^{240}Pu(n,γ) E=th:secondary γ's 1998Wh01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 130, 183 (2015)	30-Sep-2015

Evaluator would like to acknowledge M. Martin (ORNL) for assisting in this dataset and for providing copies of the private communication between him and R.W.Hoff (co-author of 1998Wh01).

1998Wh01: Secondary gammas measured using curved crystal spectrometer GAMS1 and GAMS2/3 at Institur-Laue Langevin, Grenoble. GAMS1 was used to measure γ rays between 35-500 keV and GAMS2/3 was used to measure the 15-1500 keV γ rays. Conversion electrons were studies with the BILL electron spectrometer.

^{241}Pu Levels

E(level)[‡]	J$^{\pi}$[†]	Comments
0[#]	5/2$^+$	
41.9722[#] 9	7/2$^+$	
95.7795[#] 12	9/2$^+$	
161.315[#] 4	11/2$^+$	
161.6853[@] 9	1/2$^+$	
170.9399[@] 9	3/2$^+$	
175.0523[&] 14	7/2$^+$	
222.9879[@] 11	5/2$^+$	
231.934[&] 9	9/2$^+$	
244.8895[@] 13	7/2$^+$	
337.1363[@] 23	9/2$^+$	
404.4526[a] 17	(9/2)$^-$	
408.899[a] 3	(7/2)$^-$	
518.8121[e] 25	5/2$^-$	
534.202 13	+	
561.421[e] 5	7/2$^-$	
614.836[e] 9	(9/2$^-$)	
755.1743[b] 21	1/2$^+$	
769.270[f] 4	1/2$^-$	
779.1504[f] 21	3/2$^-$	
784.1525[b] 25	3/2$^+$	
800.443[c] 5	3/2$^+$	
800.479[b] 6	5/2$^+$	
810.945[f] 4	5/2$^-$	
831.587[c] 7	5/2$^+$	
833.4[f] 10	7/2$^-$	E(level): See comment on the 496γ doublet.
834.839 17	3/2$^+$,5/2$^+$,7/2$^+$	
841.9575[g] 22	1/2$^-$	
850.5395[g] 21	3/2$^-$	
869.383[b] 7	7/2$^+$	
897.503?[g] 22	(5/2$^-$)	
940.311 10	3/2$^+$	
942.584 5	3/2$^+$	
964.940[d] 10	1/2$^-$	
995.603[d] 11	3/2$^-$	
1009.438 7	3/2$^-$	J$^{\pi}$: M1 γ's to 1/2$^-$ and 5/2$^-$.
1090.023 5	3/2$^-$	
1223.841 9	1/2,3/2	

Continued on next page (footnotes at end of table)

^{240}Pu(n,γ) E=th:secondary γ's 1998Wh01 (continued)

^{241}Pu Levels (continued)

E(level)[‡]	Jπ[†]
1253.792 *13*	1/2⁻,3/2⁻
1296.70 *5*	3/2⁻
1357.682 *22*	1/2,3/2

[†] From Adopted Levels.
[‡] From a least-squares fit to the Eγ values except as noted otherwise. An additional uncertainty of 20 ppm due to the uncertainty in the Eγ calibration must be added to get absolute level energies.
[#] Band(A): 5/2[622] band.
[@] Band(B): 1/2[631] band.
[&] Band(C): 7/2[624] band.
[a] Band(D): 7/2[743] band.
[b] Band(E): 1/2[620] band.
[c] Band(F): 3/2[631] band.
[d] Band(G): 1/2[501] band.
[e] Band(H): 5/2[622]⊗0⁻ band.
[f] Band(I): 1/2[761] + 1/2[631]⊗0⁻.
[g] Band(J): 1/2[620]⊗0⁻ + 1/2[631]⊗0⁻.

$\gamma(^{241}$Pu)

E_γ[†]	I_γ[‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ[e]	α[d]	Comments
^{x}35.788 *1*	0.100 *12*								
41.972 *1*	0.146 *5*	41.9722	7/2$^+$	0	5/2$^+$	M1+E2	0.186 *4*	102.4 *20*	α(L)=76.2 *15*; α(M)=19.4 *4* α(N)=5.30 *11*; α(O)=1.294 *25*; α(P)=0.231 *5*; α(Q)=0.01089 *16*
^{x}51.325 *2*	0.049 *5*								
52.048 *2*	0.054 *6*	222.9879	5/2$^+$	170.9399	3/2$^+$	M1+E2	0.498 *6*	100.3 *19*	α(L)=73.6 *14*; α(M)=19.7 *4* α(N)=5.41 *11*; α(O)=1.293 *24*; α(P)=0.215 *4*; α(Q)=0.00506 *8*
53.807 *1*	0.086 *11*	95.7795	9/2$^+$	41.9722	7/2$^+$	M1+E2	0.201 *8*	44.7 *11*	α(L)=33.3 *8*; α(M)=8.42 *21* α(N)=2.30 *6*; α(O)=0.563 *14*; α(P)=0.1021 *22*; α(Q)=0.00520 *8*
56.89 *3*	0.0033 *4*	231.934	9/2$^+$	175.0523	7/2$^+$	M1+E2	0.68	92.4 *14*	α(L)=67.6 *10*; α(M)=18.4 *3* α(N)=5.03 *8*; α(O)=1.198 *17*; α(P)=0.196 *3*; α(Q)=0.00346 *5* E_γ,I_γ: Not seen in (n,γ) spectrum. Values are from ^{245}Cm(α) decay, where Iγ/Iγ(190γ)=0.165 *11*.
57.806 *2*	0.066 *10*	841.9575	1/2$^-$	784.1525	3/2$^+$	E1[b]		0.555	α(L)=0.416 *6*; α(M)=0.1037 *15* α(N)=0.0277 *4*; α(O)=0.00649 *9*; α(P)=0.001012 *15*; α(Q)=3.26$\times10^{-5}$ *5*
61.303 *1*	0.091 *3*	222.9879	5/2$^+$	161.6853	1/2$^+$	E2		160.0	α(L)=116.2 *17*; α(M)=32.5 *5* α(N)=8.92 *13*; α(O)=2.10 *3*; α(P)=0.330 *5*; α(Q)=0.000831 *12* Mult.: δ>2.4 from α(L2)exp, >0.64 from L3/L2, and 5.5 +*8*−*6* from L1/L2. Placement in the level scheme requires ΔJ=2, $\Delta\pi$=no.
^{x}62.812 *2*	0.067 *5*								
65.535 *3*	0.164 *7*	161.315	11/2$^+$	95.7795	9/2$^+$	M1(+E2)	≤0.44	27 *8*	α(L)=20 *6*; α(M)=5.2 *17* α(N)=1.4 *5*; α(O)=0.34 *11*; α(P)=0.061 *16*; α(Q)=0.00281 *20*
68.904 *2*	0.029 *5*	869.383	7/2$^+$	800.479	5/2$^+$	M1+E2	0.14 *5*	18.1 *12*	α(L)=13.6 *9*; α(M)=3.35 *25* α(N)=0.91 *7*; α(O)=0.226 *16*; α(P)=0.0423 *25*; α(Q)=0.00255 *5*
71.390 *2*	0.042 *3*	850.5395	3/2$^-$	779.1504	3/2$^-$	M1+E2	0.10 +*4*−*5*	15.7 *7*	α(L)=11.8 *5*; α(M)=2.88 *13* α(N)=0.79 *4*; α(O)=0.195 *9*; α(P)=0.0368 *13*; α(Q)=0.00231 *4*
^{x}72.584 *3*	0.018 *3*								
73.950 *1*	0.056 *3*	244.8895	7/2$^+$	170.9399	3/2$^+$	E2		65.3	α(L)=47.4 *7*; α(M)=13.27 *19* α(N)=3.65 *6*; α(O)=0.858 *12*; α(P)=0.1356 *19*; α(Q)=0.000381 *6* Mult.: δ=1.8 +*10*−*4* from α(L2)exp, >0.77 from L3/L2, and >0.56 from M3/M2. Placement in the level scheme requires ΔJ=2.
^{x}75.331 *2*	0.034 *6*								
79.262 *7*	0.007 *2*	175.0523	7/2$^+$	95.7795	9/2$^+$	M1+E2	0.65 +*25*−*22*	22 *6*	α(L)=16 *4*; α(M)=4.3 *12* α(N)=1.2 *4*; α(O)=0.28 *8*; α(P)=0.047 *11*; α(Q)=0.00129 *22*

$^{241}_{94}Pu_{147}$-3

γ(^{241}Pu) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[a]	δ[e]	α[d]	Comments
86.783 *1*	0.134 *6*	841.9575	1/2$^-$	755.1743	1/2$^+$	E1[b]		0.191	α(L)=0.1436 *21*; α(M)=0.0354 *5* α(N)=0.00951 *14*; α(O)=0.00226 *4*; α(P)=0.000372 *6*; α(Q)=1.381×10^{-5} *20*
^{x}86.965 *4*	0.023 *4*								
95.365 *1*	0.077 *4*	850.5395	3/2$^-$	755.1743	1/2$^+$	E1[b]		0.1495	α(L)=0.1123 *16*; α(M)=0.0277 *4* α(N)=0.00743 *11*; α(O)=0.001770 *25*; α(P)=0.000294 *5*; α(Q)=1.128×10^{-5} *16*
95.786 *3*	0.013 *2*	95.7795	9/2$^+$	0	5/2$^+$	E2		19.3	α(L)=14.00 *20*; α(M)=3.92 *6* α(N)=1.078 *15*; α(O)=0.254 *4*; α(P)=0.0404 *6*; α(Q)=0.0001375 *20*
114.148 *2*	0.097 *5*	337.1363	9/2$^+$	222.9879	5/2$^+$	E2		8.55	α(L)=6.21 *9*; α(M)=1.737 *25* α(N)=0.478 *7*; α(O)=0.1126 *16*; α(P)=0.0180 *3*; α(Q)=7.24×10^{-5} *11*
^{x}119.734 *5*	0.032 *4*								
133.081 *2*	0.111 *3*	175.0523	7/2$^+$	41.9722	7/2$^+$	M1+E2	0.222 *9*	11.36 *17*	α(K)=8.80 *13*; α(L)=1.92 *3*; α(M)=0.473 *7* α(N)=0.1287 *19*; α(O)=0.0319 *5*; α(P)=0.00599 *9*; α(Q)=0.000367 *6* Mult.: The authors′ value for I(ce(L3)) in Table II is incorrect (priv comm from R. W. Hoff. The correct value is not available). δ is from L2/L1 and M2/M1.
136.127 *20*	0.0111 *1*	231.934	9/2$^+$	95.7795	9/2$^+$	M1+E2	0.63 *21*	9.0 *10*	α(K)=6.3 *12*; α(L)=2.04 *15*; α(M)=0.53 *5* α(N)=0.144 *14*; α(O)=0.035 *3*; α(P)=0.0062 *4*; α(Q)=0.00027 *5* I_γ: Iγ is taken from Iγ/Iγ(190γ)=0.555 *16* in ^{245}Cm(α) decay since the measured Iγ of 0.029 *5* from 1998Wh01 is too large and apparently includes a contribution from fission product γ-rays according to the authors. E_γ: From ce spectrum in 1998Wh01.
149.107 *6*	0.035 *5*	244.8895	7/2$^+$	95.7795	9/2$^+$	M1		8.48	α(K)=6.69 *10*; α(L)=1.346 *19*; α(M)=0.327 *5* α(N)=0.0891 *13*; α(O)=0.0222 *4*; α(P)=0.00422 *6*; α(Q)=0.000276 *4*
161.685 *1*	20.57 *20*	161.6853	1/2$^+$	0	5/2$^+$	E2		1.96	α(K)=0.190 *3*; α(L)=1.289 *18*; α(M)=0.360 *5* α(N)=0.0989 *14*; α(O)=0.0234 *4*; α(P)=0.00378 *6*; α(Q)=2.31×10^{-5} *4*
170.940 *1*	0.378 *7*	170.9399	3/2$^+$	0	5/2$^+$	M1		5.76	α(K)=4.55 *7*; α(L)=0.912 *13*; α(M)=0.222 *4* α(N)=0.0603 *9*; α(O)=0.01501 *21*; α(P)=0.00286 *4*; α(Q)=0.000187 *3*
175.051 *2*	0.362 *4*	175.0523	7/2$^+$	0	5/2$^+$	M1+E2	0.217 *19*	5.21	α(K)=4.07 *7*; α(L)=0.855 *12*; α(M)=0.209 *3* α(N)=0.0570 *8*; α(O)=0.01414 *20*; α(P)=0.00267 *4*; α(Q)=0.000167 *3*
181.017 *2*	0.250 *7*	222.9879	5/2$^+$	41.9722	7/2$^+$	M1+E2	0.19 *4*	4.77 *9*	α(K)=3.74 *8*; α(L)=0.775 *11*; α(M)=0.189 *3* α(N)=0.0516 *8*; α(O)=0.01281 *18*; α(P)=0.00242 *4*; α(Q)=0.000154 *3*
185.132 *22*	0.004 *2*	940.311	3/2$^+$	755.1743	1/2$^+$				Mult.: α(K)exp=0.08 *3* compared with 0.095 (E1) and 0.166 (E2).

