^{123}Xe ε decay 1971St08,1971Ho02

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

Parent: ^{123}Xe: E=0.0; J^π=1/2$^{(+)}$; $T_{1/2}$=2.050 h *14*; Q(ε)=2694 *10*; %ε+%β^+ decay=100.0

^{123}Xe-J^π,$T_{1/2}$: From Adopted Levels of ^{123}Xe.

^{123}Xe-Q(ε): From 2021Wa16.

1971St08: source of ^{123}Xe was produced from Ce(p,5pxn) with E=600 MeV proton beam from the synchro-cyclotron at the ISOLDE facility at CERN and separated by an on-line mass separator. γ rays were detected with Ge(Li) detectors and a Si(Li) detector for E<50 keV; conversion electrons were detected with a Si(Li) detector and a double-focusing magnetic spectrometer for low-energy part of the electron spectrum. Measured Eγ, Iγ, E(ce), I(ce), $\gamma\gamma$-coin, γ-ce-coin. Deduced levels, J, π, ε-decay branching ratios, log *ft*, γ-ray conversion coefficients, multipolarities. Comparisons with available data. Systematics of neighboring I isotopes.

1971Ho02: ^{123}Xe source was produced at the ISOLDE facility at CERN. γ rays were detected with a plastic scintillation detector and conversion electrons were detected with an electron-electron coincidence β-spectrometer. Measured γ-ce(t). Deduced $T_{1/2}$, transition strengths. Systematics of neighboring I isotopes.

1981Bo25: source of ^{123}Xe was produced at JINR. Conversion electrons were detected with a β-spectrometer (FWHM≈2.5 keV) with a Si(Li) detector. Measured E(ce), I(ce). Deduced levels, J, π, γ-ray conversion coefficients, multipolarities.

1968Gf01: ^{123}Xe source was produced via ^{122}Te(α,3n) with α beam from the Gottinger Synchro-cyclotron. γ rays were detected with Ge(Li) and NaI(Tl) detectors and conversion electrons were detected with a Si(Li) detector. Measured Eγ, Iγ, E(ce), I(ce), $\gamma\gamma$-coin. Deduced levels, J, π, ε-decay branching ratios, log *ft*, γ-ray conversion coefficients, multipolarities. Eγ and Iγ values with no uncertainties of 57 γ transitions are reported.

1970Sc21: measured $\gamma\gamma$(t) at CERN. Deduced $T_{1/2}$ of 149 level.

Others: 2021Ze01, 1982BeYR, 1974Jo16, 1971ShZY, 1971Ch43, 1970Sc21, 1969Bu07, 1969ChZK, 1967DaZY, 1965An05.
The decay scheme is that proposed by 1971St08.

^{123}I Levels

E(level)†	J^π‡	$T_{1/2}$#	Comments
0.0	5/2$^+$	13.2230 h *19*	$T_{1/2}$: From Adopted Levels.
138.07 *15*	7/2$^+$		
148.91 *10*	1/2$^+$	2.35 ns *3*	$T_{1/2}$: weighted average of 2.34 ns *3* from (β^+)(ce of 148.9γ)(t) (1971Ch43); 2.44 ns *9* from ($\gamma^\pm$)(148.9γ)(t), (899γ)(148.9γ)(t) (1970Sc21); 2.35 ns *8* from (600-800γ)(ce of 148.9γ)(t) (1971Ho02).
178.00 *10*	3/2$^+$	0.36 ns *2*	$T_{1/2}$: from (600-800γ)(ce(L) of 178.1γ)(t) (1971Ho02).
330.26 *10*	3/2$^+$	42 ps *13*	$T_{1/2}$: From (600-800γ)(ce(K) of 330.2γ)(t) (1971Ho02).
1011.04 *14*	(3/2)$^+$		
1048.68 *13*	1/2$^+$		
1113.09 *13*	(1/2,3/2)$^+$		
1153.4? *3*	(3/2)$^+$		
1189.93? *18*	(1/2$^+$,3/2,5/2$^+$)		
1242.35 *16*	1/2$^+$		
1310.09 *14*	(3/2)$^+$		
1390.80 *14*	(1/2,3/2)$^+$		
1657.11? *20*	(3/2)$^+$		
1864.88 *13*	1/2$^+$		
1934.14 *15*	(1/2,3/2,5/2)$^+$		
1956.07 *15*	3/2$^+$		
2062.49 *12*	(1/2,3/2,5/2)$^+$		
2152.40 *21*	(1/2$^+$,3/2)		
2201.32 *22*	(1/2$^+$,3/2)		
2250.03 *18*	(3/2)$^+$		
2285.52 *21*	1/2$^+$		
2322.6 *3*	(1/2,3/2)		
2327.4 *4*	(1/2$^+$,3/2)		

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^{123}Xe ε decay 1971St08,1971Ho02 (continued)

^{123}I Levels (continued)

E(level)[†]	J^{π}[‡]
2367.78 *22*	(1/2$^+$,3/2$^+$)
2389.4 *3*	(3/2)$^+$
2455.40? *24*	(1/2$^+$)
2560.3? *4*	(1/2$^+$,3/2)
2580.0? *4*	(1/2$^+$,3/2,5/2$^+$)

[†] From a least-squares fit to γ-ray energies.
[‡] From Adopted Levels.
[#] From γγ(t) and γ-ce(t) in this study for excited states. Values are adopted in Adopted Levels.

