^{85}Zr ε decay (7.86 min) 1992Bu10,1977Ia01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 116, 1 (2014)	31-Dec-2013

Parent: ^{85}Zr: E=0.0; J^π=(7/2$^+$); $T_{1/2}$=7.86 min *4*; Q(ε)=4668 *20*; %ε+%$β^+$ decay=100.0

^{85}Zr-J^π,$T_{1/2}$: From ^{85}Zr Adopted Levels.

^{85}Zr-Q(ε): From 2012Wa38.

1992Bu10: Source produced in Mo(^{3}He,X) reaction at 280 MeV followed by mass separation at ISOCELE-2 facility in Orsay. Measured Eγ, Iγ, γγ, γ←t), xγ(t) and ce using two Ge detectors for γ rays and a Si(Li) detector placed in a magnetic selector for conversion electrons.

1982De36: measured isotopic half-life, βγ coin, Q value.

1977Ia01: Source produced by irradiation of ^{89}Y by 70-MeV protons followed by chemical separation. Measured Eγ, Iγ, γγ using Ge detectors.

^{85}Y Levels

Due to the revised placement of 1191.3γ, a 1607.8 level from 1977Ia01 is omitted. This γ is now placed from a 1627 level.

E(level)†	J^π‡	$T_{1/2}$‡	E(level)†	J^π‡
0.0	(1/2)$^-$	2.68 h *5*	1310.7 *4*	(5/2$^+$,7/2,9/2$^+$)
19.6 *3*	(9/2)$^+$	4.86 h *20*	1393.0 *4*	(5/2,7/2,9/2$^+$)
266.28 *10*	(5/2)$^-$	182# ns *10*	1422.5 *5*	
416.30? *20*	(3/2)$^-$		1461.7 *4*	
435.9 *3*	(5/2)$^+$		1514.0 *4*	(5/2$^+$,7/2,9/2)
473.9 *3*	(7/2)$^+$		1627.3 *4*	(5/2$^+$,7/2,9/2$^+$)
636.77 *19*	(3/2)$^-$		1706.3 *6*	(5/2$^+$,7/2,9/2$^+$)
793.8 *4*			1724.1 *4*	5/2$^+$
814.3 *4*	(13/2)$^+$		1772.1 *5*	7/2$^+$,9/2$^+$
889.0 *3*	(7/2$^-$)		1788.7 *7*	
898.4? *4*			1824.3 *5*	
930.1 *4*	(9/2$^+$)		1892.9 *5*	(7/2$^+$,9/2)
1010.2 *5*	(11/2$^-$)		1954.1 *5*	(5/2$^+$,7/2,9/2$^+$)
1030.2 *5*			2204.1 *3*	(5/2$^+$)
1050.2? *5*			2293.9 *4*	(5/2,7/2,9/2)
1140.6 *4*	(9/2$^-$)		2349.6 *4*	(7/2$^+$,9/2$^+$)
1163.7 *7*			2411.3 *7*	(5/2,7/2,9/2)
1179.5 *4*	(11/2$^+$)		2429.3 *4*	(7/2$^+$,9/2$^+$)
1218.0 *4*	(5/2$^+$,7/2,9/2$^+$)		2586.2 *5*	(7/2$^+$,9/2)
1270.0 *3*			2660.3 *5*	(5/2$^+$,7/2,9/2)
1274.0 *4*	(5/2,7/2,9/2$^+$)			

† From least-squares fit to Eγ data.

‡ From Adopted Levels unless otherwise indicated.

From ($γ^\pm$)γ(t) (1977Ia01).

ε,$β^+$ radiations

E(decay)	E(level)	Iβ$^+$ ‡	Iε‡	Log *ft*†	I(ε+β$^+$)†‡	Comments
(2008 *20*)	2660.3	0.11 *2*	0.27 *4*	5.86 *7*	0.38 *6*	av Eβ=432.4 *88*; εK=0.622 *13*; εL=0.0739 *15*; εM+=0.0164 *4*
(2082 *20*)	2586.2	0.14 *2*	0.26 *4*	5.90 *7*	0.40 *6*	av Eβ=465.0 *89*; εK=0.577 *13*; εL=0.0685 *15*; εM+=0.0152 *4*
(2239 *20*)	2429.3	0.66 *7*	0.82 *9*	5.48 *5*	1.48 *15*	av Eβ=534.6 *89*; εK=0.482 *12*; εL=0.0572 *14*; εM+=0.0127 *3*
(2257 *20*)	2411.3	0.29 *3*	0.35 *3*	5.86 *5*	0.64 *6*	av Eβ=542.6 *90*; εK=0.472 *12*; εL=0.0560 *14*; εM+=0.0124 *3*

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^{85}Zr ε decay (7.86 min) 1992Bu10,1977Ia01 (continued)

ε,β+ radiations (continued)