$^{241}_{94}Pu_{147}$-4

γ(^{241}Pu) (continued)

E$_\gamma$[†]	I$_\gamma$[‡f]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.[a]	δ[e]	α[d]	Comments
									The probable J^π of the 940 level requires $\Delta\pi$=no. See comment on J^π(940 level) in Adopted Levels.
187.414 *6*	0.042 *9*	942.584	3/2$^+$	755.1743	1/2$^+$	M1+E2	1.1 *3*	2.6 *6*	α(K)=1.7 *6*; α(L)=0.688 *11*; α(M)=0.180 *4* α(N)=0.0493 *11*; α(O)=0.01193 *20*; α(P)=0.00209 *5*; α(Q)=7.3×10^{-5} *21*
189.965 *10*	0.020 *2*	231.934	9/2$^+$	41.9722	7/2$^+$	M1+E2	0.63 *+6−7*	3.36 *16*	α(K)=2.46 *15*; α(L)=0.665 *10*; α(M)=0.1680 *25* α(N)=0.0459 *7*; α(O)=0.01125 *16*; α(P)=0.00205 *3*; α(Q)=0.000103 *6*
195.669 *10*	0.038 *5*	964.940	1/2$^-$	769.270	1/2$^-$	M1		3.93	α(K)=3.11 *5*; α(L)=0.621 *9*; α(M)=0.1511 *22* α(N)=0.0411 *6*; α(O)=0.01023 *15*; α(P)=0.00195 *3*; α(Q)=0.0001271 *18* Mult.: α(K)exp allows an E2 admixture with δ<0.34; however, the placement is from J=1/2 to J=1/2.
202.910 *7*	0.039 *7*	244.8895	7/2$^+$	41.9722	7/2$^+$	M1+E2	0.66 *3*	2.72 *7*	α(K)=2.00 *6*; α(L)=0.537 *8*; α(M)=0.1355 *19* α(N)=0.0370 *6*; α(O)=0.00907 *13*; α(P)=0.001655 *24*; α(Q)=8.35×10^{-5} *23*
[x]209.745 *9*	0.037 *9*					M1+E2	3.0 *+21−7*	0.97 *16*	α(K)=0.38 *16*; α(L)=0.428 *9*; α(M)=0.1169 *18* α(N)=0.0321 *5*; α(O)=0.00764 *12*; α(P)=0.00127 *3*; α(Q)=2.0×10^{-5} *6* E$_\gamma$: Placed by the authors from the 965 level; however, that placement requires mult=E1. Removal of this transition from that level is done with permission of R. W. Hoff (priv comm).
[x]211.666 *11*	0.063 *18*								
222.971 *20*	0.126 *5*	222.9879	5/2$^+$	0	5/2$^+$	M1+E2	0.609 *23*	2.14 *5*	α(K)=1.61 *4*; α(L)=0.401 *6*; α(M)=0.1005 *15* α(N)=0.0274 *4*; α(O)=0.00674 *10*; α(P)=0.001241 *19*; α(Q)=6.66×10^{-5} *15* E$_\gamma$: Uncertainty in authors′ table I is 3 eV. The value should be 20 eV (priv comm from R. W. Hoff). Mult.: the value for M3/M2 given in the authors′ Table II is incorrect (priv comm from R. W. Hoff). The δ value is deduced from L2/L1 and L3/L1.
[x]229.403 *4*	0.095 *6*					E2		0.517	α(K)=0.1222 *18*; α(L)=0.288 *4*; α(M)=0.0796 *12* α(N)=0.0219 *3*; α(O)=0.00518 *8*; α(P)=0.000854 *12*; α(Q)=8.65×10^{-6} *13* Mult.: α(K)exp gives δ>7.8. E$_\gamma$: Placed by the authors from the 404 level; however, that placement requires mult=E1. Removal of this transition from that level is done with permission of R. W. Hoff (priv comm).
231.96 *3*	0.00118 *20*	231.934	9/2$^+$	0	5/2$^+$	[E2]		0.497	α(K)=0.1200 *17*; α(L)=0.275 *4*; α(M)=0.0760 *11* α(N)=0.0209 *3*; α(O)=0.00495 *7*; α(P)=0.000816 *12*; α(Q)=8.41×10^{-6} *12* E$_\gamma$,I$_\gamma$: Not seen in (n,γ) spectrum. Values are from ^{245}Cm(α), where Iγ/Iγ(190γ)=0.059 *8*.

γ(^{241}Pu) (continued)

$E_γ$[†]	$I_γ$[‡f]	E_i(level)	$J^π_i$	E_f	$J^π_f$	Mult.[a]	δ[e]	α[d]	Comments
233.844 3	0.121 4	408.899	(7/2)$^-$	175.0523	7/2$^+$	E1[b]		0.0719	α(K)=0.0563 8; α(L)=0.01169 17; α(M)=0.00284 4 α(N)=0.000768 11; α(O)=0.000187 3; α(P)=3.33×10^{-5} 5; α(Q)=1.637×10^{-6} 23
239.493 8	0.055 5	1090.023	3/2$^-$	850.5395	3/2$^-$	M1(+E2)	≤0.35	2.13 11	α(K)=1.67 10; α(L)=0.346 8; α(M)=0.0844 16 α(N)=0.0230 5; α(O)=0.00571 12; α(P)=0.00108 3; α(Q)=6.8×10^{-5} 4
240.167 12	0.040 5	1009.438	3/2$^-$	769.270	1/2$^-$	M1(+E2)	≤0.33	2.13 10	α(K)=1.67 9; α(L)=0.343 8; α(M)=0.0838 15 α(N)=0.0228 4; α(O)=0.00567 11; α(P)=0.001073 24; α(Q)=6.8×10^{-5} 4
^{x}240.986 7	0.054 4					M1+E2	3.7 +10−5	0.55 5	α(K)=0.22 4; α(L)=0.242 5; α(M)=0.0661 11 α(N)=0.0182 3; α(O)=0.00433 7; α(P)=0.000725 14; α(Q)=1.19×10^{-5} 16
241.381 17	0.052 6	337.1363	9/2$^+$	95.7795	9/2$^+$	M1+E2	1.8 3	0.85 13	α(K)=0.49 12; α(L)=0.259 9; α(M)=0.0689 17 α(N)=0.0189 5; α(O)=0.00454 13; α(P)=0.00078 3; α(Q)=2.2×10^{-5} 5
^{x}247.129 23	0.063 8					M1+E2	3.9 +14−7	0.50 5	α(K)=0.20 5; α(L)=0.219 5; α(M)=0.0597 10 α(N)=0.0164 3; α(O)=0.00390 7; α(P)=0.000654 14; α(Q)=1.08×10^{-5} 16
^{x}247.591 4	0.099 9								
248.066 6	0.076 6	1090.023	3/2$^-$	841.9575	1/2$^-$	M1+E2	0.28 5	1.90 5	α(K)=1.49 5; α(L)=0.311 6; α(M)=0.0760 12 α(N)=0.0207 4; α(O)=0.00513 9; α(P)=0.000970 17; α(Q)=6.08×10^{-5} 17
^{x}277.992 9	0.062 16								
^{x}278.420 20	0.053 5								
308.674 2	0.503 8	404.4526	(9/2)$^-$	95.7795	9/2$^+$	E1		0.0389	α(K)=0.0308 5; α(L)=0.00610 9; α(M)=0.001478 21 α(N)=0.000399 6; α(O)=9.76×10^{-5} 14; α(P)=1.762×10^{-5} 25; α(Q)=9.23×10^{-7} 13
313.123 4	0.110 7	408.899	(7/2)$^-$	95.7795	9/2$^+$	E1[b]		0.0377	α(K)=0.0299 5; α(L)=0.00590 9; α(M)=0.001431 20 α(N)=0.000386 6; α(O)=9.45×10^{-5} 14; α(P)=1.707×10^{-5} 24; α(Q)=8.97×10^{-7} 13
320.746 7	0.056 4	1090.023	3/2$^-$	769.270	1/2$^-$	M1(+E2)	≤0.47	0.92 8	α(K)=0.72 7; α(L)=0.148 8; α(M)=0.0363 17 α(N)=0.0099 5; α(O)=0.00245 12; α(P)=0.000463 25; α(Q)=2.9×10^{-5} 3
359.149 13	0.045 11	534.202	+	175.0523	7/2$^+$	E2		0.1240	α(K)=0.0559 8; α(L)=0.0498 7; α(M)=0.01350 19 α(N)=0.00370 6; α(O)=0.000885 13; α(P)=0.0001503 21; α(Q)=2.91×10^{-6} 4 Mult.: α(K)exp gives δ>4.9.
362.479 2	1.271 18	404.4526	(9/2)$^-$	41.9722	7/2$^+$	E1		0.0276	α(K)=0.0220 3; α(L)=0.00425 6; α(M)=0.001028 15 α(N)=0.000278 4; α(O)=6.80×10^{-5} 10; α(P)=1.238×10^{-5} 18; α(Q)=6.70×10^{-7} 10
367.10 8	0.370 13	408.899	(7/2)$^-$	41.9722	7/2$^+$	E1[b]		0.0269	α(K)=0.0214 3; α(L)=0.00413 6; α(M)=0.000999 14

$^{241}_{94}$Pu$_{147}$-6

γ(^{241}Pu) (continued)

