^{239}Pu α decay 1993Sc22

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 122, 205 (2014)	1-Feb-2014

Parent: ^{239}Pu: E=0; $J^{\pi}=1/2^+$; $T_{1/2}$=24110 y *30*; Q(α)=5244.50 *21*; %α decay=100.0

Additional information 1.

The decay scheme is given as presented in 1993Sc22.

For coincidence measurements information see 1971Ar47.

^{235}U Levels

E(level)†	J^{π}	$T_{1/2}$	Comments
0	$7/2^-$	7.04×10^8 y *1*	
0.0765 *4*	$1/2^+$	≈26 min	E(level): from Adopted Levels. 1971CuZU reported E= 0.572 *33* (calorimetry); This result does not agree with the value adopted here.
13.0401 *21*	$3/2^+$	0.50 ns *3*	$T_{1/2}$: from 1970Ho02.
46.207 *10*	$9/2^-$		
51.7008 *11*	$5/2^+$	191 ps *5*	$T_{1/2}$: from 1970ToZZ. Other: 200 ps *20* (1970Ho02).
81.741 *4*	$7/2^+$		
103.036 *10*	$11/2^-$		
129.2961 *10*	$5/2^+$		
150.467 *15*	$9/2^+$		
170.708 *14*	$13/2^-$		
171.388 *5*	$7/2^+$		
197.119 *14*	$11/2^+$		
225.422 *8*	$9/2^+$		
249.130 *12*	$15/2^-$		
291.144 *19*	$11/2^+$		
294.668 *15*	$13/2^+$		
332.845 *4*	$5/2^+$		
338.52 *6*	$17/2^-$		
357.30? *6*	$15/2^+$		
367.069 *8*	$7/2^+$		
393.225 *6*	$3/2^+$		
414.779 *11*	$9/2^+$		
426.755 *3*	$5/2^+$		
445.716 *20*	$7/2^+$		
474.297 *13*	$7/2^+$		
509.92 *17*	$(9/2^+)$		
533.228 *10*	$9/2^+$		
608.09 *5*	$11/2^+$		
633.17 *6*	$(5/2)^-$		
637.82 *5*	$3/2^-$		
658.97 *4*	$1/2^-$		
664.541 *23*	$(5/2)^-$		
670.99 *4*	$(7/2)^-$		
701.02 *3*	$(7/2)^-$		
703.758 *19*	$3/2^-$		
720.25 *3*	$(9/2)^-$		
750.07 *16*	$(9/2^-)$		
761.05 *5*	$(1/2)^-$		
769.27 *6*	$1/2^+$		
769.5 *3*	$3/2^-$		
777.59 *19*	$(11/2)^-$		
779.51 *3*	$3/2^+$		
805.73 *6*	$3/2^-$		
821.25 *4*	$5/2^+$		

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^{239}Pu α decay 1993Sc22 (continued)

^{235}U Levels (continued)

E(level)†	Jπ	E(level)†	Jπ	E(level)†	Jπ
843.859 *10*	$(1/2)^+$	891.89 *15*	$5/2^+$	986.65 *17*	$(13/2^-)$
845.3? *10*	$(7/2^+)$	968.451 *20*	$3/2^+$	992.72 *22*	$(5/2^+)$
865.35 *18*	$3/2^+$	970.52? *22*	(5/2,7/2)	1057.58 *13*	(7/2)
				1116.20? *20*	$(5/2^-)$

† From a least-squares fit to γ-ray energies from ^{239}Pu α decay.

α radiations

Others: 2013Fe03, 2012Ni16,1996Vi07, 1996Ra09, 1996Pa22, 1996Ga19, 1996Co28, 1996Bu50, 1996Bo19, 1995Bo32, 1994Ra27, 1994Sa63, 1993Ya17, 1993Ha30, 1992Ma04, 1992Ga25.

Eα‡	E(level)	Iα&a	HF†	Comments
(4059)	1116.20?	21×10^{-9} *4*	41	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4117)	1057.58	93×10^{-9} *8*	31	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4181)	992.72	56×10^{-9} *7*	190	Iα: deduced by evaluator from γ-ray transition intensity balance. Iα does not include possible contribution from 767and 821 γ rays.
(4187)	986.65	7.6×10^{-8} *7*	158	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4202)	970.52?	4.0×10^{-8} *5*	412	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4204.5)	968.451	61×10^{-9} *4*	281	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4280)	891.89	19×10^{-8} *1*	398	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4306)	865.35	10×10^{-8} *1*	1.25×10^3	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4326)	845.3?	4.18×10^{-8} *3*	4379	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4327)	843.859	23×10^{-8} *1*	818	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4349)	821.25	3.0×10^{-7} *4*	9.6×10^2	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4364.5)	805.73	83×10^{-9} *6*	4.62×10^3	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4390)	779.51	1.0×10^{-6} *1*	622	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4392)	777.59	7.07×10^{-7} *23*	912	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4400.3)	769.5	10.3×10^{-6} *13*	73	Iα: deduced by evaluator from γ-ray transition intensity balance.
≈4380	769.27	25×10^{-6} *8*	30	Iα: from 1963Bj03. Iα: 27×10^{-6}% *4*, deduced by evaluator from γ-ray transition intensity balance.
(4408)	761.05	10×10^{-8} *2*	8.7×10^3	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4419)	750.07	33×10^{-8} *3*	3.23×10^3	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4448.5)	720.25	2.13×10^{-6} *9*	859	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4464.7)	703.758	115×10^{-7} *4*	214	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4467.4)	701.02	6.9×10^{-6} *1*	375	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4497)	670.99	$\leq3\times10^{-8}$	1.47×10^5	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4503)	664.541	5.37×10^{-6} *9*	921	Iα: deduced by evaluator from γ-ray transition intensity balance.
4510 *20*	658.97	0.00008 *3*	68	Iα: 0.0000266% *5*, deduced by evaluator from γ-ray transition intensity balance.
(4529.6)	637.82	3.19×10^{-6} *3*	2483	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4534)	633.17	2.82×10^{-6} *5*	3047	Iα: deduced by evaluator from γ-ray transition intensity balance.
(4559)	608.09	12×10^{-6} *5*	1.11×10^3	Iα: deduced by evaluator from γ-ray transition intensity balance.
4632 *3*	533.228	0.0007 *2*	69	Iα: from 1966Ah02. Iα: 0.00087% *3*, deduced by evaluator from γ-ray transition intensity balance.
(4655)	509.92	2.8×10^{-6} *6*	2.54×10^4	Iα: deduced by evaluator from γ-ray transition intensity balance.
4691 *3*	474.297	0.0005 *2*	2.6×10^2	Iα: from 1966Ah02. Iα: 0.00060% *3*, deduced by evaluator from γ-ray transition intensity

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^{239}Pu α decay 1993Sc22 (continued)

α radiations (continued)

Eα[‡]	E(level)	Iα[&a]	HF[†]	Comments
				balance.
(4718.5)	445.716	40×10^{-6} *1*	5.18×10^{3}	Iα: deduced by evaluator from γ-ray transition intensity balance.
4736 *3*	426.755	0.0051[@] *8*	55	Iα: other value: 0.0045% *10* (1976BaZZ,1971Ar47). Iα: 0.00587% *5*, deduced by evaluator from γ-ray transition intensity balance.
4749 *5*	414.779	≈0.0006	573	Iα: 0.00075% *12*, deduced by evaluator from γ-ray transition intensity balance.
4769 *5*	393.225	0.0015[@] *6*	3.3×10^{2}	Iα: other value: 0.0008% *3* (1976BaZZ,1971Ar47). Iα: 0.00115% *5*, deduced by evaluator from γ-ray transition intensity balance.
4795 *4*	367.069	0.0012[@] *6*	6.2×10^{2}	Iα: other value: 0.0007% *2* (1976BaZZ,1971Ar47). Iα: 0.00095% *1*, deduced by evaluator from γ-ray transition intensity balance.
(4824)	338.52	22×10^{-6} *2*	5.34×10^{4}	Iα: deduced by evaluator from γ-ray transition intensity balance.
4828 *3*	332.845	0.0024[@] *7*	5.4×10^{2}	Iα: other value: 0.0025% *6* (1971Ar47). Iα: 0.00359% *4*, deduced by evaluator from γ-ray transition intensity balance.
4866[b] *5*	294.668	0.0019[@] *7*	1.24×10^{3}	Iα: other value: 0.02% *2* (1976BaZZ,1971Ar47). Iα: 0.0017% *5*, deduced by evaluator from γ-ray transition intensity balance.
4871 *5*	291.144	0.0007 *3*	3.5×10^{3}	Iα: 0.0008% *5*, deduced by evaluator from γ-ray transition intensity balance.
4912 *5*	249.130	0.0024[@] *9*	1.99×10^{3}	Iα: other value: 0.0005% *3* (1976BaZZ,1971Ar47). Iα: 0.0030% *16*, deduced by evaluator from γ-ray transition intensity balance.
4934 *3*	225.422	0.0060[@] *10*	1.15×10^{3}	Iα: other value: 0.0040% *10* (1976BaZZ,1971Ar47). Iα: 0.005% *2*, deduced by evaluator from γ-ray transition intensity balance.
4960 *5*	197.119	0.007[@] *1*	1.52×10^{3}	Iα: other value: 0.006% *3* (1976BaZZ,1971Ar47). Iα: 0.0048% *7*, deduced by evaluator from γ-ray transition intensity balance.
4987 *3*	171.388	0.013[@] *2*	1.21×10^{3}	Iα: other value: 0.007% *2* (1976BaZZ,1971Ar47). Iα: Iα(170.7 + 171.4) (1966Ah02). Iα: 0.004% *5*, deduced by evaluator from γ-ray transition intensity balance.
5006 *5*	150.467	0.017[@] *2*	1.26×10^{3}	Iα: other value: 0.013% *5* (1976BaZZ,1971Ar47). Iα: 0.023% *2*, deduced by evaluator from γ-ray transition intensity balance.
5028 *3*	129.2961	0.009[@] *3*	3.3×10^{3}	Iα: other value: 0.005% *1* (1976BaZZ,1971Ar47). Iα: 0.012% *7*, deduced by evaluator from γ-ray transition intensity balance.
5054 *5*	103.036	0.047[@] *13*	9.3×10^{2}	Iα: other value: 0.025% *5* (1976BaZZ,1971Ar47). Iα: 0.038% *2*, deduced by evaluator from γ-ray transition intensity balance.
5076 *5*	81.741	0.078[@] *8*	765	Iα: other values: 0.03% *1* (1992Bl13); 0.036% *3* (1976BaZZ,1971Ar47). Iα: 0.051% *9*, deduced by evaluator from γ-ray transition intensity balance.
5105.5[#] *8*	51.7008	11.94[@] *7*	7.76	Iα: other values: 11.80% *19* (1992Bl13); 11.5% *8* (1991Ry01). Iα: 11.5% *3*, deduced by evaluator from γ-ray transition intensity balance.
5111[b]	46.207	<0.02	5010	Iα: deduced by evaluator from γ-ray transition intensity balance.
5144.3[#] *8*	13.0401	17.11[@] *14*	9.49	Iα: other values: 17.56% *28* (1992Bl13); 11.5% *8* (1991Ry01).

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^{239}Pu α decay 1993Sc22 (continued)

α radiations (continued)

Eα[‡]	E(level)	Iα[&a]	HF[†]	Comments
				Iα: 15.2% *4*, deduced by evaluator from γ-ray transition intensity balance.
5156.59[#] *14*	0.0765	70.77[@] *14*	2.76	Eα: other value: 5155.36 keV *19*, time-of-flight method (1992Fr04). Iα: other values: 70.73% *46* (1992Bl13); 73.3% *8* (1991Ry01).
				Iα: 73.0% *4*, deduced by evaluator from γ-ray transition intensity balance.
(5156.7)	0	0.03 *SY*	6500 *SY*	HF: alpha particles to g.s. were not detected. HF=6500 is based on analogy with ^{241}Cm α decay. Iα: based on HF=6500 from ^{241}Cm α decay.

† Using $r_0(^{235}U)$=1.5122, average of $r_0(^{234}U)$=1.5075 and $r_0(^{236}U)$=1.5168 (1998Ak04).
‡ From 1968Ba25, 1971Ar47, 1981AhZV, unless otherwise specified (Eα values in parentheses have been calculated from Q(α) and level energies). Other: 1999Sa15.
# Evaluated alpha-particle energies from 1991Ry01.
@ From 1993Ga28: values are combined results from measurements at CIEMAT (Spain) and IRMN (Belgium).
& From 1976BaZZ and 1971Ar47, unless otherwise specified.
a Absolute intensity per 100 decays.
b Existence of this branch is questionable.

γ(^{235}U)

Iγ normalization: Based on measurements in 1994Mo36.
Kα$_2$ x ray= 0.00417% *4*, Kα$_1$ x ray= 0.00652% *9*, Kβ$_1'$ x ray= 0.002387% *17*, Kβ$_2'$ x ray= 0.000216% *15*, L$_{Sl}$ x ray= 0.0996% *11*, L $_\alpha$ x ray= 1.649% *18*, L$_\eta$ x ray= 0.0566% *10*, L$_\beta$ x ray= 2.30% *2*, L$_\gamma$ x ray= 0.568% *6*, L x ray= 4.67% *5* (1992Bl07,1994Mo36).
L$_{Sl}$ x ray= 0.1016% *17*, L $_\alpha$ x ray= 1.648% *36*, L$_\eta$ x ray= 0.0544% *9*, L$_\beta$ x ray= 2.28% *5*, L$_\gamma$ x ray= 0.579% *14*, L x ray= 4.66% *6* (1994Le37).
Kα$_2$ x ray= 0.00422% *1*, Kα$_1$ x ray= 0.00676% *2* (1976GuZN); L x ray= 6.7% *10* (1966Ah02).
γ rays at 313.5 and 1057.3 keV were reported in 1971GuZY but not in 1976GuZN.