E(decay)	E(level)	Iβ+ ‡	Iε‡	Log ft†	I(ε+β+)†‡	Comments
(2318 *20*)	2349.6	0.90 *8*	0.90 *8*	5.47 *4*	1.80 *15*	av Eβ=570.1 *90*; εK=0.438 *11*; εL=0.0519 *14*; εM+=0.0115 *3*
(2374 *20*)	2293.9	0.12 *4*	0.10 *3*	6.4 *2*	0.22 *7*	av Eβ=595.0 *90*; εK=0.408 *11*; εL=0.0483 *13*; εM+=0.0107 *3*
(2464 *20*)	2204.1	3.2 *2*	2.2 *1*	5.12 *3*	5.4 *3*	av Eβ=635.4 *90*; εK=0.363 *10*; εL=0.0431 *12*; εM+=0.0095 *3*
(2714 *20*)	1954.1	0.17 *4*	0.072 *15*	6.7 *1*	0.24 *5*	av Eβ=748.5 *91*; εK=0.262 *7*; εL=0.0310 *9*; εM+=0.00687 *19*
(2775 *20*)	1892.9	0.20 *4*	0.078 *17*	6.7 *1*	0.28 *6*	av Eβ=776.4 *92*; εK=0.242 *7*; εL=0.0287 *8*; εM+=0.00635 *17*
(2844# *20*)	1824.3	0.12 *10*	0.04 *3*	7.0 *4*	0.16 *13*	av Eβ=807.7 *92*; εK=0.222 *6*; εL=0.0262 *7*; εM+=0.00581 *16*
(2896 *20*)	1772.1	0.06 *4*	0.02 *1*	7.3 *3*	0.08 *5*	av Eβ=831.6 *92*; εK=0.207 *6*; εL=0.0245 *7*; εM+=0.00543 *14*
(2944 *20*)	1724.1	0.22 *9*	0.06 *3*	6.8 *2*	0.28 *12*	av Eβ=853.6 *92*; εK=0.195 *5*; εL=0.0231 *6*; εM+=0.00511 *13*
(2962 *20*)	1706.3	0.31 *5*	0.087 *13*	6.7 *1*	0.40 *6*	av Eβ=861.8 *92*; εK=0.191 *5*; εL=0.0226 *6*; εM+=0.00500 *13*
(3041 *20*)	1627.3	0.38 *6*	0.095 *16*	6.7 *1*	0.48 *8*	av Eβ=898.1 *93*; εK=0.173 *5*; εL=0.0205 *6*; εM+=0.00453 *12*
(3154 *20*)	1514.0	0.36 *9*	0.076 *19*	6.8 *1*	0.44 *11*	av Eβ=950.3 *93*; εK=0.151 *4*; εL=0.0178 *5*; εM+=0.00395 *10*
(3246 *20*)	1422.5	0.19 *4*	0.034 *8*	7.2 *1*	0.22 *5*	av Eβ=992.7 *93*; εK=0.135 *4*; εL=0.0160 *4*; εM+=0.00354 *9*
(3275 *20*)	1393.0	0.20 *9*	0.036 *15*	7.2 *2*	0.24 *10*	av Eβ=1006.3 *93*; εK=0.131 *3*; εL=0.0155 *4*; εM+=0.00342 *8*
(3357 *20*)	1310.7	0.69 *10*	0.11 *2*	6.71 *7*	0.80 *11*	av Eβ=1044.5 *93*; εK=0.119 *3*; εL=0.0141 *4*; εM+=0.00311 *8*
(3394 *20*)	1274.0	0.83 *19*	0.13 *3*	6.7 *1*	0.96 *22*	av Eβ=1061.6 *93*; εK=0.114 *3*; εL=0.0135 *3*; εM+=0.00299 *7*
(3450 *20*)	1218.0	4.8 *4*	0.68 *5*	5.94 *4*	5.5 *4*	av Eβ=1087.7 *94*; εK=0.1073 *24*; εL=0.0127 *3*; εM+=0.00281 *7*
(3489# *20*)	1179.5	<0.05	<0.007	>7.9	<0.06	av Eβ=1105.6 *94*; εK=0.1029 *23*; εL=0.0121 *3*; εM+=0.00269 *6*
(3504 *20*)	1163.7	0.04 *2*	0.005 *2*	8.1 *2*	0.04 *2*	av Eβ=1113.0 *94*; εK=0.1012 *23*; εL=0.0119 *3*; εM+=0.00264 *6*
(3527 *20*)	1140.6	0.12 *4*	0.016 *6*	7.6 *2*	0.14 *5*	av Eβ=1123.8 *94*; εK=0.0987 *22*; εL=0.0116 *3*; εM+=0.00258 *6*
(3618 *20*)	1050.2?	0.07 *4*	0.008 *4*	7.9 *2*	0.08 *4*	av Eβ=1166.0 *94*; εK=0.0896 *19*; εL=0.01058 *23*; εM+=0.00234 *5*
(3638# *20*)	1030.2	<0.07	<0.008	>7.9	<0.08	av Eβ=1175.4 *94*; εK=0.0877 *19*; εL=0.01036 *22*; εM+=0.00229 *5*
(3658 *20*)	1010.2	0.19 *8*	0.054 *22*	8.8^{1u} *2*	0.24 *10*	av Eβ=1202.5 *93*; εK=0.195 *4*; εL=0.0233 *5*; εM+=0.00516 *11*
(3770 *20*)	898.4?	0.07 *4*	0.007 *4*	8.0 *2*	0.08 *4*	av Eβ=1237.1 *94*; εK=0.0767 *16*; εL=0.00904 *19*; εM+=0.00200 *4*
(3779 *20*)	889.0	0.15 *5*	0.014 *4*	7.7 *2*	0.16 *5*	av Eβ=1241.5 *94*; εK=0.0759 *16*; εL=0.00896 *19*; εM+=0.00198 *4*
(3874# *20*)	793.8	<0.12	<0.010	>7.9	<0.13	av Eβ=1286.3 *95*; εK=0.0691 *14*; εL=0.00815 *17*; εM+=0.00180 *4* I(ε+β+): −0.12 *17* from intensity balance.
(4031 *20*)	636.77	0.24 *10*	0.044 *19*	9.1^{1u} *2*	0.28 *12*	av Eβ=1375.0 *93*; εK=0.136 *3*; εL=0.0162 *3*; εM+=0.00359 *7*
(4194 *20*)	473.9	33.2 *9*	2.07 *7*	5.62 *2*	35.3 *10*	av Eβ=1437.2 *95*; εK=0.0513 *10*; εL=0.00605 *11*; εM+=0.001339 *25* E(β endpoint)=3276 *+116−140* from β(454γ)-coin