E_γ [†]	I_γ [‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [a]	δ [e]	α [d]	Comments
									α(N)=0.000270 *4*; α(O)=6.62×10^{-5} *10*; α(P)=1.204×10^{-5} *17*; α(Q)=6.54×10^{-7} *10*
^{x}382.164 *15*	0.047 *5*								
^{x}402.54 *3*	0.101 *23*					E1		0.0222	α(K)=0.01774 *25*; α(L)=0.00338 *5*; α(M)=0.000816 *12* α(N)=0.000221 *3*; α(O)=5.41×10^{-5} *8*; α(P)=9.89×10^{-6} *14*; α(Q)=5.46×10^{-7} *8*
403.260 *14*	0.061 *9*	1253.792	1/2$^-$,3/2$^-$	850.5395	3/2$^-$	M1+E2	2.9 *+9−6*	0.137 *24*	α(K)=0.085 *20*; α(L)=0.038 *3*; α(M)=0.0100 *6* α(N)=0.00275 *17*; α(O)=0.00066 *5*; α(P)=0.000117 *9*; α(Q)=3.8×10^{-6} *8*
^{x}404.707 *10*	0.056 *8*								
^{x}405.90 *5*	0.056 *12*					E2		0.0887	α(K)=0.0449 *7*; α(L)=0.0322 *5*; α(M)=0.00865 *13* α(N)=0.00237 *4*; α(O)=0.000568 *8*; α(P)=9.75×10^{-5} *14*; α(Q)=2.21×10^{-6} *3* Mult.: α(K)exp gives δ>4.3.
^{x}408.70 *3*	0.048 *7*					M1(+E2)	0.8 *4*	0.35 *11*	α(K)=0.26 *9*; α(L)=0.061 *13*; α(M)=0.015 *3* α(N)=0.0041 *8*; α(O)=0.00102 *20*; α(P)=0.00019 *4*; α(Q)=1.1×10^{-5} *4*
^{x}429.139 *22*	0.040 *6*					M1+E2	2.4 *+9−4*	0.132 *24*	α(K)=0.087 *20*; α(L)=0.033 *3*; α(M)=0.0086 *7* α(N)=0.00234 *18*; α(O)=0.00057 *5*; α(P)=0.000101 *9*; α(Q)=3.8×10^{-6} *8*
^{x}439.382 *20*	0.066 *7*					M1+E2	3.5 *+19−7*	0.098 *15*	α(K)=0.061 *13*; α(L)=0.0276 *18*; α(M)=0.0073 *4* α(N)=0.00198 *11*; α(O)=0.00048 *3*; α(P)=8.4×10^{-5} *6*; α(Q)=2.7×10^{-6} *5*
^{x}439.750 *6*	0.117 *7*								Mult.: α(K)exp=0.025 *5*. Theory values are 0.0150 *5* (E1) and 0.0394 *12* (E2).
444.687 *9*	0.126 *18*	1223.841	1/2,3/2	779.1504	3/2$^-$	E1 [c]		0.0182	α(K)=0.01454 *21*; α(L)=0.00273 *4*; α(M)=0.000659 *10* α(N)=0.0001781 *25*; α(O)=4.37×10^{-5} *7*; α(P)=8.02×10^{-6} *12*; α(Q)=4.51×10^{-7} *7*
^{x}464.78 *6*	0.063 *13*					E1		0.01663	α(K)=0.01333 *19*; α(L)=0.00249 *4*; α(M)=0.000600 *9* α(N)=0.0001622 *23*; α(O)=3.99×10^{-5} *6*; α(P)=7.32×10^{-6} *11*; α(Q)=4.15×10^{-7} *6*
465.646 *5*	0.287 *11*	561.421	7/2$^-$	95.7795	9/2$^+$				Mult.: α(K)exp=0.019 *3* compared with 0.0134 (E1) and 0.0356 (E2). Placement in the level scheme requires $\Delta\pi$=no. See comment on J^π(561 level) in Adopted Levels levels.
^{x}468.23 *5*	0.071 *15*					M1+E2	3.1 *+20−7*	0.089 *17*	α(K)=0.058 *14*; α(L)=0.0231 *21*; α(M)=0.0060 *5* α(N)=0.00165 *13*; α(O)=0.00040 *4*; α(P)=7.1×10^{-5} *7*; α(Q)=2.5×10^{-6} *6*
476.840 *3*	1.04 *5*	518.8121	5/2$^-$	41.9722	7/2$^+$	(E1)		0.01581	α(K)=0.01268 *18*; α(L)=0.00236 *4*; α(M)=0.000568 *8* α(N)=0.0001537 *22*; α(O)=3.78×10^{-5} *6*; α(P)=6.95×10^{-6} *10*; α(Q)=3.96×10^{-7} *6* Mult.: α(K)exp=0.020 *3* compared with 0.013 (E1) and

γ(^{241}Pu) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[a]	δ[e]	α[d]	Comments
									0.034 (E2). Placement in the level scheme requires $\Delta\pi$=yes.
[x]483.662 *6*	0.53 *7*								
[x]484.521 *7*	0.422 *20*					E1		0.01532	α(K)=0.01229 *18*; α(L)=0.00228 *4*; α(M)=0.000550 *8* α(N)=0.0001486 *21*; α(O)=3.65×10^{-5} *6*; α(P)=6.72×10^{-6} *10*; α(Q)=3.84×10^{-7} *6* E_γ: Placed by the authors from the 1253 level; however, mult=E1 to the 1/2$^-$ 769 level is inconsistent with π=− given by the other three transitions de-exciting this level.
490.624 *9*	0.184 *14*	1009.438	3/2$^-$	518.8121	5/2$^-$	M1(+E2)	≤0.6	0.28 *4*	α(K)=0.22 *3*; α(L)=0.044 *5*; α(M)=0.0108 *10* α(N)=0.0029 *3*; α(O)=0.00073 *7*; α(P)=0.000138 *14*; α(Q)=8.8×10^{-6} *12*
[x]490.927 *8*	0.195 *16*								
[x]491.423 *10*	0.409 *23*					E2		0.0548	α(K)=0.0318 *5*; α(L)=0.01692 *24*; α(M)=0.00449 *7* α(N)=0.001228 *18*; α(O)=0.000296 *5*; α(P)=5.15×10^{-5} *8*; α(Q)=1.463×10^{-6} *21*
496.217[g@]	≤0.498[g@]	833.4	7/2$^-$	337.1363	9/2$^+$	(E1)		0.01462	α(K)=0.01174 *17*; α(L)=0.00217 *3*; α(M)=0.000523 *8* α(N)=0.0001414 *20*; α(O)=3.48×10^{-5} *5*; α(P)=6.41×10^{-6} *9*; α(Q)=3.68×10^{-7} *6*
496.217[g@]	≤0.498[g@]	1296.70	3/2$^-$	800.443	3/2$^+$	(E1)		0.01462	α(K)=0.01174 *17*; α(L)=0.00217 *3*; α(M)=0.000523 *8* α(N)=0.0001414 *20*; α(O)=3.48×10^{-5} *5*; α(P)=6.41×10^{-6} *9*; α(Q)=3.68×10^{-7} *6*
[x]501.45 *3*	0.121 *14*					E1		0.01432	α(K)=0.01150 *17*; α(L)=0.00213 *3*; α(M)=0.000512 *8* α(N)=0.0001384 *20*; α(O)=3.40×10^{-5} *5*; α(P)=6.27×10^{-6} *9*; α(Q)=3.60×10^{-7} *5*
[x]513.504 *9*	0.177 *17*								
515.70 *3*	0.101 *20*	1357.682	1/2,3/2	841.9575	1/2$^-$	M1+E2[c]	1.0 *+5−3*	0.16 *5*	α(K)=0.12 *4*; α(L)=0.028 *6*; α(M)=0.0070 *13* α(N)=0.0019 *4*; α(O)=0.00047 *9*; α(P)=8.8×10^{-5} *17*; α(Q)=5.0×10^{-6} *14*
[x]515.95 *3*	0.103 *19*					M1+E2	2.2 *+8−4*	0.087 *16*	α(K)=0.061 *14*; α(L)=0.0192 *20*; α(M)=0.0049 *5* α(N)=0.00134 *13*; α(O)=0.00033 *4*; α(P)=5.9×10^{-5} *7*; α(Q)=2.6×10^{-6} *6*
518.810 *4*	3.21 *6*	518.8121	5/2$^-$	0	5/2$^+$	E1		0.01340	α(K)=0.01078 *15*; α(L)=0.00198 *3*; α(M)=0.000477 *7* α(N)=0.0001290 *18*; α(O)=3.17×10^{-5} *5*; α(P)=5.86×10^{-6} *9*; α(Q)=3.38×10^{-7} *5*
519.433 *8*	0.53 *4*	561.421	7/2$^-$	41.9722	7/2$^+$				Mult.: α(K)exp=0.040 *21* compared with 0.0108 (E1) and 0.0288 (E2). See comment on J^π(561 level) in Adopted Levels.
[x]520.505 *23*	0.094 *13*								
[x]521.11 *3*	0.073 *13*					M1+E2	2.6 *+13−6*	0.076 *16*	α(K)=0.052 *13*; α(L)=0.0175 *20*; α(M)=0.0045 *5*

γ(^{241}Pu) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ[e]	α[d]	Comments
									α(N)=0.00123 *13*; α(O)=0.00030 *3*; α(P)=5.4×10^{-5} *7*; α(Q)=2.2×10^{-6} *5*
^{x}527.258 *25*	0.064 *18*					M1+E2	1.6 *+9−4*	0.11 *3*	α(K)=0.08 *3*; α(L)=0.021 *4*; α(M)=0.0053 *9* α(N)=0.00144 *24*; α(O)=0.00035 *6*; α(P)=6.5×10^{-5} *12*; α(Q)=3.2×10^{-6} *10*
^{x}528.20 *5*	0.079 *9*					(M1+E2+E0)		0.15 *11*	α(K)=0.12 *9*; α(L)=0.027 *13*; α(M)=0.007 *3* α(N)=0.0018 *9*; α(O)=0.00044 *21*; α(P)=8.E−5 *5*; α(Q)=5.E−6 *4* Mult.: α(K)exp=0.35 *7* compared with 0.217 *7* for mult=M1 suggests the possibility of an E0 component.
^{x}541.594 *6*	0.44 *4*					E1		0.01234	α(K)=0.00993 *14*; α(L)=0.00182 *3*; α(M)=0.000437 *7* α(N)=0.0001182 *17*; α(O)=2.91×10^{-5} *4*; α(P)=5.37×10^{-6} *8*; α(Q)=3.13×10^{-7} *5*
^{x}546.479 *25*	0.081 *10*					E1		0.01213	α(K)=0.00976 *14*; α(L)=0.00179 *3*; α(M)=0.000429 *6* α(N)=0.0001160 *17*; α(O)=2.86×10^{-5} *4*; α(P)=5.28×10^{-6} *8*; α(Q)=3.08×10^{-7} *5*
^{x}549.115 *9*	0.244 *11*								
556.164 *3*	2.95 *5*	779.1504	3/2$^-$	222.9879	5/2$^+$	E1		0.01172	α(K)=0.00944 *14*; α(L)=0.001724 *25*; α(M)=0.000414 *6* α(N)=0.0001120 *16*; α(O)=2.76×10^{-5} *4*; α(P)=5.10×10^{-6} *8*; α(Q)=2.98×10^{-7} *5*
561.168 *4*	2.25 *5*	784.1525	3/2$^+$	222.9879	5/2$^+$	M1(+E2)	≤0.66	0.19 *3*	α(K)=0.150 *23*; α(L)=0.030 *4*; α(M)=0.0074 *8* α(N)=0.00200 *22*; α(O)=0.00050 *6*; α(P)=9.4×10^{-5} *11*; α(Q)=6.0×10^{-6} *9*
561.437 *20*	0.365 *19*	561.421	7/2$^-$	0	5/2$^+$				Mult.: α(K)exp=0.038 *8* gives mult=M1+E2 with δ=3.2 *+21−8*; however, placement in the level scheme requires Δπ=yes. See comment on J^π(561 level) in Adopted Levels levels.
566.057 *4*	1.17 *5*	810.945	5/2$^-$	244.8895	7/2$^+$	E1		0.01134	α(K)=0.00913 *13*; α(L)=0.001664 *24*; α(M)=0.000400 *6* α(N)=0.0001081 *16*; α(O)=2.66×10^{-5} *4*; α(P)=4.92×10^{-6} *7*; α(Q)=2.89×10^{-7} *4*
572.863 *9*	0.134 *12*	614.836	(9/2$^-$)	41.9722	7/2$^+$				Mult.: α(K)exp=0.022 *6* compared with 0.0089 (E1) and 0.024 (E2) favors E2. See comment on J^π(615 level) in Adopted Levels.
^{x}575.084 *20*	0.200 *18*					M1+E2	1.6 *3*	0.084 *15*	α(K)=0.062 *13*; α(L)=0.0163 *20*; α(M)=0.0041 *5* α(N)=0.00112 *13*; α(O)=0.00027 *3*; α(P)=5.0×10^{-5} *6*; α(Q)=2.6×10^{-6} *5*
^{x}576.68 *9*	0.045 *12*					M1(+E2)	≤0.61	0.179 *23*	α(K)=0.141 *19*; α(L)=0.028 *3*; α(M)=0.0069 *7* α(N)=0.00188 *19*; α(O)=0.00047 *5*; α(P)=8.9×10^{-5} *9*; α(Q)=5.6×10^{-6} *8*
^{x}577.561 *4*	1.14 *3*					M1+E2	0.62 *23*	0.155 *24*	α(K)=0.121 *20*; α(L)=0.025 *3*; α(M)=0.0062 *8* α(N)=0.00168 *20*; α(O)=0.00042 *5*; α(P)=7.9×10^{-5} *10*; α(Q)=4.9×10^{-6} *8*