E$_\gamma$ ‡ #	I$_\gamma$ @ *i*	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult. *a*	δ *a*	α †	I$_{(\gamma+ce)}$ *i*	Comments
0.0765 *4*		0.0765	1/2$^+$	0	7/2$^-$	E3		≈1×10^{10}	99.9×10^6	I$_{(\gamma+ce)}$: from γ-ray transition intensity balance. Eγ: from Adopted Gammas. ce(M)/(γ+ce)=0.740 *8*; ce(N+)/(γ+ce)=0.258 *5* ce(N)/(γ+ce)=0.200 *4*; ce(O)/(γ+ce)=0.0484 *10*; ce(P)/(γ+ce)=0.00925 *19*; ce(Q)/(γ+ce)=0.000710 *15* Iγ: absolute intensity measurement (1994Mo36,1992Bl07). α: deduced by evaluator from γ-ray transition intensity balance at 13.0-keV level and Iγ= 0.0341% *9* (1992Bl07,1994Mo36). Mult.,δ: deduced by evaluator from α(exp)=538.6, using α(exp)(Theory, M1)=513.7 and α(exp)(Theory, E2)=76830 from 1978Ro22.
x14.22 *g* *3*	5.5×10^3 *f* *4*									Reported only in 1994Mo36.
30.04 *2*	217 *6*	81.741	7/2$^+$	51.7008	5/2$^+$	(M1) *c*		156.7		α(L)=118.0 *17*; α(M)=28.7 *4*; α(N+..)=10.00 *15* α(N)=7.73 *11*; α(O)=1.88 *3*; α(P)=0.363 *6*; α(Q)=0.0292 *5* Other value: Eγ= 30.03 keV *10*, Iγ= 280 *80* (1994Mo36).
38.661 *2*	10.44×10^3 *f* *13*	51.7008	5/2$^+$	13.0401	3/2$^+$	M1+E2 *c*	0.48 *3*	298 *24*		α(L)=219 *17*; α(M)=59 *5*; α(N+..)=20.2 *16* α(N)=15.9 *13*; α(O)=3.7 *3*; α(P)=0.62 *5*; α(Q)=0.01231 *24* Iγ: other value: Iγ= 10460 *150* (1992Bl07).
x40.41 *h* *5*	162 *16*									Reported only in 1976GuZN.

^{239}Pu α decay 1993Sc22 (continued)

γ(^{235}U) (continued)

E_γ[‡#]	I_γ[@i]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ[a]	α[†]	Comments
41.93[g] *5*	146[f] *15*	171.388	7/2$^+$	129.2961	5/2$^+$	M1+E2[c]	0.14 *10*	7.×10^1 *3*	α(L)=55 *21*; α(M)=14 *6*; α(N+..)=4.8 *20* α(N)=3.7 *16*; α(O)=0.9 *4*; α(P)=0.17 *6*; α(Q)=0.0107 *3* Other value: Eγ= 42.06 keV *3*, Iγ= 165 *5* (1976GuZN).
46.21 *5*	72.1[f] *11*	46.207	9/2$^-$	0	7/2$^-$	M1(+E2)[c]	0.14 *14*	5.×10^1 *3*	α(L)=40 *19*; α(M)=10 *6*; α(N+..)=3.5 *19* α(N)=2.7 *15*; α(O)=0.6 *4*; α(P)=0.12 *6*; α(Q)=0.0081 *4* I_γ: other value: Iγ= 737 *14* (1976GuZN).
46.68[g] *3*	46.5[f] *25*	197.119	11/2$^+$	150.467	9/2$^+$	(M1)[c]		42.7	α(L)=32.2 *5*; α(M)=7.81 *11*; α(N+..)=2.72 *4* α(N)=2.10 *3*; α(O)=0.512 *8*; α(P)=0.0988 *14*; α(Q)=0.00793 *12* Other value: Eγ=46.69 keV, Iγ= 58 *4* (1976GuZN). Mult.: for pure M1 Iγ<100 from γ-ray transition intensity balance.
(47.60[g] *3*)	62.5[f] *25*	129.2961	5/2$^+$	81.741	7/2$^+$	(M1)[c]		40.4	α(L)=30.4 *5*; α(M)=7.37 *11*; α(N+..)=2.57 *4* α(N)=1.99 *3*; α(O)=0.483 *7*; α(P)=0.0932 *14*; α(Q)=0.00749 *11*
51.624 *1*	27.22×10^3[f] *22*	51.7008	5/2$^+$	0.0765	1/2$^+$	E2		310	α(L)=226 *4*; α(M)=62.6 *9*; α(N+..)=21.5 *3* α(N)=16.97 *24*; α(O)=3.89 *6*; α(P)=0.630 *9*; α(Q)=0.001600 *23* I_γ: other value: Iγ= 27360 *38* (1992Bl07).
54.039 *8*	194.4[f] *25*	225.422	9/2$^+$	171.388	7/2$^+$	M1(+E2)[c]	0.1 *1*	30 *7*	α(L)=23 *5*; α(M)=5.5 *13*; α(N+..)=1.9 *5* α(N)=1.5 *4*; α(O)=0.36 *8*; α(P)=0.069 *13*; α(Q)=0.00512 *14* I_γ: other value: Iγ= 197 *3* (1976GuZN).
56.828 *3*	1152[f] *13*	103.036	11/2$^-$	46.207	9/2$^-$	M1+E2	0.23 *2*	32.6 *16*	α(L)=24.3 *12*; α(M)=6.1 *4*; α(N+..)=2.13 *11* α(N)=1.66 *9*; α(O)=0.396 *20*; α(P)=0.073 *4*; α(Q)=0.00427 *7* I_γ: other value: Iγ= 1130 *25* (1976GuZN). δ: from muonic ^{235}U atom.
65.708 *30*	52.0[f] *34*	291.144	11/2$^+$	225.422	9/2$^+$	M1(+E2)[c]	0.23 *20*	20 *9*	α(L)=15 *7*; α(M)=3.7 *18*; α(N+..)=1.3 *6* α(N)=1.0 *5*; α(O)=0.24 *11*; α(P)=0.044 *18*; α(Q)=0.00279 *25*
67.674 *12*	151.7[f] *23*	170.708	13/2$^-$	103.036	11/2$^-$	M1+E2	0.194 *3*	16.93 *25*	α(L)=12.68 *19*; α(M)=3.15 *5*; α(N+..)=1.095 *17* α(N)=0.850 *13*; α(O)=0.204 *3*; α(P)=0.0383 *6*; α(Q)=0.00258 *4* I_γ: other value: 164 *3* (1976GuZN). δ: from muonic ^{235}U atom.
68.696[k] *6*	3.6×10^2[kf] *10*	81.741	7/2$^+$	13.0401	3/2$^+$	E2		78.6	α(L)=57.2 *8*; α(M)=15.86 *23*; α(N+..)=5.45 *8* α(N)=4.30 *6*; α(O)=0.987 *14*; α(P)=0.1605 *23*; α(Q)=0.000475 *7*
68.74[k] *CA*	130[kf] *60*	150.467	9/2$^+$	81.741	7/2$^+$	(M1+E2)	0.5 *SY*	30	α(L)=20.45; α(M)=5.35; α(N+..)=1.972

$^{235}_{92}U_{143}$-6

γ(^{235}U) (continued)

E_γ ‡#	I_γ @ i	E_i(level)	J_i^π	E_f	J_f^π	Mult. a	δ a	α †	$I_{(\gamma+ce)}$ i	Comments
										I_γ: comparison with (n,γ) suggests that most of the intensity de-excites the 81.8 level. Iγ= 485 *6* for doublet (1994Mo36). Other value: Iγ= 410 *5* (1976GuZN).
x74.96 h *10*	38 *6*									From 1971GuZY. A 74.88 *7* γ ray was reported in Coul. ex. deexciting the 608.1 *11*/2$^+$ state; however, no strong α intensity from ^{239}Pu decay to this level was detected.
77.592 *14*	380 f *5*	129.2961	5/2$^+$	51.7008	5/2$^+$	M1(+E2)	0.5 *5*	17 *11*		α(L)=12 *8*; α(M)=3.2 *22*; α(N+..)=1.1 *8* α(N)=0.9 *6*; α(O)=0.20 *14*; α(P)=0.036 *21*; α(Q)=0.0015 *5* I_γ: other value: Iγ= 410 *20* (1976GuZN).
78.43 *2*	154.2 f *22*	249.130	15/2$^-$	170.708	13/2$^-$	M1(+E2)	0.5 *5*	16 *10*		α(L)=12 *7*; α(M)=3.1 *21*; α(N+..)=1.1 *7* α(N)=0.8 *6*; α(O)=0.19 *13*; α(P)=0.034 *20*; α(Q)=0.0014 *5* I_γ: other value: Iγ= 141 *6* (1976GuZN).
89.64 kg *3*	27 kf *2*	171.388	7/2$^+$	81.741	7/2$^+$	(M1+E2)		14 *8*		α(L)=10 *6*; α(M)=2.8 *17*; α(N+..)=1.0 *6* α(N)=0.8 *5*; α(O)=0.18 *11*; α(P)=0.030 *16*; α(Q)=0.0007 *5* Other value: Eγ= 89.73 keV *4*, Iγ= 30 *6* (1976GuZN).
≈89.7 k	2 k *SY*	338.52	17/2$^-$	249.130	15/2$^-$	[M1]		6.33		α(L)≈4.77; α(M)≈1.156; α(N+..)≈0.403 α(N)≈0.312; α(O)≈0.0758; α(P)≈0.01462; α(Q)≈0.001170
96.14 g *3*	37.9 ff *18*	225.422	9/2$^+$	129.2961	5/2$^+$	[E2]		16.02		α(L)=11.67 *17*; α(M)=3.24 *5*; α(N+..)=1.114 *16* α(N)=0.879 *13*; α(O)=0.202 *3*; α(P)=0.0330 *5*; α(Q)=0.0001264 *18* Other value: Eγ= 96.13 keV *5*, Iγ= 22.3 *40* (1976GuZN).
97.6 *3*		294.668	13/2$^+$	197.119	11/2$^+$	M1+E2	0.5 *3*	7.0 *19*	7×10^2 *5*	ce(L)/(γ+ce)=0.65 *13*; ce(M)/(γ+ce)=0.17 *6*; ce(N+)/(γ+ce)=0.058 *22* ce(N)/(γ+ce)=0.045 *17*; ce(O)/(γ+ce)=0.011 *4*; ce(P)/(γ+ce)=0.0019 *7*; ce(Q)/(γ+ce)=0.00010 *3* Seen in ce only (1965Tr03).
98.780 *20*	1465 f *68*	150.467	9/2$^+$	51.7008	5/2$^+$	E2		14.11		α(L)=10.28 *15*; α(M)=2.85 *4*; α(N+..)=0.981 *14* α(N)=0.774 *11*; α(O)=0.1779 *25*; α(P)=0.0291 *4*; α(Q)=0.0001143 *16* I_γ: other value: 1220 *40* (1976GuZN).
103.060 *30*	215.6 f *54*	103.036	11/2$^-$	0	7/2$^-$	E2		11.58		α(L)=8.44 *12*; α(M)=2.34 *4*; α(N+..)=0.805 *12*

$^{235}_{92}U_{143}$-7

γ(^{235}U) (continued)

E_γ ‡#	I_γ @ i	E_i(level)	J_i^π	E_f	J_f^π	Mult. a	δ a	α †	Comments
									α(N)=0.635 *9*; α(O)=0.1460 *21*; α(P)=0.0239 *4*; α(Q)=9.80×10^{-5} *14*
115.38 *5*	462 *50*	197.119	11/2$^+$	81.741	7/2$^+$	E2		6.87	I_γ: other value: Iγ= 230 *12* (1976GuZN). α(L)=5.00 *7*; α(M)=1.388 *20*; α(N+..)=0.478 *7* α(N)=0.377 *6*; α(O)=0.0866 *13*; α(P)=0.01422 *21*; α(Q)=6.60×10^{-5} *10* I_γ: from 1976GuZN and corrected for x-ray component.
116.26 *2*	567 f *11*	129.2961	5/2$^+$	13.0401	3/2$^+$	M1(+E2)	0.56 *56*	14 *3*	α(K)=10 *2*; α(L)= 3.0 *8*; α(M)= 0.77 *25*; α(N+..)= 0.28 *10* I_γ: other value: Iγ= 597 *9* (1976GuZN).
119.70 kg *3*	21 kf *10*	171.388	7/2$^+$	51.7008	5/2$^+$	(M1+E2)		10 *4*	α(K)=5 *6*; α(L)=3.1 *11*; α(M)=0.8 *4*; α(N+..)=0.29 *12* α(N)=0.23 *10*; α(O)=0.053 *21*; α(P)=0.009 *3*; α(Q)=0.00028 *23* Other value; Eγ= 119.72 keV *3*, Iγ= 22 *10* (1976GuZN).
≈119.7 kl	≈9.5 k	291.144	11/2$^+$	171.388	7/2$^+$	[E2]		6.00	α(K)≈0.199; α(L)≈4.23; α(M)≈1.172; α(N+..)≈0.403 α(N)≈0.318; α(O)≈0.0732; α(P)≈0.01202; α(Q)≈5.82×10^{-5} I_γ: Iγ= 30.2 *18* for the doublet (1994Mo36). Intensity split based on (n,γ). Other value: Iγ= 32 *2* (1976GuZN).
122.35 l *12*	0.95 f *12*	225.422	9/2$^+$	103.036	11/2$^-$	[E1]		0.312	α(K)=0.238 *4*; α(L)=0.0555 *8*; α(M)=0.01354 *20*; α(N+..)=0.00461 *7* α(N)=0.00361 *6*; α(O)=0.000846 *12*; α(P)=0.0001486 *22*; α(Q)=7.57×10^{-6} *11* I_γ: other value: Iγ= 3 *2* (1976GuZN). From 1968Cl02.
(123.228 *5*)	0.0016 *4*	761.05	(1/2)$^-$	637.82	3/2$^-$	[M1]		12.19	α(K)=9.66 *14*; α(L)=1.91 *3*; α(M)=0.461 *7*; α(N+..)=0.1609 *23* α(N)=0.1244 *18*; α(O)=0.0303 *5*; α(P)=0.00584 *9*; α(Q)=0.000467 *7* I_γ: from (n,γ).
123.62 *5*	23.7 f *9*	414.779	9/2$^+$	291.144	11/2$^+$	[M1]		12.08	α(K)=9.57 *14*; α(L)=1.89 *3*; α(M)=0.457 *7*; α(N+..)=0.1595 *23* α(N)=0.1232 *18*; α(O)=0.0300 *5*; α(P)=0.00578 *9*; α(Q)=0.000462 *7* I_γ: other value: Iγ= 19.7 *12* (1976GuZN).
124.51 *3*	68.1 f *18*	170.708	13/2$^-$	46.207	9/2$^-$	E2		5.06	α(K)=0.214 *3*; α(L)=3.53 *5*; α(M)=0.978 *14*; α(N+..)=0.337 *5* α(N)=0.266 *4*; α(O)=0.0611 *9*; α(P)=0.01005 *15*; α(Q)=5.11×10^{-5} *8* I_γ: other values: 61.3 *25* (1976GuZN).
125.21 *10*	56.3 f *15*	171.388	7/2$^+$	46.207	9/2$^-$	[E1]		0.296	α(K)=0.227 *4*; α(L)=0.0523 *8*; α(M)=0.01275 *18*; α(N+..)=0.00434 *7* α(N)=0.00340 *5*; α(O)=0.000797 *12*; α(P)=0.0001403 *20*; α(Q)=7.20×10^{-6} *11* I_γ: other values: 71.1 *20* (1976GuZN).