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^{85}Zr ε decay (7.86 min) 1992Bu10,1977Ia01 (continued)

ε,β+ radiations (continued)

E(decay)	E(level)	Iβ+ ‡	Iε‡	Log *ft*†	I(ε+β+)†‡	Comments
						(1982De36).
(4232 *20*)	435.9	17.1 *16*	1.03 *10*	5.93 *5*	18.1 *17*	av Eβ=1455.2 *95*; εK=0.0496 *9*; εL=0.00585 *11*; εM+=0.001294 *24* E(β endpoint)=3112 *600* from β(416γ)-coin (1982De36).
(4402 *20*)	266.28	1.4 *2*	0.074 *10*	7.11 *6*	1.5 *2*	av Eβ=1535.7 *95*; εK=0.0428 *8*; εL=0.00505 *9*; εM+=0.001118 *19*
(4648 *20*)	19.6	≈24	≈1.0	≈6.0	≈25	av Eβ=1653.1 *96*; εK=0.0350 *6*; εL=0.00413 *7*; εM+=0.000914 *15* I(ε+β+): (γ±)(γ rays to g.s.+19.6)-coin accounts for ≈75% of the intensity (1977Ia01), thus ≈25% is assigned as feeding to 19.6 level, since almost no β feeding is expected to g.s. which involves ΔJ=3.

† All feedings should be considered as upper limits and associated log *ft* values as lower limits due to uncertain feeding of the 19.6 level and a gap of about 2 MeV between Q value and the highest known level at 2660 in this decay. The following levels have also apparent negative feedings: 930 level: −0.44 *20*; 1270 level: −0.16 *5*; 1461 level: −0.24 *5*; 1788 level: −0.16 *5*. This implies that some aspects of the level scheme are still incomplete.

‡ Absolute intensity per 100 decays.

Existence of this branch is questionable.

γ(^{85}Y)

Iγ normalization: From coincidence measurement with γ±, summed Iγ+ce to g.s. and 19.6 level is determined to be 75% (1977Ia01).
Detailed γγ coin information is from 1992Bu10, for strong transitions consistent information is also available from 1977Ia01.

E_γ[†]	I_γ[†c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[b]	α[d]	Comments
208.0[‡g] *4*	<0.2	1218.0	(5/2$^+$,7/2,9/2$^+$)	1010.2	(11/2$^-$)			Additional information 1.
266.3 *1*	6.3 *4*	266.28	(5/2)$^-$	0.0	(1/2)$^-$	E2	0.0309	α(K)=0.0269 *4*; α(L)=0.00334 *5*; α(M)=0.000570 *8* α(N)=7.45×10^{-5} *11*; α(O)=4.44×10^{-6} *7* α(K)exp=0.038 *10* (1992Bu10)
287.8[‡] *2*	0.9 *2*	1218.0	(5/2$^+$,7/2,9/2$^+$)	930.1	(9/2$^+$)			
319.9[‡] *6*	0.5 *2*	793.8		473.9	(7/2)$^+$			
358.0 *1*	3.1 *3*	793.8		435.9	(5/2)$^+$			
365.2[‡] *2*	0.6 *2*	1179.5	(11/2$^+$)	814.3	(13/2)$^+$			
416.0[@g]		889.0	(7/2$^-$)	473.9	(7/2)$^+$			
416.3[g]		416.30?	(3/2)$^-$	0.0	(1/2)$^-$			
416.3 *1*	62 *4*	435.9	(5/2)$^+$	19.6	(9/2)$^+$	E2	0.00692	α(K)=0.00607 *9*; α(L)=0.000711 *10*; α(M)=0.0001214 *17* α(N)=1.607×10^{-5} *23*; α(O)=1.030×10^{-6} *15* α(K)exp=0.0075 *11*, α(L)exp+α(M)exp+α(N)exp=0.0014 *4* (1992Bu10).
[x]425.4[a]								E_γ: coin with 948.9γ.
454.0[@]		1724.1	5/2$^+$	1270.0				
454.3 *1*	100	473.9	(7/2)$^+$	19.6	(9/2)$^+$	M1	0.00363	α(K)=0.00321 *5*; α(L)=0.000355 *5*; α(M)=6.06×10^{-5} *9* α(N)=8.16×10^{-6} *12*; α(O)=5.70×10^{-7} *8* α(K)exp=0.0044 *7*, α(L)exp+α(M)exp+α(N)exp=0.00084 *8* (1992Bu10). Mult.: 1992Bu10 give M1, but comparison of their experimental conversion coefficients and theoretical values suggests M1,E2; adopted mult=M1.
456.3[‡] *2*	0.3[&] *1*	930.1	(9/2$^+$)	473.9	(7/2)$^+$			
462.5[‡] *2*	0.2 *1*	898.4?		435.9	(5/2)$^+$			
480.5 *2*	0.6 *1*	1274.0	(5/2,7/2,9/2$^+$)	793.8				
531.6[f‡] *2*	0.10[f] *5*	1461.7		930.1	(9/2$^+$)			
531.6[f‡] *2*	0.10[f] *5*	1954.1	(5/2$^+$,7/2,9/2$^+$)	1422.5				I_γ: total intensity of doublet=0.2 *1*.
536.0[‡g] *4*	<0.2	1010.2	(11/2$^-$)	473.9	(7/2)$^+$			
576.3[‡] *3*	0.2 *1*	1050.2?		473.9	(7/2)$^+$			
599.1[‡] *4*	<0.2	1393.0	(5/2,7/2,9/2$^+$)	793.8				
[x]602.4[a]								E_γ: coin with 990.5γ.
604.8[‡] *5*	<0.2	2429.3	(7/2$^+$,9/2$^+$)	1824.3				