$^{241}_{94}$Pu$_{147}$-9

γ(^{241}Pu) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[a]	δ[e]	α[d]	Comments
x584.431 *12*	0.191 *25*								
586.703 *16*	0.097 *10*	831.587	5/2+	244.8895	7/2+	M1(+E2)	≤0.32	0.185 *8*	α(K)=0.146 *7*; α(L)=0.0289 *11*; α(M)=0.00701 *24* α(N)=0.00191 *7*; α(O)=0.000474 *17*; α(P)=9.0×10^{-5} *4*; α(Q)=5.83×10^{-6} *25*
587.953 *24*	0.099 *10*	810.945	5/2−	222.9879	5/2+	[E1]		0.01055	α(K)=0.00851 *12*; α(L)=0.001543 *22*; α(M)=0.000370 *6* α(N)=0.0001001 *14*; α(O)=2.47×10^{-5} *4*; α(P)=4.57×10^{-6} *7*; α(Q)=2.69×10^{-7} *4*
593.488 *4*	2.70 *4*	755.1743	1/2+	161.6853	1/2+	M1		0.186	α(K)=0.1478 *21*; α(L)=0.0289 *4*; α(M)=0.00701 *10* α(N)=0.00191 *3*; α(O)=0.000474 *7*; α(P)=9.02×10^{-5} *13*; α(Q)=5.88×10^{-6} *9* Mult.: α(K)exp allows an E2 admixture with δ<0.55; however, the placement is from J=1/2 to J=1/2.
598.328 *6*	2.51 *4*	769.270	1/2−	170.9399	3/2+	E1		0.01021	α(K)=0.00823 *12*; α(L)=0.001490 *21*; α(M)=0.000358 *5* α(N)=9.67×10^{-5} *14*; α(O)=2.38×10^{-5} *4*; α(P)=4.42×10^{-6} *7*; α(Q)=2.61×10^{-7} *4*
x598.830 *24*	0.133 *15*					M1+E2	1.2 *3*	0.095 *21*	α(K)=0.072 *18*; α(L)=0.017 *3*; α(M)=0.0042 *7* α(N)=0.00115 *18*; α(O)=0.00028 *5*; α(P)=5.3×10^{-5} *9*; α(Q)=2.9×10^{-6} *7*
602.53 *3*	0.22 *5*	1357.682	1/2,3/2	755.1743	1/2+	M1(+E2)[c]	≤0.82	0.15 *3*	α(K)=0.118 *25*; α(L)=0.024 *4*; α(M)=0.0058 *9* α(N)=0.00159 *24*; α(O)=0.00039 *6*; α(P)=7.5×10^{-5} *12*; α(Q)=4.7×10^{-6} *10*
x605.546 *7*	0.518 *11*					E1,E2			
607.580 *5*	1.57 *4*	769.270	1/2−	161.6853	1/2+	E1		0.00992	α(K)=0.00800 *12*; α(L)=0.001446 *21*; α(M)=0.000347 *5* α(N)=9.38×10^{-5} *14*; α(O)=2.31×10^{-5} *4*; α(P)=4.29×10^{-6} *6*; α(Q)=2.54×10^{-7} *4*
608.229 *9*	0.437 *16*	779.1504	3/2−	170.9399	3/2+	E1		0.00990	α(K)=0.00798 *12*; α(L)=0.001443 *21*; α(M)=0.000346 *5* α(N)=9.36×10^{-5} *14*; α(O)=2.31×10^{-5} *4*; α(P)=4.28×10^{-6} *6*; α(Q)=2.53×10^{-7} *4*
608.608 *10*	0.379 *12*	831.587	5/2+	222.9879	5/2+	M1+E2	0.54 *+23−26*	0.142 *22*	α(K)=0.112 *18*; α(L)=0.023 *3*; α(M)=0.0056 *7* α(N)=0.00152 *18*; α(O)=0.00038 *5*; α(P)=7.1×10^{-5} *9*; α(Q)=4.5×10^{-6} *7*
617.457 *5*	2.17 *3*	779.1504	3/2−	161.6853	1/2+	E1		0.00962	α(K)=0.00777 *11*; α(L)=0.001401 *20*; α(M)=0.000336 *5* α(N)=9.09×10^{-5} *13*; α(O)=2.24×10^{-5} *4*; α(P)=4.15×10^{-6} *6*; α(Q)=2.47×10^{-7} *4*
x618.95 *8*	0.051 *13*								
622.464 *14*	0.190 *12*	784.1525	3/2+	161.6853	1/2+	M1(+E2)	≤0.71	0.142 *23*	α(K)=0.112 *19*; α(L)=0.023 *3*; α(M)=0.0055 *7*

$^{241}_{94}Pu_{147}$-10

γ(^{241}Pu) (continued)

$E_γ$[†]	$I_γ$[‡f]	E_i(level)	$J^π_i$	E_f	$J^π_f$	Mult.[a]	δ[e]	α[d]	Comments
									α(N)=0.00149 *19*; α(O)=0.00037 *5*; α(P)=7.0×10^{-5} *10*; α(Q)=4.5×10^{-6} *8*
^{x}624.02 *4*	0.079 *10*					M1+E2	0.62 *28*	0.126 *23*	α(K)=0.099 *19*; α(L)=0.020 *3*; α(M)=0.0050 *7* α(N)=0.00136 *19*; α(O)=0.00034 *5*; α(P)=6.4×10^{-5} *10*; α(Q)=4.0×10^{-6} *8*
627.552 *5*	1.335 *25*	850.5395	3/2$^−$	222.9879	5/2$^+$	E1		0.00933	α(K)=0.00754 *11*; α(L)=0.001357 *19*; α(M)=0.000325 *5* α(N)=8.80×10^{-5} *13*; α(O)=2.17×10^{-5} *3*; α(P)=4.03×10^{-6} *6*; α(Q)=2.40×10^{-7} *4* Mult.: α(K)exp=0.0110 *17* compared with 0.0075 (E1) and 0.0206 (E2). Placement in the level scheme requires Δπ=yes.
629.539 *6*	1.49 *3*	800.479	5/2$^+$	170.9399	3/2$^+$	M1+E2	0.57 *23*	0.128 *19*	α(K)=0.100 *16*; α(L)=0.0205 *25*; α(M)=0.0050 *6* α(N)=0.00136 *16*; α(O)=0.00034 *4*; α(P)=6.4×10^{-5} *8*; α(Q)=4.0×10^{-6} *6*
^{x}634.193 *23*	0.172 *8*					M1+E2	0.67 *+23−21*	0.117 *18*	α(K)=0.092 *15*; α(L)=0.0191 *23*; α(M)=0.0047 *6* α(N)=0.00127 *15*; α(O)=0.00031 *4*; α(P)=5.9×10^{-5} *8*; α(Q)=3.7×10^{-6} *6*
638.757 *5*	1.079 *25*	800.443	3/2$^+$	161.6853	1/2$^+$	M1+E2	0.68 *22*	0.114 *18*	α(K)=0.089 *15*; α(L)=0.0186 *23*; α(M)=0.0046 *6* α(N)=0.00124 *15*; α(O)=0.00031 *4*; α(P)=5.8×10^{-5} *8*; α(Q)=3.6×10^{-6} *6*
640.001 *6*	1.10 *4*	810.945	5/2$^−$	170.9399	3/2$^+$	E1		0.00900	α(K)=0.00727 *11*; α(L)=0.001306 *19*; α(M)=0.000313 *5* α(N)=8.47×10^{-5} *12*; α(O)=2.09×10^{-5} *3*; α(P)=3.88×10^{-6} *6*; α(Q)=2.31×10^{-7} *4*
^{x}642.25 *3*	0.067 *23*					M1(+E2)	≤1.1	0.12 *4*	α(K)=0.09 *3*; α(L)=0.019 *5*; α(M)=0.0046 *11* α(N)=0.0013 *3*; α(O)=0.00031 *7*; α(P)=5.9×10^{-5} *14*; α(Q)=3.7×10^{-6} *11*
^{x}652.38 *8*	0.111 *11*					E2		0.0290	α(K)=0.0193 *3*; α(L)=0.00717 *10*; α(M)=0.00186 *3* α(N)=0.000507 *8*; α(O)=0.0001231 *18*; α(P)=2.19×10^{-5} *3*; α(Q)=8.19×10^{-7} *12* Mult.: α(K)exp gives δ>5.0.
^{x}656.035 *23*	0.141 *13*					M1+E2	2.0 *+6−3*	0.051 *9*	α(K)=0.038 *7*; α(L)=0.0101 *11*; α(M)=0.0025 *3* α(N)=0.00069 *7*; α(O)=0.000169 *18*; α(P)=3.1×10^{-5} *4*; α(Q)=1.5×10^{-6} *3*
660.625 *13*	0.59 *3*	831.587	5/2$^+$	170.9399	3/2$^+$	M1+E2	0.54 *24*	0.114 *17*	α(K)=0.090 *14*; α(L)=0.0183 *23*; α(M)=0.0045 *6* α(N)=0.00121 *15*; α(O)=0.00030 *4*; α(P)=5.7×10^{-5} *8*; α(Q)=3.6×10^{-6} *6*
^{x}663.37 *3*	0.08 *7*					M1+E2	2.8 *+6−3*	0.040 *4*	α(K)=0.029 *3*; α(L)=0.0085 *5*; α(M)=0.00215 *12* α(N)=0.00059 *4*; α(O)=0.000144 *8*; α(P)=2.61×10^{-5} *16*; α(Q)=1.20×10^{-6} *12*
671.007 *9*	0.303 *14*	841.9575	1/2$^−$	170.9399	3/2$^+$	E1		0.00824	α(K)=0.00667 *10*; α(L)=0.001192 *17*; α(M)=0.000286 *4* α(N)=7.72×10^{-5} *11*; α(O)=1.91×10^{-5} *3*; α(P)=3.54×10^{-6} *5*; α(Q)=2.13×10^{-7} *3*

γ(^{241}Pu) (continued)

Eγ[†]	Iγ[‡f]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[a]	δ[e]	α[d]	Comments
680.274 *16*	0.376 *10*	841.9575	1/2⁻	161.6853	1/2⁺	(E1)		0.00804	α(K)=0.00650 *10*; α(L)=0.001161 *17*; α(M)=0.000278 *4* α(N)=7.52×10^{-5} *11*; α(O)=1.86×10^{-5} *3*; α(P)=3.45×10^{-6} *5*; α(Q)=2.08×10^{-7} *3* Mult.: α(K)exp=0.0114 *4* compared with 0.0065 (E1) and 0.0179 (E2). Placement in the level scheme requires Δπ=yes.
688.851 *14*	0.678 *24*	850.5395	3/2⁻	161.6853	1/2⁺	E1		0.00785	α(K)=0.00636 *9*; α(L)=0.001133 *16*; α(M)=0.000271 *4* α(N)=7.34×10^{-5} *11*; α(O)=1.81×10^{-5} *3*; α(P)=3.37×10^{-6} *5*; α(Q)=2.03×10^{-7} *3*
ˣ698.661 *24*	0.143 *8*					M1+E2	3.2 +*15*−*7*	0.034 *5*	α(K)=0.024 *4*; α(L)=0.0070 *7*; α(M)=0.00179 *15* α(N)=0.00049 *4*; α(O)=0.000119 *11*; α(P)=2.17×10^{-5} *20*; α(Q)=9.9×10^{-7} *16*
704.70 *14*	0.093 *25*	800.479	5/2⁺	95.7795	9/2⁺	E2		0.0247	α(K)=0.01687 *24*; α(L)=0.00578 *8*; α(M)=0.001487 *21* α(N)=0.000406 *6*; α(O)=9.87×10^{-5} *14*; α(P)=1.770×10^{-5} *25*; α(Q)=7.03×10^{-7} *10* Mult.: α(K)exp gives δ>4.2.
ˣ708.01 *6*	0.138 *23*					M1+E2	1.2 +*5*−*3*	0.062 *14*	α(K)=0.048 *12*; α(L)=0.0107 *19*; α(M)=0.0026 *5* α(N)=0.00072 *12*; α(O)=0.00018 *3*; α(P)=3.3×10^{-5} *6*; α(Q)=1.9×10^{-6} *5* Eγ: Placed by the authors from the 869 level; however, that placement requires ΔJ=2, and α(K)exp=0.050 *11* compared with 0.0167 (E2) and 0.092 (M1) requires an M1 admixture.
726.562 *22*	0.180 *8*	897.503?	(5/2⁻)	170.9399	3/2⁺				Mult.: α(K)exp=0.017 3 is consistent with mult=E2; however; the authors' suggested J^π(897 level) requires Δπ=yes. Mult=E1+M2 would require δ=0.24 4. See comment on J^π(897 level) in Adopted Levels.
ˣ737.922 *20*	0.219 *14*					M1(+E2)	≤0.6	0.093 *11*	α(K)=0.074 *9*; α(L)=0.0146 *15*; α(M)=0.0035 *4* α(N)=0.00096 *10*; α(O)=0.000240 *24*; α(P)=4.6×10^{-5} *5*; α(Q)=2.9×10^{-6} *4*
ˣ742.250 *9*	1.09 *4*					M1+E2	1.1 +*3*−*2*	0.058 *10*	α(K)=0.045 *8*; α(L)=0.0099 *13*; α(M)=0.0024 *3* α(N)=0.00066 *8*; α(O)=0.000164 *20*; α(P)=3.1×10^{-5} *4*; α(Q)=1.8×10^{-6} *3*
ˣ749.67 *5*	0.240 *25*					E2		0.0217	α(K)=0.01515 *22*; α(L)=0.00489 *7*; α(M)=0.001252 *18* α(N)=0.000342 *5*; α(O)=8.32×10^{-5} *12*; α(P)=1.498×10^{-5} *21*; α(Q)=6.23×10^{-7} *9* Mult.: α(K)exp gives δ>3.5.
ˣ750.19 *4*	0.31 *4*					M1+E2	0.9 +*3*−*2*	0.065 *12*	α(K)=0.050 *10*; α(L)=0.0107 *15*; α(M)=0.0026 *4* α(N)=0.00071 *10*; α(O)=0.000176 *25*; α(P)=3.3×10^{-5} *5*; α(Q)=2.0×10^{-6} *4*
ˣ751.16 *6*	0.125 *22*					M1+E2	3.0 +*31*−*8*	0.029 *6*	α(K)=0.021 *5*; α(L)=0.0059 *8*; α(M)=0.00149 *19* α(N)=0.00041 *5*; α(O)=0.000100 *13*; α(P)=1.82×10^{-5} *25*; α(Q)=8.7×10^{-7} *19*