$^{235}_{92}U_{143}$-8

γ(^{235}U) (continued)

E_γ[‡#]	I_γ[@ i]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	α[†]	Comments
129.296 *1*	6310[f] *40*	129.2961	5/2$^+$	0	7/2$^-$	E1	0.275	α(K)=0.211 *3*; α(L)=0.0482 *7*; α(M)=0.01173 *17*; α(N+..)=0.00400 *6* α(N)=0.00313 *5*; α(O)=0.000734 *11*; α(P)=0.0001295 *19*; α(Q)=6.71×10^{-6} *10* I_γ: other value: Iγ= 6310 *60* (1986LoZT).
141.657 *20*	32.0 *7*	367.069	7/2$^+$	225.422	9/2$^+$	[M1]	8.22	α(K)=6.52 *10*; α(L)=1.279 *18*; α(M)=0.309 *5*; α(N+..)=0.1079 *16* α(N)=0.0834 *12*; α(O)=0.0203 *3*; α(P)=0.00391 *6*; α(Q)=0.000312 *5*
143.35 *20*	17.3 *7*	225.422	9/2$^+$	81.741	7/2$^+$	[M1+E2]	5 *3*	α(K)=3 *3*; α(L)=1.5 *4*; α(M)=0.41 *11*; α(N+..)=0.14 *4* α(N)=0.11 *3*; α(O)=0.026 *7*; α(P)=0.0046 *8*; α(Q)=0.00017 *14*
144.201 *3*	283 *6*	294.668	13/2$^+$	150.467	9/2$^+$	E2	2.71	α(K)=0.225 *4*; α(L)=1.81 *3*; α(M)=0.502 *7*; α(N+..)=0.1731 *25* α(N)=0.1364 *19*; α(O)=0.0314 *5*; α(P)=0.00519 *8*; α(Q)=3.20×10^{-5} *5*
146.094 *6*	119[&] *3*	249.130	15/2$^-$	103.036	11/2$^-$	E2	2.57	α(K)=0.223 *4*; α(L)=1.712 *24*; α(M)=0.474 *7*; α(N+..)=0.1632 *23* α(N)=0.1287 *18*; α(O)=0.0296 *5*; α(P)=0.00489 *7*; α(Q)=3.07×10^{-5} *5*
158.1 *3*	1.0 *1*	171.388	7/2$^+$	13.0401	3/2$^+$	[E2]	1.86	α(K)=0.211 *3*; α(L)=1.204 *20*; α(M)=0.333 *6*; α(N+..)=0.1147 *19* α(N)=0.0904 *15*; α(O)=0.0208 *4*; α(P)=0.00345 *6*; α(Q)=2.42×10^{-5} *4*
160.19[l] *5*	6.2 *12*	357.30?	15/2$^+$	197.119	11/2$^+$	[E2]	1.766	α(K)=0.208 *3*; α(L)=1.136 *16*; α(M)=0.314 *5*; α(N+..)=0.1082 *16* α(N)=0.0853 *12*; α(O)=0.0196 *3*; α(P)=0.00326 *5*; α(Q)=2.33×10^{-5} *4* E_γ: from Coul. ex. Eγ= 161.9 *5* deexciting the 359.0 *15*/2$^+$ level.
161.450 *15*	123[&] *2*	332.845	5/2$^+$	171.388	7/2$^+$	(M1)	5.67	α(K)=4.51 *7*; α(L)=0.880 *13*; α(M)=0.213 *3*; α(N+..)=0.0742 *11* α(N)=0.0574 *8*; α(O)=0.01395 *20*; α(P)=0.00269 *4*; α(Q)=0.000215 *3*
167.81 *5*	2.9 *7*	338.52	17/2$^-$	170.708	13/2$^-$	[E2]	1.467	α(K)=0.198 *3*; α(L)=0.925 *13*; α(M)=0.256 *4*; α(N+..)=0.0881 *13* α(N)=0.0694 *10*; α(O)=0.01600 *23*; α(P)=0.00266 *4*; α(Q)=2.04×10^{-5} *3*
171.393 *6*	110[&] *2*	171.388	7/2$^+$	0	7/2$^-$	[E1]	0.1414	α(K)=0.1103 *16*; α(L)=0.0235 *4*; α(M)=0.00570 *8*; α(N+..)=0.00195 *3* α(N)=0.001520 *22*; α(O)=0.000359 *5*; α(P)=6.45×10^{-5} *9*; α(Q)=3.62×10^{-6} *5*
(172.560 *8*)	0.003 *CA*	805.73	3/2$^-$	633.17	(5/2)$^-$	M1	4.70	α(K)=3.73 *6*; α(L)=0.728 *11*; α(M)=0.1761 *25*; α(N+..)=0.0614 *9* α(N)=0.0475 *7*; α(O)=0.01155 *17*; α(P)=0.00223 *4*; α(Q)=0.0001777 *25* E_γ: from (n,γ). From (n,γ).
173.70 *5*	3.1 *8*	225.422	9/2$^+$	51.7008	5/2$^+$	[E2]	1.280	α(K)=0.190 *3*; α(L)=0.795 *12*; α(M)=0.220 *3*; α(N+..)=0.0757 *11* α(N)=0.0596 *9*; α(O)=0.01375 *20*; α(P)=0.00229 *4*; α(Q)=1.85×10^{-5} *3*
179.220 *12*	66[&] *1*	225.422	9/2$^+$	46.207	9/2$^-$	[E1]	0.1273	α(K)=0.0995 *14*; α(L)=0.0210 *3*; α(M)=0.00509 *8*; α(N+..)=0.001741 *25* α(N)=0.001359 *19*; α(O)=0.000321 *5*; α(P)=5.78×10^{-5} *8*; α(Q)=3.28×10^{-6} *5*
[x]184.55 *5*	2.1 *7*					[M1]	3.89	α(K)=3.09 *5*; α(L)=0.602 *9*; α(M)=0.1455 *21*; α(N+..)=0.0507 *8* α(N)=0.0392 *6*; α(O)=0.00954 *14*; α(P)=0.00184 *3*; α(Q)=0.0001468 *21*
188.23 *10*	10.9 *11*	291.144	11/2$^+$	103.036	11/2$^-$	[E1]	0.1135	α(K)=0.0889 *13*; α(L)=0.0186 *3*; α(M)=0.00450 *7*; α(N+..)=0.001540 *22* α(N)=0.001202 *17*; α(O)=0.000285 *4*; α(P)=5.13×10^{-5} *8*; α(Q)=2.95×10^{-6} *5*
189.360 *10*	83[&] *1*	414.779	9/2$^+$	225.422	9/2$^+$	[M1+E2]	2.3 *14*	α(K)=1.5 *14*; α(L)=0.553 *10*; α(M)=0.143 *8*; α(N+..)=0.0496 *25* α(N)=0.0387 *23*; α(O)=0.0092 *4*; α(P)=0.00164 *8*; α(Q)=8.E−5 *6*
[x]193.13 *12*	8.9 *9*							
195.679 *8*	107[&] *1*	367.069	7/2$^+$	171.388	7/2$^+$	M1[b]	3.30	α(K)=2.62 *4*; α(L)=0.510 *8*; α(M)=0.1233 *18*; α(N+..)=0.0430 *6* α(N)=0.0332 *5*; α(O)=0.00808 *12*; α(P)=0.001558 *22*; α(Q)=0.0001244 *18*
[x]196.87 *5*	3.7 *4*							

γ(^{235}U) (continued)

E_γ[‡#]	I_γ[@ i]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	α[†]	Comments
203.550 *5*	569[&] *3*	332.845	5/2$^+$	129.2961	5/2$^+$	M1	2.95	α(K)=2.35 *4*; α(L)=0.456 *7*; α(M)=0.1103 *16*; α(N+..)=0.0385 *6* α(N)=0.0297 *5*; α(O)=0.00723 *11*; α(P)=0.001394 *20*; α(Q)=0.0001112 *16*
218.0[l] *5*	1.2 *10*	414.779	9/2$^+$	197.119	11/2$^+$			E_γ,I_γ: from 1965Tr03, 1981UmZZ.
225.42 *4*	15.1 *5*	225.422	9/2$^+$	0	7/2$^-$	[E1]	0.0747	α(K)=0.0589 *9*; α(L)=0.01191 *17*; α(M)=0.00288 *4*; α(N+..)=0.000988 *14* α(N)=0.000770 *11*; α(O)=0.000183 *3*; α(P)=3.33×10^{-5} *5*; α(Q)=2.00×10^{-6} *3*
237.77 *10*	14.4 *6*	367.069	7/2$^+$	129.2961	5/2$^+$	[M1]	1.91	α(K)=1.519 *22*; α(L)=0.295 *5*; α(M)=0.0712 *10*; α(N+..)=0.0248 *4* α(N)=0.0192 *3*; α(O)=0.00467 *7*; α(P)=0.000900 *13*; α(Q)=7.18×10^{-5} *10*
242.08 *3*	7.3 *5*	533.228	9/2$^+$	291.144	11/2$^+$	[M1]	1.82	E_γ: from 1971GuZY, 1979Al03. α(K)=1.445 *21*; α(L)=0.280 *4*; α(M)=0.0677 *10*; α(N+..)=0.0236 *4* α(N)=0.0182 *3*; α(O)=0.00444 *7*; α(P)=0.000856 *12*; α(Q)=6.82×10^{-5} *10*
243.38 *3*	25.3 *5*	414.779	9/2$^+$	171.388	7/2$^+$	[M1+E2]	1.1 *7*	α(K)=0.8 *7*; α(L)=0.23 *5*; α(M)=0.059 *8*; α(N+..)=0.021 *3* α(N)=0.0161 *20*; α(O)=0.0038 *6*; α(P)=0.00070 *15*; α(Q)=4.E−5 *3*
244.92 *5*	5.1 *5*	291.144	11/2$^+$	46.207	9/2$^-$	[E1]	0.0618	α(K)=0.0489 *7*; α(L)=0.00974 *14*; α(M)=0.00236 *4*; α(N+..)=0.000808 *12* α(N)=0.000629 *9*; α(O)=0.0001498 *21*; α(P)=2.74×10^{-5} *4*; α(Q)=1.676×10^{-6} *24*
248.95 *5*	7.2 *7*	474.297	7/2$^+$	225.422	9/2$^+$	[M1]	1.680	α(K)=1.337 *19*; α(L)=0.259 *4*; α(M)=0.0626 *9*; α(N+..)=0.0218 *3* α(N)=0.01687 *24*; α(O)=0.00410 *6*; α(P)=0.000791 *11*; α(Q)=6.31×10^{-5} *9*
255.384 *15*	80[&] *1*	426.755	5/2$^+$	171.388	7/2$^+$	[M1]	1.565	α(K)=1.245 *18*; α(L)=0.241 *4*; α(M)=0.0583 *9*; α(N+..)=0.0203 *3* α(N)=0.01570 *22*; α(O)=0.00382 *6*; α(P)=0.000737 *11*; α(Q)=5.87×10^{-5} *9*
263.95 *3*	26.5 *10*	393.225	3/2$^+$	129.2961	5/2$^+$	M1[b]	1.428	α(K)=1.136 *16*; α(L)=0.220 *3*; α(M)=0.0531 *8*; α(N+..)=0.0185 *3* α(N)=0.01432 *20*; α(O)=0.00348 *5*; α(P)=0.000672 *10*; α(Q)=5.35×10^{-5} *8*
265.7 *3*	1.6 *3*	658.97	1/2$^-$	393.225	3/2$^+$	[E1]	0.0514	α(K)=0.0408 *6*; α(L)=0.00802 *12*; α(M)=0.00194 *3*; α(N+..)=0.000665 *10* α(N)=0.000518 *8*; α(O)=0.0001234 *18*; α(P)=2.26×10^{-5} *4*; α(Q)=1.412×10^{-6} *20*
281.2 *2*	2.1 *3*	332.845	5/2$^+$	51.7008	5/2$^+$	[M1+E2]	0.7 *5*	α(K)=0.5 *5*; α(L)=0.15 *4*; α(M)=0.037 *8*; α(N+..)=0.013 *3* α(N)=0.0099 *21*; α(O)=0.0024 *6*; α(P)=0.00044 *13*; α(Q)=2.5×10^{-5} *20*
285.3 *2*	1.9 *4*	367.069	7/2$^+$	81.741	7/2$^+$	[M1+E2]	0.7 *5*	α(K)=0.5 *5*; α(L)=0.14 *4*; α(M)=0.035 *8*; α(N+..)=0.012 *3* α(N)=0.0095 *21*; α(O)=0.0023 *6*; α(P)=0.00042 *13*; α(Q)=2.4×10^{-5} *19*
297.46 *3*	49.8[&] *8*	426.755	5/2$^+$	129.2961	5/2$^+$	[M1]	1.025	α(K)=0.816 *12*; α(L)=0.1577 *22*; α(M)=0.0381 *6*; α(N+..)=0.01328 *19* α(N)=0.01026 *15*; α(O)=0.00250 *4*; α(P)=0.000481 *7*; α(Q)=3.84×10^{-5} *6*
302.87 *5*	5.1 *4*	474.297	7/2$^+$	171.388	7/2$^+$	[M1]	0.976	α(K)=0.777 *11*; α(L)=0.1500 *21*; α(M)=0.0362 *5*; α(N+..)=0.01263 *18* α(N)=0.00976 *14*; α(O)=0.00237 *4*; α(P)=0.000458 *7*; α(Q)=3.65×10^{-5} *6*
307.85 *5*	5.5 *4*	533.228	9/2$^+$	225.422	9/2$^+$	[M1]	0.933	α(K)=0.743 *11*; α(L)=0.1434 *20*; α(M)=0.0346 *5*; α(N+..)=0.01207 *17* α(N)=0.00933 *13*; α(O)=0.00227 *4*; α(P)=0.000438 *7*; α(Q)=3.49×10^{-5} *5*
311.78 *4*	25.8[&] *7*	414.779	9/2$^+$	103.036	11/2$^-$	[E1]	0.0361	α(K)=0.0287 *4*; α(L)=0.00552 *8*; α(M)=0.001331 *19*; α(N+..)=0.000458 *7* α(N)=0.000356 *5*; α(O)=8.51×10^{-5} *12*; α(P)=1.570×10^{-5} *22*; α(Q)=1.014×10^{-6} *15*
316.41 *3*	13.2 *4*	445.716	7/2$^+$	129.2961	5/2$^+$	M1[b]	0.865	α(K)=0.689 *10*; α(L)=0.1329 *19*; α(M)=0.0321 *5*; α(N+..)=0.01119 *16* α(N)=0.00865 *13*; α(O)=0.00210 *3*; α(P)=0.000406 *6*; α(Q)=3.23×10^{-5} *5*
319.68 *10*	4.8 *5*	332.845	5/2$^+$	13.0401	3/2$^+$	[M1+E2]	0.5 *4*	α(K)=0.4 *3*; α(L)=0.10 *4*; α(M)=0.024 *7*; α(N+..)=0.0085 *24* α(N)=0.0066 *19*; α(O)=0.0016 *5*; α(P)=0.00029 *11*; α(Q)=1.8×10^{-5} *14*