$^{85}_{39}Y_{46}$-4

γ(^{85}Y) (continued)

E_γ[†]	I_γ[†c]	E_i(level)	J_i^π	E_f	J_f^π	Comments
622.6[#] 3	0.5 1	2411.3	(5/2,7/2,9/2)	1788.7		
622.7[‡] 3	0.5 1	889.0	(7/2$^-$)	266.28	(5/2)$^-$	
633.0[‡] 3	<0.2	1270.0		636.77	(3/2)$^-$	
636.7 2	2.0 2	636.77	(3/2)$^-$	0.0	(1/2)$^-$	
[x]637.4[a]						E_γ: coin with 1191.2γ.
667.0[‡g] 6	<0.2	2293.9	(5/2,7/2,9/2)	1627.3	(5/2$^+$,7/2,9/2$^+$)	E_γ: placement not shown in level-scheme figure 3 of 1992Bu10.
[x]680.0[a]						E_γ: possible coin with 266.3γ.
689.8[e‡] 6	<0.2[e]	1163.7		473.9	(7/2)$^+$	
689.8[e‡] 6	<0.2[e]	2204.1	(5/2$^+$)	1514.0	(5/2$^+$,7/2,9/2)	
697.0[‡] 7	0.2 1	1627.3	(5/2$^+$,7/2,9/2$^+$)	930.1	(9/2$^+$)	
705.3[‡] 6	0.5 1	1179.5	(11/2$^+$)	473.9	(7/2)$^+$	
712.9[‡] 6	0.4 1	1892.9	(7/2$^+$,9/2)	1179.5	(11/2$^+$)	
722.1[‡] 3	0.4 1	2349.6	(7/2$^+$,9/2$^+$)	1627.3	(5/2$^+$,7/2,9/2$^+$)	
744.2 2	0.7 1	1218.0	(5/2$^+$,7/2,9/2$^+$)	473.9	(7/2)$^+$	
761.9[f‡] 4	0.2[f] 1	1772.1	7/2$^+$,9/2$^+$	1010.2	(11/2$^-$)	I_γ: total intensity of doublet=0.4 1.
761.9[f‡] 4	0.2[f] 1	2586.2	(7/2$^+$,9/2)	1824.3		
774.7[‡g] 4	<0.2	793.8		19.6	(9/2)$^+$	
781.5[‡] 6	<0.1[&]	2204.1	(5/2$^+$)	1422.5		
782.2 2	4.0 3	1218.0	(5/2$^+$,7/2,9/2$^+$)	435.9	(5/2)$^+$	
794.0[f‡] 2	0.7[f&] 3	1724.1	5/2$^+$	930.1	(9/2$^+$)	I_γ: total intensity of doublet=1.4 4.
794.0[f‡] 2	0.7[f&] 3	1824.3		1030.2		
795.0[‡] 5	0.6[&] 2	814.3	(13/2)$^+$	19.6	(9/2)$^+$	
800.0 2	2.2 5	1274.0	(5/2,7/2,9/2$^+$)	473.9	(7/2)$^+$	
811.1 2	1.0 1	2204.1	(5/2$^+$)	1393.0	(5/2,7/2,9/2$^+$)	
814.0[‡] 6	<0.2	2586.2	(7/2$^+$,9/2)	1772.1	7/2$^+$,9/2$^+$	
[x]835.6[a]						E_γ: coin with 990.5γ.
836.7 3	1.5 2	1310.7	(5/2$^+$,7/2,9/2$^+$)	473.9	(7/2)$^+$	
837.4 6	0.7 1	1274.0	(5/2,7/2,9/2$^+$)	435.9	(5/2)$^+$	
854.0[@g]		1270.0		416.30?	(3/2)$^-$	
874.4[f#] 4	0.45[f] 10	1140.6	(9/2$^-$)	266.28	(5/2)$^-$	I_γ: total intensity of doublet=0.9 1.
874.5[f] 4	0.45[f] 10	1310.7	(5/2$^+$,7/2,9/2$^+$)	435.9	(5/2)$^+$	
892.7[‡] 6	<0.2	2204.1	(5/2$^+$)	1310.7	(5/2$^+$,7/2,9/2$^+$)	
901.0[‡] 6	<0.2	2293.9	(5/2,7/2,9/2)	1393.0	(5/2,7/2,9/2$^+$)	
910.6[‡] 2	2.2 2	930.1	(9/2$^+$)	19.6	(9/2)$^+$	
914.9[‡] 5	0.3 1	2429.3	(7/2$^+$,9/2$^+$)	1514.0	(5/2$^+$,7/2,9/2)	
[x]927.0[a]						E_γ: coin with 782.2γ.
933.9[‡] 3	0.5 1	2204.1	(5/2$^+$)	1270.0		

$^{85}_{39}Y_{46}$-5

^{85}Zr ε decay (7.86 min) 1992Bu10,1977Ia01 (continued)

γ(^{85}Y) (continued)