ε,β^+ radiations

E(decay)	E(level)	Iβ^+ [‡]	Iε[‡]	Log *ft*	I(ε+β^+)[†‡]	Comments
(114[#] *10*)	2580.0?		0.0098 *21*	6.3 *2*	0.0098 *21*	εK=0.767 *14*; εL=0.181 *10*; εM+=0.052 *4*
(134[#] *10*)	2560.3?		0.020 *3*	6.2 *1*	0.020 *3*	εK=0.785 *9*; εL=0.167 *7*; εM+=0.0474 *21*
(239[#] *10*)	2455.40?		0.042 *5*	6.45 *7*	0.042 *5*	εK=0.8235 *19*; εL=0.1384 *14*; εM+=0.0382 *5*
(305 *10*)	2389.4		0.118 *14*	6.24 *6*	0.118 *14*	εK=0.8321 *11*; εL=0.1318 *8*; εM+=0.03610 *25*
(326 *10*)	2367.78		0.31 *3*	5.89 *6*	0.31 *3*	εK=0.8341 *9*; εL=0.1303 *7*; εM+=0.03562 *22*
(367 *10*)	2327.4		0.078 *9*	6.60 *6*	0.078 *9*	εK=0.8371 *7*; εL=0.1280 *6*; εM+=0.03490 *17*
(371 *10*)	2322.6		0.142 *13*	6.35 *5*	0.142 *13*	εK=0.8374 *7*; εL=0.1278 *5*; εM+=0.03483 *16*
(408 *10*)	2285.52		0.187 *18*	6.32 *5*	0.187 *18*	εK=0.8395 *6*; εL=0.1262 *4*; εM+=0.03432 *13*
(444 *10*)	2250.03		0.45 *3*	6.02 *4*	0.45 *3*	εK=0.8412 *5*; εL=0.1249 *4*; εM+=0.03392 *11*
(493 *10*)	2201.32		0.147 *15*	6.60 *5*	0.147 *15*	εK=0.8430 *4*; εL=0.1235 *3*; εM+=0.03348 *9*
(542 *10*)	2152.40		0.45 *4*	6.20 *5*	0.45 *4*	εK=0.8445 *3*; εL=0.12234 *22*; εM+=0.03312 *7*
(632 *10*)	2062.49		1.31 *9*	5.88 *4*	1.31 *9*	εK=0.8467 *2*; εL=0.12073 *16*; εM+=0.03261 *5*
(738 *10*)	1956.07		2.10 *14*	5.81 *4*	2.10 *14*	εK=0.8485 *2*; εL=0.1194 *2*; εM+=0.03218 *4*
(760 *10*)	1934.14		0.63 *4*	6.36 *3*	0.63 *4*	εK=0.8488 *2*; εL=0.1191 *1*; εM+=0.03210 *4*
(829 *10*)	1864.88		1.38 *9*	6.10 *3*	1.38 *9*	εK=0.8496 *2*; εL=0.11848 *9*; εM+=0.03190 *3*
(1037[#] *10*)	1657.11?		0.191 *16*	7.16 *4*	0.191 *16*	εK=0.8515; εL=0.11708 *6*; εM+=0.03146 *2*
(1303 *10*)	1390.80		1.20 *15*	6.57 *6*	1.20 *15*	εK=0.8523; εL=0.11586 *5*; εM+=0.03108 *2*
(1384 *10*)	1310.09	0.0012 *2*	0.52 *4*	6.98 *4*	0.52 *4*	av Eβ=171.2 *44*; εK=0.8514 *2*; εL=0.11544 *6*; εM+=0.03096 *2*
(1452 *10*)	1242.35	0.016 *2*	3.5 *3*	6.20 *4*	3.5 *3*	av Eβ=200.9 *44*; εK=0.8497 *4*; εL=0.11499 *8*; εM+=0.03083 *3*
(1504[#] *10*)	1189.93?	0.00121 *14*	0.171 *13*	7.54 *4*	0.172 *13*	av Eβ=223.7 *44*; εK=0.8477 *5*; εL=0.1146 *1*; εM+=0.03071 *3*
(1541[#] *10*)	1153.4?	0.00128 *20*	0.136 *19*	7.66 *6*	0.137 *19*	av Eβ=239.6 *44*; εK=0.8459 *6*; εL=0.1142 *1*; εM+=0.03061 *3*
(1581 *10*)	1113.09	0.035 *3*	2.78 *17*	6.37 *3*	2.81 *17*	av Eβ=257.2 *44*; εK=0.8434 *7*; εL=0.11377 *12*; εM+=0.03049 *4*
(1645 *10*)	1048.68	0.050 *6*	2.7 *3*	6.43 *5*	2.7 *3*	av Eβ=285.2 *44*; εK=0.8383 *10*; εL=0.11292 *15*; εM+=0.03025 *4*
(1683 *10*)	1011.04	0.015 *2*	0.63 *6*	7.07 *5*	0.64 *6*	av Eβ=301.6 *44*; εK=0.8347 *11*; εL=0.11234 *17*; εM+=0.03010 *5*
(2364 *10*)	330.26	1.1 *1*	4.0 *5*	6.57 *6*	5.1 *6*	av Eβ=601.3 *45*; εK=0.672 *4*; εL=0.0895 *5*; εM+=0.02395 *13*
(2516 *10*)	178.00	3.9 *3*	10.2 *7*	6.22 *3*	14.1 *9*	av Eβ=669.4 *45*; εK=0.616 *4*; εL=0.0820 *5*; εM+=0.02194 *14*
(2545 *10*)	148.91	18.0 *4*	43.6 *7*	5.60 *1*	61.6 *9*	av Eβ=682.4 *45*; εK=0.606 *4*; εL=0.0806 *5*; εM+=0.02155 *14*

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^{123}Xe ε decay 1971St08,1971Ho02 (continued)

ε,β^{+} radiations (continued)

† Deduced by the evaluator from γ+ce intensity imbalance at each level.
‡ Absolute intensity per 100 decays.
# Existence of this branch is questionable.

$\gamma(^{123}I)$

Iγ normalization: From ΣI(γ+ce to g.s.)=100.

