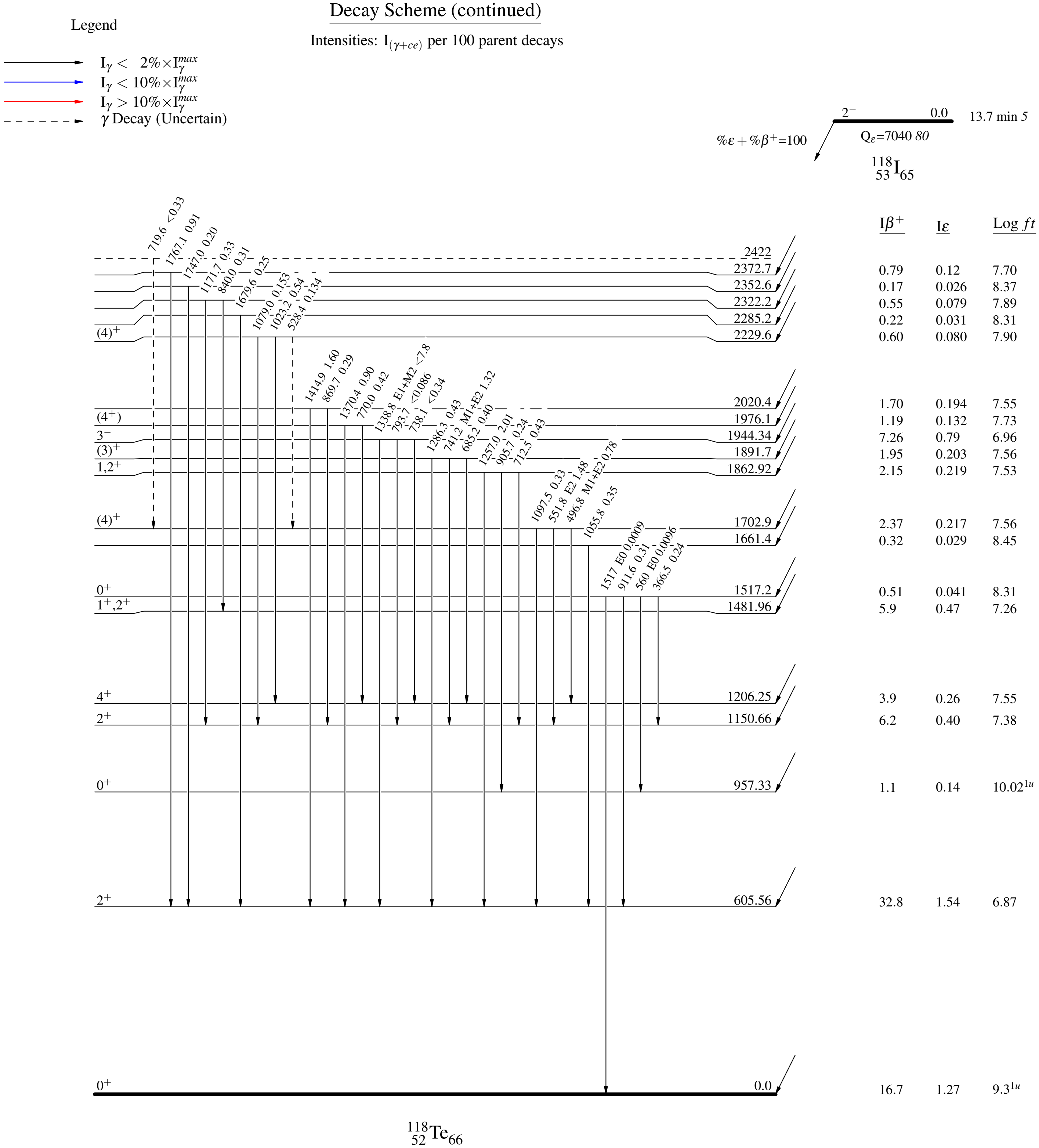
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



^{118}I β^+ decay (13.7 min) 1985StZU

Decay Scheme (continued)

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



^{118}I β^+ decay (13.7 min) 1985StZU

Decay Scheme (continued)