E_γ[†]	I_γ[†c]	E_i(level)	J_i^π	E_f	J_f^π	Comments
948.9[‡] 5	0.7 1	1422.5		473.9	(7/2)$^+$	
957.3 3	1.6 2	1393.0	(5/2,7/2,9/2$^+$)	435.9	(5/2)$^+$	
986.6[#] 5	0.5 1	2204.1	(5/2$^+$)	1218.0	(5/2$^+$,7/2,9/2$^+$)	
990.6 5	1.3 1	1010.2	(11/2$^-$)	19.6	(9/2)$^+$	
1010.0[‡] 8	0.5 1	1030.2		19.6	(9/2)$^+$	
1039.8[‡] 7	0.5 1	1514.0	(5/2$^+$,7/2,9/2)	473.9	(7/2)$^+$	
1078.1[‡] 6	<0.2	1514.0	(5/2$^+$,7/2,9/2)	435.9	(5/2)$^+$	
1118.1 5	0.8 1	2429.3	(7/2$^+$,9/2$^+$)	1310.7	(5/2$^+$,7/2,9/2$^+$)	
1124.4[‡] 7	0.7 1	2586.2	(7/2$^+$,9/2)	1461.7		
1131.7[‡] 7	1.5 2	2349.6	(7/2$^+$,9/2$^+$)	1218.0	(5/2$^+$,7/2,9/2$^+$)	
1137.1[‡] 7	1.1 1	2411.3	(5/2,7/2,9/2)	1274.0	(5/2,7/2,9/2$^+$)	
1153.4[‡] 3	0.7 1	1627.3	(5/2$^+$,7/2,9/2$^+$)	473.9	(7/2)$^+$	
1159.6[‡] 3	<0.2	1179.5	(11/2$^+$)	19.6	(9/2)$^+$	
1170.1[#] 2	0.8 1	2349.6	(7/2$^+$,9/2$^+$)	1179.5	(11/2$^+$)	
1191.3[#] 3	0.7 1	1627.3	(5/2$^+$,7/2,9/2$^+$)	435.9	(5/2)$^+$	E_γ: placement from a 1608 level to 416 level (1977Ia01).
1198.4 2	10.9 8	1218.0	(5/2$^+$,7/2,9/2$^+$)	19.6	(9/2)$^+$	
1210.9[‡] 3	0.7 2	2429.3	(7/2$^+$,9/2$^+$)	1218.0	(5/2$^+$,7/2,9/2$^+$)	
1233.0[‡] 13	0.3 1	1706.3	(5/2$^+$,7/2,9/2$^+$)	473.9	(7/2)$^+$	
[x]1244.0[a]						E_γ: coin with 957.3γ.
1249.5[f‡g] 6	0.25[f] 15	1724.1	5/2$^+$	473.9	(7/2)$^+$	I_γ: total intensity of doublet=0.5 2.
1249.5[f‡] 6	0.25[f] 15	2429.3	(7/2$^+$,9/2$^+$)	1179.5	(11/2$^+$)	
1270.3[‡] 5	0.7 1	1706.3	(5/2$^+$,7/2,9/2$^+$)	435.9	(5/2)$^+$	
1289.2[‡] 10	<0.2	2429.3	(7/2$^+$,9/2$^+$)	1140.6	(9/2$^-$)	
1291.1 5	0.95 10	1310.7	(5/2$^+$,7/2,9/2$^+$)	19.6	(9/2)$^+$	Additional information 2.
1298.0[‡] 9	<0.2	1772.1	7/2$^+$,9/2$^+$	473.9	(7/2)$^+$	
1315.0[e‡] 9	<0.2[e]	1788.7		473.9	(7/2)$^+$	
1315.0[e‡] 9	<0.2[e]	2204.1	(5/2$^+$)	889.0	(7/2$^-$)	
1339.5 4	0.5 2	2349.6	(7/2$^+$,9/2$^+$)	1010.2	(11/2$^-$)	
[x]1382.8[a]						E_γ: coin with 319.9γ.
1406.6[@g]		2586.2	(7/2$^+$,9/2)	1179.5	(11/2$^+$)	
1410.2 3	2.7 2	2204.1	(5/2$^+$)	793.8		
1419.3[f] 4	0.3[f] 1	1892.9	(7/2$^+$,9/2)	473.9	(7/2)$^+$	I_γ: total intensity of doublet=0.6 1.
1419.3[f#] 4	0.3[f] 1	2349.6	(7/2$^+$,9/2$^+$)	930.1	(9/2$^+$)	
[x]1488.2[a]						E_γ: coin with 416.3γ.
1494.3[‡] 3	0.9 2	1514.0	(5/2$^+$,7/2,9/2)	19.6	(9/2)$^+$	
1500.1[f‡] 3	0.45[f] 15	2293.9	(5/2,7/2,9/2)	793.8		
1500.1[f‡] 3	0.45[f] 15	2429.3	(7/2$^+$,9/2$^+$)	930.1	(9/2$^+$)	I_γ: total intensity of doublet=0.9 2.

$^{85}_{39}Y_{46}$-6

^{85}Zr ε decay (7.86 min) 1992Bu10,1977Ia01 (continued)

γ(^{85}Y) (continued)

E_γ †	I_γ †c	E_i(level)	J_i^π	E_f	J_f^π	Comments
1518.0# 5	0.5 1	1954.1	(5/2+,7/2,9/2+)	435.9	(5/2)+	
1567.4 5	1.2 2	2204.1	(5/2+)	636.77	(3/2)−	
1607.6@g		1627.3	(5/2+,7/2,9/2+)	19.6	(9/2)+	
x1652a						Eγ: possible coin with 1010.0γ.
1656.6@		2586.2	(7/2+,9/2)	930.1	(9/2+)	
1730.2f 3	0.95f 15	2204.1	(5/2+)	473.9	(7/2)+	Iγ: total intensity of doublet=1.9 2.
1730.2f# 3	0.95f 15	2660.3	(5/2+,7/2,9/2)	930.1	(9/2+)	
x1744.0a						Eγ: possible coin with 454.3γ.
1768.2 2	4.6 3	2204.1	(5/2+)	435.9	(5/2)+	
1876.2 3	1.0 1	2349.6	(7/2+,9/2+)	473.9	(7/2)+	
1934.1g 5	1.1 1	1954.1	(5/2+,7/2,9/2+)	19.6	(9/2)+	Eγ,Iγ: γ from 1977Ia01 only; tentative placement proposed by the evaluators on the basis of level-energy difference. It should be pointed out that a peak near this energy, as part of unresolved doublet with 1938.3 peak, is present in the spectrum figure 1 of 1992Bu10.
1938.1 5	1.6 1	2204.1	(5/2+)	266.28	(5/2)−	
1955.6 5	1.0 1	2429.3	(7/2+,9/2+)	473.9	(7/2)+	