$^{241}_{94}Pu_{147}$-12

γ(^{241}Pu) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[a]	δ[e]	α[d]	Comments
[x]751.92 *6*	0.126 *22*					M1+E2	0.9 *3*	0.064 *15*	α(K)=0.050 *12*; α(L)=0.0106 *20*; α(M)=0.0026 *5* α(N)=0.00071 *13*; α(O)=0.00018 *3*; α(P)=3.3×10^{-5} *6*; α(Q)=2.0×10^{-6} *5*
755.154 *14*	0.58 *5*	755.1743	1/2$^+$	0	5/2$^+$	E2		0.0214	α(K)=0.01496 *21*; α(L)=0.00479 *7*; α(M)=0.001227 *18* α(N)=0.000335 *5*; α(O)=8.15×10^{-5} *12*; α(P)=1.470×10^{-5} *21*; α(Q)=6.14×10^{-7} *9* Mult.: α(K)exp gives δ>3.2.
758.494[g#]	≤0.400[g#]	800.443	3/2$^+$	41.9722	7/2$^+$				
758.494[g#]	≤0.400[g#]	800.479	5/2$^+$	41.9722	7/2$^+$				
[x]760.13 *8*	0.084 *21*					M1		0.0960	α(K)=0.0763 *11*; α(L)=0.01483 *21*; α(M)=0.00359 *5* α(N)=0.000976 *14*; α(O)=0.000243 *4*; α(P)=4.62×10^{-5} *7*; α(Q)=3.02×10^{-6} *5* Mult.: The authors suggest an E0 component, but α(K)exp=0.11 *3* overlaps the M1 value of 0.082.
765.23 *3*	0.212 *16*	940.311	3/2$^+$	175.0523	7/2$^+$				Mult.: α(K)exp=0.0090 *19* compared with 0.0053 (E1) and 0.0146 (E2). The probable J^π of the 940 level requires Δπ=no. See comment on J^π(940 level) in Adopted Levels.
771.64 *4*	0.16 *8*	942.584	3/2$^+$	170.9399	3/2$^+$	M1+E2	1.5 *+52−7*	0.043 *22*	α(K)=0.033 *18*; α(L)=0.008 *3*; α(M)=0.0019 *7* α(N)=0.00051 *19*; α(O)=0.00013 *5*; α(P)=2.3×10^{-5} *10*; α(Q)=1.3×10^{-6} *7*
772.645 *21*	0.49 *5*	995.603	3/2$^-$	222.9879	5/2$^+$	E1		0.00638	α(K)=0.00517 *8*; α(L)=0.000912 *13*; α(M)=0.000218 *3* α(N)=5.90×10^{-5} *9*; α(O)=1.457×10^{-5} *21*; α(P)=2.72×10^{-6} *4*; α(Q)=1.665×10^{-7} *24* Mult.: On the authors′ level scheme, Fig. 1, the mult for this transition is shown as M1. This is a typo. The mult is given as E1 in table I based on α(K)exp.
773.59 *4*	0.197 *21*	869.383	7/2$^+$	95.7795	9/2$^+$	M1+E2	1.2 *+4−3*	0.050 *11*	α(K)=0.038 *9*; α(L)=0.0084 *14*; α(M)=0.0021 *4* α(N)=0.00057 *9*; α(O)=0.000140 *23*; α(P)=2.6×10^{-5} *5*; α(Q)=1.5×10^{-6} *4*
777.89 *5*	0.132 *13*	1296.70	3/2$^-$	518.8121	5/2$^-$	M1+E2	0.88 *+30−24*	0.060 *11*	α(K)=0.047 *9*; α(L)=0.0098 *14*; α(M)=0.0024 *4* α(N)=0.00065 *9*; α(O)=0.000162 *23*; α(P)=3.0×10^{-5} *5*; α(Q)=1.9×10^{-6} *4*
780.889 *8*	1.90 *3*	942.584	3/2$^+$	161.6853	1/2$^+$	M1+E2	0.57 *23*	0.072 *10*	α(K)=0.057 *9*; α(L)=0.0115 *14*; α(M)=0.0028 *4* α(N)=0.00076 *9*; α(O)=0.000189 *23*; α(P)=3.6×10^{-5} *5*; α(Q)=2.3×10^{-6} *4*
784.153 *16*	0.518 *16*	784.1525	3/2$^+$	0	5/2$^+$	E2		0.0198	α(K)=0.01401 *20*; α(L)=0.00434 *6*; α(M)=0.001107 *16* α(N)=0.000302 *5*; α(O)=7.36×10^{-5} *11*; α(P)=1.331×10^{-5} *19*; α(Q)=5.71×10^{-7} *8* Mult.: α(K)exp gives δ>3.1.
786.454 *16*	0.49 *3*	1009.438	3/2$^-$	222.9879	5/2$^+$	[E1]		0.00618	α(K)=0.00501 *7*; α(L)=0.000882 *13*; α(M)=0.000211 *3* α(N)=5.70×10^{-5} *8*; α(O)=1.409×10^{-5} *20*; α(P)=2.63×10^{-6} *4*; α(Q)=1.614×10^{-7} *23*

γ(^{241}Pu) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[a]	δ[e]	α[d]	Comments
789.63 4	0.218 23	831.587	5/2+	41.9722	7/2+	M1+E2	0.6 3	0.069 13	α(K)=0.054 10; α(L)=0.0110 17; α(M)=0.0027 4 α(N)=0.00073 11; α(O)=0.00018 3; α(P)=3.4×10^{-5} 6; α(Q)=2.2×10^{-6} 4
793.95 5	1.08 8	964.940	1/2−	170.9399	3/2+	[E1]		0.00607	α(K)=0.00493 7; α(L)=0.000866 13; α(M)=0.000207 3 α(N)=5.60×10^{-5} 8; α(O)=1.384×10^{-5} 20; α(P)=2.58×10^{-6} 4; α(Q)=1.588×10^{-7} 23
^{x}794.27 5	1.13 8					M1+E2	0.83 +26−22	0.058 9	α(K)=0.046 8; α(L)=0.0095 13; α(M)=0.0023 3 α(N)=0.00063 8; α(O)=0.000157 20; α(P)=3.0×10^{-5} 4; α(Q)=1.8×10^{-6} 3
800.461[g&]	≤0.767[g&]	800.443	3/2+	0	5/2+				
800.461[g&]	≤0.767[g&]	800.479	5/2+	0	5/2+				
803.265 19	0.583 16	964.940	1/2−	161.6853	1/2+	E1		0.00595	α(K)=0.00483 7; α(L)=0.000848 12; α(M)=0.000203 3 α(N)=5.48×10^{-5} 8; α(O)=1.355×10^{-5} 19; α(P)=2.53×10^{-6} 4; α(Q)=1.557×10^{-7} 22
^{x}811.982 19	0.480 23					M1+E2	1.25 +35−24	0.043 7	α(K)=0.033 6; α(L)=0.0073 10; α(M)=0.00179 22 α(N)=0.00049 6; α(O)=0.000120 15; α(P)=2.3×10^{-5} 3; α(Q)=1.31×10^{-6} 22
833.904 13	0.81 3	995.603	3/2−	161.6853	1/2+	E1		0.00557	α(K)=0.00452 7; α(L)=0.000791 11; α(M)=0.000189 3 α(N)=5.11×10^{-5} 8; α(O)=1.264×10^{-5} 18; α(P)=2.36×10^{-6} 4; α(Q)=1.460×10^{-7} 21
834.837 17	0.51 3	834.839	3/2+,5/2+,7/2+	0	5/2+	M1+E2	0.94 +25−20	0.048 7	α(K)=0.037 6; α(L)=0.0079 10; α(M)=0.00192 22 α(N)=0.00052 6; α(O)=0.000129 15; α(P)=2.4×10^{-5} 3; α(Q)=1.48×10^{-6} 22
^{x}838.646 22	0.449 24					E2		0.01736	α(K)=0.01246 18; α(L)=0.00365 6; α(M)=0.000926 13 α(N)=0.000253 4; α(O)=6.17×10^{-5} 9; α(P)=1.119×10^{-5} 16; α(Q)=5.02×10^{-7} 7 Mult.: α(K)exp gives δ>3.0.
^{x}844.200 20	0.31 5					M1+E2	1.5 +6−4	0.034 8	α(K)=0.026 7; α(L)=0.0059 11; α(M)=0.0015 3 α(N)=0.00040 7; α(O)=9.8×10^{-5} 18; α(P)=1.8×10^{-5} 4; α(Q)=1.0×10^{-6} 3
^{x}845.07 5	0.215 23					E1		0.00544	α(K)=0.00442 7; α(L)=0.000772 11; α(M)=0.000184 3 α(N)=4.99×10^{-5} 7; α(O)=1.233×10^{-5} 18; α(P)=2.31×10^{-6} 4; α(Q)=1.428×10^{-7} 20
^{x}848.12 6	0.172 22								
^{x}853.31 6	0.106 12					M1+E2	1.2 +4−3	0.039 8	α(K)=0.030 7; α(L)=0.0065 11; α(M)=0.0016 3 α(N)=0.00044 7; α(O)=0.000108 17; α(P)=2.0×10^{-5} 4; α(Q)=1.19×10^{-6} 25

