Energy levels [03Br12, 04As12]. **$^{235}_{94}$Pu**

E^* [keV]	$2J^\pi$	$T_{1/2}$ or Γ_{cm}	Ref.
0	5^+	25.3(5) m	
41.9	$\langle 7^+ \rangle$		04As12
183.7	$\langle 3^+ \rangle$		04As12
265.3	$\langle 5^+ \rangle$		04As12
290.6	$\langle 5^- \rangle$		04As12
535.1	$\langle 5^+ \rangle$		04As12
639.0			04As12
825.9			04As12
1029.6			04As12
1118.8			04As12
3000(200)		25(5) ns	

Level energies in N=141 isotones are considered in [04As12].

Energy levels and branching ratios [91Sc08]. **$^{236}_{94}$Pu**

E^*	J^π	$T_{1/2}$ or	Branching ratios in percentage						
		E_f^*:	0	44.63	147.45	305.80	515.7	773.5	1074.3
[keV]		Γ_{cm} J_f^π:	0^+	2^+	4^+	6^+	8^+	10^+	12^+
0	0^+	2.858(8) yr							
44.63(10)	2^+		100						
147.45(10)	4^+			100					
305.80(11)	6^+				100				
515.7(2)	8^+					100			
773.5(3)	10^+						100		
1074.3(4)	12^+							100	
1413.6(4)	14^+								100
1786.0(5)	16^+								
≈3000	$\langle 0^+ \rangle$	40(15) ps							
4000(200)		34(8) ns							

Additional data on this isotope can be found in [72Va20].

Energy levels and branching ratios [91Sc08]. Part 2 **$^{236}_{94}$Pu**

E^*	J^π	Branching ratios in percentage	
		E_f^*:	1413.6
[keV]		J_f^π:	14^+
1786.0(5)	16^+		100

Energy levels and branching ratios [95Ak01, 06Ba41].

$^{237}_{94}$Pu

E^* [keV]	$2J^\pi$	L (p,t)	σ (p,t) μb/sr	S_N (p,t)	σ (d,t) μb/sr	$2K[Nn_z\Lambda]$	$T_{1/2}$ or Γ_{cm}	Ref.	Branching ratios in percentage				
									E_f^*: 0.0	47.7	145	155	201
									$2J_f^\pi$: 7^-	9^-	1^+	3^+	5^+
0.0[a]	7^-				<1	7–[743]	45.2(1) d	73Gr26					
47.71(4)[a]	9^-				1	7–[743]		73Gr26	x				
106(5)[a]	11^-				11	7–[743]		73Gr26					
145.54(1)[b]	1^+	0	182(16)	2.36	36	1+[631]	0.18(2) s	74Fr01	x				
155.45(2)[b]	3^+				95	1+[631]		73Gr26			x		
175(7)[a]	13^-				5	7–[743]		73Gr26					
201.18(2)[b]	5^+	2	31(5)		1	1+[631]		74Fr01			68(11)	32(8)	
224.25(5)[b]	7^+	2,4	10(2)		7	1+[631]		73Gr26				x	
257[a]	15^-				9	7–[743]		73Gr26					
280.22(2)[c]	5^+				22	5+[622]		73Gr26	99(5)			0.58(11)	0.42(7)
304(4)[b]	9^+	4,6	10(2)		29	1+[631]		73Gr26					
320.97(2)[c]	7^+					5+[622]			64(5)	35(3)			
370.40(4)[d]	3^+					3+[631]					50(10)	50(10)	
371(5)[c]	9^+				44	5+[622]		73Gr26					
404.19(5)[d]	5^+				159	3+[631]		73Gr26				46(5)	32(4)
407.83(6)[e]	5^+		4(1)		incl	5+[633]		74Fr01	41(3)			18(5)	21(3)
438.41(10)[e]	7^+				14	5+[633]		73Gr26	93(5)	6.1(5)			
453.2(2)[d]	7^+				6	3+[631]		73Gr26	25(5)				37(13)
473.50(10)	7^+				5	7+[624]		73Gr26	68(5)	31(2)			
486[e]	$\langle 9^+ \rangle$				21	5+[633]		73Gr26					
513[d]	9^+				38	3+[631]		73Gr26					
545[g]	$\langle 1^- \rangle$				352	1–[501]		73Gr26					
582[g]	$\langle 5^- \rangle$				20	1–[501]		73Gr26					
591[g]	$\langle 3^- \rangle$				74	1–[501]		73Gr26					
655					34			73Gr26					
655.3(2)[h]	$\langle 5 \rangle^-$				incl	5–[5xx]			x				
691[g]	$\langle 7^- \rangle$				2	1–[501]		73Gr26					
696.2(3)[h]	7^-					7–[501]		95Ak01	44(9)	56(9)			
716					25			73Gr26					
741					4			73Gr26					
757					2			73Gr26					
773.5[f]	$[7^+]$				10			95Ak01					
800(2)	1^+	0	37(2)	0.80				74Fr01					
809					8			73Gr26					
840					13			73Gr26					
851(5)	3^+,5^+	2	8.0(15)		34			74Fr01					
852					incl								
884					21			73Gr26					
908.9(2)	7^+								69(4)	9.8(11)			
933					3			73Gr26					
964					4			73Gr26					
998(5)			11(2)					74Fr01					
1000.6(3)	3^+,5,7				14			73Gr26	44(12)				
1014					143			73Gr26					
1025(3)		$\langle 2,4 \rangle$	7.0(15)					74Fr01					

(continued) **$^{237}_{94}$Pu**

E^*	$2J^\pi$	L	σ (p,t)	S_N	σ (d,t)	$2K[Nn_z\Lambda]$	$T_{1/2}$ or	Ref.	Branching ratios in percentage					
									E_f^*:	0.0	47.7	145	155	201
[keV]		(p,t)	μb/sr	(p,t)	μb/sr		Γ_{cm}		$2J_f^\pi$:	7^-	9^-	1^+	3^+	5^+
1053					5			73Gr26						
1104					3			73Gr26						
1189					18			73Gr26						
1216					4			73Gr26						
1250					5			73Gr26						
1264					5			73Gr26						
1348					20			73Gr26						
1383					35			73Gr26						
1397					7			73Gr26						
1463					6			73Gr26						
1481					5			73Gr26						
1534					4			73Gr26						
2600(200)							85(15) ns							
2900(250)							1.1(1) μs							
			74Fr01	74Fr01	73Gr26	95Ak01		Ref.						

8 bands (A-H marked a-h here) are suggested in [95Ak01, 06Ba41].
σ (p,t) [74Fr01] and σ (d,t) [73Gr26] were measured at 15° and 90°, respectively.
Data for this isotope are considered in vol. LB I/18C.

Energy levels and branching ratios [95Ak01, 06Ba41]. Part 2 **$^{237}_{94}$Pu**

E^*	$2J^\pi$				Branching ratios in percentage				
		E_f^*:	224.25	280.22	404.19	407.83	453.2	473.50	655.3
[keV]		$2J_f^\pi$:	7^+	5^+	5^+	5^+	7^+	7^+	$\langle 5\rangle^-$
320.97(2)[c]	7^+			1.3(3)					
404.19(5)[d]	5^+		19(4)	≈3					
407.83(6)[e]	5^+		12(3)	7(2)					
438.41(10)[e]	7^+			0.7(3)					
453.2(2)[d]	7^+		37(13)						
473.50(10)	7^+			1.4(5)					
696.2(3)[h]	7^-								x
908.9(2)	7^+				5.0(11)	7.4(11)	2.4(6)	6.6(11)	
1000.6(3)	3^+,5,7			56(12)					

Energy levels and branching ratios [02Ch52]. **$^{238}_{94}$Pu**

E^*	J^π	L	σ (p,t)	I_t	I_t	$T_{1/2}$ or	Ref.	Branching ratios in percentage				
								E_f^*: 0.0	44.1	146	303	513
[keV]		(p,t)	μb/sr	(d,t)	(p,t)	Γ_{cm}		J_f^π: 0^+	2^+	4^+	6^+	8^+
0.0	0^+	0	150(15)	103	250	87.7(1) yr	74Fr01					
44.076(18)	2^+	2	41(3)	270	60	175(3) ps	74Fr01	x				
145.952(23)	4^+	4	24(1)	110	12		74Fr01		x			
303.38(6)	6^+	6	4.0(5)				74Fr01			x		
513.58(15)	8^+										x	
605.14(4)	1^-							41.4(10)	59			
661.40(6)	3^-								65	35(5)		
763.24(11)	5^-									97	≈3.3	
773.48(21)	10^+											x
941.46(8)	0^+	0	16(1)	11	36		74Fr01	x	97(7)			
962.780(24)	1^-							52.1(4)	43.0(5)			
968.2(4)	$\langle 2^- \rangle$					<8.5 ns		19(7)	81			
983.09(7)	2^+	2	8(1)	18	12	0.55(+15-11) ps	74Fr01	57(14)	20(3)	20(5)		
985.45(5)	2^-		incl						95.4(10)			
1018.6(3)									x			
1028.54(2)	2^+	2	9(1)				74Fr01	41.3(5)	57	1.83(2)		
1069.94(2)	3^+								77	23.1(4)		
1080.1(3)	12^+											
1082.56(6)	$\langle 4 \rangle^-$					8.5(5) ns				91.3(13)		
1125.76(17)	$\langle 4^+ \rangle$								16(6)	84		
1134(4)	$\langle 0^+ \rangle$	$\langle 0 \rangle$	2.0(5)				74Fr01					
1174.4(4)	$\langle 2^+ \rangle$							45(12)	55			
1202.46(8)	$\langle 3 \rangle^-$											
1228.65(18)	0^+			7			73Fr01	x	100			
1252(2)			2.0(5)				74Fr01					
1264.22(15)	2^+			22			73Fr01		45(8)	55		
1310.3(3)	$1^+,2^+$								x			
1426.62(24)	0^+							x				
1429.1(3)	14^+											
1447.24(19)	1^-							38(2)	62(6)			
1458.29(22)	2^+							81	≈19			
1559.81(14)	1^-							17(3)	21(3)			
1596.3(3)	$\langle 2^+ \rangle$							≈11	35(6)	≈27		
1621.27(12)	1^-							≈0.5	80(6)			
1636.39(13)	1^-							70(6)	27(3)			
1651.2(4)	$1,2^+$							15(6)	85			
1726.34(22)	$1,2^+$							37(6)	63			
1783.5(3)	$1,2^+$							68	32(10)			
1818.5(4)	16^+											
1898.38(22)	2^-											
2244.9(4)	18^+											
≈2400						0.6(2) ns						
2705.7(4)	20^+											
3198.8(5)	22^+											
≈3500	$\langle 0^+ \rangle$					6.0(15) ns						

(continued) **$^{238}_{94}$Pu**

E^*	J^π	L	σ (p,t)	I_t	I_t	$T_{1/2}$ or	Ref.	Branching ratios in percentage					
								E_f^*:	0.0	44.1	146	303	513
[keV]		(p,t)	μb/sr	(d,t)	(p,t)	Γ_{cm}		J_f^π:	0^+	2^+	4^+	6^+	8^+
3720.8(9)	24^+												
4265.2(9)	26^+												
			74Fr01	73Fr01	73Fr01		Ref.						