E_γ‡	I_γ‡&	E_i(level)	J_i^π	E_f	J_f^π	Mult.@	δ	α†	Comments
39.9 *3*	0.006 *2*	178.00	3/2+	138.07	7/2+	(E2)		51.3 *17*	%Iγ=0.0029 *10* B(E2)(W.u.)=71 *25* α(K)=11.30 *18*; α(L)=31.8 *13*; α(M)=6.8 *3* α(N)=1.29 *6*; α(O)=0.112 *5* E_γ: from energies of conversion electrons (1971St08). I_γ: deduced from I(ceL) and I(ceM) and assumption that mult=E2 (1971St08). Mult.: L/M=3.5 *15* gives M1 or E2 (1971St08). ΔJ=2 from the decay scheme,
138.1 *2*	0.50 *5*	138.07	7/2+	0.0	5/2+	M1+E2	−0.15 *5*	0.307 *7*	%Iγ=0.245 *25* α(K)=0.263 *5*; α(L)=0.0355 *14*; α(M)=0.0072 *3* α(N)=0.00145 *6*; α(O)=0.000167 *6* Mult.: α(K)exp=0.26 *4*, α(L)exp=0.041 *7* (1971St08). δ: from Adopted Gammas. Other: 0.30 *+15−30* from ce data in 1971St08. α: Calculated with δ=−0.15 *5* from ^{120}Sn(^{6}Li,3nγ).
148.9 *2*	100	148.91	1/2+	0.0	5/2+	E2		0.431	%Iγ=49.1 *6* B(E2)(W.u.)=63.1 *11* α(K)=0.329 *5*; α(L)=0.0818 *13*; α(M)=0.0171 *3* α(N)=0.00333 *5*; α(O)=0.000328 *5* E_γ: other: 148.7 (1968Gf01). I_γ: %Iγ=48.0 *10* from direct measurement in 1974Jo16. Mult.: α(K)exp=0.32 *2*, α(L)exp=0.080 *10*, α(M)exp=0.021 *5* (1971St08), α(M)exp=0.0175 *15* (1981Bo25), α(K)exp=0.294, α(L+M)(exp)=0.096 (1968Gf01). I(ceK)=100.0 *34*, I(ceM)=5.46 *30* (1981Bo25).
178.1 *2*	30.5 *15*	178.00	3/2+	0.0	5/2+	M1(+E2)	<0.2	0.151 *3*	%Iγ=15.0 *7* B(M1)(W.u.)=0.0046 *5*; B(E2)(W.u.)=103 *10* α(K)=0.1299 *22*; α(L)=0.0171 *5*; α(M)=0.00345 *11* α(N)=0.000697 *21*; α(O)=8.13×10^{-5} *20* E_γ,I_γ: other: Eγ=178.0, Iγ=32.2 (1968Gf01). Mult.: α(K)exp=0.145 *20*, α(L)=0.017 *3*, α(M)=0.004 *1* (1971St08), α(L)exp=0.0175 *19*, α(M)exp=0.0038 *7* (1981Bo25), α(K)exp=0.137, α(L+M)exp=0.03 (1968Gf01). δ: Deduced by the evaluator from ce data using BrIccMixing, adopted in Adopted Gammas. I(ceL)=1.70 *5*, I(ceM)=0.365 *22* (1981Bo25).
192.3 *3*	0.17 *3*	330.26	3/2+	138.07	7/2+	[E2]		0.178	%Iγ=0.083 *15* B(E2)(W.u.)=13 *5* α(K)=0.1411 *21*; α(L)=0.0292 *5*; α(M)=0.00606 *10* α(N)=0.001187 *19*; α(O)=0.0001209 *19*

^{123}Xe ε decay **1971St08,1971Ho02 (continued)**

γ(^{123}I) (continued)

E_γ[‡]	I_γ[‡&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	α[†]	Comments
330.2 *2*	17.5 *10*	330.26	3/2$^+$	0.0	5/2$^+$	(M1)	0.0291	%Iγ=8.6 *5* B(M1)(W.u.)=0.0070 *23*; B(E2)(W.u.)=45 *15* α(K)=0.0251 *4*; α(L)=0.00319 *5*; α(M)=0.000641 *9* α(N)=0.0001299 *19*; α(O)=1.528×10^{-5} *22* E_γ,I_γ: other: Eγ=330.3, Iγ=17.2 (1968Gf01). Mult.: M1,E2 from α(K)exp=0.029 *5*, α(L)exp=0.004 *1* (1971St08), α(K)exp=0.027 *4*, α(L)exp=0.0032 *6*, α(M)exp=0.00070 *12* (1981Bo25), α(K)exp=0.032, α(L+M)exp=0.003 (1968Gf01); ΔJ=(1) from level scheme. I(ceK)=1.50 *5*, I(ceL)=0.174 *10*, I(ceM)=0.039 *6* (1981Bo25).
474.2 *2*	0.21 *3*	1864.88	1/2$^+$	1390.80	(1/2,3/2)$^+$	M1,E2	0.0108 *9*	%Iγ=0.103 *15* α(K)=0.0093 *9*; α(L)=0.00124 *3*; α(M)=0.000250 *6* α(N)=5.04×10^{-5} *13*; α(O)=5.8×10^{-6} *3* E_γ,I_γ: other: Eγ=474.9, Iγ=0.22 (1968Gf01). Mult.: α(K)exp=0.0114 *30* (1981Bo25). I(ceK)=0.0075 *16* (1981Bo25).
671.7 *2*	0.10 *2*	2062.49	(1/2,3/2,5/2)$^+$	1390.80	(1/2,3/2)$^+$			%Iγ=0.049 *10*
680.5 *2*	0.41 *3*	1011.04	(3/2)$^+$	330.26	3/2$^+$	M1	0.00485	%Iγ=0.201 *15* α(K)=0.00420 *6*; α(L)=0.000521 *8*; α(M)=0.0001044 *15* α(N)=2.12×10^{-5} *3*; α(O)=2.50×10^{-6} *4* E_γ,I_γ: other: Eγ=679.6, Iγ=0.31 (1968Gf01). Mult.: α(K)exp=0.0061 *23* (1981Bo25). I(ceK)=0.0079 *29* (1981Bo25).
691.5 *3*	0.23 *3*	1934.14	(1/2,3/2,5/2)$^+$	1242.35	1/2$^+$	M1,E2	0.0041 *6*	%Iγ=0.113 *15* α(K)=0.0036 *5*; α(L)=0.00046 *5*; α(M)=9.2×10^{-5} *9* α(N)=1.86×10^{-5} *18*; α(O)=2.17×10^{-6} *24* Mult.: α(K)exp=0.0051 *32* (1981Bo25). I(ceK)=0.0037 *24* (1981Bo25).
718.5 *2*	0.35 *3*	1048.68	1/2$^+$	330.26	3/2$^+$	(M1)	0.00427	%Iγ=0.172 *15* α(K)=0.00370 *6*; α(L)=0.000457 *7*; α(M)=9.16×10^{-5} *13* α(N)=1.86×10^{-5} *3*; α(O)=2.19×10^{-6} *3* E_γ,I_γ: other: Eγ=718.0, Iγ=0.43 (1968Gf01). Mult.: D,E2 from α(K)exp=0.0045 *35* (1981Bo25); (M1) required from level scheme. I(ceK)=0.005 *4* (1981Bo25).
^{x}728.3 *2*	0.25 *3*							%Iγ=0.123 *15* E_γ,I_γ: other: Eγ=727.3, Iγ=0.30 (1968Gf01). α(K)exp=0.010 *8*, I(ceK)=0.008 *6* (1981Bo25).
752.4 *2*	0.12 *2*	2062.49	(1/2,3/2,5/2)$^+$	1310.09	(3/2)$^+$			%Iγ=0.059 *10* E_γ,I_γ: other: Eγ=751.3, Iγ=0.18 (1968Gf01).
782.9 *2*	0.91 *9*	1113.09	(1/2,3/2)$^+$	330.26	3/2$^+$	M1,E2	0.0031 *4*	%Iγ=0.45 *5* α(K)=0.0027 *4*; α(L)=0.00034 *4*; α(M)=6.8×10^{-5} *7* α(N)=1.37×10^{-5} *15*; α(O)=1.60×10^{-6} *20*