γ(^{235}U) (continued)

E_γ ‡#	I_γ @ i	E_i(level)	J_i^π	E_f	J_f^π	Mult. a	α †	Comments
320.862 *20*	54.2 *7*	367.069	7/2$^+$	46.207	9/2$^-$	[E1]	0.0339	α(K)=0.0270 *4*; α(L)=0.00517 *8*; α(M)=0.001246 *18*; α(N+..)=0.000429 *6* α(N)=0.000333 *5*; α(O)=7.96×10^{-5} *12*; α(P)=1.472×10^{-5} *21*; α(Q)=9.56×10^{-7} *14*
323.84 *3*	53.9 *7*	474.297	7/2$^+$	150.467	9/2$^+$	M1 b	0.811	α(K)=0.646 *9*; α(L)=0.1246 *18*; α(M)=0.0301 *5*; α(N+..)=0.01049 *15* α(N)=0.00811 *12*; α(O)=0.00197 *3*; α(P)=0.000380 *6*; α(Q)=3.03×10^{-5} *5*
332.845 *5*	494 & *3*	332.845	5/2$^+$	0	7/2$^-$	E1	0.0313	α(K)=0.0250 *4*; α(L)=0.00476 *7*; α(M)=0.001145 *16*; α(N+..)=0.000394 *6* α(N)=0.000306 *5*; α(O)=7.33×10^{-5} *11*; α(P)=1.356×10^{-5} *19*; α(Q)=8.87×10^{-7} *13*
336.113 *12*	112 *2*	533.228	9/2$^+$	197.119	11/2$^+$	M1	0.733	α(K)=0.583 *9*; α(L)=0.1125 *16*; α(M)=0.0272 *4*; α(N+..)=0.00947 *14* α(N)=0.00732 *11*; α(O)=0.001779 *25*; α(P)=0.000343 *5*; α(Q)=2.73×10^{-5} *4*
341.506 *10*	66.2 *14*	393.225	3/2$^+$	51.7008	5/2$^+$	M1	0.701	α(K)=0.559 *8*; α(L)=0.1076 *15*; α(M)=0.0260 *4*; α(N+..)=0.00906 *13* α(N)=0.00700 *10*; α(O)=0.001703 *24*; α(P)=0.000328 *5*; α(Q)=2.62×10^{-5} *4*
345.013 *4*	556 & *5*	426.755	5/2$^+$	81.741	7/2$^+$	M1 b	0.682	α(K)=0.543 *8*; α(L)=0.1046 *15*; α(M)=0.0253 *4*; α(N+..)=0.00881 *13* α(N)=0.00681 *10*; α(O)=0.001655 *24*; α(P)=0.000319 *5*; α(Q)=2.54×10^{-5} *4*
345.014 l *30*	<50	474.297	7/2$^+$	129.2961	5/2$^+$	(M1)	0.682	α(K)=0.543 *8*; α(L)=0.1046 *15*; α(M)=0.0253 *4*; α(N+..)=0.00881 *13* α(N)=0.00681 *10*; α(O)=0.001655 *24*; α(P)=0.000319 *5*; α(Q)=2.54×10^{-5} *4*
x350.8 *3*	1.8 *4*							
354.0 *5*	0.73 *30*	367.069	7/2$^+$	13.0401	3/2$^+$	[E2]	0.1155	α(K)=0.0549 *8*; α(L)=0.0445 *7*; α(M)=0.01195 *18*; α(N+..)=0.00413 *7* α(N)=0.00324 *5*; α(O)=0.000756 *12*; α(P)=0.0001306 *20*; α(Q)=3.11×10^{-6} *5*
361.89 *5*	12.2 *6*	533.228	9/2$^+$	171.388	7/2$^+$	[M1]	0.598	α(K)=0.477 *7*; α(L)=0.0918 *13*; α(M)=0.0222 *4*; α(N+..)=0.00772 *11* α(N)=0.00597 *9*; α(O)=0.001451 *21*; α(P)=0.000280 *4*; α(Q)=2.23×10^{-5} *4*
367.073 *25*	89 *2*	367.069	7/2$^+$	0	7/2$^-$	[E1]	0.0254	α(K)=0.0203 *3*; α(L)=0.00382 *6*; α(M)=0.000918 *13*; α(N+..)=0.000316 *5* α(N)=0.000246 *4*; α(O)=5.88×10^{-5} *9*; α(P)=1.093×10^{-5} *16*; α(Q)=7.29×10^{-7} *11*
368.554 *20*	88 *2*	414.779	9/2$^+$	46.207	9/2$^-$	[E1]	0.0252	α(K)=0.0202 *3*; α(L)=0.00378 *6*; α(M)=0.000910 *13*; α(N+..)=0.000313 *5* α(N)=0.000243 *4*; α(O)=5.83×10^{-5} *9*; α(P)=1.083×10^{-5} *16*; α(Q)=7.23×10^{-7} *11*
375.054 *3*	1554 & *9*	426.755	5/2$^+$	51.7008	5/2$^+$	M1 b	0.543	α(K)=0.432 *6*; α(L)=0.0832 *12*; α(M)=0.0201 *3*; α(N+..)=0.00700 *10* α(N)=0.00541 *8*; α(O)=0.001315 *19*; α(P)=0.000254 *4*; α(Q)=2.02×10^{-5} *3*
380.191 *6*	305 & *6*	393.225	3/2$^+$	13.0401	3/2$^+$	M1 b	0.523	α(K)=0.417 *6*; α(L)=0.0801 *12*; α(M)=0.0193 *3*; α(N+..)=0.00674 *10* α(N)=0.00521 *8*; α(O)=0.001267 *18*; α(P)=0.000244 *4*; α(Q)=1.95×10^{-5} *3*
382.75 *5*	259 & *5*	533.228	9/2$^+$	150.467	9/2$^+$	M1	0.513	α(K)=0.409 *6*; α(L)=0.0787 *11*; α(M)=0.0190 *3*; α(N+..)=0.00662 *10* α(N)=0.00511 *8*; α(O)=0.001244 *18*; α(P)=0.000240 *4*; α(Q)=1.91×10^{-5} *3*
392.53 *3*	205 *20*	474.297	7/2$^+$	81.741	7/2$^+$	M1 b	0.479	α(K)=0.382 *6*; α(L)=0.0734 *11*; α(M)=0.01772 *25*; α(N+..)=0.00617 *9* α(N)=0.00477 *7*; α(O)=0.001160 *17*; α(P)=0.000224 *4*; α(Q)=1.784×10^{-5} *25*
393.14 *3*	348 *30*	393.225	3/2$^+$	0.0765	1/2$^+$	M1 b	0.477	α(K)=0.380 *6*; α(L)=0.0731 *11*; α(M)=0.01764 *25*; α(N+..)=0.00615 *9* α(N)=0.00475 *7*; α(O)=0.001155 *17*; α(P)=0.000223 *4*; α(Q)=1.776×10^{-5} *25* I_γ: from I(392γ+393γ)= 552.7 *11* (1976GuZN) and I(392γ)/I(393γ)=0.59 from (n,γ) of 1979Al03.
399.53 *6*	5.9 *3*	445.716	7/2$^+$	46.207	9/2$^-$	[E1]	0.0213	α(K)=0.01706 *24*; α(L)=0.00317 *5*; α(M)=0.000761 *11*; α(N+..)=0.000262 *4* α(N)=0.000204 *3*; α(O)=4.88×10^{-5} *7*; α(P)=9.10×10^{-6} *13*; α(Q)=6.16×10^{-7} *9*

$^{235}_{92}U_{143}$-11

γ(^{235}U) (continued)

E_γ ‡#	I_γ @ *i*	E_i(level)	J_i^π	E_f	J_f^π	Mult. *a*	δ *a*	α †	Comments
406.8 *2*	2.5 *5*	509.92	(9/2$^+$)	103.036	11/2$^-$	[E1]		0.0205	α(K)=0.01645 *23*; α(L)=0.00305 *5*; α(M)=0.000731 *11*; α(N+..)=0.000252 *4* α(N)=0.000196 *3*; α(O)=4.69×10^{-5} *7*; α(P)=8.75×10^{-6} *13*; α(Q)=5.95×10^{-7} *9*
411.2 *3*	6.8 *34*	608.09	11/2$^+$	197.119	11/2$^+$	[M1]		0.422	E_γ: not reported by 1971GuZY, not detected in Coul. ex. α(K)=0.337 *5*; α(L)=0.0646 *10*; α(M)=0.01560 *22*; α(N+..)=0.00544 *8* α(N)=0.00420 *6*; α(O)=0.001022 *15*; α(P)=0.000197 *3*; α(Q)=1.570×10^{-5} *23*
(412.3 *CA*)	0.018	805.73	3/2$^-$	393.225	3/2$^+$	[E1]		0.02006	α(K)=0.01611; α(L)=0.00298; α(M)=0.00071; α(N+..)=0.00025
413.713 *5*	1466& *11*	426.755	5/2$^+$	13.0401	3/2$^+$	M1 *b*		0.415	α(K)=0.331 *5*; α(L)=0.0636 *9*; α(M)=0.01534 *22*; α(N+..)=0.00535 *8* α(N)=0.00413 *6*; α(O)=0.001005 *14*; α(P)=0.000194 *3*; α(Q)=1.544×10^{-5} *22*
422.598 *19*	122& *2*	474.297	7/2$^+$	51.7008	5/2$^+$	M1 *b*		0.392	α(K)=0.313 *5*; α(L)=0.0600 *9*; α(M)=0.01447 *21*; α(N+..)=0.00504 *7* α(N)=0.00390 *6*; α(O)=0.000948 *14*; α(P)=0.000183 *3*; α(Q)=1.457×10^{-5} *21*
426.68 *3*	23.3 *6*	426.755	5/2$^+$	0.0765	1/2$^+$	[E2]		0.0699	α(K)=0.0387 *6*; α(L)=0.0230 *4*; α(M)=0.00610 *9*; α(N+..)=0.00211 *3* α(N)=0.001653 *24*; α(O)=0.000387 *6*; α(P)=6.79×10^{-5} *10*; α(Q)=2.06×10^{-6} *3*
428.4 *3*	1.00 *10*	474.297	7/2$^+$	46.207	9/2$^-$	[E1]		0.0184	α(K)=0.01481 *21*; α(L)=0.00272 *4*; α(M)=0.000653 *10*; α(N+..)=0.000225 *4* α(N)=0.0001749 *25*; α(O)=4.20×10^{-5} *6*; α(P)=7.84×10^{-6} *11*; α(Q)=5.38×10^{-7} *8*
430.08 *10*	4.30 *13*	533.228	9/2$^+$	103.036	11/2$^-$	[E1]		0.0183	α(K)=0.01469 *21*; α(L)=0.00270 *4*; α(M)=0.000648 *9*; α(N+..)=0.000223 *4* α(N)=0.0001734 *25*; α(O)=4.16×10^{-5} *6*; α(P)=7.77×10^{-6} *11*; α(Q)=5.34×10^{-7} *8*
445.72 *3*	8.8& *6*	445.716	7/2$^+$	0	7/2$^-$	E1 *b*		0.01698	α(K)=0.01367 *20*; α(L)=0.00250 *4*; α(M)=0.000600 *9*; α(N+..)=0.000207 *3* α(N)=0.0001606 *23*; α(O)=3.86×10^{-5} *6*; α(P)=7.21×10^{-6} *10*; α(Q)=4.98×10^{-7} *7*
x446.82 *20*	0.84 *20*								
451.481 *10*	189.4& *16*	533.228	9/2$^+$	81.741	7/2$^+$	M1(+E2)	1.0 *10*	0.19 *14*	α(K)=0.15 *12*; α(L)=0.035 *16*; α(M)=0.009 *4*; α(N+..)=0.0030 *13* α(N)=0.0023 *10*; α(O)=0.00056 *24*; α(P)=0.00010 *5*; α(Q)=7.E−6 *6*
457.61 *5*	1.49 *2*	608.09	11/2$^+$	150.467	9/2$^+$	[M1]		0.316	α(K)=0.252 *4*; α(L)=0.0483 *7*; α(M)=0.01165 *17*; α(N+..)=0.00406 *6*

$^{235}_{92}U_{143}$-12

γ(^{235}U) (continued)