Additional data on this isotope can be found in [93De12, 72Va20].
σ (p,t) [74Fr01] was measured at 15°.
Intensities I_t (at 90° and 55°) of the (d,t) and (p,t) reactions are in numbers of tracks per 0.25 mm (from Figure in [73Fr01]).
Data for this isotope are considered in vol. LB I/18C.

Energy levels and branching ratios [02Ch52]. Part 2 **$^{238}_{94}$Pu**

E^*	J^π		Branching ratios in percentage									
		E_f^*:	605.14	661.40	763.24	773.48	941.46	962.780	968.2	983.09	985.45	1028.54
[keV]		J_f^π:	1^-	3^-	5^-	10^+	0^+	1^-	$\langle 2^- \rangle$	2^+	2^-	2^+
941.46(8)	0^+		3.0(11)									
962.780(24)	1^-		4.01(10)	0.88(5)								
983.09(7)	2^+		2.1(4)	0.9(4)								
985.45(5)	2^-		1.96(7)	2.68(10)								
1080.1(3)	12^+					x						
1082.56(6)	$\langle 4 \rangle^-$			5.31(19)	2.00(25)				1.38(25)			
1202.46(8)	$\langle 3 \rangle^-$											18.6(5)
1426.62(24)	0^+		100									
1447.24(19)	1^-		x									
1559.81(14)	1^-		≈15					26(3)			20(5)	
1596.3(3)	$\langle 2^+ \rangle$							≈27				
1621.27(12)	1^-		7.7(8)				7.0(7)	4.9(6)				
1636.39(13)	1^-		x					x		≈3.1		
1898.38(22)	2^-		48(4)	39(3)				≈13				

Energy levels and branching ratios [02Ch52]. Part 3 **$^{238}_{94}$Pu**

E^*	J^π		Branching ratios in percentage								
		E_f^*:	1069.94	1080.1	1082.56	1429.1	1818.5	2244.9	2705.7	3198.8	3720.8
[keV]		J_f^π:	3^+	12^+	$\langle 4 \rangle^-$	14^+	16^+	18^+	20^+	22^+	24^+
1202.46(8)	$\langle 3 \rangle^-$		2.05(14)		79(3)						
1429.1(3)	14^+			100							
1818.5(4)	16^+					x					
2244.9(4)	18^+						x				
2705.7(4)	20^+							x			

(continued) **$^{238}_{94}$Pu**

E^*	J^π	Branching ratios in percentage								
	E_f^*:	1069.94	1080.1	1082.56	1429.1	1818.5	2244.9	2705.7	3198.8	3720.8
[keV]	J_f^π:	3^+	12^+	$\langle 4\rangle^-$	14^+	16^+	18^+	20^+	22^+	24^+
3198.8(5)	22^+							x		
3720.8(9)	24^+								x	
4265.2(9)	26^+									x

Energy levels and branching ratios [03Br12]. **$^{239}_{94}$Pu**

E^*	$2J^\pi$	σ (d,p)	σ (d,d′)	$2K[Nn_z\Lambda]$	σ (d,d′)	$T_{1/2}$ or	Ref.	Branching ratios in percentage				
								E_f^*:	0	7.9	57.3	75.7	163.8
[keV]		μb/sr	μb/sr		μb/sr	Γ_{cm}		$2J_f^\pi$:	1^+	3^+	5^+	7^+	9^+
0[a]	1^+	84	$23{\cdot}10^4$	1+[631]	$50{\cdot}10^3$	24110(30) yr	76Th01						
7.861(2)[a]	3^+	110		1+[631]		36(3) ps	73Gr26		100				
57.275(2)[a]	5^+		5500	1+[631]	6138	101(5) ps	76Th01		≈23	77			
75.705(3)[a]	7^+	19		1+[631]		83(8) ps	73Gr26			x	x		
163.76(3)[a]	9^+	46		1+[631]	209	73(4) ps	76Th01				89	11	
192.8(10)[a]	11^+	5		1+[631]	23		76Th01					100	
285.460(2)	5^+	27		5+[622]		1.12(5) ns	73Gr26		2.5	48.8(14)	37.1(10)	11.5(3)	
318.5(5)[a]	13^+			1+[631]	36		76Th01						100
330.124(4)	7^+	1		5+[622]			73Gr26			2.1(3)	24(3)	33(3)	3(1)
358.1(1)[a]	15^+			1+[631]	8		76Th01						
387.42(2)	9^+	129		5+[622]			73Gr26					16(2)	
391.584(3)	7^-			7–[743]		193(4) ns					6.5(5)	4.9(5)	
434(3)	$\langle 9^-\rangle$			7–[743]									
462(3)	$\langle 11^+\rangle$	11		5+[622]			73Gr26						
469.8(4)	$\langle 1^-\rangle$	incl		1+[631]x0–	10		76Th01		41	59			
487(3)	$\langle 11^-\rangle$	27		7–[743]			73Gr26						
492.1(3)	3^-	incl		1+[631]x0–	≈9		76Th01		30	5	65		
505.6(2)	$\langle 5^-\rangle$	28	31	1+[631]x0–	93		76Th01			45(9)	≈4	51(9)	
511.838(13)	7^+	incl		7+[624]			73Gr26			0.31(3)	0.26(3)	0.18(2)	
519.3(6)[a]	17^+			1+[631]									
538(3)		<5					73Gr26						
556(1)	$\langle 7^-\rangle$		38	1+[631]x0–	119		76Th01				≈38		62
565	$\langle 9^+\rangle$	52		7+[624]			73Gr26						
570.6(7)[a]	19^+			1+[631]									
583(3)	$\langle 9^-\rangle$			1+[631]x0–	8		76Th01						
620	$\langle 15^-\rangle$	4		7–[743]			73Gr26						
634	11^+	9		7+[624]			73Gr26						
661(1)	$\langle 11^-\rangle$	3		1+[631]x0–	10		76Th01						x
716		<3					73Gr26						
753(1)	1^+,3	5	10		14		76Th01						
756(3)													
763(3)													
764.6(6)[a]	$\langle 21^+\rangle$			1+[631]									

(continued) **$^{239}_{94}$Pu**

E^*	$2J^\pi$	σ (d,p)	σ (d,d′)	$2K[Nn_z\Lambda]$	σ (d,d′)	$T_{1/2}$ or	Ref.	Branching ratios in percentage					
								E_f^*:	0	7.9	57.3	75.7	163.8
[keV]		μb/sr	μb/sr		μb/sr	Γ_{cm}		$2J_f^\pi$:	1^+	3^+	5^+	7^+	9^+
779(3)		14	8		9		76Th01						
798(1)	1,3		16		13		76Th01						
805.1(5)	1,3												
806.7(15)	⟨15⁻⟩												
813(3)													
826(1)	1,3		12		32		76Th01						
828.0(7)[a]	⟨23⁺⟩			1+[631]									
854(2)			13		34		76Th01						
888(1)	1,3	43					73Gr26						
900(2)		15	13		39		76Th01						
915(3)					5		76Th01						
933(1)	1,3												
948(3)					<5		76Th01						
990	⟨3⁻⟩	193		3–[761]	<5		76Th01						
992(2)	⟨19⁻⟩			1+[631]x0–									
992.4+X	⟨21⁻⟩			1+[631]x0–									
1017	⟨1⁻⟩	33		3–[761]			73Gr26						
1027(2)					7		76Th01						
1038	⟨7⁻⟩	180		3–[761]			73Gr26						
1052.9(3)[a]	⟨25⁺⟩			1+[631]									
1062(2)					7		76Th01						
1100(1)	1,3												
1100	⟨5⁻⟩	36		3–[761]			73Gr26						
1127.6(7)[a]	⟨27⁺⟩			1+[631]									
1137	⟨11⁻⟩	34		3–[761]			73Gr26						
1174		43					73Gr26						
1214	⟨1⁺⟩	275		1+[620]			73Gr26						
1219.7(21)	⟨23⁻⟩			1+[631]x0–									
1233	⟨3⁺⟩	207		1+[620]			73Gr26						
1233	⟨9⁻⟩	incl					73Gr26						
1235.0+x	⟨25⁻⟩			1+[631]x0–									
1261	⟨5⁺⟩	244		1+[620]			73Gr26						
1261	⟨3⁺⟩			3+[622]									
1289	⟨5⁺⟩	126		3+[622]			73Gr26						
1311	⟨7⁺⟩	54		1+[620]			73Gr26						
1342	⟨7⁺⟩	58		3+[622]			73Gr26						
1359	⟨9⁺⟩	50		1+[620]			73Gr26						
1381.1(7)[a]	⟨29⁺⟩			1+[631]									
1390		15					73Gr26						
1409	⟨9⁺⟩	55		3+[622]			73Gr26						
1437		61					73Gr26						
1465		26					73Gr26						
1467.3(8)[a]	⟨31⁺⟩			1+[631]									
1487.7(23)	⟨27⁻⟩			1+[631]x0–									
1488		40					73Gr26						

(continued) **$^{239}_{94}$Pu**

E^*	$2J^\pi$	σ (d,p)	σ (d,d′)	$2K[Nn_z\Lambda]$	σ (d,d′)	$T_{1/2}$ or	Ref.	Branching ratios in percentage				
								E_f^*: 0	7.9	57.3	75.7	163.8
[keV]		μb/sr	μb/sr		μb/sr	Γ_{cm}		$2J_f^\pi$: 1^+	3^+	5^+	7^+	9^+
1518.5+x	$\langle 29^- \rangle$			1+[631]x0–								
1748.2(7)[a]	$\langle 33^+ \rangle$			1+[631]								
1795.5(25)	$\langle 31^- \rangle$			1+[631]x0–								
1842.4+x	$\langle 33^- \rangle$			1+[631]x0–								
1846.3(8)[a]	35^+			1+[631]								
2144(3)	$\langle 35^- \rangle$			1+[631]x0–								
2151.8(7)[a]	$\langle 37^+ \rangle$			1+[631]								
2205.2(3)	$\langle 37^- \rangle$			1+[631]x0–								
2262.0(8)[a]	$\langle 39^+ \rangle$			1+[631]								
2589.4(8)[a]	$\langle 41^+ \rangle$			1+[631]								
2712.8(8)[a]	$\langle 43^+ \rangle$			1+[631]								
3059.7(8)[a]	$\langle 45^+ \rangle$			1+[631]								
3100(2)	$\langle 5^+ \rangle$			5+[633]		7.5(10) μs						
3124.3	$\langle 7^+ \rangle$			5+[633]								
3156.2	$\langle 9^+ \rangle$			5+[633]								
3196.1(9)[a]	$\langle 47^+ \rangle$			1+[631]								
3303	$\langle 9^- \rangle$					2.6(+40-12) ns						
3558.2(9)[a]	$\langle 49^+ \rangle$			1+[631]								
4071[a]	$\langle 51^+ \rangle$			1+[631]								
		73Gr26	73Gr26	03Br12			Ref.					

Additional data on this isotope can be found in [93De12].
10 bands (A-J marked here a-j) are suggested in [03Br12].
σ (d,p) and σ (d,d′) in the first two columns were measured at 90° [73Gr26], σ (d,d′) was measured at 90° and 125° [76Th01]; data given in the last column correspond to 90°.
Data for this isotope are considered in vol. LB I/18C.