γ(^{123}I) (continued)

E_γ[‡]	I_γ[‡&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	α[†]	Comments
								E_γ,I_γ: other: Eγ=782.6, Iγ=1.30 (1968Gf01). Mult.: α(K)exp=0.0029 *7* (1981Bo25). I(ceK)=0.0082 *14* (1981Bo25).
802.7 *3*	0.04 *1*	1956.07	3/2$^+$	1153.4?	(3/2)$^+$			%Iγ=0.020 *5*
816.3 *3*	0.15 *2*	1864.88	1/2$^+$	1048.68	1/2$^+$	(M1)		%Iγ=0.074 *10* Mult.: M1,Q from α(K)exp=0.013 *11* (1981Bo25); M1 from level scheme. I(ceK)=0.006 *5* (1981Bo25).
820.1 *3*	0.12 *2*	2062.49	(1/2,3/2,5/2)$^+$	1242.35	1/2$^+$			%Iγ=0.059 *10*
823.5[c] *3*	0.03 *1*	1153.4?	(3/2)$^+$	330.26	3/2$^+$			%Iγ=0.015 *5*
833.3 *3*	0.08 *1*	1011.04	(3/2)$^+$	178.00	3/2$^+$			%Iγ=0.039 *5* E_γ,I_γ: other: Eγ=832.8, Iγ=0.14 (1968Gf01).
842.7 *3*	0.08 *1*	1956.07	3/2$^+$	1113.09	(1/2,3/2)$^+$			%Iγ=0.039 *5*
853.5 *3*	0.06 *1*	1864.88	1/2$^+$	1011.04	(3/2)$^+$			%Iγ=0.029 *5*
859.7[c] *3*	0.09 *1*	1189.93?	(1/2$^+$,3/2,5/2$^+$)	330.26	3/2$^+$			%Iγ=0.044 *5* E_γ,I_γ: other: Eγ=859.9, Iγ=0.15 (1968Gf01).
862.2 *3*	0.07 *1*	1011.04	(3/2)$^+$	148.91	1/2$^+$			%Iγ=0.034 *5*
870.7 *3*	0.58 *7*	1048.68	1/2$^+$	178.00	3/2$^+$	M1(+E2)	0.0024 *4*	%Iγ=0.28 *4* α(K)=0.0021 *3*; α(L)=0.00026 *3*; α(M)=5.2×10^{-5} *6* α(N)=1.06×10^{-5} *12*; α(O)=1.24×10^{-6} *16* E_γ,I_γ: other: Eγ=870.3, Iγ=0.60 (1968Gf01). Mult.: α(K)exp=0.0040 *19* (1981Bo25). I(ceK)=0.0073 *32* (1981Bo25).
899.6 *4*	5.0 *5*	1048.68	1/2$^+$	148.91	1/2$^+$	M1	0.00252	%Iγ=2.45 *24* α(K)=0.00219 *3*; α(L)=0.000269 *4*; α(M)=5.38×10^{-5} *8* α(N)=1.092×10^{-5} *16*; α(O)=1.290×10^{-6} *19* E_γ,I_γ: other: Eγ=898.9, Iγ=5.16 (1968Gf01). Mult.: α(K)exp=0.0026 *4*,α(L)exp=0.00045 *18* (1981Bo25). I(ceK)=0.0403 *23*, I(ceL)=0.0072 *22* (1981Bo25).
909.0 *4*	0.18 *2*	2062.49	(1/2,3/2,5/2)$^+$	1153.4?	(3/2)$^+$	M1	0.00246	%Iγ=0.088 *10* α(K)=0.00214 *3*; α(L)=0.000262 *4*; α(M)=5.25×10^{-5} *8* α(N)=1.066×10^{-5} *15*; α(O)=1.260×10^{-6} *18* E_γ,I_γ: other: Eγ=909.0, Iγ=0.30 (1968Gf01). Mult.: α(K)exp=0.0037 *15* (1981Bo25). I(ceK)=0.0021 *8* (1981Bo25).
912.0 *4*	0.17 *2*	1242.35	1/2$^+$	330.26	3/2$^+$	M1	0.00244	%Iγ=0.083 *10* α(K)=0.00212 *3*; α(L)=0.000260 *4*; α(M)=5.21×10^{-5} *8* α(N)=1.057×10^{-5} *15*; α(O)=1.250×10^{-6} *18* Mult.: α(K)exp=0.0034 *13* (1981Bo25). I(ceK)=0.0018 *7* (1981Bo25).
934.9 *3*	0.64 *7*	1113.09	(1/2,3/2)$^+$	178.00	3/2$^+$	M1,E2	0.0020 *3*	%Iγ=0.31 *4* α(K)=0.00177 *24*; α(L)=0.00022 *3*; α(M)=4.4×10^{-5} *5* α(N)=9.0×10^{-6} *11*; α(O)=1.05×10^{-6} *13*

γ(^{123}I) (continued)