E_γ ‡#	I_γ @ i	E_i(level)	J_i^π	E_f	J_f^π	Mult. a	α †	Comments
								α(N)=0.00314 *5*; α(O)=0.000763 *11*; α(P)=0.0001471 *21*; α(Q)=1.173×10^{-5} *17*
461.25 *5*	2.27 *2*	474.297	7/2$^+$	13.0401	3/2$^+$	[E2]	0.0575	α(K)=0.0334 *5*; α(L)=0.01772 *25*; α(M)=0.00467 *7*; α(N+..)=0.001617 *23* α(N)=0.001265 *18*; α(O)=0.000297 *5*; α(P)=5.24×10^{-5} *8*; α(Q)=1.743×10^{-6} *25*
463.9 *3*	0.28 *3*	509.92	(9/2$^+$)	46.207	9/2$^-$	[E1]	0.01566	α(K)=0.01262 *18*; α(L)=0.00230 *4*; α(M)=0.000551 *8*; α(N+..)=0.000190 *3* α(N)=0.0001475 *21*; α(O)=3.54×10^{-5} *5*; α(P)=6.63×10^{-6} *10*; α(Q)=4.62×10^{-7} *7*
473.9 *5*	0.054 *27*	474.297	7/2$^+$	0	7/2$^-$	[E1]	0.01501	α(K)=0.01210 *18*; α(L)=0.00220 *4*; α(M)=0.000526 *8*; α(N+..)=0.000182 *3* α(N)=0.0001409 *20*; α(O)=3.39×10^{-5} *5*; α(P)=6.35×10^{-6} *9*; α(Q)=4.43×10^{-7} *7*
481.66 *12*	4.6 & *2*	533.228	9/2$^+$	51.7008	5/2$^+$	[E2]	0.0517	α(K)=0.0309 *5*; α(L)=0.01538 *22*; α(M)=0.00404 *6*; α(N+..)=0.001399 *20* α(N)=0.001095 *16*; α(O)=0.000257 *4*; α(P)=4.55×10^{-5} *7*; α(Q)=1.590×10^{-6} *23*
487.06 *10*	0.265 *21*	533.228	9/2$^+$	46.207	9/2$^-$	[E1]	0.01421	α(K)=0.01147 *16*; α(L)=0.00208 *3*; α(M)=0.000497 *7*; α(N+..)=0.0001714 *24* α(N)=0.0001330 *19*; α(O)=3.20×10^{-5} *5*; α(P)=6.00×10^{-6} *9*; α(Q)=4.21×10^{-7} *6*
493.08 l *5*	0.87 *3*	664.541	(5/2)$^-$	171.388	7/2$^+$			
x497.0 *5*	0.046 *23*							
526.4 *4*	0.057 *19*	608.09	11/2$^+$	81.741	7/2$^+$	[E2]	0.0419	α(K)=0.0262 *4*; α(L)=0.01160 *17*; α(M)=0.00303 *5*; α(N+..)=0.001048 *15* α(N)=0.000819 *12*; α(O)=0.000193 *3*; α(P)=3.44×10^{-5} *5*; α(Q)=1.322×10^{-6} *19*
x538.8 *2*	0.30 *2*							
550.5 *2*	0.42 *3*	701.02	(7/2)$^-$	150.467	9/2$^+$	[E1]	0.01117	α(K)=0.00904 *13*; α(L)=0.001613 *23*; α(M)=0.000385 *6*; α(N+..)=0.0001331 *19* α(N)=0.0001032 *15*; α(O)=2.48×10^{-5} *4*; α(P)=4.68×10^{-6} *7*; α(Q)=3.35×10^{-7} *5*
x557.3 *5*	0.038 *19*							
579.4 *3*	0.086 *17*	750.07	(9/2$^-$)	170.708	13/2$^-$	[E2]	0.0337	α(K)=0.0220 *3*; α(L)=0.00866 *13*; α(M)=0.00224 *4*; α(N+..)=0.000777 *11* α(N)=0.000607 *9*; α(O)=0.0001434 *21*; α(P)=2.57×10^{-5} *4*; α(Q)=1.086×10^{-6} *16*
582.89 *10*	0.615 *18*	664.541	(5/2)$^-$	81.741	7/2$^+$	[E1]	0.01001	α(K)=0.00811 *12*; α(L)=0.001437 *21*; α(M)=0.000343 *5*; α(N+..)=0.0001185 *17* α(N)=9.19×10^{-5} *13*; α(O)=2.21×10^{-5} *4*; α(P)=4.17×10^{-6} *6*; α(Q)=3.01×10^{-7} *5*
586.3 *3*	0.153 *15*	637.82	3/2$^-$	51.7008	5/2$^+$	[E1]	0.00990 *14*	α=0.00990 *14*; α(K)=0.00802 *12*; α(L)=0.001420 *20*; α(M)=0.000339 *5*; α(N+..)=0.0001171 α(N)=9.08×10^{-5} *13*; α(O)=2.19×10^{-5} *3*; α(P)=4.13×10^{-6} *6*; α(Q)=2.98×10^{-7} *5*
596.0 *5*	0.039 *20*	821.25	5/2$^+$	225.422	9/2$^+$	[E2]	0.0317	α(K)=0.0209 *3*; α(L)=0.00797 *12*; α(M)=0.00206 *3*; α(N+..)=0.000713 *11*

$^{235}_{92}U_{143}$-13

γ(^{235}U) (continued)

E_γ[‡#]	I_γ[@i]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ[a]	α[†]	Comments
									α(N)=0.000557 *8*; α(O)=0.0001317 *19*; α(P)=2.37×10^{-5} *4*; α(Q)=1.026×10^{-6} *15*
597.99 *5*	1.67 *5*	701.02	(7/2)$^-$	103.036	11/2$^-$	[E2]		0.0314	α(K)=0.0208 *3*; α(L)=0.00789 *11*; α(M)=0.00204 *3*; α(N+..)=0.000706 *10* α(N)=0.000551 *8*; α(O)=0.0001304 *19*; α(P)=2.35×10^{-5} *4*; α(Q)=1.019×10^{-6} *15*
599.6 *2*	0.20 *2*	750.07	(9/2$^-$)	150.467	9/2$^+$	[E1]		0.00948 *14*	α=0.00948 *14*; α(K)=0.00769 *11*; α(L)=0.001358 *19*; α(M)=0.000324 *5*; α(N+..)=0.0001120 α(N)=8.68×10^{-5} *13*; α(O)=2.09×10^{-5} *3*; α(P)=3.95×10^{-6} *6*; α(Q)=2.86×10^{-7} *4*
606.9 *2*	0.120 *12*	777.59	(11/2)$^-$	170.708	13/2$^-$	M1(+E2)[d]	<1	0.12 *3*	α(K)=0.094 *25*; α(L)=0.019 *4*; α(M)=0.0045 *9*; α(N+..)=0.0016 *3* α(N)=0.00123 *24*; α(O)=0.00030 *6*; α(P)=5.7×10^{-5} *12*; α(Q)=4.3×10^{-6} *12*
[x]608.9 *2*	0.116 *12*								
612.83 *3*	0.95 *5*	664.541	(5/2)$^-$	51.7008	5/2$^+$	E1[b]		0.00910 *13*	α=0.00910 *13*; α(K)=0.00738 *11*; α(L)=0.001300 *19*; α(M)=0.000310 *5*; α(N+..)=0.0001072 α(N)=8.31×10^{-5} *12*; α(O)=2.00×10^{-5} *3*; α(P)=3.78×10^{-6} *6*; α(Q)=2.75×10^{-7} *4*
617.10 *10*	1.34 *7*	720.25	(9/2)$^-$	103.036	11/2$^-$	[M1]		0.1415	α(K)=0.1130 *16*; α(L)=0.0215 *3*; α(M)=0.00518 *8*; α(N+..)=0.00180 *3* α(N)=0.001394 *20*; α(O)=0.000339 *5*; α(P)=6.54×10^{-5} *10*; α(Q)=5.22×10^{-6} *8*
618.28 *6*	2.04 *6*	664.541	(5/2)$^-$	46.207	9/2$^-$	(E2)[b]		0.0292	α(K)=0.0196 *3*; α(L)=0.00716 *10*; α(M)=0.00184 *3*; α(N+..)=0.000639 *9* α(N)=0.000499 *7*; α(O)=0.0001180 *17*; α(P)=2.13×10^{-5} *3*; α(Q)=9.53×10^{-7} *14*
619.21 *6*	1.21 *8*	701.02	(7/2)$^-$	81.741	7/2$^+$	[E1]		0.00892 *13*	α=0.00892 *13*; α(K)=0.00724 *11*; α(L)=0.001274 *18*; α(M)=0.000304 *5*; α(N+..)=0.0001050 α(N)=8.14×10^{-5} *12*; α(O)=1.96×10^{-5} *3*; α(P)=3.71×10^{-6} *6*; α(Q)=2.70×10^{-7} *4*
624.78[j] *5*	0.437[j] *20*	637.82	3/2$^-$	13.0401	3/2$^+$	[E1]		0.00877 *13*	α=0.00877 *13*; α(K)=0.00712 *10*; α(L)=0.001252 *18*; α(M)=0.000299 *5*; α(N+..)=0.0001032 α(N)=8.00×10^{-5} *12*; α(O)=1.93×10^{-5} *3*; α(P)=3.64×10^{-6} *5*; α(Q)=2.66×10^{-7} *4* Doublet.
624.78[jl] *3*	0.437[j] *20*	670.99	(7/2)$^-$	46.207	9/2$^-$	(M1)		0.1369	α(K)=0.1094 *16*; α(L)=0.0208 *3*; α(M)=0.00501 *7*; α(N+..)=0.001745 *25* α(N)=0.001349 *19*; α(O)=0.000328 *5*; α(P)=6.33×10^{-5} *9*; α(Q)=5.05×10^{-6} *7* Doublet.

$^{235}_{92}U_{143}$-14

γ(^{235}U) (continued)

E_γ[‡#]	I_γ[@i]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ[a]	α[†]	Comments
633.15 *6*	2.53 *3*	633.17	(5/2)$^-$	0	7/2$^-$	M1(+E2)[b]	<0.5	0.122 *11*	α(K)=0.097 *9*; α(L)=0.0187 *14*; α(M)=0.0045 *4*; α(N+..)=0.00157 *12* α(N)=0.00122 *9*; α(O)=0.000296 *21*; α(P)=5.7×10^{-5} *5*; α(Q)=4.5×10^{-6} *4*
637.7[j]	2.56[j] *3*	637.82	3/2$^-$	0.0765	1/2$^+$	[E1]		0.00844 *12*	α=0.00844 *12*; α(K)=0.00685 *10*; α(L)=0.001202 *17*; α(M)=0.000287 *4*; α(N+..)=9.91×10^{-5} *14* α(N)=7.68×10^{-5} *11*; α(O)=1.85×10^{-5} *3*; α(P)=3.50×10^{-6} *5*; α(Q)=2.56×10^{-7} *4* Doublet.
637.8[j]	2.56[j] *3*	637.82	3/2$^-$	0	7/2$^-$	E2[b]		0.0273	α(K)=0.0185 *3*; α(L)=0.00655 *10*; α(M)=0.001683 *24*; α(N+..)=0.000583 *9* α(N)=0.000455 *7*; α(O)=0.0001078 *15*; α(P)=1.95×10^{-5} *3*; α(Q)=8.96×10^{-7} *13* Doublet.
639.99 *10*	8.7[&] *2*	769.27	1/2$^+$	129.2961	5/2$^+$	[E2]		0.0271	α(K)=0.0184 *3*; α(L)=0.00648 *9*; α(M)=0.001666 *24*; α(N+..)=0.000577 *8* α(N)=0.000450 *7*; α(O)=0.0001067 *15*; α(P)=1.93×10^{-5} *3*; α(Q)=8.90×10^{-7} *13*
645.94 *4*	15.2 *3*	658.97	1/2$^-$	13.0401	3/2$^+$	E1[b]		0.00824 *12*	α=0.00824 *12*; α(K)=0.00669 *10*; α(L)=0.001172 *17*; α(M)=0.000280 *4*; α(N+..)=9.66×10^{-5} *14* α(N)=7.49×10^{-5} *11*; α(O)=1.81×10^{-5} *3*; α(P)=3.41×10^{-6} *5*; α(Q)=2.50×10^{-7} *4*
649.32 *6*	0.71 *5*	701.02	(7/2)$^-$	51.7008	5/2$^+$	[E1]		0.00816 *12*	α=0.00816 *12*; α(K)=0.00662 *10*; α(L)=0.001160 *17*; α(M)=0.000277 *4*; α(N+..)=9.56×10^{-5} *14* α(N)=7.41×10^{-5} *11*; α(O)=1.79×10^{-5} *3*; α(P)=3.38×10^{-6} *5*; α(Q)=2.48×10^{-7} *4*
[x]650.529 *60*	0.27 *4*								
652.05 *2*	6.6[&] *2*	703.758	3/2$^-$	51.7008	5/2$^+$	E1[b]		0.00809 *12*	α=0.00809 *12*; α(K)=0.00657 *10*; α(L)=0.001151 *17*; α(M)=0.000274 *4*; α(N+..)=9.48×10^{-5} *14* α(N)=7.35×10^{-5} *11*; α(O)=1.773×10^{-5} *25*; α(P)=3.35×10^{-6} *5*; α(Q)=2.46×10^{-7} *4*
654.88 *8*	2.25 *3*	701.02	(7/2)$^-$	46.207	9/2$^-$	(E2)[d]		0.0258	α(K)=0.01767 *25*; α(L)=0.00607 *9*; α(M)=0.001558 *22*; α(N+..)=0.000540 *8* α(N)=0.000421 *6*; α(O)=9.98×10^{-5} *14*; α(P)=1.81×10^{-5} *3*; α(Q)=8.50×10^{-7} *12*
658.86 *6*	9.7 *2*	658.97	1/2$^-$	0.0765	1/2$^+$	E1[b]		0.00794 *12*	α=0.00794 *12*; α(K)=0.00645 *9*; α(L)=0.001128 *16*; α(M)=0.000269 *4*; α(N+..)=9.29×10^{-5} *13* α(N)=7.20×10^{-5} *10*; α(O)=1.737×10^{-5} *25*; α(P)=3.29×10^{-6} *5*; α(Q)=2.41×10^{-7} *4*
664.58 *5*	1.66 *3*	664.541	(5/2)$^-$	0	7/2$^-$	E2[b]		0.0251	α(K)=0.01721 *25*; α(L)=0.00583 *9*; α(M)=0.001493 *21*;

$^{235}_{92}U_{143}$-15

γ(^{235}U) (continued)