Energy levels and branching ratios [03Br12]. Part 2 **$^{239}_{94}$Pu**

E^*	$2J^\pi$	Branching ratios in percentage										
	E_f^*:	192.8	285.460	318.5	330.124	358.1	387.42	519.3	570.6	661.1	764.6
[keV]	$2J_f^\pi$:	11^+	5^+	13^+	7^+	15^+	9^+	17^+	19^+	$\langle 11^- \rangle$	$\langle 21^+ \rangle$
330.124(4)	7^+		38(6)								
358.1(1)[a]	15^+	x									
387.42(2)	9^+		≈8		≈76						
391.584(3)	7^-		85(8)		4.1(5)						
511.838(13)	7^+		73(4)		24(1)		2.2(2)				
519.3(6)[a]	17^+			100							
570.6(7)[a]	19^+					100					
764.6(6)[a]	$\langle 21^+ \rangle$							x			
806.7(15)	$\langle 15^- \rangle$			x						x	
828.0(7)[a]	$\langle 23^+ \rangle$								x		
1052.9(3)[a]	$\langle 25^+ \rangle$										100

Energy levels and branching ratios [03Br12]. Part 3 **$^{239}_{94}$Pu**

E^*	$2J^\pi$	Branching ratios in percentage									
	E_f^*:	806.7	828.0	992.4	992.4+X	1052.9	1127.6	1219.7	1235+X	1381.1	1467.3
[keV]	$2J_f^\pi$:	$\langle 15^- \rangle$	$\langle 23^+ \rangle$	$\langle 19^- \rangle$	$\langle 21^- \rangle$	$\langle 25^+ \rangle$	$\langle 27^+ \rangle$	$\langle 23^- \rangle$	$\langle 25^- \rangle$	$\langle 29^+ \rangle$	$\langle 31^+ \rangle$
992(2)	$\langle 19^- \rangle$	x									
1127.6(7)[a]	$\langle 27^+ \rangle$		100								
1219.7(21)	$\langle 23^- \rangle$			x							
1235.0+x	$\langle 25^- \rangle$				x						
1381.1(7)[a]	$\langle 29^+ \rangle$					100					
1467.3(8)[a]	$\langle 31^+ \rangle$						100				
1487.7(23)	$\langle 27^- \rangle$							x			
1518.5+x	$\langle 29^- \rangle$								x		
1748.2(7)[a]	$\langle 33^+ \rangle$									100	
1846.3(8)[a]	35^+										100

Energy levels and branching ratios [03Br12]. Part 4 **$^{239}_{94}$Pu**

E^*	$2J^\pi$	Branching ratios in percentage									
	E_f^*:	1487.7	1519+X	1748.2	1795.5	1846.3	2151.8	2262.0	2589.4	2712.8	3059.7
[keV]	$2J_f^\pi$:	$\langle 27^- \rangle$	$\langle 29^- \rangle$	$\langle 33^+ \rangle$	$\langle 31^- \rangle$	35^+	$\langle 37^+ \rangle$	$\langle 39^+ \rangle$	$\langle 41^+ \rangle$	$\langle 43^+ \rangle$	$\langle 45^+ \rangle$
1795.5(25)	$\langle 31^- \rangle$	x									
1842.4+x	$\langle 33^- \rangle$		x								
2144(3)	$\langle 35^- \rangle$				x						
2151.8(7)[a]	$\langle 37^+ \rangle$			100							
2205.2(3)	$\langle 37^- \rangle$					x					
2262.0(8)[a]	$\langle 39^+ \rangle$					100					
2589.4(8)[a]	$\langle 41^+ \rangle$						100				
2712.8(8)[a]	$\langle 43^+ \rangle$							100			
3059.7(8)[a]	$\langle 45^+ \rangle$								100		
3196.1(9)[a]	$\langle 47^+ \rangle$									100	
3558.2(9)[a]	$\langle 49^+ \rangle$										100

Energy levels and branching ratios [03Br12]. Part 5 **$^{239}_{94}$Pu**

E^*	$2J^\pi$	Branching ratios in percentage			
		E_f^*:	3100	3124.3	3156.2	3558.2
[keV]		$2J_f^\pi$:	$\langle 5^+ \rangle$	$\langle 7^+ \rangle$	$\langle 9^+ \rangle$	$\langle 49^+ \rangle$
3124.3	$\langle 7^+ \rangle$		x			
3156.2	$\langle 9^+ \rangle$		x	x		
3303	$\langle 9^- \rangle$		x	x	x	
4071[a]	$\langle 51^+ \rangle$					x

Energy levels and branching ratios [90Sh04]. **$^{240}_{94}$Pu**

E^*	J^π	σ (d,p)	L	σ (p,t)	$n\ell j$	I_p	I_t	R	σ (d,d′)	Ref.	Branching ratios in percentage				
											E_f^*: 0.0	42.8	142	294	497
[keV]		*rel.*		μb/sr		(d,p)	(p,t)	(p,t)	μb/sr		J_f^π: 0^+	2^+	4^+	6^+	8^+
0.0	0^+	1	0	190		31	500		10400	73Fr01					
42.82(1)	2^+	1	1	95		106	198		3760	72Ma15	100				
141.69(2)	4^+	1		34		62	73		370	72Ma15		100			
294.32(2)	6^+								73	75Th11			100		
497.52(21)	8^+								8	75Th11				100	
0+X	$\langle 0^+ \rangle$														
20.1+X	$\langle 2^+ \rangle$														
66.8+X	$\langle 4^+ \rangle$														
597.34(4)	1^-								48	75Th11	38(4)	62(4)			
648.85(4)	3^-								128	75Th11		49(3)	51		
139.9+X	$\langle 6^+ \rangle$														
742.33(4)	5^-								30	75Th11			60(3)	40(2)	
747.8(3)	$\langle 10^+ \rangle$														100
239.2+X	$\langle 8^+ \rangle$														
860.71(7)	0^+	0.18(4)	0	52		9	62	0.15		72Ma15	x	53			
365+X	$\langle 10^+ \rangle$														
900.32(4)	2^+	0.25(3)		24		34	52	$\langle 0.3 \rangle$		72Ma15	4(1)	13(1)	32(1)		
938.06(6)	$\langle 1^- \rangle$								11	75Th11	90(4)	4(1)			
958.85(6)	$\langle 2^- \rangle$											93(3)			
992.2(6)	$\langle 4^+ \rangle$													33(8)	
1001.93(10)	$\langle 3^- \rangle$	0.28(5)		6		19	10		81	72Ma15		100			
1030.53(5)	$\langle 3 \rangle^+$											74(1)	25.5(4)		
1037.52(6)	$\langle 4^- \rangle$												91(5)		
1041.8(4)	$\langle 12^+ \rangle$														
1055.7	$\langle 9^- \rangle$														x
554.7+X	$\langle 1^- \rangle$														
1076.22(9)	$\langle 4^+ \rangle$								17	75Th11		29(3)	71(9)		
1089.45(10)	0^+	0.90(2)	0	20		56	52	0.10		72Ma15		100			
589.7+X	$\langle 3^- \rangle$														
1115.53(6)	$\langle 5^- \rangle$								15	75Th11			92(5)	4.1(4)	
1131.95(10)	$\langle 2^+ \rangle$										35(3)	18(2)	47(3)		
1136.97(13)	$\langle 2^+ \rangle$	0.75(7)		30		116	52	$\langle 0.8 \rangle$	31	72Ma15	40(6)	60(9)			
1161.53(7)	$\langle 6^- \rangle$													91(5)	
1177.50(10)	$\langle 3^+ \rangle$											x	x		
1180.4	$\langle 2^+ \rangle$														
1199(2)									7	75Th11					
1223.00(20)	$\langle 2^+ \rangle$	1.06(12)		17		78	42		22	72Ma15	44(7)	56(4)			
1232.46(10)	$\langle 4^+ \rangle$	incl										5(3)	29(6)	66(11)	
1240.8(3)	$\langle 2^- \rangle$											100			
1262.0(3)	$\langle 3^+ \rangle$											76(5)	24(2)		
1276.8	$\langle 11^- \rangle$														
769.9+X	$\langle 0^+ \rangle$														
1282(2)	$\langle 3^- \rangle$								96	75Th11					
785.1+X	$\langle 2^+ \rangle$														
1308.74(5)	$\langle 5^- \rangle$												10.5(7)	0.49(13)	

(continued) **$^{240}_{94}$Pu**

E^*	J^π	σ (d,p)	L	σ (p,t)	$n\ell j$	I_p	I_t	R	σ (d,d′)	Ref.	Branching ratios in percentage				
											E_f^*:	0.0	42.8	142	294	497
[keV]		*rel.*		μb/sr		(d,p)	(p,t)	(p,t)	μb/sr		J_f^π:	0^+	2^+	4^+	6^+	8^+
806.2+X	$\langle 2^- \rangle$															
1321.10(10)												100				
825.0+X	$\langle 4^+ \rangle$															
825.6+X	$\langle 3^- \rangle$															
1337.0(3)	$\langle 3,4 \rangle$												26(3)	74(15)		
836.0+X	$\langle 1^- \rangle$															
846.8+X	$\langle 2^- \rangle$															
851.1+X	$\langle 4^- \rangle$															
1360.9(2)	2^-									03Th14						
1375.6(6)	$\langle 14^+ \rangle$															
866.0+X	$\langle 3^- \rangle$															
1379(4)									6	75Th11						
1386.6(3)	3^-									03Th14						
882.8+X	$\langle 5^- \rangle$															
891.2+X	$\langle 4^- \rangle$															
892.4+X	$\langle 6^+ \rangle$															
1407(3)									19	75Th11						
1410.75(15)	$0^{\langle - \rangle}$															
1413.0	$X^{\langle + \rangle}$															
1421.4(6)	4^-									03Th14						
918.8+X	$\langle 5^- \rangle$															
920.7+X	$\langle 6^- \rangle$															
1438.45(8)	$2^{\langle - \rangle}$											<0.3				
960.7+X	$\langle 6^- \rangle$															
966.5+X	$\langle 7^- \rangle$															
1465.7(6)	5^-									03Th14						
1488.17(7)	$\langle 1^- \rangle$											35(2)	65(2)			
986.8+X	$\langle 8^+ \rangle$															
998.3+X	$\langle 7^- \rangle$															
1518.7(13)	6^-									03Th14						
1525.86(8)	$\langle 0^+ \rangle$												15(3)			
1539.1	$\langle 13^- \rangle$															
1539.67(6)	$\langle 1^- \rangle$								17	75Th11		36.7(9)	58(1)			
1558.87(5)	$\langle 2^+ \rangle$											1.9(6)	5(2)	7(1)		
1054.9+X	$\langle 8^- \rangle$															
1574									21	75Th11						
1580.0(14)	7^-			3						03Th14						
1607.72(15)	$\langle 1^- \rangle$								8	75Th11		81(7)				
1104+X	$\langle 9^- \rangle$															
1105+X	$\langle 10^+ \rangle$															
1626.77(15)	$\langle 1^- \rangle$											22(5)	78(9)			
1633.37(8)	$\langle 1^- \rangle$											58(2)	37(2)			
1641(5)									12	75Th11						
1675(2)									37	75Th11						
1172+X	$\langle 10^- \rangle$															