E_{γ}[‡]	I_{γ}[‡&]	E_i(level)	J_i^{π}	E_f	J_f^{π}	Mult.[@]	α[†]	Comments
								E_{γ},I_{γ}: other: Eγ=934.5, Iγ=0.82 (1968Gf01). Mult.: α(K)exp=0.0032 *18* (1981Bo25). I(ceK)=0.0064 *16* (1981Bo25).
[x]943.5 *3*	0.10 *2*							%Iγ=0.049 *10*
949.5 *3*	0.06 *1*	2062.49	(1/2,3/2,5/2)$^+$	1113.09	(1/2,3/2)$^+$			%Iγ=0.029 *5*
964.0 *3*	1.10 *10*	1113.09	(1/2,3/2)$^+$	148.91	1/2$^+$	M1,E2	0.00191 *25*	%Iγ=0.54 *5* α(K)=0.00165 *22*; α(L)=0.000206 *24*; α(M)=4.1×10^{-5} *5* α(N)=8.3×10^{-6} *10*; α(O)=9.8×10^{-7} *12* E_{γ},I_{γ}: other: Eγ=963.1, Iγ=1.28 (1968Gf01). Mult.: α(K)exp=0.0019 *5* (1981Bo25). I(ceK)=0.0066 *14* (1981Bo25).
973.8[c]	0.12	1153.4?	(3/2)$^+$	178.00	3/2$^+$			%Iγ=0.0589 *7* E_{γ},I_{γ}: from 1968Gf01 only.
979.4 *3*	0.58 *7*	1310.09	(3/2)$^+$	330.26	3/2$^+$	M1(+E2)	0.00184 *24*	%Iγ=0.28 *4* α(K)=0.00159 *21*; α(L)=0.000198 *23*; α(M)=4.0×10^{-5} *5* α(N)=8.0×10^{-6} *10*; α(O)=9.4×10^{-7} *12* E_{γ},I_{γ}: other: Eγ=977.8, Iγ=0.78 (1968Gf01). Mult.: α(K)exp=0.0020 *5* (1981Bo25). I(ceK)=0.0037 *7* (1981Bo25).
1004.2[c] *3*	0.15 *2*	1153.4?	(3/2)$^+$	148.91	1/2$^+$			%Iγ=0.074 *10* E_{γ},I_{γ}: other: Eγ=1003.2, Iγ=0.21 (1968Gf01).
1011.3 *5*	0.90 *10*	1011.04	(3/2)$^+$	0.0	5/2$^+$			%Iγ=0.44 *5* E_{γ},I_{γ}: other: Eγ=1010.5, Iγ=1.44 (1968Gf01).
1013.5 *5*	0.24 *3*	2062.49	(1/2,3/2,5/2)$^+$	1048.68	1/2$^+$			%Iγ=0.118 *15*
1041.0[c] *3*	0.15 *2*	1189.93?	(1/2$^+$,3/2,5/2$^+$)	148.91	1/2$^+$			%Iγ=0.074 *10*
1048.9 *3*	0.28 *3*	1048.68	1/2$^+$	0.0	5/2$^+$			%Iγ=0.137 *15* E_{γ},I_{γ}: other: Eγ=1048.0, Iγ=0.35 (1968Gf01).
1060.7 *4*	1.60 *20*	1390.80	(1/2,3/2)$^+$	330.26	3/2$^+$	M1	1.73×10^{-3}	%Iγ=0.79 *10* α(K)=0.001503 *21*; α(L)=0.000184 *3*; α(M)=3.68×10^{-5} *6* α(N)=7.46×10^{-6} *11*; α(O)=8.82×10^{-7} *13* E_{γ},I_{γ}: other: Eγ=1060.7, Iγ=2.88 (1968Gf01). Mult.: α(K)exp=0.0020 *5* (1981Bo25). I(ceK)=0.0099 *20* (1981Bo25).
1064.3 *4*	1.35 *15*	1242.35	1/2$^+$	178.00	3/2$^+$	M1,E2	0.00153 *20*	%Iγ=0.66 *8* α(K)=0.00132 *17*; α(L)=0.000164 *19*; α(M)=3.3×10^{-5} *4* α(N)=6.7×10^{-6} *8*; α(O)=7.8×10^{-7} *10* Mult.: α(K)exp=0.0015 *4* (1981Bo25). I(ceK)=0.0064 *13* (1981Bo25).
1093.4 *3*	5.7 *5*	1242.35	1/2$^+$	148.91	1/2$^+$	(M1)	0.00162	%Iγ=2.80 *24* α(K)=0.001403 *20*; α(L)=0.0001714 *24*; α(M)=3.43×10^{-5} *5* α(N)=6.96×10^{-6} *10*; α(O)=8.23×10^{-7} *12*

γ(^{123}I) (continued)

E_γ[‡]	I_γ[‡&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	α[†]	Comments
								E_γ,I_γ: other: Eγ=1092.6, Iγ=5.23 (1968Gf01). Mult.: M1,E2 from α(K)exp=0.00122 *21* (1981Bo25); M1 from level scheme. I(ceK)=0.0217 *27* (1981Bo25).
1113.1 *3*	3.2 *3*	1113.09	(1/2,3/2)$^+$	0.0	5/2$^+$	E2(+M1)	0.00139 *17*	%Iγ=1.57 *15* α(K)=0.00120 *15*; α(L)=0.000148 *17*; α(M)=3.0×10^{-5} *4* α(N)=6.0×10^{-6} *7*; α(O)=7.1×10^{-7} *9*; α(IPF)=6.6×10^{-7} *4* E_γ,I_γ: other: Eγ=1112.0, Iγ=2.84 (1968Gf01). Mult.: α(K)exp=0.00112*17* (1981Bo25). I(ceK)=0.0113 *11* (1981Bo25).
1132.2 *3*	0.12 *1*	1310.09	(3/2)$^+$	178.00	3/2$^+$			%Iγ=0.059 *5*
1153.8[c] *3*	0.20 *2*	1153.4?	(3/2)$^+$	0.0	5/2$^+$			%Iγ=0.098 *10* E_γ,I_γ: other: Eγ=1152.5, Iγ=0.22 (1968Gf01).
1161.3 *3*	0.21 *2*	1310.09	(3/2)$^+$	148.91	1/2$^+$			%Iγ=0.103 *10* E_γ,I_γ: other: Eγ=1159.7, Iγ=0.18 (1968Gf01).
1189.9[c] *3*	0.11 *1*	1189.93?	(1/2$^+$,3/2,5/2$^+$)	0.0	5/2$^+$			%Iγ=0.054 *5*
1201.5 *3*	0.19 *2*	2250.03	(3/2)$^+$	1048.68	1/2$^+$			%Iγ=0.093 *10* E_γ,I_γ: other: Eγ=1199.8, Iγ=0.15 (1968Gf01).
1237.1 *4*	0.20 *3*	2285.52	1/2$^+$	1048.68	1/2$^+$			%Iγ=0.098 *15* E_γ,I_γ: other: Eγ=1236.7, Iγ=0.24 (1968Gf01).
1242.0[b] *4*	0.23[b#] *20*	1242.35	1/2$^+$	0.0	5/2$^+$			%Iγ=0.11 *10*
1242.0[b] *4*	0.92[b#] *20*	1390.80	(1/2,3/2)$^+$	148.91	1/2$^+$			%Iγ=0.45 *10* E_γ,I_γ: other: Eγ=1240.6, Iγ=0.98 (1968Gf01).
[x]1264.7 *4*	0.06 *1*							%Iγ=0.029 *5*
1274.6 *3*	0.09 *1*	2285.52	1/2$^+$	1011.04	(3/2)$^+$			%Iγ=0.044 *5*
[x]1296.3 *3*	0.06 *1*							%Iγ=0.029 *5*
1310.3 *3*	0.27 *2*	1310.09	(3/2)$^+$	0.0	5/2$^+$			%Iγ=0.133 *10* E_γ,I_γ: other: Eγ=1308.1, Iγ=0.26 (1968Gf01).
1326.8[c] *3*	0.020 *5*	1657.11?	(3/2)$^+$	330.26	3/2$^+$			%Iγ=0.0098 *25*
[x]1334.3 *3*	0.05 *1*							%Iγ=0.025 *5*
1390.9 *3*	0.24 *2*	1390.80	(1/2,3/2)$^+$	0.0	5/2$^+$			%Iγ=0.118 *10* E_γ,I_γ: other: Eγ=1390.3, Iγ=0.16 (1968Gf01).
1508.4[c] *3*	0.10 *1*	1657.11?	(3/2)$^+$	148.91	1/2$^+$			%Iγ=0.049 *5*
1534.9 *3*	0.62 *6*	1864.88	1/2$^+$	330.26	3/2$^+$			%Iγ=0.30 *3* E_γ,I_γ: other: Eγ=1534.0, Iγ=0.51 (1968Gf01).
1603.9 *3*	0.35 *3*	1934.14	(1/2,3/2,5/2)$^+$	330.26	3/2$^+$			%Iγ=0.172 *15* E_γ,I_γ: other: Eγ=1602.7, Iγ=0.26 (1968Gf01).
1625.9 *3*	1.20 *10*	1956.07	3/2$^+$	330.26	3/2$^+$			%Iγ=0.59 *5* E_γ,I_γ: other: Eγ=1624.6, Iγ=1.05 (1968Gf01).
1656.8[c] *4*	0.27 *3*	1657.11?	(3/2)$^+$	0.0	5/2$^+$			%Iγ=0.133 *15* E_γ,I_γ: other: Eγ=1655.4, Iγ=0.15 (1968Gf01).
1686.8 *3*	1.25 *15*	1864.88	1/2$^+$	178.00	3/2$^+$			%Iγ=0.61 *8* E_γ,I_γ: other: Eγ=1685.8, Iγ=1.13 (1968Gf01).