E_γ[‡#]	I_γ[@ i]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	α[†]	Comments
								α(N+..)=0.000517 *8* α(N)=0.000403 *6*; α(O)=9.57×10^{-5} *14*; α(P)=1.736×10^{-5} *25*; α(Q)=8.25×10^{-7} *12*
668.2 *5*	0.039 *13*	750.07	(9/2$^-$)	81.741	7/2$^+$	[E1]	0.00773 *11*	α=0.00773 *11*; α(K)=0.00628 *9*; α(L)=0.001097 *16*; α(M)=0.000262 *4*; α(N+..)=9.04×10^{-5} *13* α(N)=7.01×10^{-5} *10*; α(O)=1.690×10^{-5} *24*; α(P)=3.20×10^{-6} *5*; α(Q)=2.35×10^{-7} *4*
670.8[jel] *5*	0.009[j]	821.25	5/2$^+$	150.467	9/2$^+$			Doublet.
670.99[jel] *4*	0.009[j]	670.99	(7/2)$^-$	0	7/2$^-$	[M1+E2]	0.07 *5*	α(K)=0.05 *4*; α(L)=0.011 *6*; α(M)=0.0028 *14*; α(N+..)=0.0010 *5* α(N)=0.0008 *4*; α(O)=0.00018 *9*; α(P)=3.5×10^{-5} *18*; α(Q)=2.5×10^{-6} *17*
674.05 *3*	0.515 *16*	720.25	(9/2)$^-$	46.207	9/2$^-$	[M1]	0.1118	Doublet. α(K)=0.0893 *13*; α(L)=0.01694 *24*; α(M)=0.00408 *6*; α(N+..)=0.001422 *20* α(N)=0.001099 *16*; α(O)=0.000267 *4*; α(P)=5.16×10^{-5} *8*; α(Q)=4.12×10^{-6} *6*
674.4 *5*	0.515 *16*	777.59	(11/2)$^-$	103.036	11/2$^-$	(M1)	0.1116	Doublet. α(K)=0.0892 *13*; α(L)=0.01692 *24*; α(M)=0.00408 *6*; α(N+..)=0.001420 *20* α(N)=0.001098 *16*; α(O)=0.000267 *4*; α(P)=5.15×10^{-5} *8*; α(Q)=4.11×10^{-6} *6*
[x]685.97 *11*	0.87 *3*					E1[b]	0.00736 *11*	Doublet. α=0.00736 *11*; α(K)=0.00599 *9*; α(L)=0.001043 *15*; α(M)=0.000248 *4*; α(N+..)=8.59×10^{-5} *12* α(N)=6.66×10^{-5} *10*; α(O)=1.606×10^{-5} *23*; α(P)=3.04×10^{-6} *5*; α(Q)=2.25×10^{-7} *4*
[x]688.1 *3*	0.111 *11*							
690.81 *8*	0.90 *25*	703.758	3/2$^-$	13.0401	3/2$^+$	E1[b]	0.00727 *11*	α=0.00727 *11*; α(K)=0.00591 *9*; α(L)=0.001029 *15*; α(M)=0.000245 *4*; α(N+..)=8.47×10^{-5} *12* α(N)=6.57×10^{-5} *10*; α(O)=1.584×10^{-5} *23*; α(P)=3.00×10^{-6} *5*; α(Q)=2.22×10^{-7} *4* I_γ: from 1981UmZZ.
[x]693.2[k] *5*	0.03[k] *1*							
693.2[k] *5*	0.02[k] *CA*	865.35	3/2$^+$	171.388	7/2$^+$	(E2)	0.0229	α(K)=0.01597 *23*; α(L)=0.00518 *8*; α(M)=0.001324 *19*; α(N+..)=0.000459 *7* α(N)=0.000358 *5*; α(O)=8.49×10^{-5} *12*; α(P)=1.546×10^{-5} *22*; α(Q)=7.60×10^{-7} *11* I_γ: from (n,γ).
697.8 *5*	0.074 *15*	779.51	3/2$^+$	81.741	7/2$^+$			
[x]699.6 *5*	0.079 *16*							
701.1 *2*	0.512 *16*	701.02	(7/2)$^-$	0	7/2$^-$	[M1+E2]	0.06 *4*	α(K)=0.05 *4*; α(L)=0.010 *6*; α(M)=0.0025 *12*; α(N+..)=0.0009 *5*

$^{235}_{92}U_{143}$-16

γ(^{235}U) (continued)

E_γ[‡#]	I_γ[@i]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ[a]	α[†]	Comments
									α(N)=0.0007 *4*; α(O)=0.00016 *8*; α(P)=3.1×10^{-5} *16*; α(Q)=2.2×10^{-6} *15*
703.68 *5*	3.95 *2*	703.758	3/2$^-$	0.0765	1/2$^+$	E1[b]		0.00702 *10*	α=0.00702 *10*; α(K)=0.00571 *8*; α(L)=0.000993 *14*; α(M)=0.000236 *4*; α(N+..)=8.17×10^{-5} *12* α(N)=6.33×10^{-5} *9*; α(O)=1.529×10^{-5} *22*; α(P)=2.90×10^{-6} *4*; α(Q)=2.15×10^{-7} *3*
[x]712.96 *5*	0.052 *6*								
714.71 *14*	0.079 *8*	843.859	(1/2)$^+$	129.2961	5/2$^+$	E2[b]		0.0215	α(K)=0.01512 *22*; α(L)=0.00477 *7*; α(M)=0.001215 *17*; α(N+..)=0.000421 *6* α(N)=0.000328 *5*; α(O)=7.80×10^{-5} *11*; α(P)=1.423×10^{-5} *20*; α(Q)=7.15×10^{-7} *10*
718.0 *5*	2.8[&] *2*	769.5	3/2$^-$	51.7008	5/2$^+$	E1[b]		0.00677 *10*	α=0.00677 *10*; α(K)=0.00551 *8*; α(L)=0.000955 *14*; α(M)=0.000227 *4*; α(N+..)=7.86×10^{-5} *11* α(N)=6.09×10^{-5} *9*; α(O)=1.471×10^{-5} *21*; α(P)=2.79×10^{-6} *4*; α(Q)=2.07×10^{-7} *3*
720.3[k] *5*	0.0285[k] *CA*	720.25	(9/2)$^-$	0	7/2$^-$				I_γ: from 1976GuZN Iγ(720.3)=0.0485 and using Branching for 891 level in (n,γ).
720.3[k] *CA*	0.020[k] *CA*	891.89	5/2$^+$	171.388	7/2$^+$				I_γ: from (n,γ).
727.9 *2*	0.124 *6*	779.51	3/2$^+$	51.7008	5/2$^+$	M1[b]		0.0911	α(K)=0.0728 *11*; α(L)=0.01379 *20*; α(M)=0.00332 *5*; α(N+..)=0.001157 *17* α(N)=0.000894 *13*; α(O)=0.000217 *3*; α(P)=4.20×10^{-5} *6*; α(Q)=3.35×10^{-6} *5*
736.5 *5*	0.030 *10*	865.35	3/2$^+$	129.2961	5/2$^+$	M1+E2[b]	1.2 *2*	0.048 *7*	α(K)=0.037 *5*; α(L)=0.0081 *9*; α(M)=0.00198 *20*; α(N+..)=0.00069 *7* α(N)=0.00053 *6*; α(O)=0.000129 *13*; α(P)=2.4×10^{-5} *3*; α(Q)=1.73×10^{-6} *24*
[x]742.7 *5*	0.038 *13*								
747.4 *5*	0.081 *16*	761.05	(1/2)$^-$	13.0401	3/2$^+$	E1		0.00629 *9*	α=0.00629 *9*; α(K)=0.00512 *8*; α(L)=0.000885 *13*; α(M)=0.000211 *3*; α(N+..)=7.28×10^{-5} *11* α(N)=5.64×10^{-5} *8*; α(O)=1.362×10^{-5} *20*; α(P)=2.58×10^{-6} *4*; α(Q)=1.93×10^{-7} *3*
756.4[k] *2*	2.8[k] *5*	769.27	1/2$^+$	13.0401	3/2$^+$	[M1+E2]		0.05 *4*	α(K)=0.04 *3*; α(L)=0.008 *5*; α(M)=0.0020 *10*; α(N+..)=0.0007 *4* α(N)=0.0005 *3*; α(O)=0.00013 *7*; α(P)=2.5×10^{-5} *13*; α(Q)=1.8×10^{-6} *12* The Iγ has been split based on the (n,γ) decay scheme. The measured intensity of the doublet is 3.47 with 0.4% uncertainty.
756.4[k] *4*	0.67[k] *20*	769.5	3/2$^-$	13.0401	3/2$^+$	[E1]		0.00615 *9*	α=0.00615 *9*; α(K)=0.00501 *7*; α(L)=0.000865 *13*; α(M)=0.000206 *3*; α(N+..)=7.12×10^{-5} *10*

$^{235}_{92}U_{143}$-17

γ(^{235}U) (continued)

E_γ[‡#]	I_γ[@i]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	α[†]	$I_{(\gamma+ce)}$[i]	Comments
									α(N)=5.51×10^{-5} *8*; α(O)=1.331×10^{-5} *19*; α(P)=2.53×10^{-6} *4*; α(Q)=1.89×10^{-7} *3*
762.6 *CA*	0.010 *CA*	891.89	5/2$^+$	129.2961	5/2$^+$				I_γ: from (n,γ).
763.6 *CA*	0.022 *CA*	845.3?	(7/2$^+$)	81.741	7/2$^+$	E0(+M1)[b]	>0.9		I_γ: from 1976GuZN Iγ(763.7)=0.032 and from Branching from 892 level in (n,γ).
766.47 *3*	0.13 *2*	779.51	3/2$^+$	13.0401	3/2$^+$	E0+M1[b]	4.0 *4*		α(K)=3.0 *3*; α(L)=0.6 *2*
									Doublet.
									I_γ: from (n,γ). Iγ(doublet)=0.275 in ^{239}Pu α decay.
767.29[kl] *4*	≈0.14[k]	992.72	(5/2$^+$)	225.422	9/2$^+$				Doublet.
									I_γ: from (n,γ). Iγ(doublet)=0.275 in ^{239}Pu α decay.
769.15 *8*	5.1 *10*	769.27	1/2$^+$	0.0765	1/2$^+$	M1+E0	2.0 *2*		α(K)=1.6 *2*; α(L)=0.4 *1*
									E and α are from (n,γ). Iγ(769.37)= 11.9 *2* is from ^{239}Pu α decay(1986LoZT) and γ-ray branchings in (n,γ).
769.37 *50*	6.8 *12*	769.5	3/2$^-$	0.0765	1/2$^+$	E1[b]	0.00596 *9*		α=0.00596 *9*; α(K)=0.00486 *7*; α(L)=0.000837 *12*; α(M)=0.000199 *3*; α(N+..)=6.89×10^{-5} *10*
									α(N)=5.34×10^{-5} *8*; α(O)=1.289×10^{-5} *19*; α(P)=2.45×10^{-6} *4*; α(Q)=1.83×10^{-7} *3*
									The intensities are split based on the (n,γ) level scheme; Iγ of doublet is 11.9 *2* (1986LoZT).
(769.54 *4*)		821.25	5/2$^+$	51.7008	5/2$^+$	(E0)[b]		0.08 *2*	ce(K)/(γ+ce)=0.8; ce(L)/(γ+ce)=0.15
[x]777.1 *3*	0.028 *7*								
779.4	0.136 *8*	779.51	3/2$^+$	0.0765	1/2$^+$	M1[b]	0.0760		α(K)=0.0607 *9*; α(L)=0.01148 *16*; α(M)=0.00276 *4*; α(N+..)=0.000963 *14*
									α(N)=0.000744 *11*; α(O)=0.000181 *3*; α(P)=3.49×10^{-5} *5*; α(Q)=2.79×10^{-6} *4*
									E_γ: from (n,γ). Reported as 779.61 by 1976GuZN.
[x]786.9 *2*	0.086 *9*					E2[b]	0.01771		α(K)=0.01275 *18*; α(L)=0.00370 *6*; α(M)=0.000935 *14*; α(N+..)=0.000324 *5*
									α(N)=0.000252 *4*; α(O)=6.01×10^{-5} *9*; α(P)=1.104×10^{-5} *16*; α(Q)=5.94×10^{-7} *9*
[x]788.5 *3*	0.035 *7*								
792.9 *3*	0.020 *4*	805.73	3/2$^-$	13.0401	3/2$^+$	(E1)[b]	0.00565 *8*		α=0.00565 *8*; α(K)=0.00460 *7*; α(L)=0.000791 *11*; α(M)=0.000188 *3*; α(N+..)=6.51×10^{-5} *10*
									α(N)=5.04×10^{-5} *7*; α(O)=1.218×10^{-5} *17*; α(P)=2.31×10^{-6} *4*; α(Q)=1.741×10^{-7} *25*
[x]796.9 *3*	0.015 *3*								
[x]803.2 *2*	0.064 *5*								
805.9 *3*	0.027 *4*	805.73	3/2$^-$	0	7/2$^-$	E2[b]	0.01688		α(K)=0.01223 *18*; α(L)=0.00348 *5*; α(M)=0.000877

γ(^{235}U) (continued)