(continued) **$^{240}_{94}$Pu**

E^*	J^π	σ (d,p)	L	σ (p,t)	$n\ell j$	I_p	I_t	R	σ (d,d′)	Ref.	Branching ratios in percentage				
											E_f^*:	0.0	42.8	142	294	497
[keV]		*rel.*		μb/sr		(d,p)	(p,t)	(p,t)	μb/sr		J_f^π:	0^+	2^+	4^+	6^+	8^+
1710.43(8)	$\langle 2^+ \rangle$											2(1)	23(4)	7(1)		
1745.6	$\langle 16^+ \rangle$															
1752(3)									35	75Th11						
1775.30(20)	$\langle 1^- \rangle$											60(20)	40(20)			
1784(3)									17	75Th11						
1796.34(15)	$\langle 1^- \rangle$											10(3)				
1808.00(20)	$\langle 1^-,2^+ \rangle$											6(4)	24(4)			
1841.4	$\langle 15^- \rangle$															
1344.5+X	$\langle 1^- \rangle$															
1861(3)									19	75Th11						
1360.9+X	$\langle 2^- \rangle$															
1386.6+X	$\langle 3^- \rangle$															
1902(3)									19	75Th11						
1917.8(3)	$\langle 1^- \rangle$								34	75Th11		7(3)	93(7)			
1421.4+X	$\langle 4^- \rangle$															
1954.50(10)	$\langle 2^+ \rangle$												25(2)	9(4)		
1465.7+X	$\langle 5^- \rangle$															
1996.40(20)	$\langle 1^-,2^+ \rangle$											12(5)	28(6)			
1518.7+X	$\langle 6^- \rangle$															
1580.5+X	$\langle 7^- \rangle$															
2117.60(20)												19(11)	81(13)			
2127.4	$X^{\langle - \rangle}$															
2152	$\langle 18^+ \rangle$															
1651+X	$\langle 8^- \rangle$															
2182.5	$\langle 17^- \rangle$															
1732+X	$\langle 9^- \rangle$															
1816+X	$\langle 10^- \rangle$															
2561	$\langle 19^- \rangle$															
2591	$\langle 20^+ \rangle$															
2184+X	$\langle 0^+ \rangle$															
2276+X	$\langle 0^+ \rangle$															
2375+X	$\langle 0^+ \rangle$															
2435+X	$\langle 0^+ \rangle$															
2453+X	$\langle 0^+ \rangle$															
2975	$\langle 21^- \rangle$															
2483+X	$\langle 0^+ \rangle$															
3061	$\langle 22^+ \rangle$															
2800+X	$\langle 0^+ \rangle$															
3423	$\langle 23^- \rangle$															
3560	$\langle 24^+ \rangle$															
3903	$\langle 25^- \rangle$															
4088	$\langle 26^+ \rangle$															
4414	$\langle 27^- \rangle$															

(continued) **$^{240}_{94}$Pu**

E^*	J^π	σ (d,p)	L	σ (p,t)	$n\ell j$	I_p	I_t	R	σ (d,d′)	Ref.	Branching ratios in percentage					
											E_f^*:	0.0	42.8	142	294	497
[keV]		*rel.*		μb/sr		(d,p)	(p,t)	(p,t)	μb/sr		J_f^π:	0^+	2^+	4^+	6^+	8^+
		73Fr01		72Ma15					75Th11	Ref.						
		90Sh04						70Ma29		Ref.						

Additional data on this isotope can be found in [01Th16, 01Hu12, 01Hu05, 00Pa40, 00Bu16, 72Va20].

σ (d,p) (averaged values) [73Fr01, 90Sh04], σ (p,t) [72Ma15] and (d,d′) [75Th11] were measured at 100°-125°, 60° and 90°-125°, respectively; ratio R between σ (d,d′) at different angles (given in Supplement) was used for J^π estimation [75Th11].

Intensities I_p (at 100°), I_t (at 20°) of the (d,p) and (p,t) reactions are in numbers of tracks per 0.25 mm (from Figure in [73Fr01]).

Ratio R of the cross section of the excited state to that of the ground state [70Ma29] is given.

Parameters of rotational bands in the superdeformed minimum were studied also in [03Th14, 01Kr05, 99Hu12]; see more recent suggestion on the level scheme therein.

Parameters of the levels with uncertain energies (E^* + x) as well as Data for this isotope are considered in vol. LB I/18C.

Energy levels and branching ratios [90Sh04]. Part 2 **$^{240}_{94}$Pu**

E^*	J^π	R	$T_{1/2}$ or	Ref.	Branching ratios in percentage						
					E_f^*:	0+X	20.1+X	66.8+X	597.34	648.85	139.9+X
[keV]		(d,d′)	Γ_{cm}		J_f^π:	$\langle 0^+\rangle$	$\langle 2^+\rangle$	$\langle 4^+\rangle$	1^-	3^-	$\langle 6^+\rangle$
0.0	0^+	4.8	6561(7) yr	73Fr01							
42.82(1)	2^+	2.2	164(5) ps	72Ma15							
141.69(2)	4^+	1.5		72Ma15							
294.32(2)	6^+	0.7		75Th11							
497.52(21)	8^+	1.1		75Th11							
0+X	$\langle 0^+\rangle$		3.7(3) ns								
20.1+X	$\langle 2^+\rangle$					x					
66.8+X	$\langle 4^+\rangle$						x				
597.34(4)	1^-			75Th11							
648.85(4)	3^-			75Th11							
139.9+X	$\langle 6^+\rangle$							x			
742.33(4)	5^-		<2 ns	75Th11							
747.8(3)	$\langle 10^+\rangle$										
239.2+X	$\langle 8^+\rangle$										x
860.71(7)	0^+			72Ma15					47(1)		
365+X	$\langle 10^+\rangle$										
900.32(4)	2^+			72Ma15					27(1)	23(1)	
938.06(6)	$\langle 1^-\rangle$			75Th11					4.5(4)	1.3(3)	
958.85(6)	$\langle 2^-\rangle$								3.2(6)	4.0(4)	
992.2(6)	$\langle 4^+\rangle$									47(5)	
1001.93(10)	$\langle 3^-\rangle$			72Ma15							
1030.53(5)	$\langle 3\rangle^+$		1.32(15) ns								

(continued) **$^{240}_{94}$Pu**

E^*	J^π	R	$T_{1/2}$ or	Ref.	Branching ratios in percentage						
					E_f^*:	0+X	20.1+X	66.8+X	597.34	648.85	139.9+X
[keV]		(d,d′)	Γ_{cm}		J_f^π:	$\langle 0^+\rangle$	$\langle 2^+\rangle$	$\langle 4^+\rangle$	1^-	3^-	$\langle 6^+\rangle$
1037.52(6)	$\langle 4^-\rangle$									6.0(5)	
1041.8(4)	$\langle 12^+\rangle$										
1055.7	$\langle 9^-\rangle$										
554.7+X	$\langle 1^-\rangle$						[100]				
1076.22(9)	$\langle 4^+\rangle$			75Th11							
1089.45(10)	0^+			72Ma15							
589.7+X	$\langle 3^-\rangle$						100				
1115.53(6)	$\langle 5^-\rangle$			75Th11						4.1(4)	
1131.95(10)	$\langle 2^+\rangle$										
1136.97(13)	$\langle 2^+\rangle$			72Ma15							
1161.53(7)	$\langle 6^-\rangle$										
1177.50(10)	$\langle 3^+\rangle$										
1180.4	$\langle 2^+\rangle$										
1199(2)				75Th11							
1223.00(20)	$\langle 2^+\rangle$			72Ma15							
1232.46(10)	$\langle 4^+\rangle$										
1240.8(3)	$\langle 2^-\rangle$										
1262.0(3)	$\langle 3^+\rangle$										
1276.8	$\langle 11^-\rangle$										
769.9+X	$\langle 0^+\rangle$					x					
1282(2)	$\langle 3^-\rangle$			75Th11							
785.1+X	$\langle 2^+\rangle$						x				
1308.74(5)	$\langle 5^-\rangle$		165(10) ns								
806.2+X	$\langle 2^-\rangle$						94.8(24)				
1321.10(10)											
825.0+X	$\langle 4^+\rangle$							x			
825.6+X	$\langle 3^-\rangle$						100	<70			
1337.0(3)	$\langle 3,4\rangle$										
836.0+X	$\langle 1^-\rangle$					22(13)	78(14)				
846.8+X	$\langle 2^-\rangle$						100				
851.1+X	$\langle 4^-\rangle$										
1360.9(2)	2^-			03Th14							
1375.6(6)	$\langle 14^+\rangle$										
866.0+X	$\langle 3^-\rangle$						40(20)	60(13)			
1379(4)				75Th11							
1386.6(3)	3^-			03Th14							
882.8+X	$\langle 5^-\rangle$										
891.2+X	$\langle 4^-\rangle$							100			
892.4+X	$\langle 6^+\rangle$										x
1407(3)				75Th11							
1410.75(15)	$0^{\langle -\rangle}$								100		
1413.0	$X^{\langle +\rangle}$										
1421.4(6)	4^-			03Th14							
918.8+X	$\langle 5^-\rangle$							30(12)			70(18)
920.7+X	$\langle 6^-\rangle$										

(continued) **$^{240}_{94}$Pu**

E^*	J^π	R	$T_{1/2}$ or	Ref.	Branching ratios in percentage						
					E_f^*:	0+X	20.1+X	66.8+X	597.34	648.85	139.9+X
[keV]		(d,d′)	Γ_{cm}		J_f^π:	$\langle 0^+\rangle$	$\langle 2^+\rangle$	$\langle 4^+\rangle$	1^-	3^-	$\langle 6^+\rangle$
1438.45(8)	$2^{\langle -\rangle}$								45(5)	55(9)	
960.7+X	$\langle 6^-\rangle$										100
966.5+X	$\langle 7^-\rangle$										
1465.7(6)	5^-			03Th14							
1488.17(7)	$\langle 1^-\rangle$										
986.8+X	$\langle 8^+\rangle$										
998.3+X	$\langle 7^-\rangle$										[100]
1518.7(13)	6^-			03Th14							
1525.86(8)	$\langle 0^+\rangle$								85(11)		
1539.1	$\langle 13^-\rangle$										
1539.67(6)	$\langle 1^-\rangle$			75Th11					4.2(4)	0.8(1)	
1558.87(5)	$\langle 2^+\rangle$								41(2)	45(6)	
1054.9+X	$\langle 8^-\rangle$										
1574				75Th11							
1580.0(14)	7^-			03Th14							
1607.72(15)	$\langle 1^-\rangle$			75Th11						10(3)	
1104+X	$\langle 9^-\rangle$										
1105+X	$\langle 10^+\rangle$										
1626.77(15)	$\langle 1^-\rangle$										
1633.37(8)	$\langle 1^-\rangle$								1.1(8)		
1641(5)				75Th11							
1675(2)				75Th11							
1172+X	$\langle 10^-\rangle$										
1710.43(8)	$\langle 2^+\rangle$								22(4)	35(8)	
1745.6	$\langle 16^+\rangle$										
1752(3)				75Th11							
1775.30(20)	$\langle 1^-\rangle$										
1784(3)				75Th11							
1796.34(15)	$\langle 1^-\rangle$										
1808.00(20)	$\langle 1^-,2^+\rangle$								50(15)	20(6)	
1841.4	$\langle 15^-\rangle$										
1344.5+X	$\langle 1^-\rangle$										
1861(3)				75Th11							
1360.9+X	$\langle 2^-\rangle$										
1386.6+X	$\langle 3^-\rangle$										
1902(3)				75Th11							
1917.8(3)	$\langle 1^-\rangle$			75Th11							
1421.4+X	$\langle 4^-\rangle$										
1954.50(10)	$\langle 2^+\rangle$								24(5)	42(11)	
1465.7+X	$\langle 5^-\rangle$										
1996.40(20)	$\langle 1^-,2^+\rangle$								60(24)		
1518.7+X	$\langle 6^-\rangle$										
1580.5+X	$\langle 7^-\rangle$										
2117.60(20)											
2127.4	$X^{\langle -\rangle}$										