† Unweighted averages of 1992Bu10 and 1977Ia01 when same γ rays are reported in both studies. The precision of energy and intensity measurements are nearly the same in two studies. However, 1992Bu10 report a large number of new weak γ rays. For 11 doubly-placed transitions, 1992Bu10 state that intensities of the two components were estimated from γγ coin data for the purpose of deducing β feedings, but values of these separated intensities are not quoted by 1992Bu10. The evaluators have arbitrarily divided the intensities equally between the two components in each case, except where only an upper intensity limit is given.

‡ γ from 1992Bu10 only.

Placement from 1992Bu10.

@ γ shown only in level-scheme figure 3 and in some cases in γγ coin table 6 of 1992Bu10, not listed in authors′ table 5. No intensity is available.

& From γγ coin data (1992Bu10).

a Unplaced γ from γγ coincidence table 6 of 1992Bu10. In some cases γ-ray energies agree with level-energy differences but observed coincidences, as given in table 6 of 1992Bu10, are not satisfied.

b From measured conversion coefficients by 1992Bu10.

c For absolute intensity per 100 decays, multiply by 0.400 10.

d 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.

e Multiply placed with undivided intensity.

f Multiply placed with intensity suitably divided.

g Placement of transition in the level scheme is uncertain.

x γ ray not placed in level scheme.

$^{85}_{39}Y_{46}$-7

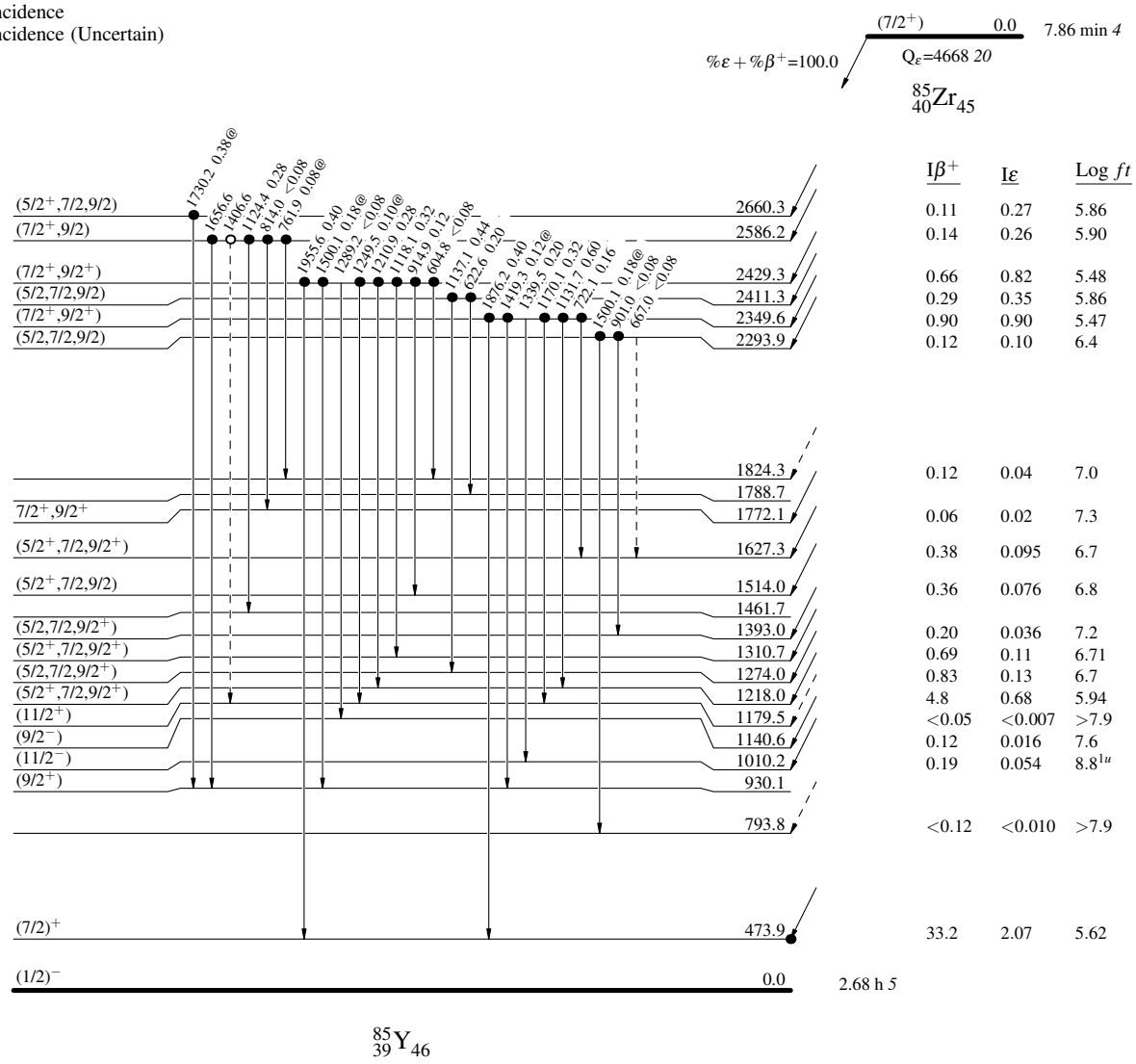
^{85}Zr ε decay (7.86 min) 1992Bu10,1977Ia01