E_γ[‡#]	I_γ[@i]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	α[†]	Comments
								13; α(N+..)=0.000304 *5* α(N)=0.000237 *4*; α(O)=5.65×10^{-5} *8*; α(P)=1.038×10^{-5} *15*; α(Q)=5.67×10^{-7} *8*
808.4 *2*	0.121 *6*	821.25	5/2$^+$	13.0401	3/2$^+$	M1[b]	0.0689	α(K)=0.0551 *8*; α(L)=0.01041 *15*; α(M)=0.00251 *4*; α(N+..)=0.000873 *13* α(N)=0.000675 *10*; α(O)=0.0001642 *23*; α(P)=3.17×10^{-5} *5*; α(Q)=2.53×10^{-6} *4*
813.7 *2*	0.045 *5*	865.35	3/2$^+$	51.7008	5/2$^+$	M1[b]	0.0677	α(K)=0.0542 *8*; α(L)=0.01023 *15*; α(M)=0.00246 *4*; α(N+..)=0.000858 *12* α(N)=0.000663 *10*; α(O)=0.0001613 *23*; α(P)=3.11×10^{-5} *5*; α(Q)=2.49×10^{-6} *4*
816.0 *2*	0.024 *4*	986.65	(13/2$^-$)	170.708	13/2$^-$	[M1+E2]	0.04 *3*	α(K)=0.033 *21*; α(L)=0.007 *4*; α(M)=0.0016 *8*; α(N+..)=0.0006 *3* α(N)=0.00044 *22*; α(O)=0.00011 *6*; α(P)=2.0×10^{-5} *11*; α(Q)=1.5×10^{-6} *10*
821.3[k] *2*	0.050[k] *11*	821.25	5/2$^+$	0	7/2$^-$			Possible doublet.
821.3[kl] *2*	<0.01[k]	992.72	(5/2$^+$)	171.388	7/2$^+$			Possible doublet.
[x]826.8 *3*	0.018 *6*							
[x]828.9 *2*	0.133 *8*							
832.5 *2*	0.0296 *23*	1057.58	(7/2)	225.422	9/2$^+$			
[x]837.3 *2*	0.019 *4*							
840.4 *2*	0.048 *5*	891.89	5/2$^+$	51.7008	5/2$^+$	M1(+E0)[b]	0.14 *2*	α(K)=0.11 *2*; α(L)=0.025
843.780 *10*	0.134 *7*	843.859	(1/2)$^+$	0.0765	1/2$^+$	M1(+E0)[b]	0.09 *1*	α(K)=0.075 *10*; α(L)=0.015 *2* E_γ: from (n,γ). Reported as 844.0 by 1976GuZN.
879.2 *3*	0.036 *4*	891.89	5/2$^+$	13.0401	3/2$^+$	[M1+E2]	0.035 *21*	α(K)=0.027 *17*; α(L)=0.006 *3*; α(M)=0.0014 *7*; α(N+..)=0.00047 *23* α(N)=0.00036 *18*; α(O)=9.E−5 *5*; α(P)=1.7×10^{-5} *9*; α(Q)=1.3×10^{-6} *8*
891.0 *3*	0.075 *8*	891.89	5/2$^+$	0.0765	1/2$^+$	[E2]	0.01385	α(K)=0.01024 *15*; α(L)=0.00270 *4*; α(M)=0.000677 *10*; α(N+..)=0.000235 *4* α(N)=0.000182 *3*; α(O)=4.36×10^{-5} *7*; α(P)=8.07×10^{-6} *12*; α(Q)=4.68×10^{-7} *7*
[x]895.4 *3*	0.0075 *25*							
[x]898.1 *3*	0.018 *4*							
[x]905.5 *3*	0.0075 *25*							
[x]911.7 *3*	0.014 *4*							
918.7 *3*	0.0084 *30*	970.52?	(5/2,7/2)	51.7008	5/2$^+$			
[x]931.9 *3*	0.013 *4*							
940.3 *3*	0.050 *5*	986.65	(13/2$^-$)	46.207	9/2$^-$	[E2]	0.01248	α(K)=0.00932 *13*; α(L)=0.00237 *4*; α(M)=0.000591 *9*; α(N+..)=0.000205 *3* α(N)=0.0001594 *23*; α(O)=3.82×10^{-5} *6*; α(P)=7.08×10^{-6} *10*; α(Q)=4.23×10^{-7} *6*

$^{235}_{92}U_{143}$-19

γ(^{235}U) (continued)

E_γ ‡#	I_γ @ *i*	E_i(level)	J_i^π	E_f	J_f^π	Mult. *a*	δ *a*	α †	Comments
955.6 *2*	0.031 *3*	968.451	3/2$^+$	13.0401	3/2$^+$	M1+E2 *b*	0.6 *2*	0.036 *5*	α(K)=0.028 *4*; α(L)=0.0055 *6*; α(M)=0.00133 *14*; α(N+..)=0.00046 *5* α(N)=0.00036 *4*; α(O)=8.7×10^{-5} *9*; α(P)=1.67×10^{-5} *18*; α(Q)=1.30×10^{-6} *16*
957.6 *3*	0.032 *3*	970.52?	(5/2,7/2)	13.0401	3/2$^+$				
(968.37 *2*)	0.028 *CA*	968.451	3/2$^+$	0.0765	1/2$^+$	M1+E2 *b*	0.6 *3*	0.035 *6*	α(K)=0.027 *5*; α(L)=0.0053 *8*; α(M)=0.00128 *19*; α(N+..)=0.00045 *7* α(N)=0.00035 *5*; α(O)=8.4×10^{-5} *12*; α(P)=1.61×10^{-5} *24*; α(Q)=1.26×10^{-6} *22*
979.7 *3*	0.028 *5*	992.72	(5/2$^+$)	13.0401	3/2$^+$	[M1+E2]		0.026 *15*	α(K)=0.021 *13*; α(L)=0.0042 *21*; α(M)=0.0010 *5*; α(N+..)=0.00035 *17* α(N)=0.00027 *13*; α(O)=7.E−5 *4*; α(P)=1.3×10^{-5} *7*; α(Q)=1.0×10^{-6} *6*
x982.7 *3*	0.011 *3*								
986.9 *2*	0.021 *4*	1116.20?	(5/2$^-$)	129.2961	5/2$^+$	E1 *b*		0.00383 *6*	α=0.00383 *6*; α(K)=0.00313 *5*; α(L)=0.000529 *8*; α(M)=0.0001255 *18*; α(N+..)=4.34×10^{-5} *6* α(N)=3.36×10^{-5} *5*; α(O)=8.14×10^{-6} *12*; α(P)=1.552×10^{-6} *22*; α(Q)=1.196×10^{-7} *17*
992.7 *3*	0.027 *4*	992.72	(5/2$^+$)	0	7/2$^-$				
1005.7 *3*	0.018 *3*	1057.58	(7/2)	51.7008	5/2$^+$				
x1009.4 *3*	0.014 *3*								
1057.3 *2*	0.045 *7*	1057.58	(7/2)	0	7/2$^-$				

† Additional information 2.
‡ Eγ from (n,γ) (1979Al03) above 600 keV are ≈ 0.1 keV systematically higher than Eγ from 1976GuZN. Some ΔE of multiply placed γ rays have been estimated by evaluators on the basis of (n,γ) results.
# From 1968Cl02, 1971GuZY, 1976GuZN, 1982He02, 1992Bl07.
@ From 1976GuZN, unless otherwise specified. Other measurements: 1966Ah02, 1966Ho09, 1968Cl02, 1971GuZY, 1981UmZZ, 1982He02, 1984Iw02, 1992Ba08, 1997Bu23, 1992Co10, 1997Ko52.
& From 1986LoZT.
a From ce data in 1965Tr03 and adopted Iγ, unless otherwise specified. Some δ were deduced from γ-ray intensity balances using experimental α-particle intensities.
b From (n,γ) results in 1979Al03.
c From intensity balance.
d From Coul. ex.
e γ placed more than once in the decay scheme.
f Absolute γ-ray intensity measurement (1994Mo36).

$^{235}_{92}U_{143}$-20

$\gamma(^{235}U)$ (continued)

[g] From (1994Mo36).
[h] Assignment to ^{239}Pu α decay is uncertain.
[i] For absolute intensity per 100 decays, multiply by 1.00×10^{-6}.
[j] Multiply placed with undivided intensity.
[k] Multiply placed with intensity suitably divided.
[l] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

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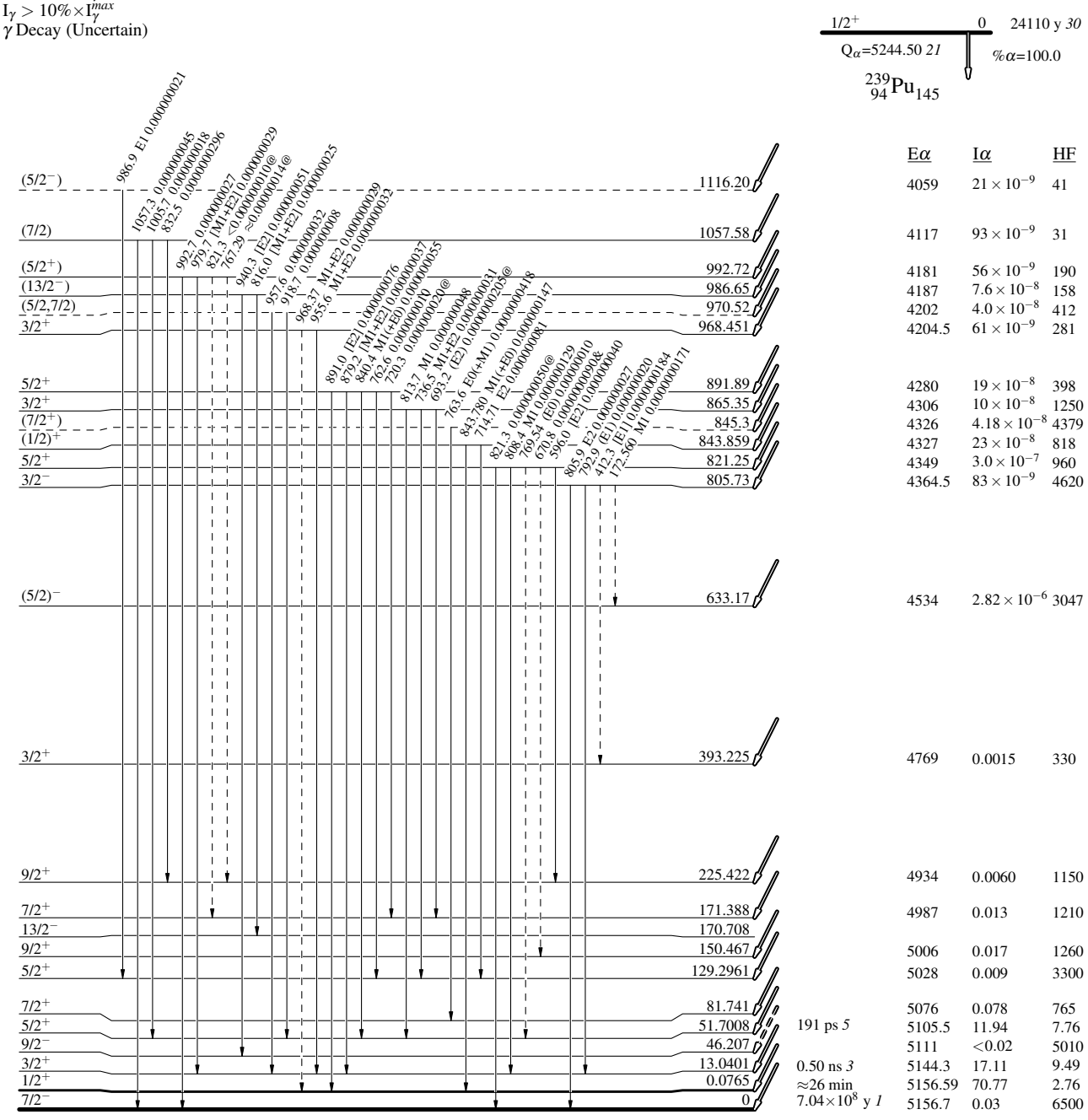
Decay Scheme

Intensities: $I_{(\gamma+ce)}$ 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)



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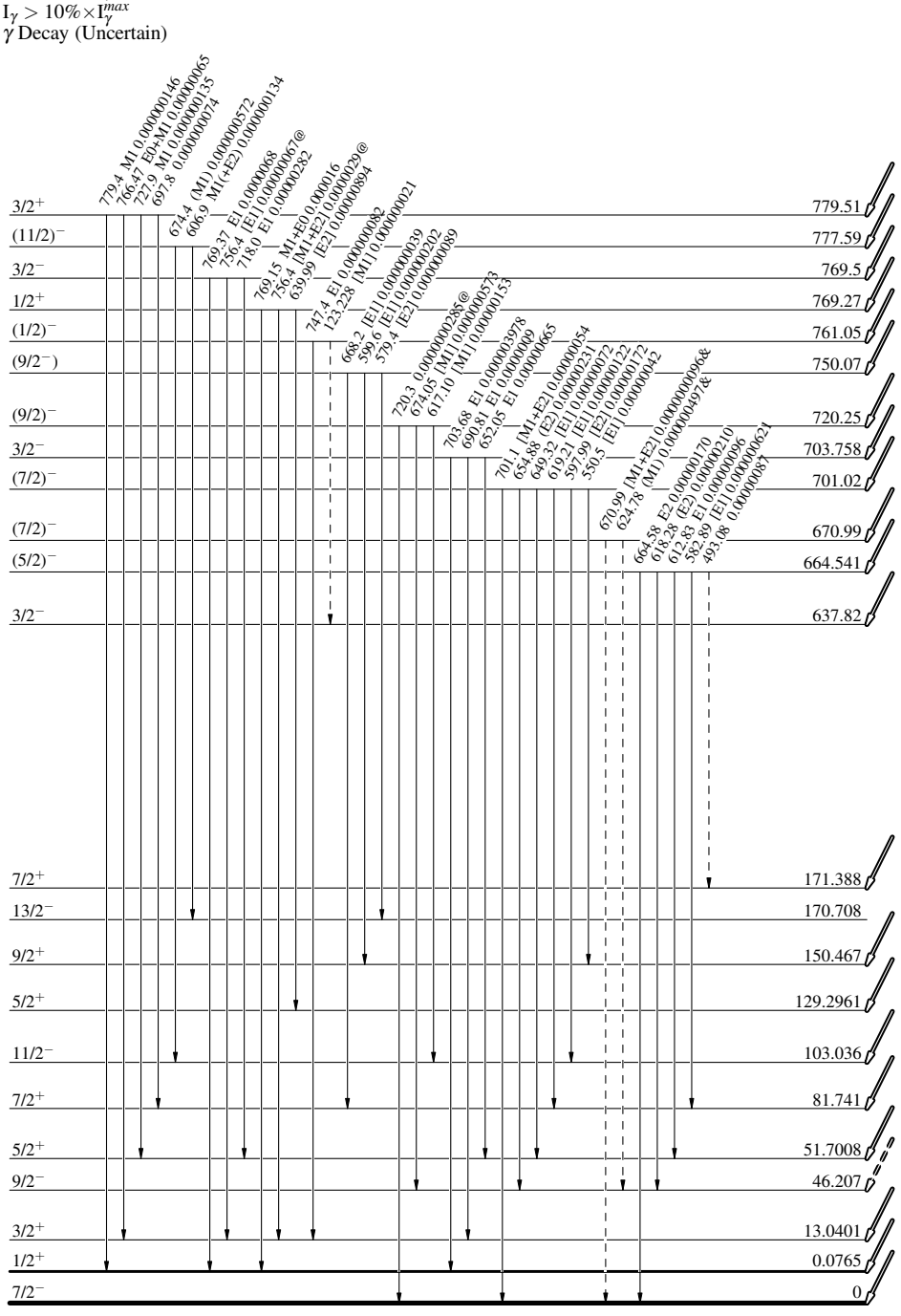
Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ 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)