(continued) **$^{240}_{94}$Pu**

E^*	J^π	R	$T_{1/2}$ or	Ref.	Branching ratios in percentage						
					E_f^*:	0+X	20.1+X	66.8+X	597.34	648.85	139.9+X
[keV]		(d,d′)	Γ_{cm}		J_f^π:	$\langle 0^+ \rangle$	$\langle 2^+ \rangle$	$\langle 4^+ \rangle$	1^-	3^-	$\langle 6^+ \rangle$
2152	$\langle 18^+ \rangle$										
1651+X	$\langle 8^- \rangle$										
2182.5	$\langle 17^- \rangle$										
1732+X	$\langle 9^- \rangle$										
1816+X	$\langle 10^- \rangle$										
2561	$\langle 19^- \rangle$										
2591	$\langle 20^+ \rangle$										
2184+X	$\langle 0^+ \rangle$										
2276+X	$\langle 0^+ \rangle$										
2375+X	$\langle 0^+ \rangle$										
2435+X	$\langle 0^+ \rangle$										
2453+X	$\langle 0^+ \rangle$										
2975	$\langle 21^- \rangle$										
2483+X	$\langle 0^+ \rangle$										
3061	$\langle 22^+ \rangle$										
2800+X	$\langle 0^+ \rangle$										
3423	$\langle 23^- \rangle$										
3560	$\langle 24^+ \rangle$										
3903	$\langle 25^- \rangle$										
4088	$\langle 26^+ \rangle$										
4414	$\langle 27^- \rangle$										
				Ref.							
				Ref.							

Energy levels and branching ratios [90Sh04]. Part 3 **$^{240}_{94}$Pu**

E^*	J^π					Branching ratios in percentage						
		E_f^*:	742.33	747.8	239.2+X	365+X	958.85	1001.93	1037.52	1041.8	1055.7	554.7+X
[keV]		J_f^π:	5^-	$\langle 10^+ \rangle$	$\langle 8^+ \rangle$	$\langle 10^+ \rangle$	$\langle 2^- \rangle$	$\langle 3^- \rangle$	$\langle 4^- \rangle$	$\langle 12^+ \rangle$	$\langle 9^- \rangle$	$\langle 1^- \rangle$
365+X	$\langle 10^+ \rangle$				x							
992.2(6)	$\langle 4^+ \rangle$		19(7)									
1037.52(6)	$\langle 4^- \rangle$		2.9(4)									
1041.8(4)	$\langle 12^+ \rangle$			100								
1161.53(7)	$\langle 6^- \rangle$		8.9(7)									
1177.50(10)	$\langle 3^+ \rangle$							x	x			
1276.8	$\langle 11^- \rangle$			x						x	x	
1308.74(5)	$\langle 5^- \rangle$		59(3)					0.9(1)	13.3(7)			
806.2+X	$\langle 2^- \rangle$											3.4
1375.6(6)	$\langle 14^+ \rangle$									100		
986.8+X	$\langle 8^+ \rangle$				x							
1539.1	$\langle 13^- \rangle$									x		
1539.67(6)	$\langle 1^- \rangle$						0.31(9)					

(continued) **$^{240}_{94}$Pu**

E^*	J^π	Branching ratios in percentage									
	E_f^*:	742.33	747.8	239.2+X	365+X	958.85	1001.93	1037.52	1041.8	1055.7	554.7+X
[keV]	J_f^π:	5^-	$\langle 10^+\rangle$	$\langle 8^+\rangle$	$\langle 10^+\rangle$	$\langle 2^-\rangle$	$\langle 3^-\rangle$	$\langle 4^-\rangle$	$\langle 12^+\rangle$	$\langle 9^-\rangle$	$\langle 1^-\rangle$
1054.9+X	$\langle 8^-\rangle$			100							
1105+X	$\langle 10^+\rangle$				x						
1796.34(15)	$\langle 1^-\rangle$					27(10)					

Energy levels and branching ratios [90Sh04]. Part 4 **$^{240}_{94}$Pu**

E^*	J^π	Branching ratios in percentage									
	E_f^*:	1089.45	589.7+X	1115.53	1136.97	1161.53	1223.00	1276.8	806.2+X	1321.10	825.6+X
[keV]	J_f^π:	0^+	$\langle 3^-\rangle$	$\langle 5^-\rangle$	$\langle 2^+\rangle$	$\langle 6^-\rangle$	$\langle 2^+\rangle$	$\langle 11^-\rangle$	$\langle 2^-\rangle$		$\langle 3^-\rangle$
1308.74(5)	$\langle 5^-\rangle$			13.1(7)		2.4(2)					
806.2+X	$\langle 2^-\rangle$		1.8								
825.6+X	$\langle 3^-\rangle$								x		
851.1+X	$\langle 4^-\rangle$								x		x
882.8+X	$\langle 5^-\rangle$										x
1539.1	$\langle 13^-\rangle$							x			
1607.72(15)	$\langle 1^-\rangle$	9(3)									
1633.37(8)	$\langle 1^-\rangle$				3.8(8)						
1710.43(8)	$\langle 2^+\rangle$				10(2)						
1796.34(15)	$\langle 1^-\rangle$						27(7)			37(10)	
1360.9+X	$\langle 2^-\rangle$								<93		41(10)
1386.6+X	$\langle 3^-\rangle$										61(10)

Energy levels and branching ratios [90Sh04]. Part 5 **$^{240}_{94}$Pu**

E^*	J^π	Branching ratios in percentage									
	E_f^*:	836.0+X	846.8+X	851.1+X	1375.6	866.0+X	882.8+X	892.4+X	920.7+X	960.7+X	966.5+X
[keV]	J_f^π:	$\langle 1^-\rangle$	$\langle 2^-\rangle$	$\langle 4^-\rangle$	$\langle 14^+\rangle$	$\langle 3^-\rangle$	$\langle 5^-\rangle$	$\langle 6^+\rangle$	$\langle 6^-\rangle$	$\langle 6^-\rangle$	$\langle 7^-\rangle$
882.8+X	$\langle 5^-\rangle$			x							
920.7+X	$\langle 6^-\rangle$			x			x				
1539.1	$\langle 13^-\rangle$				x						
1745.6	$\langle 16^+\rangle$				x						
1841.4	$\langle 15^-\rangle$				x						
1344.5+X	$\langle 1^-\rangle$	[100]									
1360.9+X	$\langle 2^-\rangle$	17	41								
1386.6+X	$\langle 3^-\rangle$			37(10)		2					
1421.4+X	$\langle 4^-\rangle$			98(14)			<42	2			
1465.7+X	$\langle 5^-\rangle$						60(16)		39	1	
1518.7+X	$\langle 6^-\rangle$								[100]		
1580.5+X	$\langle 7^-\rangle$										100

Energy levels and branching ratios [90Sh04]. Part 6 **$^{240}_{94}$Pu**

E^*	J^π	Branching ratios in percentage									
	E_f^*:	998.3+X	1539.67	1055+X	1104+X	1172+X	1745.6	1841.4	2152	2182.5	2561
[keV]	J_f^π:	$\langle 7^- \rangle$	$\langle 1^- \rangle$	$\langle 8^- \rangle$	$\langle 9^- \rangle$	$\langle 10^- \rangle$	$\langle 16^+ \rangle$	$\langle 15^- \rangle$	$\langle 18^+ \rangle$	$\langle 17^- \rangle$	$\langle 19^- \rangle$
1841.4	$\langle 15^- \rangle$		x								
1580.5+X	$\langle 7^- \rangle$	x									
2152	$\langle 18^+ \rangle$						x				
1651+X	$\langle 8^- \rangle$			x							
2182.5	$\langle 17^- \rangle$						x	x			
1732+X	$\langle 9^- \rangle$				x						
1816+X	$\langle 10^- \rangle$					x					
2561	$\langle 19^- \rangle$								x	x	
2591	$\langle 20^+ \rangle$								x		
2975	$\langle 21^- \rangle$										x

Energy levels and branching ratios [90Sh04]. Part 7 **$^{240}_{94}$Pu**

E^*	J^π	Branching ratios in percentage					
	E_f^*:	2591	2975	3061	3423	3560	3903
[keV]	J_f^π:	$\langle 20^+ \rangle$	$\langle 21^- \rangle$	$\langle 22^+ \rangle$	$\langle 23^- \rangle$	$\langle 24^+ \rangle$	$\langle 25^- \rangle$
3061	$\langle 22^+ \rangle$	x					
3423	$\langle 23^- \rangle$		x				
3560	$\langle 24^+ \rangle$			x			
3903	$\langle 25^- \rangle$				x		
4088	$\langle 26^+ \rangle$					x	
4414	$\langle 27^- \rangle$						x

Energy levels and branching ratios [94Ak06, 05Ma88]. **$^{241}_{94}$Pu**

E^*	$2J^\pi$	σ (d,p)	$n\ell j$	σ (d,p)	σ (d,t)	σ (d,t)	σ (τ,α)	σ (d,d′)	$T_{1/2}$ or	Ref.
[keV]		μb/sr		μb/sr	μb/sr	μb/sr	μb/sr	μb/sr	Γ_{cm}	
0.0	5^+	13	5+[622]	17(4)	53(6)	68(14)			14.29(1) yr	65Br22
41.972(1)	7^+		5+[622]	<4	10(4)					72Br46
95.780(1)	9^+	97	5+[622]	101(10)	204(15)	280(28)	10(2)			65Br22
161.314(4)	11^+	12	5+[622]	17(8)	50(20)					65Br22
161.685(1)	1^+	incl	1+[631]	incl	incl				0.88(5) μs	
170.940(1)	3^+	41	3+[631]	40(7)	312(60)	520(68)	3.0(6)			65Br22
175.052(1)	7^+	incl		incl	incl					
222.988(1)	5^+		5+[631]							
231.935(9)	9^+	35		33(6)	30(8)					65Br22
235(4)	13^+		5+[622]			48(12)	5.7(8)			71El02
244.890(1)	7^+	6	5+[631]	14(4)	43(15)	45(11)	incl			65Br22