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
- Coincidence (Uncertain)

Decay Scheme

Intensities: I_γ per 100 parent decays
@ Multiply placed: intensity suitably divided



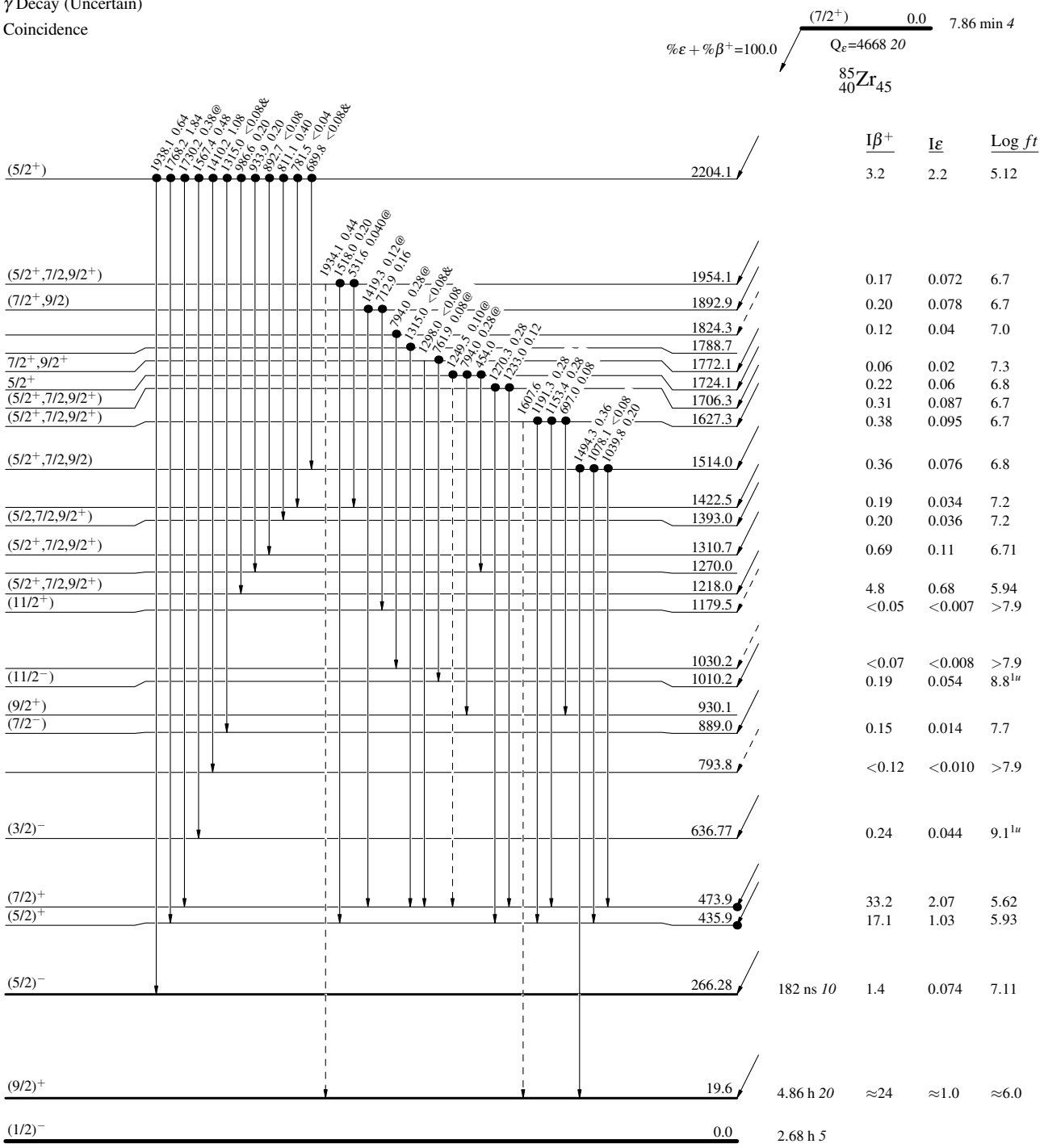
	Iβ+	Iε	Log *ft*
2660.3	0.11	0.27	5.86
2586.2	0.14	0.26	5.90
2429.3	0.66	0.82	5.48
2411.3	0.29	0.35	5.86
2349.6	0.90	0.90	5.47
2293.9	0.12	0.10	6.4
1824.3	0.12	0.04	7.0
1788.7			
1772.1	0.06	0.02	7.3
1627.3	0.38	0.095	6.7
1514.0	0.36	0.076	6.8
1461.7			
1393.0	0.20	0.036	7.2
1310.7	0.69	0.11	6.71
1274.0	0.83	0.13	6.7
1218.0	4.8	0.68	5.94
1179.5	<0.05	<0.007	>7.9
1140.6	0.12	0.016	7.6
1010.2	0.19	0.054	8.8[1u]
930.1			
793.8	<0.12	<0.010	>7.9
473.9	33.2	2.07	5.62

^{85}Zr ε decay (7.86 min) 1992Bu10,1977Ia01

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays
& 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