$^{241}_{94}$Pu$_{147}$-14

$\gamma(^{241}$Pu) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ[e]	α[d]	Comments
[x]876.58 *10*	0.28 *10*					E1,E2			
[x]892.934 *18*	0.419 *21*					M1(+E2)	≤0.36	0.060 *3*	α(K)=0.0475 *23*; α(L)=0.0093 *4*; α(M)=0.00224 *10* α(N)=0.00061 *3*; α(O)=0.000152 *7*; α(P)=2.88×10^{-5} *13*; α(Q)=1.87×10^{-6} *9*
[x]931.667 *20*	0.74 *4*					M1+E2	1.5 +*4*−*3*	0.027 *5*	α(K)=0.021 *4*; α(L)=0.0046 *6*; α(M)=0.00113 *14* α(N)=0.00031 *4*; α(O)=7.6×10^{-5} *10*; α(P)=1.42×10^{-5} *19*; α(Q)=8.2×10^{-7} *14*
940.315 *12*	2.21 *9*	940.311	3/2$^+$	0	5/2$^+$	M1+E2	1.09 +*28*−*21*	0.032 *5*	α(K)=0.025 *4*; α(L)=0.0053 *7*; α(M)=0.00130 *15* α(N)=0.00035 *4*; α(O)=8.8×10^{-5} *10*; α(P)=1.65×10^{-5} *20*; α(Q)=1.00×10^{-6} *15*
[x]941.12 *3*	1.23 *6*					E2		0.01387	α(K)=0.01020 *15*; α(L)=0.00274 *4*; α(M)=0.000689 *10* α(N)=0.000188 *3*; α(O)=4.60×10^{-5} *7*; α(P)=8.41×10^{-6} *12*; α(Q)=4.03×10^{-7} *6*
942.58[h] *4*	0.49 *6*	942.584	3/2$^+$	0	5/2$^+$				Mult.: α(K)exp=0.0040 *8*, consistent with the E1 value of 0.0045; however, placement requires $\Delta\pi$=no.
[x]953.20 *4*	0.73 *5*					E2		0.01354	α(K)=0.00998 *14*; α(L)=0.00265 *4*; α(M)=0.000668 *10* α(N)=0.000182 *3*; α(O)=4.46×10^{-5} *7*; α(P)=8.15×10^{-6} *12*; α(Q)=3.93×10^{-7} *6* Mult.: α(K)exp gives δ>4.1.
[x]958.30 *11*	0.17 *4*					E2		0.01340	α(K)=0.00989 *14*; α(L)=0.00262 *4*; α(M)=0.000659 *10* α(N)=0.000180 *3*; α(O)=4.40×10^{-5} *7*; α(P)=8.05×10^{-6} *12*; α(Q)=3.89×10^{-7} *6*
[x]965.07 *12*	0.15 *4*								
[x]967.46 *13*	0.19 *4*								
[x]973.70 *10*	0.55 *11*					M1+E2	3 +*7*−*1*	0.017 *4*	α(K)=0.013 *3*; α(L)=0.0030 *6*; α(M)=0.00075 *13* α(N)=0.00021 *4*; α(O)=5.1×10^{-5} *9*; α(P)=9.3×10^{-6} *16*; α(Q)=5.0×10^{-7} *12*
[x]999.37 *15*	0.175 *24*					M1+E2+E0		0.029 *17*	α(K)=0.023 *14*; α(L)=0.0047 *24*; α(M)=0.0012 *6* α(N)=0.00031 *16*; α(O)=8.E−5 *4*; α(P)=1.5×10^{-5} *8*; α(Q)=9.E−7 *6* Mult.: α(K)exp=0.58 12 compared with α(K)=0.040 for mult=M1 indicates the presence of an E0 component.
[x]1003.25 *9*	0.34 *3*					E2		0.01228	α(K)=0.00913 *13*; α(L)=0.00235 *4*; α(M)=0.000589 *9* α(N)=0.0001604 *23*; α(O)=3.93×10^{-5} *6*; α(P)=7.21×10^{-6} *11*; α(Q)=3.57×10^{-7} *5* Mult.: α(K)exp gives δ>3.3.
[x]1006.21 *13*	0.47 *15*					E1		0.00401	α(K)=0.00326 *5*; α(L)=0.000562 *8*; α(M)=0.0001341 *19* α(N)=3.63×10^{-5} *5*; α(O)=8.98×10^{-6} *13*; α(P)=1.685×10^{-6} *24*; α(Q)=1.064×10^{-7} *15*
[x]1006.95 *12*	0.57 *15*								
[x]1009.30 *10*	0.31 *11*								
[x]1020.39 *6*	0.28 *7*					E2		0.01189	α(K)=0.00887 *13*; α(L)=0.00226 *4*; α(M)=0.000565 *8*

$^{241}_{94}$Pu$_{147}$-15

γ(^{241}Pu) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[a]	δ[e]	α[d]	Comments
									α(N)=0.0001539 22; α(O)=3.77×10^{-5} 6; α(P)=6.93×10^{-6} 10; α(Q)=3.46×10^{-7} 5
[x]1022.95 7	0.28 4					E2		0.01183	α(K)=0.00883 13; α(L)=0.00224 4; α(M)=0.000562 8 α(N)=0.0001529 22; α(O)=3.75×10^{-5} 6; α(P)=6.89×10^{-6} 10; α(Q)=3.44×10^{-7} 5 Mult.: α(K)exp gives δ>2.8.
[x]1025.98 7	0.29 4					E1		0.00387	α(K)=0.00316 5; α(L)=0.000543 8; α(M)=0.0001295 19 α(N)=3.50×10^{-5} 5; α(O)=8.67×10^{-6} 13; α(P)=1.628×10^{-6} 23; α(Q)=1.030×10^{-7} 15
[x]1034.75 18	0.26 3					E1		0.00382	α(K)=0.00311 5; α(L)=0.000535 8; α(M)=0.0001275 18 α(N)=3.45×10^{-5} 5; α(O)=8.54×10^{-6} 12; α(P)=1.604×10^{-6} 23; α(Q)=1.015×10^{-7} 15
[x]1037.26 10	0.27 4								
[x]1039.89 13	0.19 4					M1(+E2)	≤0.95	0.034 8	α(K)=0.027 6; α(L)=0.0054 10; α(M)=0.00131 24 α(N)=0.00036 7; α(O)=8.8×10^{-5} 17; α(P)=1.7×10^{-5} 4; α(Q)=1.07×10^{-6} 23
[x]1045.00 6	0.36 7					E1,E2			
1052.93 3	0.82 4	1223.841	1/2,3/2	170.9399	3/2$^+$	E1[c]		0.00370	α(K)=0.00302 5; α(L)=0.000519 8; α(M)=0.0001236 18 α(N)=3.34×10^{-5} 5; α(O)=8.28×10^{-6} 12; α(P)=1.555×10^{-6} 22; α(Q)=9.86×10^{-8} 14
[x]1060.64 15	0.21 4					E1,E2			
[x]1062.31 4	0.81 11					E1		0.00365	α(K)=0.00297 5; α(L)=0.000510 8; α(M)=0.0001216 17 α(N)=3.29×10^{-5} 5; α(O)=8.15×10^{-6} 12; α(P)=1.531×10^{-6} 22; α(Q)=9.72×10^{-8} 14
[x]1064.28 11	0.21 4					M1+E2	0.9 +5−3	0.027 6	α(K)=0.021 5; α(L)=0.0042 9; α(M)=0.00103 21 α(N)=0.00028 6; α(O)=7.0×10^{-5} 14; α(P)=1.3×10^{-5} 3; α(Q)=8.2×10^{-7} 20
[x]1073.00 10	0.38 5					E1,E2			
[x]1074.44 11	0.46 5								
[x]1078.15 7	0.32 7								
1082.80 4	0.62 4	1253.792	1/2$^-$,3/2$^-$	170.9399	3/2$^+$	E1		0.00353	α(K)=0.00288 4; α(L)=0.000493 7; α(M)=0.0001176 17 α(N)=3.18×10^{-5} 5; α(O)=7.88×10^{-6} 11; α(P)=1.481×10^{-6} 21; α(Q)=9.42×10^{-8} 14
[x]1089.94 4	1.06 8					E1		0.00349	α(K)=0.00285 4; α(L)=0.000488 7; α(M)=0.0001162 17 α(N)=3.14×10^{-5} 5; α(O)=7.79×10^{-6} 11; α(P)=1.464×10^{-6} 21; α(Q)=9.31×10^{-8} 13
1092.08 5	0.88 6	1253.792	1/2$^-$,3/2$^-$	161.6853	1/2$^+$	E1		0.00348	α(K)=0.00284 4; α(L)=0.000486 7; α(M)=0.0001158 17 α(N)=3.13×10^{-5} 5; α(O)=7.76×10^{-6} 11; α(P)=1.459×10^{-6} 21; α(Q)=9.28×10^{-8} 13
[x]1134.44 8	0.53 4					E1		0.00326	α(K)=0.00266 4; α(L)=0.000455 7; α(M)=0.0001082 16 α(N)=2.93×10^{-5} 4; α(O)=7.26×10^{-6} 11; α(P)=1.365×10^{-6}

$^{241}_{94}$Pu$_{147}$-16

γ(^{241}Pu) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	Mult.[a]	δ[e]	α[d]	Comments
						20; α(Q)=8.72×10^{-8} 13 α(IPF)=1.669×10^{-6} 24
^{x}1146.49 8	0.44 4		E1,E2			
^{x}1155.26 10	0.39 3		E1,E2			
^{x}1170.02 6	0.63 4		M1+E2	2.2 +9−5	0.0128 19	α(K)=0.0099 15; α(L)=0.0022 3; α(M)=0.00053 7 α(N)=0.000145 17; α(O)=3.6×10^{-5} 5; α(P)=6.7×10^{-6} 9; α(Q)=3.9×10^{-7} 6; α(IPF)=1.76×10^{-6} 23
^{x}1174.00 15	0.23 4					
^{x}1177.84 10	0.40 4					
^{x}1180.64 7	0.60 6		M1+E2	2.4 +18−6	0.0121 20	α(K)=0.0094 16; α(L)=0.0020 3; α(M)=0.00050 7 α(N)=0.000137 18; α(O)=3.4×10^{-5} 5; α(P)=6.3×10^{-6} 9; α(Q)=3.6×10^{-7} 7; α(IPF)=2.3×10^{-6} 4
^{x}1196.31 20	0.60 5		E1,E2			
^{x}1200.87 11	0.42 5		M1+E2	1.6 +7−4	0.014 3	α(K)=0.0112 21; α(L)=0.0023 4; α(M)=0.00057 9 α(N)=0.000156 24; α(O)=3.9×10^{-5} 6; α(P)=7.2×10^{-6} 12; α(Q)=4.3×10^{-7} 9; α(IPF)=4.6×10^{-6} 8
^{x}1203.34 8	0.54 5		E1,E2			
^{x}1206.57 5	1.34 7		M1+E2	2.0 +8−5	0.0126 21	α(K)=0.0098 17; α(L)=0.0021 3; α(M)=0.00051 8 α(N)=0.000139 20; α(O)=3.4×10^{-5} 5; α(P)=6.5×10^{-6} 10; α(Q)=3.8×10^{-7} 7; α(IPF)=4.6×10^{-6} 7
^{x}1214.65 12	0.48 4		E1,E2			
^{x}1228.02 19	0.36 7		E1,E2			
^{x}1235.28 8	0.57 5		M1+E2	1.9 +11−5	0.0122 22	α(K)=0.0095 18; α(L)=0.0020 4; α(M)=0.00049 8 α(N)=0.000134 21; α(O)=3.3×10^{-5} 5; α(P)=6.2×10^{-6} 10; α(Q)=3.7×10^{-7} 7; α(IPF)=8.0×10^{-6} 13
^{x}1255.32 11	0.64 4		M1(+E2)	≤0.67	0.023 3	α(K)=0.0179 22; α(L)=0.0035 4; α(M)=0.00084 10 α(N)=0.000229 25; α(O)=5.7×10^{-5} 7; α(P)=1.08×10^{-5} 12; α(Q)=7.0×10^{-7} 9; α(IPF)=1.96×10^{-5} 23
^{x}1266.14 11	0.60 7		E1		0.00274	α(K)=0.00221 3; α(L)=0.000375 6; α(M)=8.93×10^{-5} 13 α(N)=2.41×10^{-5} 4; α(O)=5.99×10^{-6} 9; α(P)=1.129×10^{-6} 16; α(Q)=7.28×10^{-8} 11; α(IPF)=3.01×10^{-5} 5
^{x}1267.95 10	0.85 11		E1		0.00273	α(K)=0.00220 3; α(L)=0.000374 6; α(M)=8.90×10^{-5} 13 α(N)=2.41×10^{-5} 4; α(O)=5.97×10^{-6} 9; α(P)=1.126×10^{-6} 16; α(Q)=7.26×10^{-8} 11; α(IPF)=3.07×10^{-5} 5
^{x}1276.7 12	0.57 10					
^{x}1301.0 14	0.49 9					
^{x}1303.5 4	0.30 6		E1,E2			
^{x}1315.59 6	0.96 5		E1,E2			
^{x}1332.30 15	0.85 8		E1,E2			
^{x}1352.64 10	0.63 14		E2		0.00705	α(K)=0.00544 8; α(L)=0.001196 17; α(M)=0.000295 5 α(N)=8.01×10^{-5} 12; α(O)=1.97×10^{-5} 3; α(P)=3.67×10^{-6} 6; α(Q)=2.05×10^{-7} 3;

$^{241}_{94}$Pu$_{147}$-17

γ(^{241}Pu) (continued)

$E_γ$ [†]	$I_γ$ [‡f]	E_i(level)	Mult. [a]	δ [e]	α [d]	Comments
						α(IPF)=2.10×10^{-5} *3* Mult.: α(K)exp gives δ>1.4.
^{x}1378.52 *22*	0.26 *4*		E2		0.00682	α(K)=0.00526 *8*; α(L)=0.001148 *16*; α(M)=0.000283 *4* α(N)=7.68×10^{-5} *11*; α(O)=1.89×10^{-5} *3*; α(P)=3.53×10^{-6} *5*; α(Q)=1.98×10^{-7} *3*; α(IPF)=2.60×10^{-5} *4* Mult.: α(K)exp gives δ>2.1.
^{x}1393.49 *10*	0.77 *5*		M1(+E2)	≤0.85	0.017 *3*	α(K)=0.0131 *21*; α(L)=0.0025 *4*; α(M)=0.00061 *9* α(N)=0.000167 *25*; α(O)=4.2×10^{-5} *7*; α(P)=7.9×10^{-6} *12*; α(Q)=5.1×10^{-7} *9*; α(IPF)=6.9×10^{-5} *11*
^{x}1423.89 *20*	0.59 *11*					
^{x}1491.35 *11*	0.80 *13*		M1+E2	1.0 *+7−3*	0.0110 *25*	α(K)=0.0086 *20*; α(L)=0.0017 *4*; α(M)=0.00041 *9* α(N)=0.000112 *23*; α(O)=2.8×10^{-5} *6*; α(P)=5.3×10^{-6} *12*; α(Q)=3.3×10^{-7} *8*; α(IPF)=9.7×10^{-5} *22*
^{x}1502.8 *3*	0.48 *10*		E1,E2			
^{x}1512.38 *13*	0.70 *7*		E1		0.00217	α(K)=0.001645 *23*; α(L)=0.000277 *4*; α(M)=6.58×10^{-5} *10* α(N)=1.779×10^{-5} *25*; α(O)=4.42×10^{-6} *7*; α(P)=8.34×10^{-7} *12*; α(Q)=5.46×10^{-8} *8* α(IPF)=0.0001569 *22*

[†] The uncertainties do not include the calibration uncertainty of 20 ppm. Note that the transitions listed in the authors′ table I with energies between the 999.37 and 1052.927 transitions should have the decimal point shifted one place to the right.