(continued) **$^{241}_{94}$Pu**

E^* [keV]	$2J^\pi$	σ (d,p) μb/sr	$n\ell j$	σ (d,p) μb/sr	σ (d,t) μb/sr	σ (d,t) μb/sr	σ (τ,α) μb/sr	σ (d,d′) μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
301.17(2)	11^+	10		13(5)	8(2)	≈5	3.8(9)			65Br22
337	1,3					144(15)				
337.136(2)	9^+	18	5+[631]	22(4)	100(15)	incl	5.0(9)			65Br22
373(2)	11^+			10(4)	10(4)					72Br46
376	1,3									05Ma88
385(3)	$\langle 13^+ \rangle$									05Ma88
404.453(2)	$\langle 9 \rangle^-$									05Ma88
408.899(3)	$\langle 7 \rangle^-$									05Ma88
446(2)	11^-	3		8(3)	18(8)	18(4)	1.3(4)			65Br22
473	$\langle 1,3 \rangle$									05Ma88
495(10)								50(10)		72Br46
503(3)	13^+					≈5	1.8(5)			71El02
518.812(3)	5^-							60(10)		72Br46
534.20(1)										05Ma88
561.421(5)	7^-	17		18(5)	34(12)			160(10)		65Br22
570(2)	15^-					45(8)	28(2)			71El02
614.836(9)	$\langle 9^- \rangle$							70(10)		72Br46
645(9)							≈0.5			71El02
681	1,3									05Ma88
755.174(2)	1^+	131		131(18)	13(6)		2.1(6)			65Br22
769.269(4)	1^-			<40	116(15)					05Ma88
779.150(2)	3^-	92		111(17)	30(10)	233(24)				65Br22
784.152(3)	3^+									05Ma88
800.443(5)	3^+	266	7+[613]	287(30)	50(20)					65Br22
800.479(6)	5^+	incl	1+[620]							05Ma88
810.946(4)	5^-			<75	50(20)	≈80				72Br46
831.587(7)	5^+	148		155(20)	150(50)	423(51)	≈3.4			65Br22
833.3(1)	7^-									05Ma88
834.84(2)	3^+–7^+									05Ma88
841.957(2)	1^-	67		82(25)	195(80)					72Br46
850.539(2)	3^-									05Ma88
863(2)		44		56	85(35)					65Br22
869.383(7)	7^+									05Ma88
877(2)	$\langle 7^+ \rangle$					≈19	≈3.3			71El02
897.50(2)	$\langle 5^- \rangle$									05Ma88
898(2)	$\langle 9^+ \rangle$	98	1+[620]	101(15)	23(6)					65Br22
918(2)	$\langle 7^- \rangle$	72		77(14)	8(3)					65Br22
929.7(2)	3–7					107(10)	6.8(9)			71El02
931(2)	$\langle 9^+ \rangle$									05Ma88
937(2)	$\langle 11^- \rangle$			70(13)	83(15)					71El02
940.31(1)	3^+	63								65Br22
942.583(5)	3^+									05Ma88
950(3)				44(10)	30(12)					72Br46
964.94(1)	1^-									05Ma88
974(2)		72		71(13)	235(40)	440(60)				65Br22

(continued) **$^{241}_{94}$Pu**

E^* [keV]	$2J^\pi$	σ (d,p) μb/sr	$n\ell j$	σ (d,p) μb/sr	σ (d,t) μb/sr	σ (d,t) μb/sr	σ (τ,α) μb/sr	σ (d,d′) μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
994(3)	$\langle 11^+ \rangle$	32		36(9)	47(15)		5(2)			65Br22
995.60(1)	3^-	incl		incl	incl					72Br46
1009.44(1)	3^-			<20	112(25)	219(28)				72Br46
1020(3)	⟨1,3⟩	59		63(12)	<10					65Br22
1049	1,3									05Ma88
1062(3)				22(8)	51(10)	108(22)				72Br46
1084(3)		45		41(10)	<15					65Br22
1090.023(5)	3^-			<15	145(20)	318(32)	3.6(7)			71El02
1118(3)				<10	25(9)	57(16)				72Br46
1173	⟨1,3⟩									05Ma88
1179(2)				<10	107(15)	172(28)	11(2)			72Br46
1196	⟨1,3⟩									05Ma88
1206(3)				34(12)	116(15)	310(31)				72Br46
1223.84(1)	1,3			22(10)	<6					72Br46
1244(3)				35(11)	<6					72Br46
1253.79(1)	3^-,5^-			32(12)	<6					05Ma88
1268.86(5)	1,3									05Ma88
1277(4)				30(17)	<6					72Br46
1288(4)				17(7)	<6					72Br46
1296.70(5)	3^-			28(10)	<6					05Ma88
1309(4)				28(10)	<6					72Br46
1316.2(1)	1,3									05Ma88
1347(3)				30(10)	<6					72Br46
1351.6(2)	1,3			32(12)	<6					72Br46
1357.68(3)	1,3			incl						05Ma88
1362.83(8)										05Ma88
1384(3)				113(23)	<6					72Br46
1390(6)				<10	53(10)	117(16)				72Br46
1441(4)				20(9)	<6					72Br46
1452(5)				30(15)	<6					72Br46
1472.08(12)				<10	30(5)	78(15)				72Br46
1478.18(13)					incl	incl				05Ma88
1489(5)				20(10)	<6					72Br46
1501.32(21)										05Ma88
1505.21(19)										05Ma88
1513.97(10)										05Ma88
1523.73(5)										05Ma88
1530.91(20)										05Ma88
1546(5)				25(12)	<6					72Br46
1594(5)				22(10)	<6					72Br46
1611.02(3)										05Ma88
1762(3)				129(20)	14(5)					72Br46
1801(4)				48(20)	21(9)					72Br46
1826(4)				50(20)	<6					72Br46
1868(5)	$\langle 15 \rangle^-$						20(3)			71El02

(continued) **$^{241}_{94}$Pu**

E^* [keV]	$2J^\pi$	σ (d,p) μb/sr	$n\ell j$	σ (d,p) μb/sr	σ (d,t) μb/sr	σ (d,t) μb/sr	σ (τ,α) μb/sr	σ (d,d′) μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.
1944(5)							4.2(9)			71El02
1991(4)							6(1)			71El02
≈2045							≈3			71El02
2199	1,3									
≈2200									21(3) μs	
2200+X									32(5) ns	
		65Br22		72Br46	72Br46	71El02	71El02	72Br46		Ref.

Two sets of σ (d,p) [65Br22, 72Br46], σ (d,t) and σ (d,d′) [72Br46] were measured at 140°, data for 90° can be found in [72Br46]; independent measurements of σ (d,t) and σ (τ,α) (at right) were performed in [71El02]; see also $n\ell j$ assignment from Adopted Levels [94Ak06] in Supplement.
Data for this isotope are considered in vol. LB I/18C.

Energy levels and branching ratios [94Ak06, 05Ma88]. Part 2 **$^{241}_{94}$Pu**

E^*	$2J^\pi$	Branching ratios in percentage								
	E_f^*:	0.0	41.9	95.7	161	162	170.9	174.94	231.76
[keV]	$2J_f^\pi$:	5^+	7^+	9^+	$\langle 11^+ \rangle$	1^+	$\langle 3^+ \rangle$	7^+	9^+
41.972(1)	7^+	x							
95.780(1)	9^+		x						
161.314(4)	11^+			x					
161.685(1)	1^+	x							
175.052(1)	7^+	76	22.3(11)	1.21(7)					
231.935(9)	9^+		57(4)	33(2)				10.6(6)	
301.17(2)	11^+				46(16)				54(23)
404.453(2)	$\langle 9 \rangle^-$	x	73(8)	27(8)					
518.812(3)	5^-	≈80	20(2)						
561.421(5)	7^-	67(27)	≈33						
755.174(2)	1^+					95	5.3		
769.269(4)	1^-					72	28		
784.152(3)	3^+	50				30	20		
831.587(7)	5^+	x							
841.957(2)	1^-	44			27.8		27.8		
850.539(2)	3^-					71	29		
929.7(2)	3–7	x		x					
940.31(1)	3^+				77		23		
964.94(1)	1^-					46	54		

Energy levels and branching ratios [02Ak06].

$^{242}_{94}$Pu

E^*	J^π	σ (p,t)	R	σ (d,d′)	R	$T_{1/2}$ or	Ref.	Branching ratios in percentage				
								E_f^*:	0.0	44.5	147	306	518
[keV]		*rel.*	(p,t)	μb/sr	(d,d′)	Γ_{cm}		J_f^π:	0^+	2^+	4^+	6^+	8^+
0.0	0^+	1.0		$10{\cdot}10^3$	4.82	375000(2000) yr	72Ma15						
44.54(2)	2^+	0.20		3763	2.07	158(3) ps	72Ma15		x				
147.3(2)	4^+	0.07		294	1.04		72Ma15			x			
306.4(2)	6^+			53			72El08				x		
518.1(5)	8^+			8			72El08					x	
778.6(8)	10^+			32			72El08						x
780.5(1)	$\langle 1^- \rangle$			incl					35(1)	65			
832.3(3)	3^-			93	1.91		72El08			x	x		
865				3			72El08						
927	$\langle 5^- \rangle$			20			72El08						
956	$\langle 0^+ \rangle$	0.17	0.24				72Ma15						
992.5(3)	$\langle 2^+ \rangle$	0.10	$\langle 0.2 \rangle$	3			72Ma15			x			
1019(1)	3^-			132	1.06		72El08			x			
1039.2(3)	$\langle 1^+,2^+ \rangle$								x				
1064.0(9)	$\langle 4^- \rangle$										x		
1084.4(12)	12^+												
1092.1(2)	$\langle 6^+ \rangle$										39(2)	61	
1102(4)	$\langle 2^+ \rangle$	0.05		36	1.44		72Ma15						
1122	$\langle 5^- \rangle$			22			72El08						
1151(1)	$\langle 2^- \rangle$									x			
1154.5(2)	$\langle 3^- \rangle$									70(10)	30(6)		
1181.6(2)	$\langle 2^+ \rangle$								9(1)	75(3)	16(3)		
1204				38			72El08						
1259				7			72El08						
1357.2(3)													
1401.0(2)	$\langle 0,1^+ \rangle$												
1428.0(4)	$\langle 2^- \rangle$									31(13)			
1431.7(16)	14^+												
1501				11			72El08						
1517.6(1)	$\langle 1^- \rangle$								35(2)	65(2)			
1613				24			72El08						
1638				7			72El08						
1650	$\langle 3^- \rangle$			73	0.79		72El08						
1683				14			72El08						
1701				6			72El08						
1745.1(18)													
1776				6			72El08						
1816.7(20)	16^+												
1825.8(10)	$\langle 4^+ \rangle$			6			72El08					x	
1871.4(3)										100			
1874.1(2)									18(4)				
1903.6(3)										69(3)			
1949.8(2)	$\langle 1,2^+ \rangle$								73(3)	27(3)			
1969.9(2)	$\langle 1,2^+ \rangle$								70(3)	30(3)			
≈2000						3.5(6) ns							

(continued) **$^{242}_{94}$Pu**

E^*	J^π	σ (p,t)	R	σ (d,d′)	R	$T_{1/2}$ or	Ref.	Branching ratios in percentage				
								E_f^*:	0.0	44.5	147	306	518
[keV]		*rel.*	(p,t)	μb/sr	(d,d′)	Γ_{cm}		J_f^π:	0^+	2^+	4^+	6^+	8^+
≈2000+Y						28 ns							
2091.8(20)													
2236.0(24)	18^+												
2246.0(4)	$\langle 1,2^+\rangle$								43(14)	57(14)			
2331.3(2)	$\langle 2^+\rangle$												
2437.5(21)													
2686(3)	20^+												
3163(4)	22^+												
3662(4)	24^+												
4172(4)	26^+												
		72Ma15	70Ma29	72El08			Ref.						