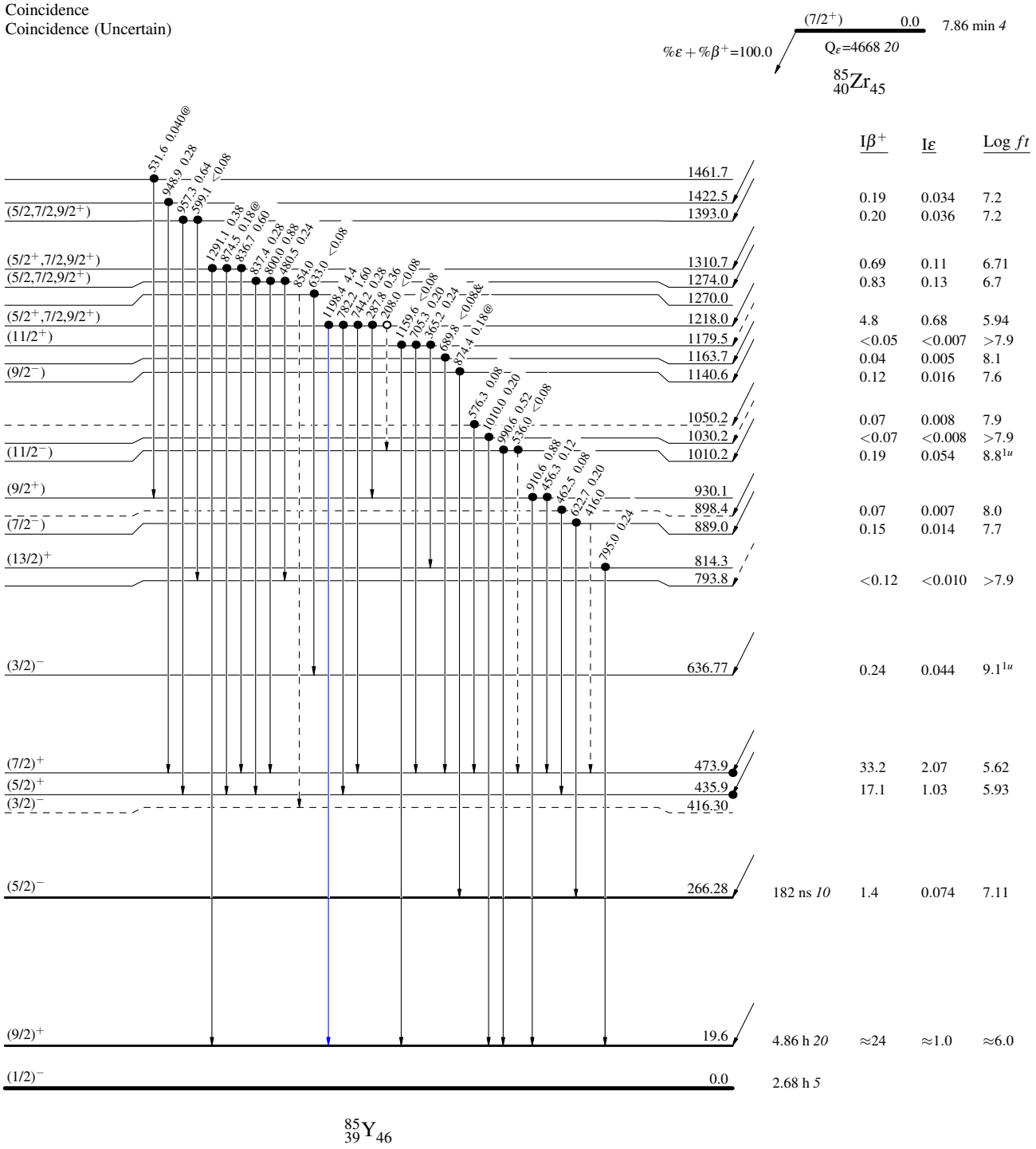
$^{85}_{39}Y_{46}$

^{85}Zr ε decay (7.86 min) 1992Bu10,1977Ia01

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays
& 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
- Coincidence (Uncertain)



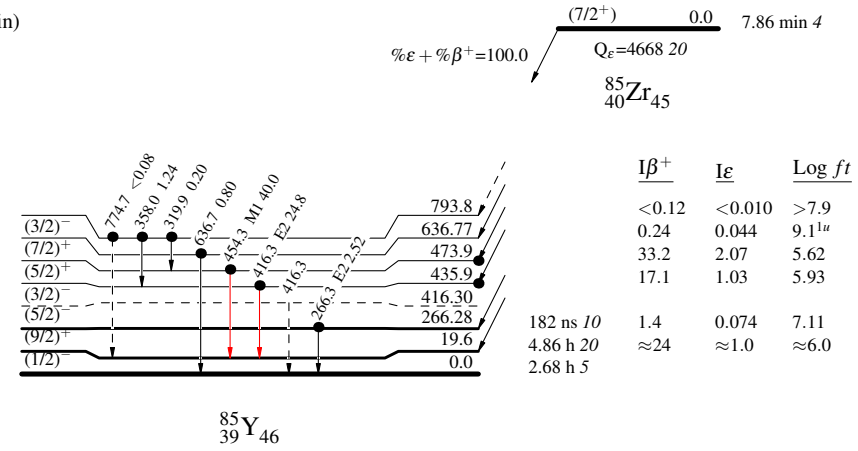
^{85}Zr ε decay (7.86 min) 1992Bu10,1977Ia01

Decay Scheme (continued)

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

Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



	Iβ+	Iε	Log *ft*
	<0.12	<0.010	>7.9
	0.24	0.044	9.1[1u]
	33.2	2.07	5.62
	17.1	1.03	5.93
182 ns *10*	1.4	0.074	7.11
4.86 h *20*	≈24	≈1.0	≈6.0
2.68 h *5*			