[‡] Intensity per 100 neutron captures, obtained by the authors under the assumption that they observe about 95% of the transitions feeding the ground state.

[#] The authors report E=758.494 *15* with Iγ=0.377 *23* doubly placed from the 800.44 and 800.48 levels. These transitions are not included in the least-squares fit. For these placements, the least-squares fit gives Eγ=758.470 *6* and Eγ=758.506 *6*, respectively. α(K)exp=0.0080 *16* for the doublet, compared with 0.00534 (E1) and 0.0148 (E2). Both placements require Δπ=no.

[@] The authors report E=496.217 *4* with Iγ=0.489 *9* doubly placed from the 833 and 1297 levels. This transition is not included in the least-squares fit for the 1297 level. The output yields an expected energy of Eγ=496.26 *5*. The 496γ is the only transition shown de-exciting the 833 level. The evaluator adopts Eγ=496.2 *1* for this placement, yielding E(level)=833.3 *1*. α(K)exp=0.0140 *22* compared with 0.0117 (E1) and 0.0313 (E2) suggests that both components are E1; however, α(K)exp could be reproduced with a weak E2 component with intensity Iγ=0.05 *5*. Placement from the 1297 level requires Δπ=yes so there is a slight possibility that the component from the 833 level is E2, in which case π(833 level) would be +.

[&] The authors report E=800.461 *11* with Iγ=0.742 *25* doubly placed from the 800.44 and 800.48 levels. These transitions are not included in the least-squares fit. For these placements, the least-squares fit gives Eγ=800.443 *5* and Eγ=800.478 *6*, respectively. α(K)exp gives mult=M1+E2 for the doublet, consistent with both placements requiring Δπ=no.

[a] From conversion coefficient and subshell ratio data of the authors. The conversion coefficients are normalized to values of known E1 and E2 transitions (unspecified). The evaluator has reanalyzed the authors′ ce for subshells data using the internal conversion coefficient calculations of 2008Ki07 so the deduced δ values are slightly different from those of the authors, who used the calculations of 1968Ha53.

[b] Non-observation of ce lines and the observed Iγ is consistent only with mult=E1.

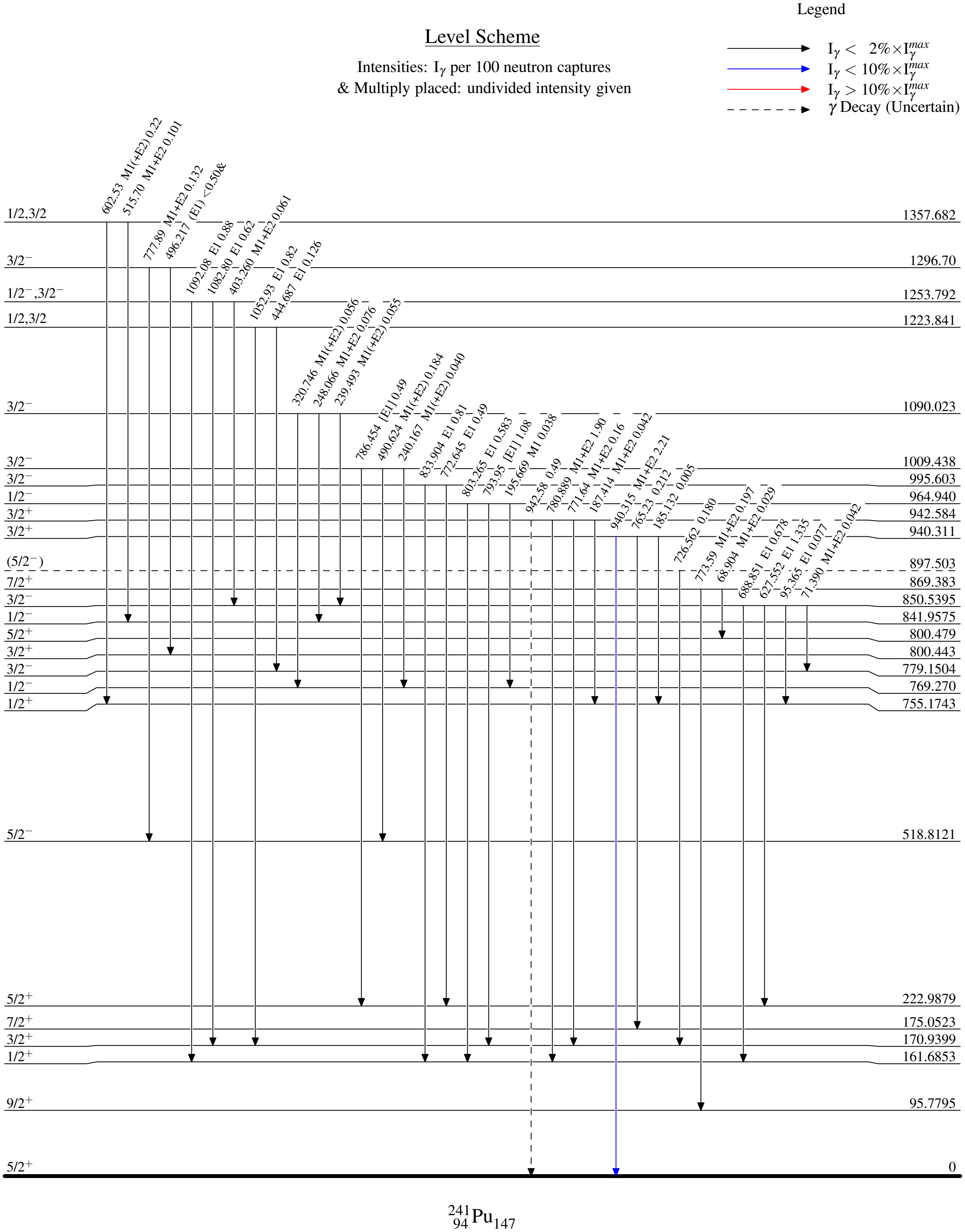
[c] Refer to Adopted Levels, Gammas for comments on $J^π$ and multi.

[d] Additional information 1.

γ(^{241}Pu) (continued)

[e] If No value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
[f] Intensity per 100 neutron captures.
[g] Multiply placed with undivided intensity.
[h] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

^{240}Pu(n,γ) E=th:secondary γ's 1998Wh01



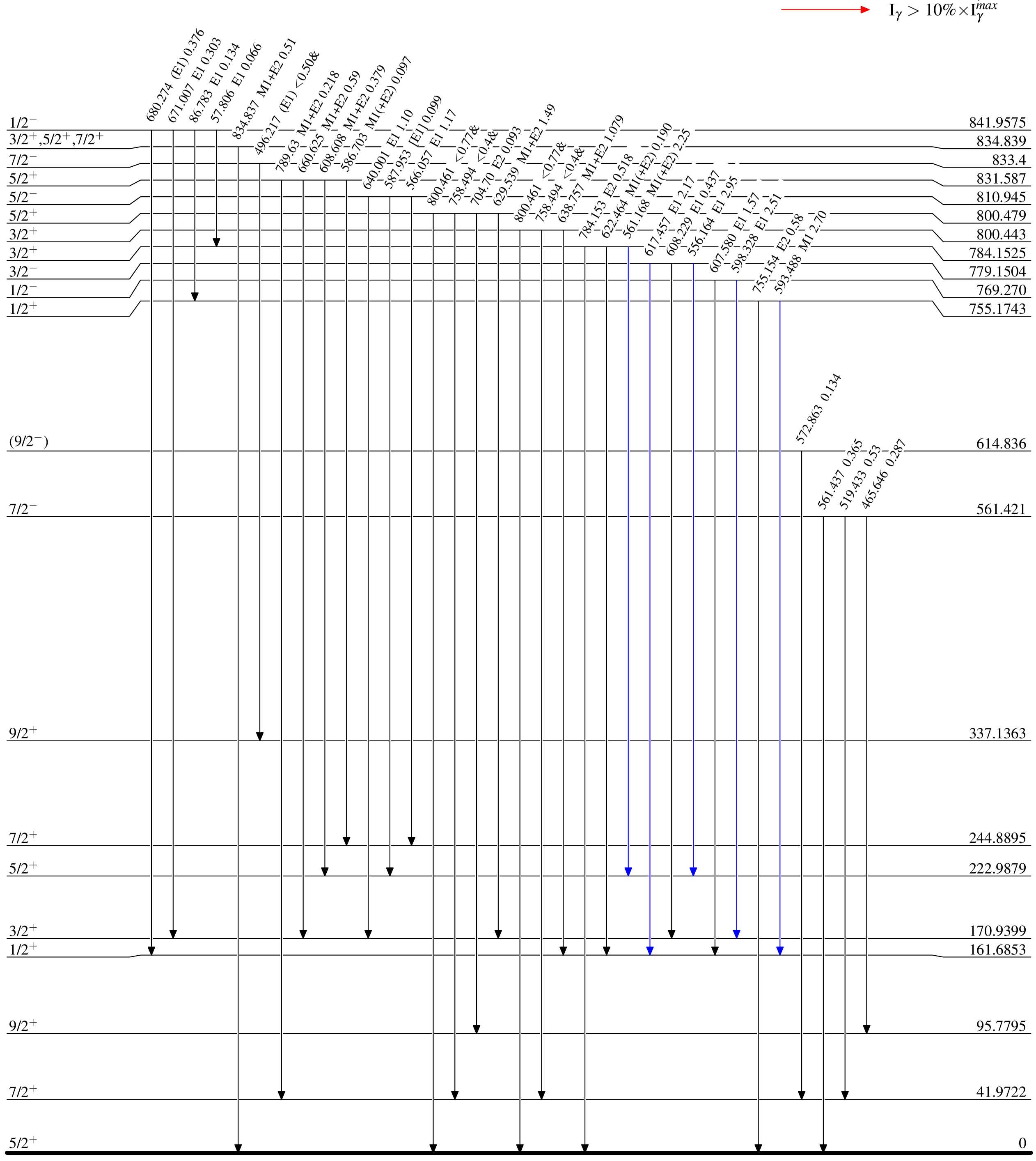
^{240}Pu(n,γ) E=th:secondary γ's 1998Wh01

Level Scheme (continued)

Intensities: I_γ per 100 neutron captures
& Multiply placed: undivided intensity given