Additional data on this isotope can be found in [72Va20].
σ (p,t) [72Ma15] and (d,d′) [72El08] were measured at 60° and 125°, respectively.
The ratio R of the cross section of the excited state to that of the ground state [70Ma29] is given.
Ratio R between σ (d,d′) at 90° and 125° was used for the estimation of J^π [72El08].
Data for this isotope are considered in vol. LB I/18C.

Energy levels and branching ratios [02Ak06]. Part 2 **$^{242}_{94}$Pu**

E^*	J^π	Branching ratios in percentage										
	E_f^*:	778.6	780.45	832.3	1084.4	1092.1	1151	1431.7	1517.6	1816.7	2236.0	
[keV]	J_f^π:	10^+	$\langle 1^-\rangle$	3^-	12^+	$\langle 6^+\rangle$	$\langle 2^-\rangle$	14^+	$\langle 1^-\rangle$	16^+	18^+	
1084.4(12)	12^+	x										
1357.2(3)						x						
1401.0(2)	$\langle 0,1^+\rangle$		100									
1428.0(4)	$\langle 2^-\rangle$		69(7)									
1431.7(16)	14^+				x							
1816.7(20)	16^+							x				
1871.4(3)				≤96								
1874.1(2)			82(7)									
1903.6(3)			31(6)									
2091.8(20)							x					
2236.0(24)	18^+									x		
2331.3(2)	$\langle 2^+\rangle$		22(4)						78(7)			
2686(3)	20^+										x	

Energy levels and branching ratios [02Ak06]. Part 3

$^{242}_{94}$Pu

E^*	J^π		Branching ratios in percentage		
		E_f^*:	2686	3163	3662
[keV]		J_f^π:	20^+	22^+	24^+
3163(4)	22^+		x		
3662(4)	24^+			x	
4172(4)	26^+				x

Energy levels and branching ratios [81El08, 04Ak21]

$^{243}_{94}$Pu

E^*	$2J^\pi$	σ (d,p)	$n\ell j$	σ (d,p)	σ (d,p)	σ (d,t)	R	Ref.	Branching ratios in percentage				
									E_f^*: 0.0	58.1	125	287	333
[keV]		μb/sr		μb/sr	μb/sr	μb/sr			$2J_f^\pi$: 7^+	9^+	11^+	5^+	7^+
0.0	7^+		7+[624]	17(6)	<2	11.4	0.56	72Br46					
58.1(4)	9^+	11	7+[624]	13(4)	<2	27.3	0.54	65Br22					
124.6(10)	11^+	13		17(3)	<2	29.5	0.34	65Br22					
204.4(15)	$\langle 13^+ \rangle$				<2	4.8	≈0.20	76Ca25					
287.4(3)	5^+	8		11(2)	10.0	68.5	0.90	65Br22	98(14)	1.8(4)			
333.2(4)	7^+	4			<1	8.1	0.55	65Br22	39(17)	61(12)			
383.6(4)	$\langle 1^+ \rangle$											x	
≈388	$\langle 9^+ \rangle$	121	5+[622]	145(20)	92	456	0.80	65Br22					
392.0(5)	$\langle 3^+ \rangle$	incl	1+[631]	incl									
402.6(3)	9^-								94(8)	≈1.7	4.4(9)		
446.8(4)	$\langle 5^+ \rangle$												
450.1(15)	$\langle 7^+ \rangle$				<2	22	0.46	76Ca25					
454(6)	11^-												
466.7(15)	$\langle 11^+ \rangle$				10.0	42.7	0.52	76Ca25					
536.6(15)	$\langle 13^+ \rangle$				3.8	15.6	≈0.15	76Ca25					
564.5(15)	$\langle 9^+ \rangle$	19		23(6)	19.3	108	0.43	65Br22					
595.3(15)	$\langle 15^- \rangle$			28(16)	25.5	47.2	0.15	72Br46					
625.6(4)	$\langle 1^+ \rangle$	286	1+[620]	325(25)				65Br22					
626(2)	$\langle 9^+ \rangle$	incl		incl	194	29.8	0.90	76Ca25					
653.8(4)	$\langle 3^+ \rangle$		1+[620]	38(10)	15	4.3	≈0.6	72Br46					
677.2(5)	$\langle 5^+ \rangle$	165	1+[620]	158(12)	115	28.9	0.50	65Br22					x
703.9(4)	$\langle 3^- \rangle$			13(8)	10.6	9.3	0.78	72Br46				x	
734.1(20)					<15	10	0.25	76Ca25					
741.8(15)	$\langle 7^+ \rangle$	50	1+[620]	40(20)	52.5	15	0.25	65Br22					
777(3)*	$[9^+]$		1+[620]	35(4)				72Br46					
790.7(4)	$\langle 3^- \rangle$	175		176(10)	127	7.4	1.1	65Br22					
809.5(3)	1^+,3				102	22.8	0.63	76Ca25					
813.8(2)	3^+	116		135(15)				65Br22	38(4)			39(4)	12(2)
834.4(15)	$\langle 7^- \rangle$	153		140(15)	108	7.8	1.02	65Br22					
845.4(4)	$\langle 5^+ \rangle$	84		85(10)	66.7	10	0.89	65Br22	≤19	25(13)		75(8)	
873.7(10)	$\langle 1^- \rangle$	59		70(7)	45.3	<3		65Br22					
884(3)					<30	9.7	0.8	76Ca25					
895.6(15)	$\langle 7^+ \rangle$	62		60(8)	58.4	<12		65Br22					

(continued)

$^{243}_{94}$Pu

E^* [keV]	$2J^\pi$	σ (d,p) μb/sr	$n\ell j$	σ (d,p) μb/sr	σ (d,p) μb/sr	σ (d,t) μb/sr	R	Ref.	Branching ratios in percentage E_f^*: 0.0 $2J_f^\pi$: 7^+	58.1 9^+	125 11^+	287 5^+	333 7^+
905.7(5)	$\langle 1^- \rangle$				<30	360	0.55	76Ca25					
920.6(15)	$\langle 11^- \rangle$	39		41(9)	35.7	<6		65Br22					
948.0(4)	$\langle 3^- \rangle$				<15	204	0.52	76Ca25					
954(2)	$\langle 9^+ \rangle$	71		70(10)	60.8	<12		65Br22					
981.0(4)	$\langle 5^+ \rangle$	35		45(10)	24.5	124	0.59	65Br22				15(6)	≤23
1044(2)		101		112(15)	81.4	20.4	≈0.17	65Br22					
1080(2)	$\langle 9^+ \rangle$				14.1	204	0.37	76Ca25					
1114(3)					9.4	<3		76Ca25					
1130(1)	1^+,3				<4	32.2	0.53	76Ca25					
1145(3)					7	<6		76Ca25					
1176(1)	3^+,5^+				6	9.1	0.63	76Ca25	29(6)			56(8)	≤5.6
1197(3)				18(10)	13	<4		72Br46					
1213(2)					22	268	0.53	76Ca25				57(29)	43(20)
1220(2)*				38(8)				72Br46					
1233(3)					8.6	<6		76Ca25					
1243(3)					<4	13.5	0.45	76Ca25					
1265(3)					8.8	<6		76Ca25					
1286(3)				26(7)	24.3	<6		72Br46					
1299(2)					<6	24.5	≈0.2	76Ca25					
1301.6(5)	1,3												
1324(2)				56(15)	39.6	<6		72Br46					
1354(2)					<7	27.0	≈0.22	76Ca25					
1359(3)					14.3	<9		76Ca25					
1367.8(6)	1,3			32(10)				72Br46					
1387.4(4)	3^+				<4	17.4	0.44	76Ca25					52(20)
1403(3)					13.7	<4		76Ca25					
1420.5(6)	$\langle 3^+ \rangle$				<6	8.2	0.46	76Ca25					50(26)
1434.7(4)	$1^{\langle + \rangle}$,3												
1444(3)					22	4.9	≈0.5	76Ca25					
1465(3)					8	6.3	≈0.5	76Ca25					
1491.0(10)	1,3			132(30)	85	<3		72Br46					
1516.6(10)	3												
1580(3)*				46(8)				72Br46					
1641(4)*				92(15)				72Br46					
1700(300)													
1759(5)*				28(10)				72Br46					
1808(2)*				86(20)				72Br46					
		65Br22	65Br22	72Br46	76Ca25	76Ca25		Ref.					
							76Ca25	Ref.					

* Not included in Adopted Levels [81El08].

Given here three sets of σ (d,p) [65Br22, 72Br46, 76Ca25] were measured at 140°, 140° and 150°, respectively; σ (d,t) [76Ca25] was measured at 150°; ratios R of (d,p)- and (d,t)-cross sections measured at 90° and 150° given in Supplement were used in [76Ca25] for J^π and $n\ell j$ assignments.

Data for this isotope are considered in vol. LB I/18C.

Energy levels and branching ratios [81El08, 04Ak21] Part 2

$^{243}_{94}$Pu

E^* [keV]	$2J^\pi$	R	$T_{1/2}$ or Γ_{cm}	Ref.	Branching ratios in percentage						
					E_f^*:	383.6	392.0	446.8	625.6	653.8	677.2	703.9
					$2J_f^\pi$:	$\langle 1^+ \rangle$	$\langle 3^+ \rangle$	$\langle 5^+ \rangle$	$\langle 1^+ \rangle$	$\langle 3^+ \rangle$	$\langle 5^+ \rangle$	$\langle 3^- \rangle$
0.0	7^+		4.956(3) h	72Br46								
58.1(4)	9^+			65Br22								
124.6(10)	11^+			65Br22								
204.4(15)	$\langle 13^+ \rangle$			76Ca25								
287.4(3)	5^+	1.7		65Br22								
333.2(4)	7^+			65Br22								
383.6(4)	$\langle 1^+ \rangle$		0.33(3) μs									
≈388	$\langle 9^+ \rangle$	1.3		65Br22								
392.0(5)	$\langle 3^+ \rangle$											
402.6(3)	9^-											
446.8(4)	$\langle 5^+ \rangle$											
450.1(15)	$\langle 7^+ \rangle$			76Ca25								
454(6)	11^-											
466.7(15)	$\langle 11^+ \rangle$	1.3		76Ca25								
536.6(15)	$\langle 13^+ \rangle$	<0.6		76Ca25								
564.5(15)	$\langle 9^+ \rangle$	0.9		65Br22								
595.3(15)	$\langle 15^- \rangle$	0.33		72Br46								
625.6(4)	$\langle 1^+ \rangle$			65Br22		95(18)	4.8(15)					
626(2)	$\langle 9^+ \rangle$	1.3		76Ca25								
653.8(4)	$\langle 3^+ \rangle$	≈1.5		72Br46			x					
677.2(5)	$\langle 5^+ \rangle$	1.3		65Br22			100					
703.9(4)	$\langle 3^- \rangle$	0.68		72Br46								
734.1(20)				76Ca25								
741.8(15)	$\langle 7^+ \rangle$	0.91		65Br22								
777(3)*	$[9^+]$			72Br46								
790.7(4)	$\langle 3^- \rangle$	1.55		65Br22		[100]						
809.5(3)	1^+,3	1.55		76Ca25								
813.8(2)	3^+			65Br22						11(4)		
834.4(15)	$\langle 7^- \rangle$	1.58		65Br22								
845.4(4)	$\langle 5^+ \rangle$	0.8		65Br22								
873.7(10)	$\langle 1^- \rangle$	1.43		65Br22						x		
884(3)				76Ca25								
895.6(15)	$\langle 7^+ \rangle$	0.98		65Br22								
905.7(5)	$\langle 1^- \rangle$			76Ca25		≤34	100					
920.6(15)	$\langle 11^- \rangle$	0.88		65Br22								
948.0(4)	$\langle 3^- \rangle$			76Ca25		48(5)	24(8)	28(3)				
954(2)	$\langle 9^+ \rangle$	0.86		65Br22								
981.0(4)	$\langle 5^+ \rangle$	1.47		65Br22			47(6)	38(8)				
1044(2)		0.70		65Br22								
1080(2)	$\langle 9^+ \rangle$	1.0		76Ca25								
1114(3)		≈0.5		76Ca25								
1130(1)	1^+,3			76Ca25		56(6)	44(5)	≤30				≤21
1145(3)		≈0.3		76Ca25								
1176(1)	3^+,5^+	≈0.3		76Ca25				3.0(10)	3.8(10)			
1197(3)		1.8		72Br46								