Eα	Iα	HF
4390	1.0×10^{-6}	622
4392	7.07×10^{-7}	912
4400.3	0.0000103	73
≈4380	0.00000002	530
4408	10×10^{-8}	8700
4419	33×10^{-8}	3230
4448.5	2.13×10^{-6}	859
4464.7	0.000000001	214
4467.4	6.9×10^{-6}	375
4497	$\leq 3 \times 10^{-8}$	1.47×10^{5}
4503	5.37×10^{-6}	921
4529.6	3.19×10^{-6}	2483
4987	0.013	1210
5006	0.017	1260
5028	0.009	3300
5054	0.047	930
5076	0.078	765
5105.5	11.94	7.76
5111	<0.02	5010
5144.3	17.11	9.49
5156.59	70.77	2.76
5156.7	0.03	6500

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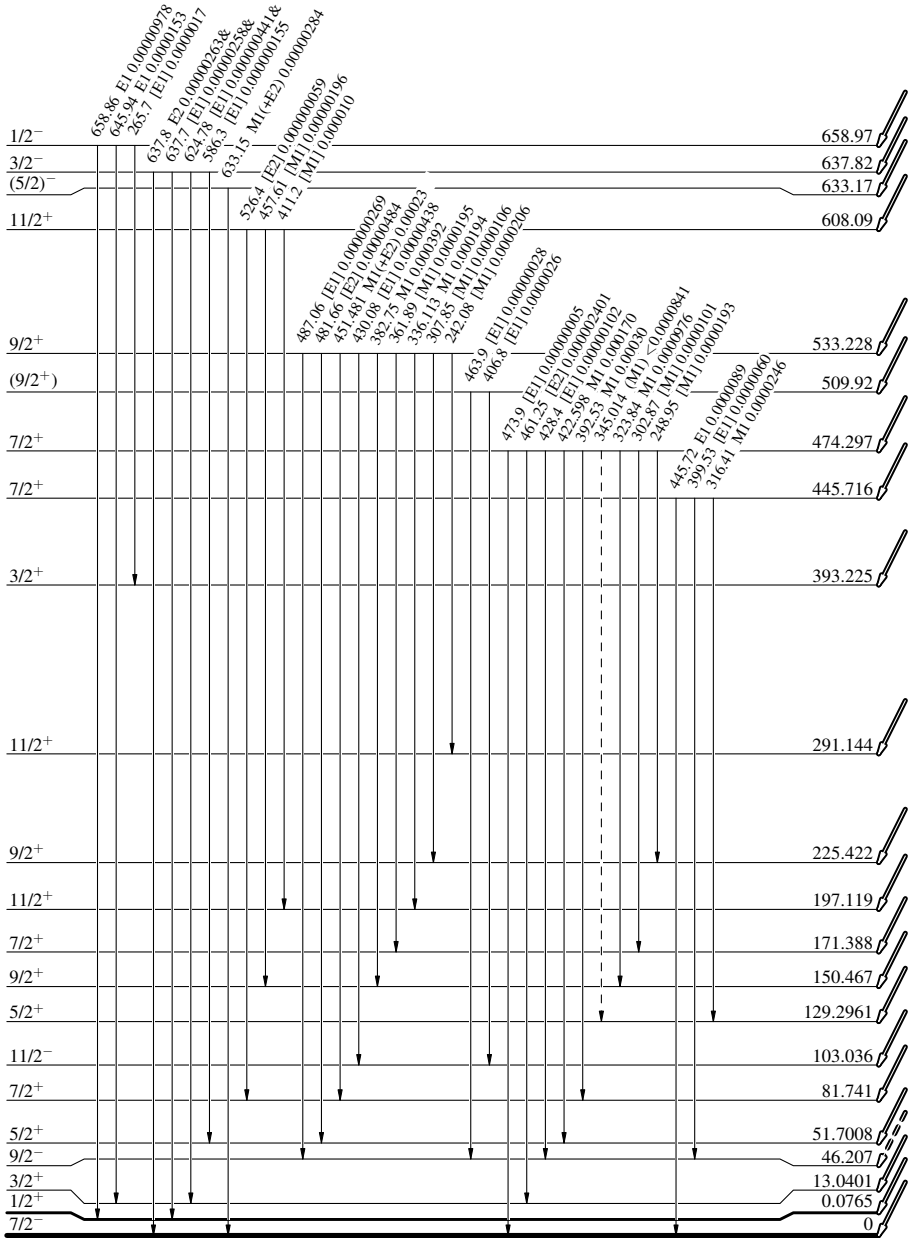
Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ 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)



	Eα	Iα	HF
	4510	0.00008	68
	4529.6	3.19×10^{-6}	2483
	4534	2.82×10^{-6}	3047
	4559	0.000000012	1110
	4632	0.0007	69
	4655	2.8×10^{-6}	25400
	4691	0.0005	260
	4718.5	0.00000004	5180
	4769	0.0015	330
	4871	0.0007	3500
	4934	0.0060	1150
	4960	0.007	1520
	4987	0.013	1210
	5006	0.017	1260
	5028	0.009	3300
	5054	0.047	930
	5076	0.078	765
	5105.5	11.94	7.76
	5111	<0.02	5010
	5144.3	17.11	9.49
	5156.59	70.77	2.76
	5156.7	0.03	6500

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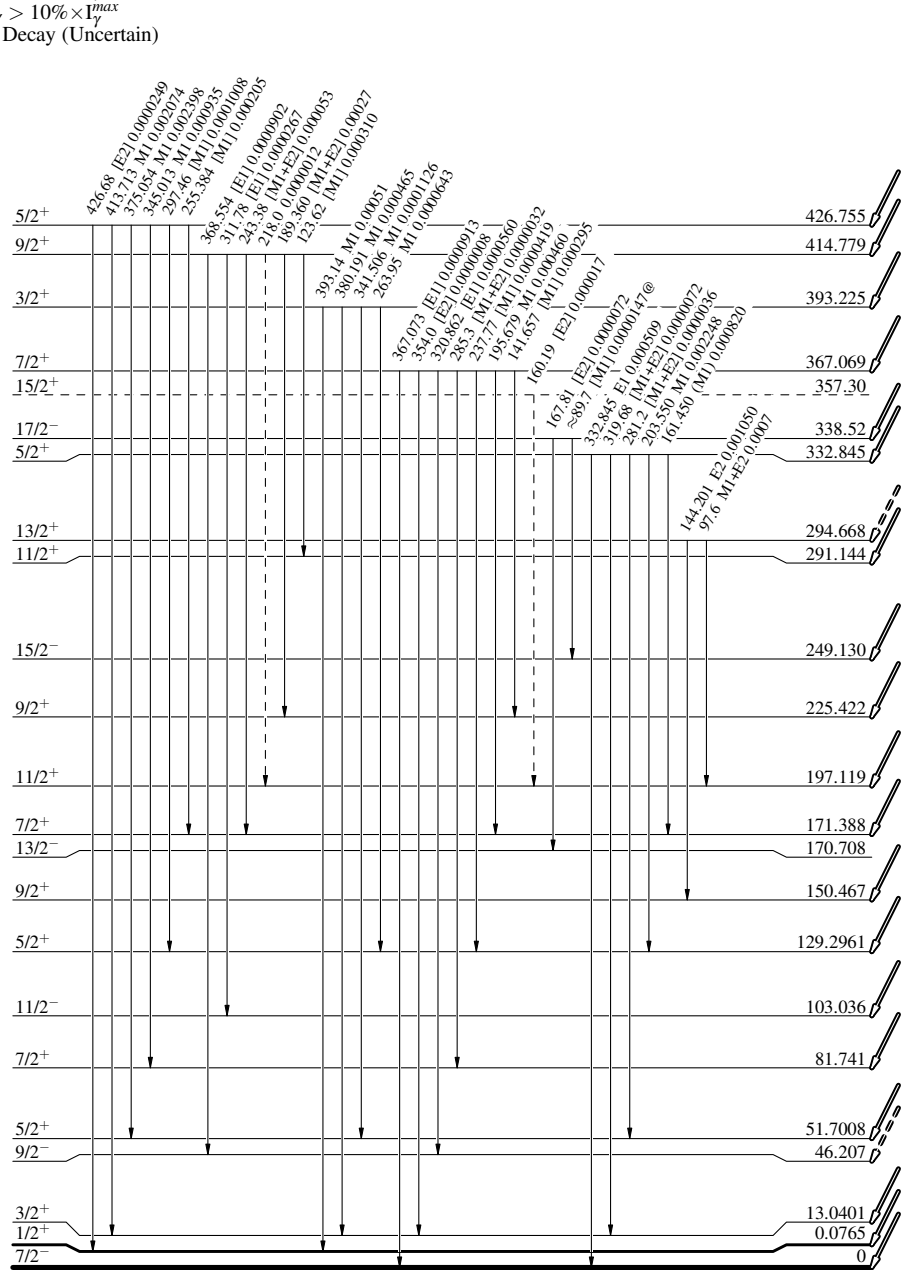
Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ 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)



	Eα	Iα	HF
5/2+ 426.755	4736	0.0051	55
9/2+ 414.779	4749	≈0.0006	573
3/2+ 393.225	4769	0.0015	330
7/2+ 367.069	4795	0.0012	620
15/2+ 357.30			
17/2− 338.52	4824	0.00000002	253400
5/2+ 332.845	4828	0.0024	540
13/2+ 294.668	4866	0.0019	1240
11/2+ 291.144	4871	0.0007	3500
15/2− 249.130	4912	0.0024	1990
9/2+ 225.422	4934	0.0060	1150
11/2+ 197.119	4960	0.007	1520
7/2+ 171.388	4987	0.013	1210
13/2− 170.708			
9/2+ 150.467	5006	0.017	1260
5/2+ 129.2961	5028	0.009	3300
11/2− 103.036	5054	0.047	930
7/2+ 81.741	5076	0.078	765
5/2+ 51.7008 (191 ps 5)	5105.5	11.94	7.76
9/2− 46.207	5111	<0.02	5010
3/2+ 13.0401 (0.50 ns 3)	5144.3	17.11	9.49
1/2+ 0.0765 (≈26 min)	5156.59	70.77	2.76
7/2− 0 (7.04×10^8 y 1)	5156.7	0.03	6500

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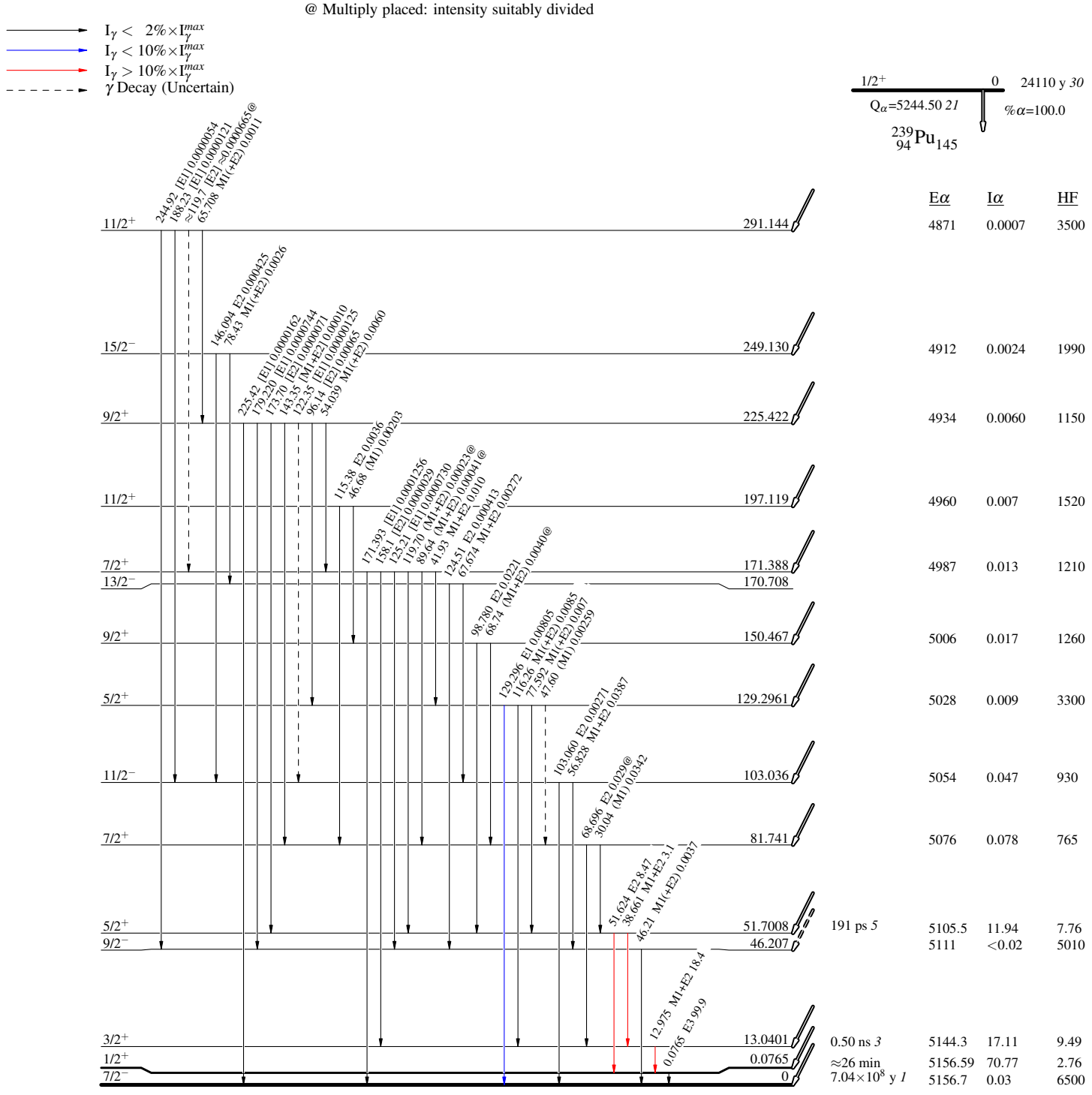
Decay Scheme (continued)

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



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