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$

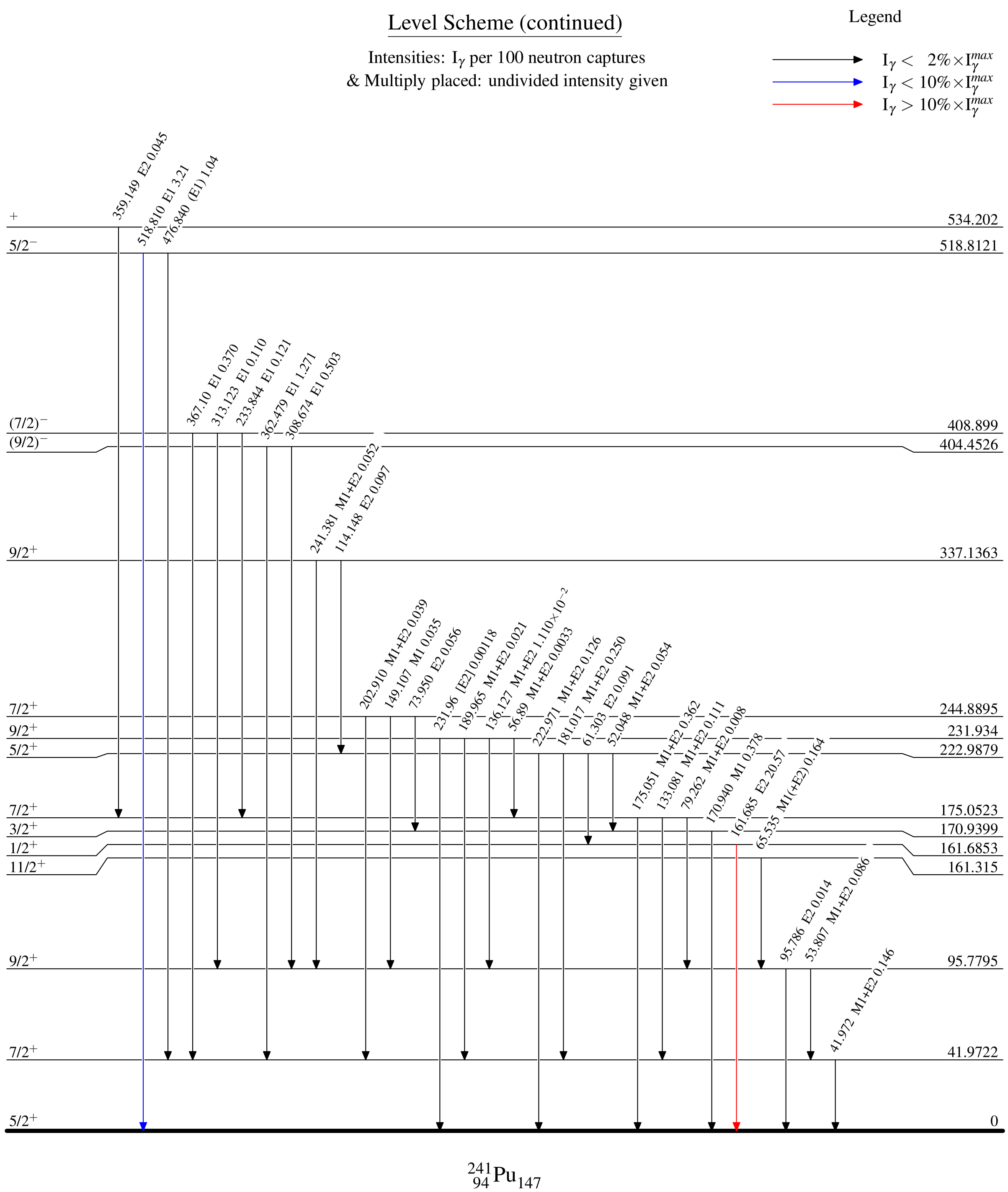


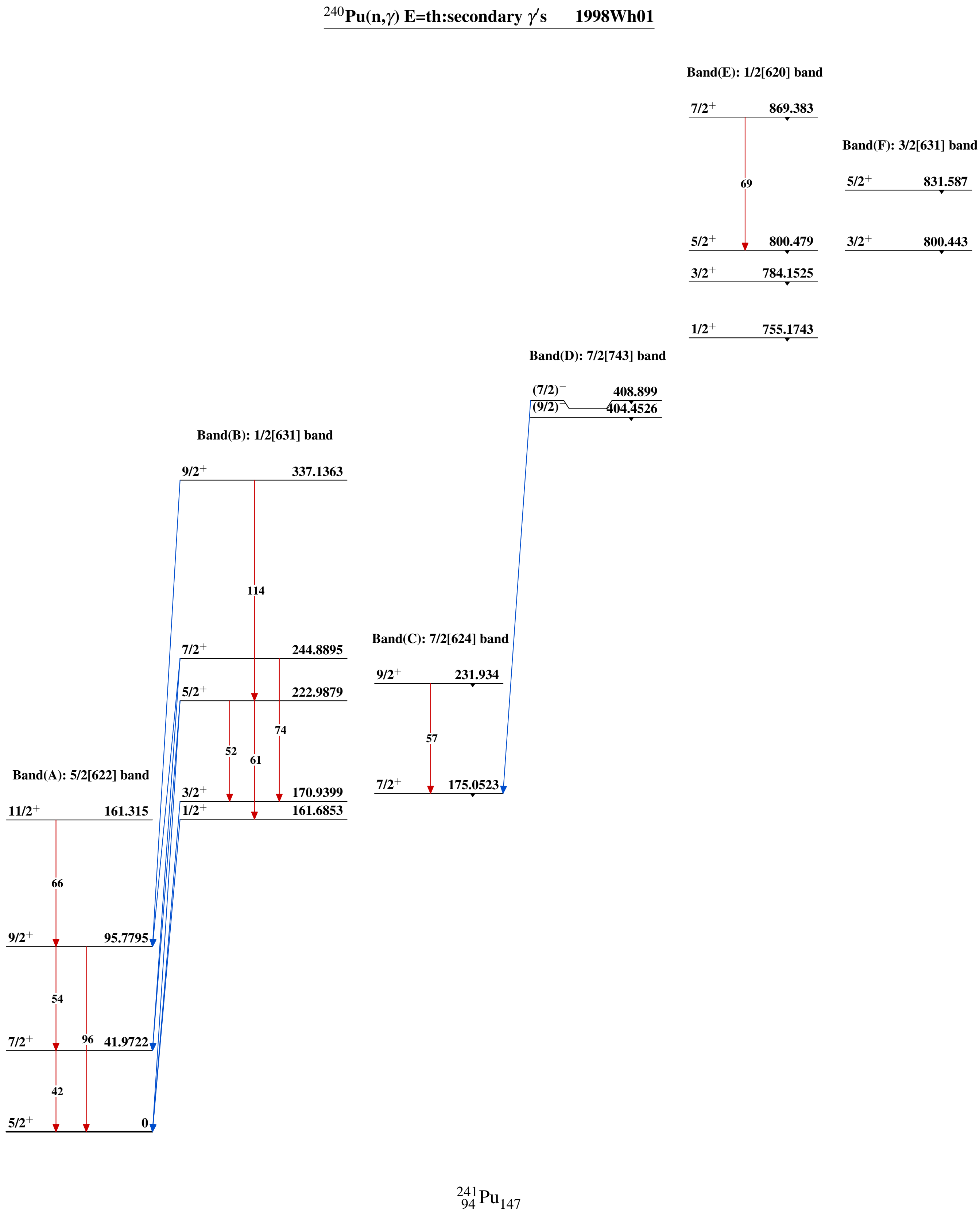
$^{241}_{94}Pu_{147}$

^{240}Pu(n,γ) E=th:secondary γ's 1998Wh01

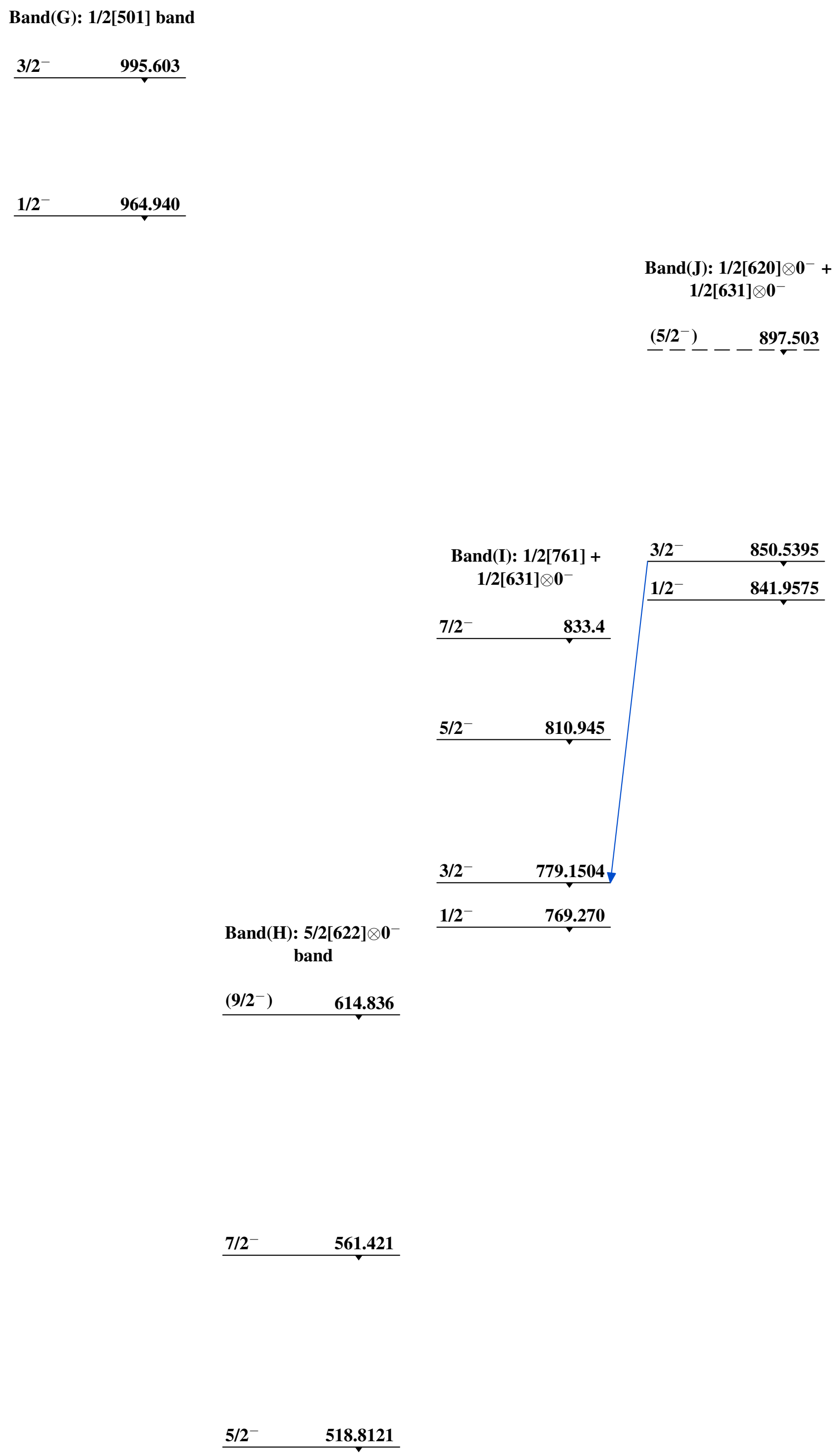
Level Scheme (continued)

Intensities: I_γ per 100 neutron captures
& Multiply placed: undivided intensity given




^{240}Pu(n,γ) E=th:secondary γ's 1998Wh01
Band(E): 1/2[620] band
7/2+ 869.383
69
5/2+ 800.479
3/2+ 784.1525
1/2+ 755.1743
Band(F): 3/2[631] band
5/2+ 831.587
3/2+ 800.443
Band(D): 7/2[743] band
(7/2)− 408.899
(9/2)− 404.4526
Band(B): 1/2[631] band
9/2+ 337.1363
114
7/2+ 244.8895
5/2+ 222.9879
74
52
61
3/2+ 170.9399
1/2+ 161.6853
Band(C): 7/2[624] band
9/2+ 231.934
57
7/2+ 175.0523
Band(A): 5/2[622] band
11/2+ 161.315
66
9/2+ 95.7795
54
96
7/2+ 41.9722
42
5/2+ 0
$^{241}_{94}Pu_{147}$

^{240}Pu(n,γ) E=th:secondary γ's 1998Wh01 (continued)



$^{241}_{94}Pu_{147}$