(continued) **$^{243}_{94}$Pu**

E^*	$2J^\pi$	R	$T_{1/2}$ or	Ref.	Branching ratios in percentage						
					E_f^*: 383.6	392.0	446.8	625.6	653.8	677.2	703.9
[keV]			Γ_{cm}		$2J_f^\pi$: $\langle 1^+ \rangle$	$\langle 3^+ \rangle$	$\langle 5^+ \rangle$	$\langle 1^+ \rangle$	$\langle 3^+ \rangle$	$\langle 5^+ \rangle$	$\langle 3^- \rangle$
1213(2)		1.4		76Ca25							
1220(2)*				72Br46							
1233(3)		1.7		76Ca25							
1243(3)				76Ca25							
1265(3)		1.3		76Ca25							
1286(3)		1.1		72Br46							
1299(2)				76Ca25							
1301.6(5)	1,3				30(11)			70(7)	≤26		
1324(2)		0.88		72Br46							
1354(2)				76Ca25							
1359(3)		≈1.0		76Ca25							
1367.8(6)	1,3			72Br46		39(20)			14(7)		47(7)
1387.4(4)	3^+			76Ca25							≤55
1403(3)		1.6		76Ca25							
1420.5(6)	$\langle 3^+ \rangle$			76Ca25		≈20					30(6)
1434.7(4)	$1^{\langle + \rangle}$,3					26(4)			9(6)	16(3)	
1444(3)		0.8		76Ca25							
1465(3)		≈1.0		76Ca25							
1491.0(10)	1,3	1.3		72Br46							
1516.6(10)	3									x	
1580(3)*				72Br46							
1641(4)*				72Br46							
1700(300)			45(15) ns								
1759(5)*				72Br46							
1808(2)*				72Br46							
				Ref.							
		76Ca25		Ref.							

Energy levels and branching ratios [81El08, 04Ak21] Part 3 **$^{243}_{94}$Pu**

E^*	$2J^\pi$	Branching ratios in percentage			
		E_f^*:	790.7	809.5	948.0
[keV]		$2J_f^\pi$:	$\langle 3^- \rangle$	$\langle 1^+,3 \rangle$	$\langle 3^- \rangle$
1176(1)	$3^+,5^+$		7.6(13)		
1387.4(4)	3^+				48(7)
1434.7(4)	$1^{\langle + \rangle}$,3		14(3)	36(4)	

Energy levels and branching ratios [03Ak04].

$^{244}_{94}$Pu

E^*	J^π	σ (d,d′)	σ (d,d′)	R	$T_{1/2}$ or	Ref.	Branching ratios in percentage				
							E_f^*: 0.0	44.2	155	318	535
[keV]		μb/sr	μb/sr	(d,d′)	Γ_{cm}		J_f^π: 0^+	2^+	4^+	6^+	8^+
0.0	0^+	$50{\cdot}10^3$	$10{\cdot}10^3$	4.8	$8.00(9){\cdot}10^7$ yr	75Th11					
44.2(4)	2^+	10400	4592	2.3	156(4) ps	75Th11	x				
155.0(5)	4^+	615	262	2.4		75Th11		x			
317.9(5)	6^+	90	81	1.1		75Th11			x		
535.0(5)	8^+	14				75Th11				x	
708(4)	$\langle 2^+,3^-\rangle$										
802.4(8)	10^+										x
957(2)	$\langle 3^-\rangle$	367	147	2.5		75Th11					
1015(2)	$\langle 2^+\rangle$	278	82	3.4		75Th11					
1068(4)	$\langle 5^-\rangle$	74	75	1.0		75Th11					
1068		incl	incl								
1108(2)	$\langle 3^-\rangle$	368	125	2.9		75Th11					
1115.9(12)	12^+										
1194(3)	$\langle 5^-\rangle$	19	21	0.9		75Th11					
1206.3	$\langle 7^-\rangle$										x
1210(3)		32	16	2.0		75Th11					
1216.0	$\langle 8\rangle$										x
1353(4)			11			75Th11					
1378(3)		$\langle 100\rangle$	21			75Th11					
1395.3	$\langle 9^-\rangle$										x
1434(3)		$\langle 150\rangle$	36			75Th11					
1471.0(16)	14^+										
1613(3)	$\langle 3^-\rangle$	$\langle 270\rangle$	105			75Th11					
1627.7	$\langle 11^-\rangle$										
1783(3)		$\langle 40\rangle$	19			75Th11					
1805(3)		$\langle 30\rangle$	10			75Th11					
1847(3)			10			75Th11					
1863.5(20)	16^+										
1896(3)		$\langle 70\rangle$	22			75Th11					
1904	$\langle 13^-\rangle$										
2220	$\langle 15^-\rangle$										
2289	18^+										
≈2400					380(80) ps						
2573	$\langle 17^-\rangle$										
2742(3)	20^+										
2958	$\langle 19^-\rangle$										
3215(5)	22^+										
3365	$\langle 21^-\rangle$										
3690	24^+										
3789	$\langle 23^-\rangle$										
4149	26^+										
4233	$\langle 25^-\rangle$										
4610	28^+										
4696	$\langle 27^-\rangle$										
5089	30^+										

(continued) **$^{244}_{94}$Pu**

E^*	J^π	σ (d,d′)	σ (d,d′)	R	$T_{1/2}$ or	Ref.	Branching ratios in percentage				
							E_f^*:	0.0	44.2	155	318	535
[keV]		μb/sr	μb/sr	(d,d′)	Γ_{cm}		J_f^π:	0^+	2^+	4^+	6^+	8^+
5593	32^+											
6123	34^+											
		75Th11	75Th11	75Th11		Ref.						

Ratio R between σ (d,d′) at 90° and 125° was used for estimation of J^π [75Th11].

Energy levels and branching ratios [03Ak04]. Part 2 **$^{244}_{94}$Pu**

E^*	J^π	Branching ratios in percentage									
		E_f^*:	802.4	1115.9	1206.3	1395.3	1471.0	1627.7	1863.5	1904	2220	2289
[keV]		J_f^π:	10^+	12^+	$\langle 7^- \rangle$	$\langle 9^- \rangle$	14^+	$\langle 11^- \rangle$	16^+	$\langle 13^- \rangle$	$\langle 15^- \rangle$	18^+
1115.9(12)	12^+		x									
1395.3	$\langle 9^- \rangle$		x		x							
1471.0(16)	14^+			x								
1627.7	$\langle 11^- \rangle$		x	x		x						
1863.5(20)	16^+						x					
1904	$\langle 13^- \rangle$			x			x	x				
2220	$\langle 15^- \rangle$						x		x	x		
2289	18^+								x			
2573	$\langle 17^- \rangle$								x		x	x
2742(3)	20^+											x

Energy levels and branching ratios [03Ak04]. Part 3 **$^{244}_{94}$Pu**

E^*	J^π	Branching ratios in percentage										
		E_f^*:	2573	2742	2958	3215	3365	3690	3789	4149	4233	4610
[keV]		J_f^π:	$\langle 17^- \rangle$	20^+	$\langle 19^- \rangle$	22^+	$\langle 21^- \rangle$	24^+	$\langle 23^- \rangle$	26^+	$\langle 25^- \rangle$	28^+
2958	$\langle 19^- \rangle$		x									
3215(5)	22^+			x								
3365	$\langle 21^- \rangle$				x							
3690	24^+					x						
3789	$\langle 23^- \rangle$						x					
4149	26^+							x				
4233	$\langle 25^- \rangle$								x			
4610	28^+									x		
4696	$\langle 27^- \rangle$										x	
5089	30^+											x

Energy levels and branching ratios [03Ak04]. Part 4 **$^{244}_{94}$Pu**

E^*	J^π		Branching ratios in percentage	
		E_f^*:	5089	5593
[keV]		J_f^π:	30^+	32^+
5593	32^+		x	
6123	34^+			x

Energy levels [92Ak05]. **$^{245}_{94}$Pu**

E^*	$2J^\pi$	$T_{1/2}$ or	Ref.
[keV]		Γ_{cm}	
0.0[a]	$\langle 9^- \rangle$	10.5(1) h	75ErZX
217[a]	$\langle 15^- \rangle$		75ErZX
246(4)			75ErZX
306(3)[b]	$\langle 1^+ \rangle$		75ErZX
325(2)[c]	$\langle 9^+ \rangle$		75ErZX
355(3)[b]	$\langle 5^+ \rangle$		75ErZX
423(5)[b]	$\langle 7^+ \rangle$		75ErZX
459(5)[b]	$\langle 9^+ \rangle$		75ErZX
575(4)[d]	$\langle 3^+ \rangle$		75ErZX
613(4)[d]	$\langle 5^+ \rangle$		75ErZX
637(4)	$\langle 3^- \rangle$		75ErZX
660(3)[d]	$\langle 7^+ \rangle$		75ErZX
675(3)[c]	$\langle 7^- \rangle$		75ErZX
723(3)[d]	$\langle 9^+ \rangle$		75ErZX
738(3)			75ErZX
758(4)			75ErZX
802(2)			75ErZX
1071(3)			75ErZX
1128(3)			75ErZX
1279(3)			75ErZX
1389(4)			75ErZX
2000(400)		90(30) ns	
	75ErZX		Ref.

Spin and [NnL]-assignment [75ErZX] was based on σ (d,p) measured at 90°, 120°, 150°. 5 bands of levels a – 9/2[734], b – 1/2[620], c – 7/2[613], d – 3/2[622], e – 1/2[761] are from [92Ak05].
Data for this isotope are considered in vol. LB I/18C.

Energy levels [98Ar12]. $^{246}_{94}\mathbf{Pu}$

E^* [keV]	J^π	$T_{1/2}$ or Γ_{cm}
0	0^+	10.84(2) d
46	2^+	
155	4^+	
769		
901		
938		
991	0^+	
1040		
1212		
1246		
1424		
1464		
1548		