$^{123}_{53}I_{70}$-8

γ(^{123}I) (continued)

E_γ[‡]	I_γ[‡&]	E_i(level)	J^π_i	E_f	J^π_f	Comments
1715.9 *3*	0.39 *5*	1864.88	1/2$^+$	148.91	1/2$^+$	%Iγ=0.191 *25* E_γ,I_γ: other: Eγ=1714.6, Iγ=0.34 (1968Gf01).
1732.2 *3*	0.29 *4*	2062.49	(1/2,3/2,5/2)$^+$	330.26	3/2$^+$	%Iγ=0.142 *20* E_γ,I_γ: other: Eγ=1730.4, Iγ=0.26 (1968Gf01).
1756.1 *3*	0.19 *2*	1934.14	(1/2,3/2,5/2)$^+$	178.00	3/2$^+$	%Iγ=0.093 *10* E_γ,I_γ: other: Eγ=1754.5, Iγ=0.15 (1968Gf01).
1778.2 *3*	0.20 *2*	1956.07	3/2$^+$	178.00	3/2$^+$	%Iγ=0.098 *10* E_γ,I_γ: other: Eγ=1777.2, Iγ=0.15 (1968Gf01).
1785.4 *3*	0.06 *1*	1934.14	(1/2,3/2,5/2)$^+$	148.91	1/2$^+$	%Iγ=0.029 *5*
1807.3 *3*	2.55 *25*	1956.07	3/2$^+$	148.91	1/2$^+$	%Iγ=1.25 *13* E_γ,I_γ: other: Eγ=1806.7, Iγ=2.15 (1968Gf01).
1822.3 *3*	0.25 *3*	2152.40	(1/2$^+$,3/2)	330.26	3/2$^+$	%Iγ=0.123 *15* E_γ,I_γ: other: Eγ=1820.8, Iγ=0.20 (1968Gf01).
1864.7 *3*	0.13 *2*	1864.88	1/2$^+$	0.0	5/2$^+$	%Iγ=0.064 *10* E_γ,I_γ: other: Eγ=1864.9, Iγ=0.07 (1968Gf01).
1871.1 *3*	0.12 *2*	2201.32	(1/2$^+$,3/2)	330.26	3/2$^+$	%Iγ=0.059 *10*
1884.5 *3*	1.30 *15*	2062.49	(1/2,3/2,5/2)$^+$	178.00	3/2$^+$	%Iγ=0.64 *8* E_γ,I_γ: other: Eγ=1883.3, Iγ=1.02 (1968Gf01).
1913.5 *4*	0.15 *2*	2062.49	(1/2,3/2,5/2)$^+$	148.91	1/2$^+$	%Iγ=0.074 *10* E_γ,I_γ: other: Eγ=1910.4, Iγ=0.07 (1968Gf01).
1919.8 *4*	0.05 *1*	2250.03	(3/2)$^+$	330.26	3/2$^+$	%Iγ=0.025 *5*
1934.2 *3*	0.45 *5*	1934.14	(1/2,3/2,5/2)$^+$	0.0	5/2$^+$	%Iγ=0.221 *25* E_γ,I_γ: other: Eγ=1933.2, Iγ=0.40 (1968Gf01).
1955.9 *3*	0.20 *3*	1956.07	3/2$^+$	0.0	5/2$^+$	%Iγ=0.098 *15* E_γ,I_γ: other: Eγ=1954.5, Iγ=0.20 (1968Gf01).
1974.3 *3*	0.28 *4*	2152.40	(1/2$^+$,3/2)	178.00	3/2$^+$	%Iγ=0.137 *20* E_γ,I_γ: other: Eγ=1973.0, Iγ=0.28 (1968Gf01).
1992.5 *4*	0.09 *1*	2322.6	(1/2,3/2)	330.26	3/2$^+$	%Iγ=0.044 *5*
2003.3 *4*	0.38 *5*	2152.40	(1/2$^+$,3/2)	148.91	1/2$^+$	%Iγ=0.186 *25* E_γ,I_γ: other: Eγ=2002.8, Iγ=0.35 (1968Gf01).
2037.6 *4*	0.50 *6*	2367.78	(1/2$^+$,3/2$^+$)	330.26	3/2$^+$	%Iγ=0.25 *3* E_γ,I_γ: other: Eγ=2037.3, Iγ=0.51 (1968Gf01).
2052.4 *4*	0.09 *1*	2201.32	(1/2$^+$,3/2)	148.91	1/2$^+$	%Iγ=0.044 *5*
2058.9 *4*	0.15 *2*	2389.4	(3/2)$^+$	330.26	3/2$^+$	%Iγ=0.074 *10* E_γ,I_γ: other: Eγ=2059.0, Iγ=0.18 (1968Gf01).
2062.6 *4*	0.10 *2*	2062.49	(1/2,3/2,5/2)$^+$	0.0	5/2$^+$	%Iγ=0.049 *10*
2071.9 *4*	0.34 *4*	2250.03	(3/2)$^+$	178.00	3/2$^+$	%Iγ=0.167 *20* E_γ,I_γ: other: Eγ=2070.9, Iγ=0.38 (1968Gf01).
2101.3 *4*	0.32 *4*	2250.03	(3/2)$^+$	148.91	1/2$^+$	%Iγ=0.157 *20* E_γ,I_γ: other: Eγ=2099.8, Iγ=0.32 (1968Gf01).
2107.0 *5*	0.04 *1*	2285.52	1/2$^+$	178.00	3/2$^+$	%Iγ=0.020 *5*
2125.3[c] *4*	0.020 *5*	2455.40?	(1/2$^+$)	330.26	3/2$^+$	%Iγ=0.0098 *25*
2136.4 *4*	0.05 *1*	2285.52	1/2$^+$	148.91	1/2$^+$	%Iγ=0.025 *5*

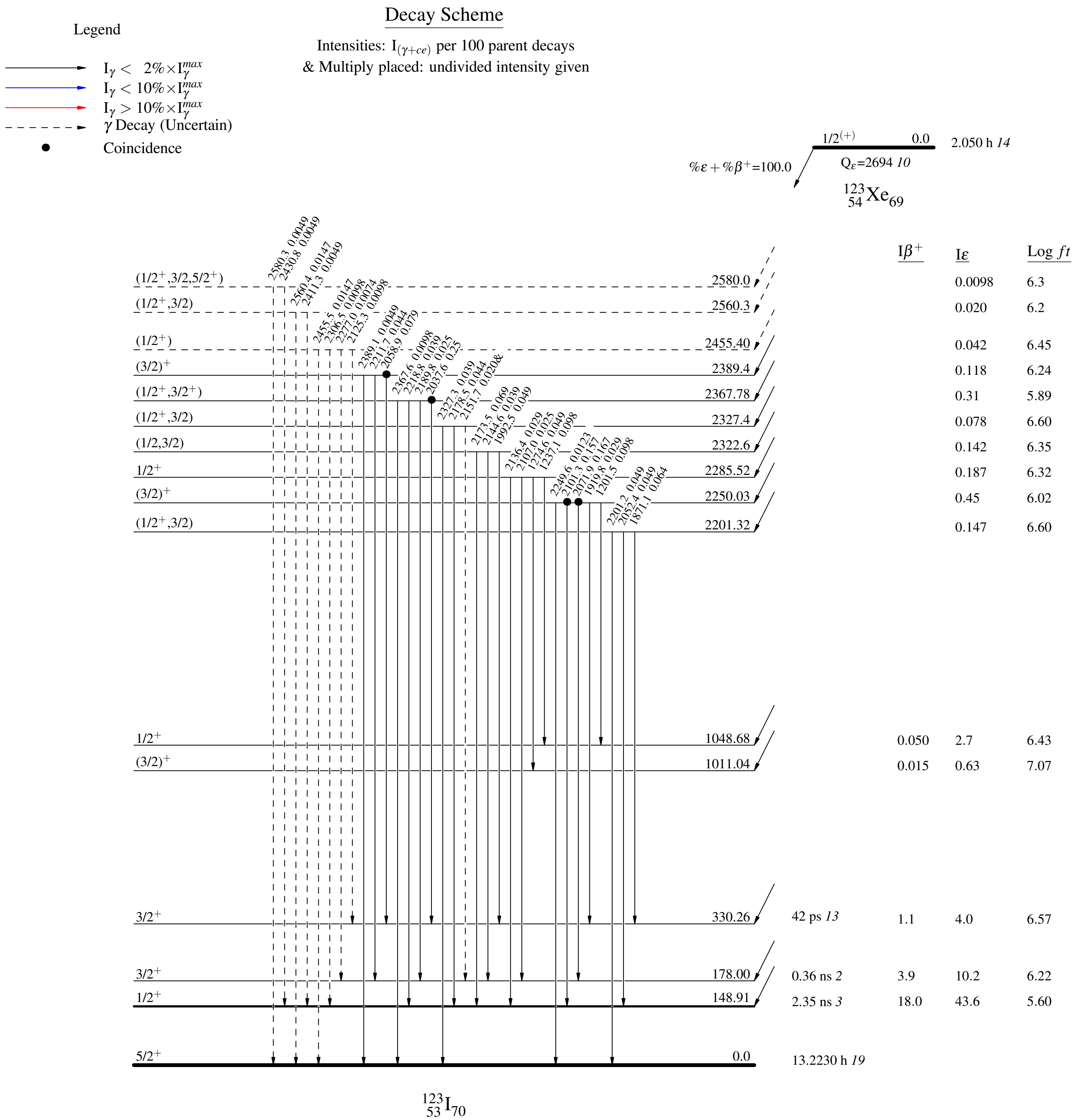
$^{123}_{53}I_{70}$-9

γ(^{123}I) (continued)

E_γ[‡]	I_γ[‡&]	E_i(level)	J^π_i	E_f	J^π_f	Comments
2144.6 4	0.07 1	2322.6	(1/2,3/2)	178.00	3/2+	%Iγ=0.034 5
2151.7[ac] 5	0.03[a] 1	2152.40	(1/2+,3/2)	0.0	5/2+	%Iγ=0.015 5
2151.7[ac] 5	0.03[a] 1	2327.4	(1/2+,3/2)	178.00	3/2+	%Iγ=0.015 5
2173.5 5	0.13 2	2322.6	(1/2,3/2)	148.91	1/2+	%Iγ=0.064 10 E_γ,I_γ: other: Eγ=2173.5, Iγ=0.17 (1968Gf01).
2178.5 5	0.08 1	2327.4	(1/2+,3/2)	148.91	1/2+	%Iγ=0.039 5
2189.8 4	0.04 1	2367.78	(1/2+,3/2+)	178.00	3/2+	%Iγ=0.020 5
2201.2 4	0.09 2	2201.32	(1/2+,3/2)	0.0	5/2+	%Iγ=0.044 10
2211.7 4	0.08 2	2389.4	(3/2)+	178.00	3/2+	%Iγ=0.039 10
2218.8 4	0.07 1	2367.78	(1/2+,3/2+)	148.91	1/2+	%Iγ=0.034 5
2249.6 4	0.025 5	2250.03	(3/2)+	0.0	5/2+	%Iγ=0.0123 25
2277.0[c] 5	0.015 4	2455.40?	(1/2+)	178.00	3/2+	%Iγ=0.0074 20
[x]2280.8 5	0.015 4					%Iγ=0.0074 20
2306.5[c] 5	0.020 5	2455.40?	(1/2+)	148.91	1/2+	%Iγ=0.0098 25
2327.3 5	0.07 1	2327.4	(1/2+,3/2)	0.0	5/2+	%Iγ=0.034 5 E_γ,I_γ: other: Eγ=2326.1, Iγ=0.05 (1968Gf01).
2367.6 5	0.020 4	2367.78	(1/2+,3/2+)	0.0	5/2+	%Iγ=0.0098 20
2389.1 5	0.010 3	2389.4	(3/2)+	0.0	5/2+	%Iγ=0.0049 15
2411.3[c] 5	0.010 3	2560.3?	(1/2+,3/2)	148.91	1/2+	%Iγ=0.0049 15
[x]2419.6 5	0.010 3					%Iγ=0.0049 15
2430.8[c] 5	0.010 3	2580.0?	(1/2+,3/2,5/2+)	148.91	1/2+	%Iγ=0.0049 15
2455.5[c] 5	0.030 5	2455.40?	(1/2+)	0.0	5/2+	%Iγ=0.0147 25
2560.4[c] 5	0.030 5	2560.3?	(1/2+,3/2)	0.0	5/2+	%Iγ=0.0147 25 E_γ,I_γ: other: Eγ=2559.1, Iγ=0.03 (1968Gf01).
2580.3[c] 5	0.010 3	2580.0?	(1/2+,3/2,5/2+)	0.0	5/2+	%Iγ=0.0049 15

[†] Additional information 1.
[‡] From 1971St08, unless otherwise noted.
[#] From γγ-coin. Uncertainty assigned by evaluators. Iγ=1.15 20 for the doubly-placed 1241γ (1971St08).
[@] From Adopted Gammas, supported by ce data given in comments from this study. Conversion coefficients from 1971St08 are obtained by assuming Mult=E2 for 148.9γ (α(K)theo=0.325 quoted in 1971St08), for which α(K)exp=0.32 2 is also determined by 1971St08 with a separate measurement of γ-ce coincidence. Conversion coefficients from 1981Bo25 are obtained using I(ce) values from their work and Iγ values from 1971St08 and are normalized to α(K)exp=0.32 2 from 1971St08 for 148.9γ. Assignments for unplaced transitions are from ce data in 1981Bo25.
[&] For absolute intensity per 100 decays, multiply by 0.491 6.
[a] Multiply placed with undivided intensity.
[b] Multiply placed with intensity suitably divided.
[c] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

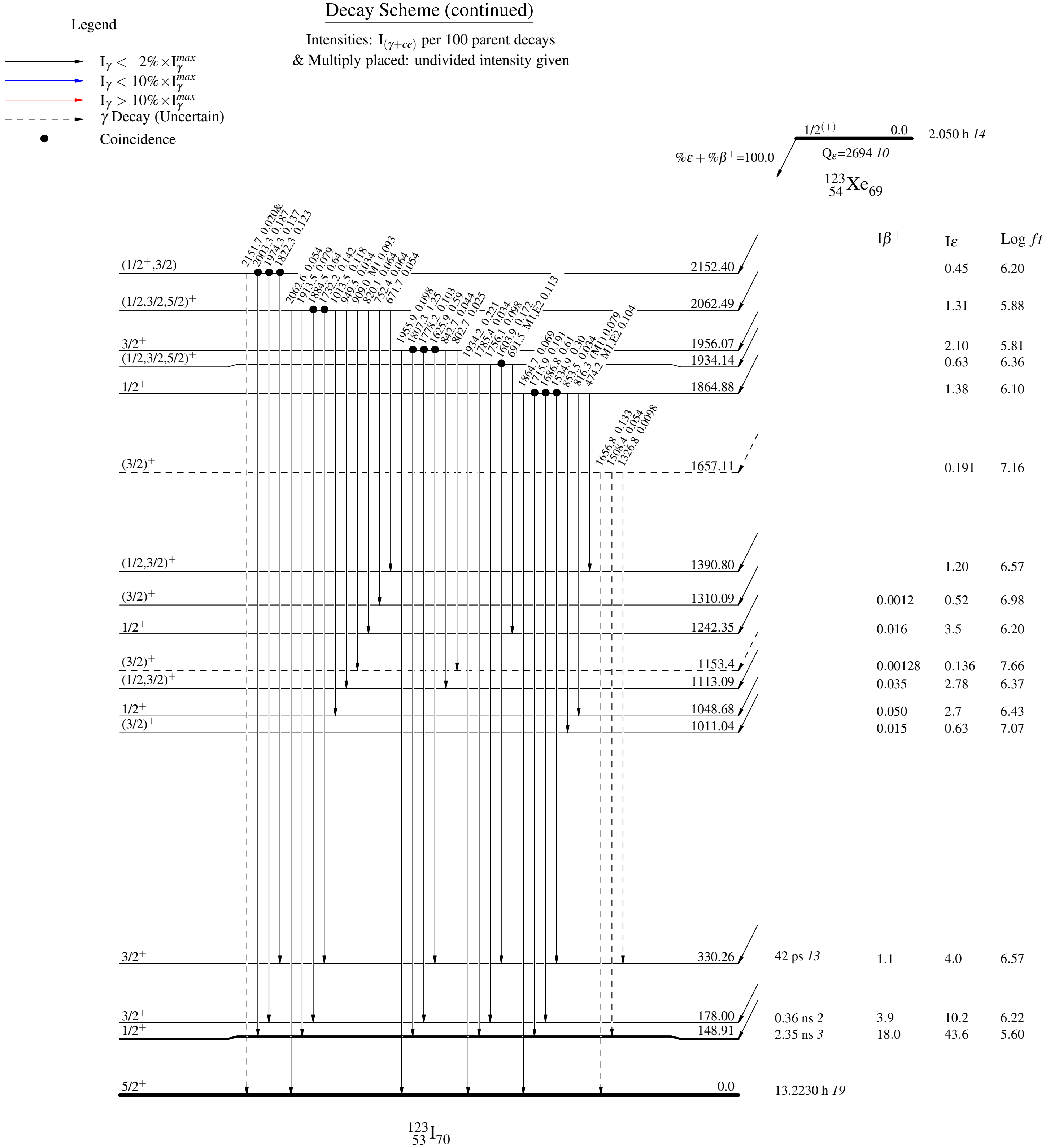
^{123}Xe ε decay 1971St08,1971Ho02



^{123}Xe ε decay 1971St08,1971Ho02

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



^{123}Xe ε decay 1971St08,1971Ho02

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided