

Energy levels and branching ratios [86Ma17].

²⁰⁸Rn
86

E^* [keV]	J^π	$T_{1/2}$ or Γ_{cm}	$E_f^*:$ $J_f^\pi:$	0.0 0 ⁺	635.8 2 ⁺	1188.9 4 ⁺	1414.3 4 ⁺	1578.0	1658.6 4 ⁺ ,5 ⁺	1739.6 6 ⁺
0.0	0 ⁺	24.35(14) m								
635.8(2)	2 ⁺			100						
1188.9(2)	4 ⁺				100					
1414.3(2)	4 ⁺				97.8(16)	2.2(5)				
1578.0(4)	⟨4-6⟩ ⁺					52(24)	48(20)			
1658.6(3)	4 ⁺ ,5 ⁺					100				
1739.6(3)	6 ⁺						94(5)	5.1(10)	0.8(7)	
1825.2(3)	6 ⁺					100				
1905.7(3)	6 ⁺					100				
1925	8 ⁺	473 ns								
2128.8(5)	6 ⁺ ,7 ⁺									100
2163.4(5)	7 ⁺ ,8 ⁺									
2179.0(3)	⟨5 ⁻ ,6 ⁺ ⟩					100				
2319.4(4)	9 ⁻									
2320.3(4)	6 ⁺ -8 ⁺									
2330.3(3)	⟨5 ⁻ -7 ⁺ ⟩								100	
2356.8(3)	⟨5 ⁻ ,6 ⁺ ⟩						100			
2459.1(4)	6 ⁺ -8 ⁺									100
2465.1(4)	10 ⁺									
2546.0(3)	⟨6,7 ⁺ ⟩								100	
2618.1(4)	10 ⁻	11.8(7) ns								
2619.0(4)	6 ⁺ -8 ⁺									
2621.2(4)	11 ⁻	3.5(7) ns								
2797.4(4)	12 ⁺									
2935.2(5)*	13									
2954.5(4)	13									
3080.8(6)*	14									
3110.8(4)	12 ⁺									
3198.3(4)	12 ⁻									
3389.3(4)	13 ⁻									
3413.1(6)	⟨15⟩									
3469.0(4)	14 ⁺	3.5(14) ns								
3520.7(4)	13 ⁻									
3779.1(4)	14 ⁻									
3851.7(6)*	16									
3925.2(4)	15 ⁻									
4066.4(5)	16 ⁻	18.3(4) ns								
4524.6(5)	16 ^{⟨+⟩}									
4832.6(5)	18 ⁻									
5178.3(5)	19 ⁻									
5377.0(5)	19									
5930.6(6)	21 ^{⟨-⟩}									

Additional data on this isotope can be found in [03He06, 95Fr21].

* uncertain [86Ma17].

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

Energy levels and branching ratios [86Ma17]. Part 2

²⁰⁸Rn₈₆

E^* [keV]	J^π	Branching ratios in percentage										
		E_f^* : J_f^π :	1828.3 8 ⁺	2163.4 7 ⁺ ,8 ⁺	2319.4 9 ⁻	2320.3	2465.1 10 ⁺	2618.1 10 ⁻	2621.2 11 ⁻	2797.4 12 ⁺	2935.2 13	3080.8 14
2163.4(5)	7 ⁺ ,8 ⁺		100									
2319.4(4)	9 ⁻		100									
2320.3(4)	6 ⁺ -8 ⁺		100									
2465.1(4)	10 ⁺		100									
2618.1(4)	10 ⁻		81(2)		15.7(9)		3.2(9)					
2619.0(4)	6 ⁺ -8 ⁺					100						
2621.2(4)	11 ⁻						x	x				
2797.4(4)	12 ⁺			51(13)			49(8)					
2935.2(5)*	13									100		
2954.5(4)	13									100		
3080.8(6)*	14										100	
3110.8(4)	12 ⁺						100					
3198.3(4)	12 ⁻								100			
3389.3(4)	13 ⁻								89(4)			
3413.1(6)	⟨15⟩											100
3520.7(4)	13 ⁻								45(3)			

Energy levels and branching ratios [86Ma17]. Part 3

²⁰⁸Rn₈₆

E^* [keV]	J^π	Branching ratios in percentage										
		E_f^* : J_f^π :	3110.8 12 ⁺	3198.3 12 ⁻	3389.3 13 ⁻	3413.1 ⟨15⟩	3469.0 14 ⁺	3520.7 13 ⁻	3779.1 14 ⁻	3925.2 15 ⁻	4066.4 16 ⁻	4832.6 18 ⁻
3389.3(4)	13 ⁻			11.1(18)								
3469.0(4)	14 ⁺		100									
3520.7(4)	13 ⁻			55(3)								
3779.1(4)	14 ⁻				42(3)			58(2)				
3851.7(6)*	16					100						
3925.2(4)	15 ⁻				49(3)		37(3)		15(5)			
4066.4(5)	16 ⁻									100		
4524.6(5)	16 ^{⟨+⟩}								100			
4832.6(5)	18 ⁻										100	
5178.3(5)	19 ⁻											100
5377.0(5)	19											100

Energy levels and branching ratios [86Ma17]. Part 4

 $^{208}_{86}\text{Rn}$

E^*	J^π	Branching ratios in percentage	
[keV]		E_f^* :	5178.3
		J_f^π :	19 ⁻
5930.6(6)	21 ⁽⁻⁾		100

Energy levels and branching ratios [91Ma16].

 $^{209}_{86}\text{Rn}$

E^*	$2J^\pi$	$T_{1/2}$ or	Ref.	Branching ratios in percentage					
[keV]		Γ_{cm}		E_f^* :	0.0	110.1	797.80	1173.98	1465.53
				$2J_f^\pi$:	5 ⁻	1 ⁻	9 ⁻	13 ⁺	$\langle 13^- \rangle$
0.0	5 ⁻	28.5(10) m							
110.1(1)	1 ⁻		96Xu02		100				
214.7(2)	$\langle 3^- \rangle$				74(19)	26(10)			
327(7)									
382.3	$\langle 3^- \rangle$		96Xu02						
547.1	$\langle 7^- \rangle$		96Xu02						
652.6			96Xu02						
690.1	$\langle 1^-, 3^- \rangle$		96Xu02						
797.80(10)	9 ⁻	<1.4 ns			100				
867.7			96Xu02						
1020.7			96Xu02						
1173.98(13)	13 ⁺	13.4(13) μs	96Xu02				100		
1327.3			96Xu02						
1352.7			96Xu02						
1383.2			96Xu02						
1388.2			96Xu02						
1465.53(13)	$\langle 13^- \rangle$	<1.4 ns					100		
1561.55(14)	$\langle 15^- \rangle$	<1.4 ns						55(4)	45(4)
1588.3			96Xu02						
1610.67(15)	$\langle 17^- \rangle$	<1.4 ns							
1687.41(15)	$\langle 19^- \rangle$	0.69(21) ns							
1766.9			96Xu02						
1931.3			96Xu02						
2238.16(17)	$\langle 21^- \rangle$	<1.4 ns							
2418.71(18)	$\langle 21^+ \rangle$	8.73(21) ns							
2501.29(18)	$\langle 23^- \rangle$	<1.4 ns							
2744.15(21)	$\langle 23^+ \rangle$	<1.4 ns							
2848.48(18)	$\langle 25^- \rangle$	<1.4 ns							
2864.6(3)		<1.4 ns							
2957.58(18)	$\langle 27^- \rangle$	<1.4 ns							
3049.9(4)		<1.4 ns							
3157.48(21)	$\langle 29^- \rangle$	13.9(21) ns							
3400.6(3)		<1.4 ns							
3539.9(3)	$\langle 27^+ \rangle$	<1.4 ns							
3636.78(23)	$\langle 35^+ \rangle$	3.0(3) μs							

(continued)

²⁰⁹₈₆Rn

<i>E</i> [*]	2 <i>J</i> ^π	<i>T</i> _{1/2} or	Ref.	Branching ratios in percentage					
[keV]		<i>Γ</i> _{cm}		<i>E</i> _f [*] : 2 <i>J</i> _f ^π :	0.0 5 [−]	110.1 1 [−]	797.80 9 [−]	1173.98 13 ⁺	1465.53 ⟨13 [−] ⟩
3671.5(4)	⟨29 ⁺ ⟩	<1.4 ns							
3987.0(4)	⟨31 ⁺ ⟩	<1.4 ns							
4182.4(4)	⟨33 ⁺ ⟩	<1.4 ns							
4583.6(4)	⟨35 ⁺ ⟩	<1.4 ns							
4833.7(3)	⟨41 [−] ⟩	10.0(4) ns							
4988.0(4)	⟨37 ⁺ ⟩	<1.4 ns							
5216.9(4)	⟨41 ⁺ ⟩	<1.4 ns							
5819.8(4)	⟨43 ⁺ ⟩	<1.4 ns							
6538.0(5)	⟨47 ⁺ ⟩	<1.4 ns							
6772.1(6)	⟨49 ⁺ ⟩	<1.4 ns							
6826.1(6)	⟨49 ⁺ ⟩	<1.4 ns							
7307.7(7)	⟨51⟩	<1.4 ns							

Additional data on this isotope can be found in [96Xu02].
Data for this isotope are considered in vol. LB I/18C.

Energy levels and branching ratios [91Ma16]. Part 2

²⁰⁹₈₆Rn

<i>E</i> [*]	2 <i>J</i> ^π	Branching ratios in percentage									
[keV]		<i>E</i> _f [*] : 2 <i>J</i> _f ^π :	1561.55 ⟨15 [−] ⟩	1610.67 ⟨17 [−] ⟩	1687.41 ⟨19 [−] ⟩	2238.16 ⟨21 [−] ⟩	2418.71 ⟨21 ⁺ ⟩	2501.29 ⟨23 [−] ⟩	2744.15 ⟨23 ⁺ ⟩	2848.48 ⟨25 [−] ⟩	2864.6 2957.58 ⟨27 [−] ⟩
1610.67(15)	⟨17 [−] ⟩	100									
1687.41(15)	⟨19 [−] ⟩			100							
2238.16(17)	⟨21 [−] ⟩			18(5)	82(5)						
2418.71(18)	⟨21 ⁺ ⟩				100						
2501.29(18)	⟨23 [−] ⟩				100						
2744.15(21)	⟨23 ⁺ ⟩					100					
2848.48(18)	⟨25 [−] ⟩				74(4)		26(4)				
2864.6(3)						100					
2957.58(18)	⟨27 [−] ⟩							75(5)		25(5)	
3049.9(4)											100
3157.48(21)	⟨29 [−] ⟩										100
3400.6(3)									100		
3539.9(3)	⟨27 ⁺ ⟩								30		

Energy levels and branching ratios [91Ma16]. Part 3

²⁰⁹Rn
86

E^* [keV]	$2J^\pi$	Branching ratios in percentage										
		E_f^* : $2J_f^\pi$:	3049.9	3157.48 $\langle 29^- \rangle$	3400.6	3539.9 $\langle 27^+ \rangle$	3636.78 $\langle 35^+ \rangle$	3671.5 $\langle 29^+ \rangle$	3987.0 $\langle 31^+ \rangle$	4182.4 $\langle 33^+ \rangle$	4583.6 $\langle 35^+ \rangle$	4833.7 $\langle 41^- \rangle$
3539.9(3)	$\langle 27^+ \rangle$		26	26	≈ 18.5							
3636.78(23)	$\langle 35^+ \rangle$			100								
3671.5(4)	$\langle 29^+ \rangle$				100							
3987.0(4)	$\langle 31^+ \rangle$							100				
4182.4(4)	$\langle 33^+ \rangle$								100			
4583.6(4)	$\langle 35^+ \rangle$								33	67		
4833.7(3)	$\langle 41^- \rangle$					100						
4988.0(4)	$\langle 37^+ \rangle$									35.7	64	
5216.9(4)	$\langle 41^+ \rangle$											100
5819.8(4)	$\langle 43^+ \rangle$											53

Energy levels and branching ratios [91Ma16]. Part 4

²⁰⁹Rn
86

E^* [keV]	$2J^\pi$	Branching ratios in percentage				
		E_f^* : $2J_f^\pi$:	5216.9 $\langle 41^+ \rangle$	5819.8 $\langle 43^+ \rangle$	6538.0 $\langle 47^+ \rangle$	6826.1 $\langle 49^+ \rangle$
5819.8(4)	$\langle 43^+ \rangle$		47.1			
6538.0(5)	$\langle 47^+ \rangle$			100		
6772.1(6)	$\langle 49^+ \rangle$				100	
6826.1(6)	$\langle 49^+ \rangle$				100	
7307.7(7)	$\langle 51 \rangle$					100

Energy levels and branching ratios [03Br13].

²¹⁰Rn
86

E^* [keV]	J^π	$T_{1/2}$ or
		Γ_{cm}
0.0	0^+	2.4(1) h
643.8(1)	2^+	
1461.4(1)	$\langle 4 \rangle^+$	
1545.1(1)	$\langle 4 \rangle^+$	
1664.6(1)	$\langle 6 \rangle^+$	7.6(7) ns
1664.6+X	$\langle 8 \rangle^+$	644(40) ns
2265.7+X	$\langle 9 \rangle^+$	<21 ns
2376.8+X	$\langle 10 \rangle^+$	<1.4 ns
2562.3+X	$\langle 11 \rangle^-$	64(3) ns
2922.4+X	$\langle 12 \rangle^+$	<1.4 ns
3109.7+X	$\langle 12 \rangle^-$	
3247.7+X	$\langle 14 \rangle^+$	76(7) ns

(continued)

			²¹⁰ ₈₆ Rn
<i>E</i> [*]	<i>J</i> ^π	<i>T</i> _{1/2} or	
[keV]		<i>Γ</i> _{cm}	
3404.0+X			
3812.0+X	⟨17⟩ [−]	1.06(5) μs	
3863.7+X	⟨15 [−] ⟩	<8 ns	
3919.6+X	⟨16 ⁺ ⟩		
4898.6+X			
4993.2+X	⟨20⟩ ⁺	12.3(9) ns	
5025.9+X	⟨18 ⁺ ⟩		
5380.7+X	⟨19 ⁺ ⟩		
5383.4+X	X ^{⟨+⟩}		
5684.1+X	X ^{⟨+⟩}		
5866.0+X	⟨21⟩ ⁺		
5875.7+X	⟨19⟩ ⁺	<7 ns	
6035.3+X	⟨20⟩ ⁺	<7 ns	
6468.3+X	⟨22⟩ ⁺	1.04(7) μs	
6894.2+X		<35 ns	
7310.1+X	⟨25⟩ [−]	34(2) ns	
8555+X	⟨28⟩ ⁺	1.8(2) ns	
9249+X	⟨29,30⟩		
9764+X	⟨30,31⟩		
10086+X	⟨31,32⟩		

Additional data on this isotope can be found in [05Po0A, 95Fr21].

Energy levels and branching ratios [03Br13]. Part 2

													²¹⁰ ₈₆ Rn
<i>E</i> [*]	<i>J</i> ^π	Branching ratios in percentage											
[keV]		<i>E</i> _f [*] : <i>J</i> _f ^π :	0.0 0 ⁺	643.8 2 ⁺	1461.4 ⟨4⟩ ⁺	1545.1 ⟨4⟩ ⁺	1664.6 ⟨6⟩ ⁺	1665+X ⟨8 ⁺ ⟩	2266+X ⟨9⟩ ⁺	2377+X ⟨10⟩ ⁺	2562+X ⟨11⟩ [−]	2922+X ⟨12⟩ ⁺	
643.8(1)	2 ⁺		100										
1461.4(1)	⟨4⟩ ⁺			100									
1545.1(1)	⟨4⟩ ⁺			100									
1664.6(1)	⟨6⟩ ⁺				93(1)	6.6(5)							
1664.6+X	⟨8 ⁺ ⟩						x						
2265.7+X	⟨9⟩ ⁺							100					
2376.8+X	⟨10⟩ ⁺							97.9(3)	2.1(3)				
2562.3+X	⟨11⟩ [−]							19(4)		81(4)			
2922.4+X	⟨12⟩ ⁺									100			
3109.7+X	⟨12⟩ [−]										100		
3247.7+X	⟨14⟩ ⁺											100	
3404.0+X											≈38		

Energy levels and branching ratios [03Br13]. Part 3

²¹⁰Rn
86

E^*	J^π	Branching ratios in percentage										
[keV]		E_f^* : J_f^π :	3110+X $\langle 12 \rangle^-$	3248+X $\langle 14 \rangle^+$	3812+X $\langle 17 \rangle^-$	3864+X $\langle 15^- \rangle$	3920+X $\langle 16^+ \rangle$	4899+X	4993+X $\langle 20 \rangle^+$	5026+X $\langle 18^+ \rangle$	5381+X $\langle 19^+ \rangle$	5383+X $X^{(+)}$
3404.0+X		≈ 62										
3812.0+X	$\langle 17 \rangle^-$			100								
3863.7+X	$\langle 15^- \rangle$			100								
3919.6+X	$\langle 16^+ \rangle$			100								
4898.6+X					72	≈ 28						
4993.2+X	$\langle 20 \rangle^+$			100								
5025.9+X	$\langle 18^+ \rangle$						100	< 66				
5380.7+X	$\langle 19^+ \rangle$							16(2)		84(8)		
5383.4+X	$X^{(+)}$								100			
5684.1+X	$X^{(+)}$										100	
5866.0+X	$\langle 21 \rangle^+$								100			
5875.7+X	$\langle 19 \rangle^+$								33			24

Energy levels and branching ratios [03Br13]. Part 4

²¹⁰Rn
86

E^*	J^π	Branching ratios in percentage										
[keV]		E_f^* : J_f^π :	5684+X $X^{(+)}$	5866+X $\langle 21 \rangle^+$	5876+X $\langle 19 \rangle^+$	6035+X $\langle 20 \rangle^+$	6468+X $\langle 22 \rangle^+$	6894+X	7310+X $\langle 25 \rangle^-$	8555+X $\langle 28 \rangle^+$	9249+X $\langle 29,30 \rangle$	9764+X $\langle 30,31 \rangle$
5875.7+X	$\langle 19 \rangle^+$	43										
6035.3+X	$\langle 20 \rangle^+$				100							
6468.3+X	$\langle 22 \rangle^+$			21(4)		79(4)						
6894.2+X							100					
7310.1+X	$\langle 25 \rangle^-$						88	≈ 12				
8555+X	$\langle 28 \rangle^+$									100		
9249+X	$\langle 29,30 \rangle$										100	
9764+X	$\langle 30,31 \rangle$											100
10086+X	$\langle 31,32 \rangle$											

Energy levels and branching ratios [04Br45, 91Ar04, 93Da10].

²¹¹Rn
86

E^* [keV]	$2J^\pi$	$T_{1/2}$ or Γ_{cm}	Ref.
0.0	1^-	14.6(2) h	
539.9(2)	5^-	≤ 4 ns	
833(7)	$\langle 3^- \rangle$		
1458.2(3)	9^-		04Br45
1577.8(2)	13^-		04Br45
1577.8+x	$\langle 17^- \rangle$	596(28) ns	

(continued)

 $^{211}_{86}\text{Rn}$

E^*	$2J^\pi$	$T_{1/2}$ or	Ref.
[keV]		Γ_{cm}	
1698.9+x	$\langle 15^- \rangle$		
1739	$\langle 11^- \rangle$		
1960			
2114.3+x	$\langle 19^- \rangle$		
2147.6+x	$\langle 21^- \rangle$	≤ 3.5 ns	
2179	$\langle 9^+ \rangle$		
2650.3+x	$\langle 23^+ \rangle$	6.7(3) ns	
2722	$\langle 11^+ \rangle$		
2731.8+x	$\langle 25^- \rangle$	< 3 ns	
3117.4+x	$\langle 25^+ \rangle$		
3127.2+x	$\langle 25^+ \rangle$		
3216.6+x	$\langle 25^- \rangle$		
3243.3+x	$\langle 29^- \rangle$	2.7(6) ns	
3426.3+x	$\langle 27^+ \rangle$		
3844.4+x	$\langle 31^+ \rangle$	< 2 ns	
3873.9+x			
3926.1+x	$\langle 35^+ \rangle$	40.2(14) ns	
4341.2+x			
4418.1+x			
4474.0+x	$\langle 37^+ \rangle$		
4509.8+x	$\langle 37^+ \rangle$		
4550.9+x			
4920.9+x	$\langle 39^+ \rangle$		
4961.0+x	$\langle 37 \rangle$		
5160.3+x	$\langle 41 \rangle$		
5239.8+x	$\langle 39^- \rangle$	≤ 7 ns	
5246.0+x	$\langle 41^- \rangle$	3.5(14) ns	
5246.0+y	$\langle 43^- \rangle$	13.9(21) ns	
5733.8+y	$\langle 45^- \rangle$		
6100.3+y	$\langle 49^+ \rangle$	28.4(14) ns	
6578.3+y	$\langle 49^- \rangle$		
6714.0+y	$\langle 51^+ \rangle$		
7004.0+y	$\langle 51^+ \rangle$		
7398.9+y	$\langle 55^- \rangle$	1.46(35) ns	
7594.0+y	$\langle 53^+ \rangle$		
7630.3+y			
8161.9+y			
8167.6+y	$\langle 57^+ \rangle$	2.29(21) ns	
8304.3+y	$\langle 57^- \rangle$		
8328.3+y	$\langle 53^- \rangle$		
8611.2+y			
8758.0+y			
8854.6+y	$\langle 63^- \rangle$	201(4) ns	
8925.9+y			
9147.2+y	$\langle 63^- \rangle$		

(continued)

²¹¹Rn
86

E^*	$2J^\pi$	$T_{1/2}$ or Γ_{cm}	Ref.
[keV]			
9627.7+y			
9915.5+y	$\langle 69^+ \rangle$	9.0(7) ns	
9918.2+y	$\langle 65^+ \rangle$		
10814+y	$\langle 69 \rangle$		
11035+y	$\langle 71 \rangle$		
11084+y	$\langle 71 \rangle$		
11234+y	$\langle 73 \rangle$		

Additional data on this isotope can be found in [00Ni02, 00He17].

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

Energy levels and branching ratios [04Br45, 91Ar04, 93Da10]. Part 2

²¹¹Rn
86

E^*	$2J^\pi$	Branching ratios in percentage										
		E_f^* :	0.0	539.9	1458.2	1577.8	1578+X	1699+X	1739	1960	2114+X	2148+X
[keV]		$2J_f^\pi$:	1 ⁻	5 ⁻	9 ⁻	13 ⁻	$\langle 17^- \rangle$	$\langle 15^- \rangle$	$\langle 11^- \rangle$		$\langle 19^- \rangle$	$\langle 21^- \rangle$
539.9(2)	5 ⁻		100									
1458.2(3)	9 ⁻			100								
1577.8(2)	13 ⁻				100							
1577.8+x	$\langle 17^- \rangle$					x						
1698.9+x	$\langle 15^- \rangle$						100					
1739	$\langle 11^- \rangle$				100							
1960									100			
2114.3+x	$\langle 19^- \rangle$						96.3(24)	3.7(18)				
2147.6+x	$\langle 21^- \rangle$						100.0(13)				x	
2179	$\langle 9^+ \rangle$								100			
2650.3+x	$\langle 23^+ \rangle$						2.9(11)					97(6)
2722	$\langle 11^+ \rangle$								80(12)	20(4)		
2731.8+x	$\langle 25^- \rangle$											100
3127.2+x	$\langle 25^+ \rangle$											100
3216.6+x	$\langle 25^- \rangle$											100

Energy levels and branching ratios [04Br45, 91Ar04, 93Da10]. Part 3

²¹¹Rn
86

E^*	$2J^\pi$	Branching ratios in percentage										
		E_f^* :	2650+X	2732+X	3117+X	3127+X	3217+X	3243+X	3426+X	3844+X	3874+X	3926+X
[keV]		$2J_f^\pi$:	$\langle 23^+ \rangle$	$\langle 25^- \rangle$	$\langle 25^+ \rangle$	$\langle 25^+ \rangle$	$\langle 25^- \rangle$	$\langle 29^- \rangle$	$\langle 27^+ \rangle$	$\langle 31^+ \rangle$		$\langle 35^+ \rangle$
3117.4+x	$\langle 25^+ \rangle$		100									
3243.3+x	$\langle 29^- \rangle$			100.0(14)		x	x					
3426.3+x	$\langle 27^+ \rangle$		61(5)		39(11)							

(continued)

 $^{211}_{86}\text{Rn}$

E^*	$2J^\pi$	Branching ratios in percentage										
[keV]		E_f^* : $2J_f^\pi$:	2650+X $\langle 23^+ \rangle$	2732+X $\langle 25^- \rangle$	3117+X $\langle 25^+ \rangle$	3127+X $\langle 25^+ \rangle$	3217+X $\langle 25^- \rangle$	3243+X $\langle 29^- \rangle$	3426+X $\langle 27^+ \rangle$	3844+X $\langle 31^+ \rangle$	3874+X	3926+X $\langle 35^+ \rangle$
3844.4+x	$\langle 31^+ \rangle$							97.4(13)	2.6(5)			
3873.9+x								100				
3926.1+x	$\langle 35^+ \rangle$									100	x	
4341.2+x												100
4418.1+x												100
4474.0+x	$\langle 37^+ \rangle$											87(18)
4509.8+x	$\langle 37^+ \rangle$											100
4550.9+x												85(21)
4920.9+x	$\langle 39^+ \rangle$											19.1(6)
4961.0+x	$\langle 37 \rangle$											33(3)
5246.0+x	$\langle 41^- \rangle$											52.5(4)

Energy levels and branching ratios [04Br45, 91Ar04, 93Da10]. Part 4

 $^{211}_{86}\text{Rn}$

E^*	$2J^\pi$	Branching ratios in percentage										
[keV]		E^*_f : $2J^\pi_\text{f}$:	4341+X	4418+X	4474+X $\langle 37^+ \rangle$	4510+X $\langle 37^+ \rangle$	4551+X	4921+X $\langle 39^+ \rangle$	4961+X $\langle 37 \rangle$	5240+X $\langle 39^- \rangle$	5246+Z $\langle 43^- \rangle$	5734+Z $\langle 45^- \rangle$
4474.0+x	$\langle 37^+ \rangle$	13(3)										
4509.8+x	$\langle 37^+ \rangle$			x								
4550.9+x				15(7)								
4920.9+x	$\langle 39^+ \rangle$				81(23)							
4961.0+x	$\langle 37 \rangle$					67(13)						
5160.3+x	$\langle 41 \rangle$							100				
5239.8+x	$\langle 39^- \rangle$				92.3(16)				7.7(16)			
5246.0+x	$\langle 41^- \rangle$				2.3(8)			45(4)		x		
5733.8+y	$\langle 45^- \rangle$										100	
6100.3+y	$\langle 49^+ \rangle$										94.3(15)	5.7(7)

Energy levels and branching ratios [04Br45, 91Ar04, 93Da10]. Part 5

 $^{211}_{86}\text{Rn}$

E^* [keV]	$2J^\pi$	Branching ratios in percentage									
		E_f^* : $2J_f^\pi$:	6100+Z $\langle 49^+ \rangle$	6578+Z $\langle 49^- \rangle$	6714+Z $\langle 51^+ \rangle$	7004+Z $\langle 51^+ \rangle$	7399+Z $\langle 55^- \rangle$	7630+Z	8168+Z $\langle 57^+ \rangle$	8328+Z $\langle 53^- \rangle$	8611+Z
6578.3+y	$\langle 49^- \rangle$		100								
6714.0+y	$\langle 51^+ \rangle$		82.6(12)	17(6)							
7004.0+y	$\langle 51^+ \rangle$		100								
7398.9+y	$\langle 55^- \rangle$		84.3(8)		15.7(8)						
7594.0+y	$\langle 53^+ \rangle$				100						
7630.3+y					100						

(continued)

 $^{211}_{86}\text{Rn}$

E^* [keV]	$2J^\pi$	Branching ratios in percentage								8611+Z
		$E_f^*:$ $2J_f^\pi:$	6100+Z $\langle 49^+ \rangle$	6578+Z $\langle 49^- \rangle$	6714+Z $\langle 51^+ \rangle$	7004+Z $\langle 51^+ \rangle$	7399+Z $\langle 55^- \rangle$	7630+Z	8168+Z $\langle 57^+ \rangle$	8328+Z $\langle 53^- \rangle$
8161.9+y								100		
8167.6+y	$\langle 57^+ \rangle$						93.5(18)	6.5(18)		
8304.3+y	$\langle 57^- \rangle$						100			
8328.3+y	$\langle 53^- \rangle$					34(5)	66(3)			
8611.2+y										100
8758.0+y										100
8854.6+y	$\langle 63^- \rangle$								100	
8925.9+y									100	

Energy levels and branching ratios [04Br45, 91Ar04, 93Da10]. Part 6

 $^{211}_{86}\text{Rn}$

E^* [keV]	$2J^\pi$	Branching ratios in percentage					525-Y
		$E_f^*:$ $2J_f^\pi:$	8855+Z $\langle 63^- \rangle$	9918+Z $\langle 65^+ \rangle$	10814+Z $\langle 69 \rangle$	11084+Z $\langle 71 \rangle$	
5246.0+y	$\langle 43^- \rangle$						x
9147.2+y	$\langle 63^- \rangle$		100				
9627.7+y			100				
9915.5+y	$\langle 69^+ \rangle$		100				
9918.2+y	$\langle 65^+ \rangle$		100				
10814+y	$\langle 69 \rangle$			100			
11035+y	$\langle 71 \rangle$				100		
11084+y	$\langle 71 \rangle$			100			
11234+y	$\langle 73 \rangle$					100	

Energy levels and branching ratios [92Ar05, 05Br03].

 $^{212}_{86}\text{Rn}$

E^* [keV]	J^π	$T_{1/2}$ or Γ_{cm}	Ref.
0.0 ^f	0 ⁺	23.9(12) m	
1273.8(2) ^f	2 ⁺		05Br03
1501.5(3) ^f	4 ⁺	8.8(3) ns	05Br03
1639.8(3) ^f	$\langle 6 \rangle^+$	118(14) ns	05Br03
1694.0(4) ^f	$\langle 8^+ \rangle$	0.91(3) μs	05Br03
2116.0(4)	$\langle 8^+ \rangle$		
2171.9(4)			
2306.3(3)			
2655.0(4) ^g	$\langle 10^+ \rangle$		05Br03
2687.1(15)			

(continued)

 $^{212}_{86}\text{Rn}$

E^*	J^π	$T_{1/2}$ or	Ref.
[keV]		Γ_{cm}	
2696.1(4)			
2760.7(4) ^h	$\langle 11^- \rangle$	5.5(2) ns	05Br03
2881.4(4) ^g	$\langle 12^+ \rangle$	2.1(1) ns	05Br03
2967.3(5)			
3297.8(5) ^a	$\langle 12^+ \rangle$		05Br03
3357.6(5) ^a	$\langle 14^+ \rangle$	7.4(8) ns	05Br03
3510.3(5)			
3735.1(5)			
3991.1(5) ^h	$\langle 15^- \rangle$		05Br03
3998.1(5)			
4066.8(5) ^h	$\langle 17^- \rangle$	28.9(14) ns	05Br03
4135.1(5)	$\langle 16^- \rangle$		
4151.3(5)			
4582.7(5) ^b	$\langle 17^- \rangle$		05Br03
5114.6(5) ^b	$\langle 18^- \rangle$		05Br03
5427.2(5) ^c	$\langle 20^+ \rangle$	5.2(5) ns	05Br03
5772.4(5) ^d	$\langle 19^- \rangle$		05Br03
6167.4(6) ^d	$\langle 20^+ \rangle$		05Br03
6167.4+x ^d	$\langle 22^+ \rangle$	109(5) ns	05Br03
7135.2+x ^e	$\langle 25^- \rangle$	18.0(6) ns	05Br03
7870.9+x ^e	$\langle 27^- \rangle$	14(4) ns	05Br03
8571.0+x ^d	$\langle 30^+ \rangle$	154(14) ns	05Br03
9687.6+x ^e	$\langle 33^- \rangle$	4.9(7) ns	05Br03
10612+x		≈ 20 ns	

7 nucleon configurations (marked here a-h) were considered in [05Br03].

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

Energy levels and branching ratios [92Ar05, 05Br03]. Part 2

 $^{212}_{86}\text{Rn}$

E^*	J^π	Branching ratios in percentage										
[keV]		E_f^* : J_f^π :	0.0 0 ⁺	1273.8 2 ⁺	1501.5 4 ⁺	1639.8 $\langle 6 \rangle^+$	1694.0 $\langle 8^+ \rangle$	2655.0 $\langle 10^+ \rangle$	2760.7 $\langle 11^- \rangle$	2881.4 $\langle 12^+ \rangle$	3297.8 $\langle 12^+ \rangle$	3357.6 $\langle 14^+ \rangle$
1273.8(2) ^f	2 ⁺		100									
1501.5(3) ^f	4 ⁺			100								
1639.8(3) ^f	$\langle 6 \rangle^+$				100							
1694.0(4) ^f	$\langle 8^+ \rangle$					100						
2116.0(4)	$\langle 8^+ \rangle$						100					
2171.9(4)					100							
2306.3(3)					100							
2655.0(4) ^g	$\langle 10^+ \rangle$							100				
2687.1(15)					66(7)	34(3)						
2696.1(4)							100					

(continued)

 $^{212}_{86}\text{Rn}$

E^*	J^π	Branching ratios in percentage										
[keV]		E_f^* : J_f^π :	0.0 0 ⁺	1273.8 2 ⁺	1501.5 4 ⁺	1639.8 (6) ⁺	1694.0 (8 ⁺)	2655.0 (10 ⁺)	2760.7 (11 ⁻)	2881.4 (12 ⁺)	3297.8 (12 ⁺)	3357.6 (14 ⁺)
2760.7(4) ^h	(11 ⁻)						≈50	50				
2881.4(4) ^g	(12 ⁺)							99	0.8(4)			
2967.3(5)									100			
3297.8(5) ^a	(12 ⁺)								38(2)	62(7)		
3357.6(5) ^a	(14 ⁺)									100	<0.5	
3510.3(5)										100		
3735.1(5)									100			
3991.1(5) ^h	(15 ⁻)											100
3998.1(5)												100
4066.8(5) ^h	(17 ⁻)											76(10)
4151.3(5)												100

Energy levels and branching ratios [92Ar05, 05Br03]. Part 3

 $^{212}_{86}\text{Rn}$

E^* [keV]	J^π	Branching ratios in percentage								
		E_f^* : J_f^π :	3991.1 <15> ⁻	4066.8 <17> ⁻	4135.1 <16> ⁻	4582.7 <17> ⁻	5114.6 <18> ⁻	5427.2 <20> ⁺	5772.4 <19> ⁻	6167.4 <20> ⁺
4066.8(5) ^h	<17> ⁻		24(9)							
4135.1(5)	<16> ⁻		x	100						
4582.7(5) ^b	<17> ⁻			72(14)	28(7)					
5114.6(5) ^b	<18> ⁻			46(7)	6(1)	48(9)				
5427.2(5) ^c	<20> ⁺			100		≤33				
5772.4(5) ^d	<19> ⁻						100	≤9		
6167.4(6) ^d	<20> ⁺							x	100	
6167.4+x ^d	<22> ⁺									100

Energy levels and branching ratios [92Ar05, 05Br03]. Part 4

 $^{212}_{86}\text{Rn}$

E^* [keV]	J^π	Branching ratios in percentage					
		E_f^* : J_f^π :	6167+X <22> ⁺	7135+X <25> ⁻	7871+X <27> ⁻	8571+X <30> ⁺	9688+X <33> ⁻
7135.2+x ^e	<25> ⁻		100				
7870.9+x ^e	<27> ⁻			100			
8571.0+x ^d	<30> ⁺				100		
9687.6+x ^e	<33> ⁻					100	
10612+x							x

Energy levels and branching ratios [92Ak01].

 $^{213}_{86}\text{Rn}$

E^*	$2J^\pi$	$T_{1/2}$ or Γ_{cm}
[keV]		
0.0	$\langle 9^+ \rangle$	19.4(1) ms
705.0	$\langle 11^+ \rangle$	
896.1	$\langle 15^- \rangle$	26(1) ns
1259.6	$\langle 13^+ \rangle$	
1529.0	$\langle 17^+ \rangle$	
1574.1		
1612.4		
1664.0	$\langle 21^+ \rangle$	29(2) ns
1664.0+X	$\langle 25^+ \rangle$	1.00(21) μs
1703.5		
1745.9		
1788.7		
1856.6+X	$\langle 25^+ \rangle$	
1879.4		
1936.9		
2007.4		
2072.9		
2121.6+X	$\langle 27 \rangle$	
2184.3		
2186.7+X	$\langle 31^- \rangle$	1.36(7) μs
2201.5+X	$\langle 27^- \rangle$	
2227.5		
2257.6		
2327.1		
2610.7		
2640.8+X		
2662.0+X		
2677.0+X	$\langle 29^+ \rangle$	
2684.5+X		
2739.8	$\langle 31^- \rangle$	
2786.7+X	$\langle 29^+ \rangle$	
2915.8	$\langle 33^+ \rangle$	
2984.0+X	$\langle 33^+ \rangle$	
3029.3+X	$\langle 37^+ \rangle$	26(1) ns
3181.8+X	$\langle 35^- \rangle$	
3301.3+X		
3441.1+X	$\langle 39^- \rangle$	
3495.4+X	$\langle 43^- \rangle$	28(1) ns
3604.8+X		
3623.8+X		
3922.9+X	$\langle 43 \rangle^-$	
3927.3+X		
4047.9+X	$\langle 45^- \rangle$	
4050.3+X		
4343.1+X		

(continued)

 $^{213}_{86}\text{Rn}$

E^*	$2J^\pi$	$T_{1/2}$ or
[keV]		Γ_{cm}
4505.5+X	$\langle 49^+ \rangle$	12(1) ns
4532.7+X		
4581.3+X		
4723.0+X		
4855.5+X	$\langle 49^+ \rangle$	
5225.6+X	$\langle 51^+ \rangle$	
5763.6+X		
5928.8+X		
5929+Y	$\langle 55^+ \rangle$	164(11) ns

Energy levels and branching ratios [92Ak01]. Part 2

 $^{213}_{86}\text{Rn}$

E^*	$2J^\pi$	Branching ratios in percentage							
		$E_{\text{f}}^*:$	0.0	705.0	896.1	1259.6	1529.0	1664.0	1664+X
[keV]		$2J_{\text{f}}^\pi:$	$\langle 9^+ \rangle$	$\langle 11^+ \rangle$	$\langle 15^- \rangle$	$\langle 13^+ \rangle$	$\langle 17^+ \rangle$	$\langle 21^+ \rangle$	$\langle 25^+ \rangle$
705.0	$\langle 11^+ \rangle$		x						
896.1	$\langle 15^- \rangle$		100	0.44(8)					
1259.6	$\langle 13^+ \rangle$		x						
1529.0	$\langle 17^+ \rangle$				98(10)	1.6(1)			
1574.1						x			
1612.4				74(15)		26(10)			
1664.0	$\langle 21^+ \rangle$				3.5(4)		97(2)		
1703.5								x	
1745.9							x	x	
1788.7							x		
1856.6+X	$\langle 25^+ \rangle$								x
1879.4				x					
1936.9								16(5)	
2007.4								81(20)	
2072.9					89(17)		11(5)		
2121.6+X	$\langle 27 \rangle$								x
2184.3								x	
2186.7+X	$\langle 31^- \rangle$								98(2)
2201.5+X	$\langle 27^- \rangle$								25(3)
2227.5								x	
2677.0+X	$\langle 29^+ \rangle$								46(17)

Energy levels and branching ratios [92Ak01]. Part 3

 $^{213}_{86}\text{Rn}$

E^*	$2J^\pi$	Branching ratios in percentage										
[keV]		$E_f^*:$ $2J_f^\pi:$	1703.5	1745.9	1788.7	1857+X $\langle 25^+ \rangle$	1936.9	2072.9	2122+X $\langle 27 \rangle$	2184.3	2187+X $\langle 31^- \rangle$	2202+X $\langle 27^- \rangle$
1936.9			84(10)									
2007.4				≈ 10	≈ 10							
2186.7+X	$\langle 31^- \rangle$					1.9(2)			x			
2201.5+X	$\langle 27^- \rangle$					75(3)						
2257.6								x				
2327.1							x					
2640.8+X											x	
2662.0+X												x
2677.0+X	$\langle 29^+ \rangle$										54(4)	
2684.5+X												x
2739.8	$\langle 31^- \rangle$									x		
2786.7+X	$\langle 29^+ \rangle$					x						
2915.8	$\langle 33^+ \rangle$									99(5)		
2984.0+X	$\langle 33^+ \rangle$										87(2)	
3029.3+X	$\langle 37^+ \rangle$										56(11)	
3181.8+X	$\langle 35^- \rangle$										93(11)	

Energy levels and branching ratios [92Ak01]. Part 4

 $^{213}_{86}\text{Rn}$

E^*	$2J^\pi$	Branching ratios in percentage										
[keV]		E_f^* : $2J_f^\pi$:	2227.5	2610.7	2677+X $\langle 29^+ \rangle$	2739.8 $\langle 31^- \rangle$	2787+X $\langle 29^+ \rangle$	2984+X $\langle 33^+ \rangle$	3029+X $\langle 37^+ \rangle$	3182+X $\langle 35^- \rangle$	3301+X	3441+X $\langle 39^- \rangle$
2610.7			x									
2739.8	$\langle 31^- \rangle$			x								
2915.8	$\langle 33^+ \rangle$				1.0(8)							
2984.0+X	$\langle 33^+ \rangle$				1.7(10)	6.8(17)	2.0(3)	2.6(3)				
3029.3+X	$\langle 37^+ \rangle$						33(11)	11(6)				
3181.8+X	$\langle 35^- \rangle$						≈ 7					
3301.3+X								x				
3441.1+X	$\langle 39^- \rangle$							98.4(19)	≈ 0.76	0.87(16)		
3495.4+X	$\langle 43^- \rangle$											x
3604.8+X								x				

Energy levels and branching ratios [92Ak01]. Part 5

²¹³Rn
86

E^*	$2J^\pi$	Branching ratios in percentage									
[keV]		E_f^* : $2J_f^\pi$:	3495+X $\langle 43^- \rangle$	3605+X	3923+X $\langle 43 \rangle^-$	4048+X $\langle 45^- \rangle$	4506+X $\langle 49^+ \rangle$	4533+X	4856+X $\langle 49^+ \rangle$	5226+X $\langle 51^+ \rangle$	5764+X
<hr/>											
3623.8+X			x								
3922.9+X	$\langle 43 \rangle^-$		x								
3927.3+X			x								
4047.9+X	$\langle 45^- \rangle$		100		<2						
4050.3+X				x							
4343.1+X					x						
4505.5+X	$\langle 49^+ \rangle$		100			<6					
4532.7+X					x						
4581.3+X						x		x			
4723.0+X							x				
4855.5+X	$\langle 49^+ \rangle$						x				
5225.6+X	$\langle 51^+ \rangle$						56(17)		44(11)		
5763.6+X							62(12)			38(4)	
5928.8+X							30(10)		30(10)		40(10)

Energy levels and branching ratios [95El07].

²¹⁴Rn
86

E^* [keV]	J^π	$T_{1/2}$ or Γ_{cm}	Branching ratios in percentage							
			E_f^* : J_f^π :	0.0 0^+	694.7 2^+	1141.2 4^+	1331.7	1442.7 6^+	1625.1 8^+	1928.0 10^+
0.0	0^+	0.27(2) μs								
694.7	2^+	<1.4 ns		x						
1141.2	4^+	<1.4 ns			x					
1331.7					x					
1442.7	6^+	0.69(21) ns				x				
1625.1	8^+	6.5(30) ns						x		
1800.5							x			
1928.0	10^+	0.90(21) ns							x	
1944.9									x	
2028.2									x	
2099.7										
2208.6								x		
2320.5										
2377.1										38(6)
2394.7	11^-									x
2504.8										
2557.1										x
2648.7	$\langle 11,12 \rangle^-$									
2668.2										
2676.2	13^-	3.7(3) ns								4.9(6)
2682.2										57(10)
2689.1										

(continued)

²¹⁴Rn
86

E^*	J^π	$T_{1/2}$ or	Branching ratios in percentage							
[keV]		Γ_{cm}	$E_f^*:$ $J_f^\pi:$	0.0 0 ⁺	694.7 2 ⁺	1141.2 4 ⁺	1331.7	1442.7 6 ⁺	1625.1 8 ⁺	1928.0 10 ⁺
2878.2	12 ⁺									94(4)
2917.1										
3148.1	14 ⁺									
3268.7	$\langle 14^+ \rangle$									
3327.9	16 ⁺	5.1(3) ns								
3465.4										
3490.1	18 ⁺	44(3) ns								
3540.1										
3578.7	$\langle 18^- \rangle$									
3610.4	$\langle 16^+ \rangle$									
3745.9	19 ⁻	2.4(3) ns								
3753.3										
3791.2										
3827.6	$\langle 20^- \rangle$									
3907.2										
3940.9										
4064.2										
4220.5										
4250.2										
4262.2										
4517.5										
4554.8										
4595.4	$\langle 22^+ \rangle$	245(30) ns								
4750.8										
4858.8										
4977.6		8.0(3) ns								
5051.0		<4 ns								

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

Energy levels and branching ratios [95El07]. Part 2

²¹⁴Rn
86

E^*	J^π	$E_f^*:$ $J_f^\pi:$	1944.9	2028.2	2208.6	2377.1	2394.7	2648.7	2676.2	2878.2	3148.1	3268.7
[keV]							11 ⁻		13 ⁻	12 ⁺	14 ⁺	$\langle 14^+ \rangle$
2099.7			x									
2320.5				x								
2504.8					x							
2648.7	$\langle 11,12 \rangle^-$						x					
2668.2		x										
2676.2	13 ⁻						95.1(13)					
2682.2						43(10)						
2689.1		x										

(continued)

 $^{214}_{86}\text{Rn}$

E^*	J^π	Branching ratios in percentage										
[keV]		$E_{\rm f}^*$: $J_{\rm f}^\pi$:	1944.9	2028.2	2208.6	2377.1	2394.7 11 [−]	2648.7	2676.2 13 [−]	2878.2 12 ⁺	3148.1 14 ⁺	3268.7 14 ⁺
2878.2	12 ⁺						0.74(21)	1.7(4)	3.1(3)			
2917.1							x					
3148.1	14 ⁺								77.3(14)	22.7(9)		
3268.7	14 ⁺										x	
3327.9	16 ⁺										100.0(18)	x
3465.4											x	
3610.4	16 ⁺								21(7)		79(15)	

Energy levels and branching ratios [95El07]. Part 3

 $^{214}_{86}\text{Rn}$

E^*	J^π	Branching ratios in percentage										
[keV]		E_f^* : J_f^π :	3327.9 16 ⁺	3465.4	3490.1 18 ⁺	3578.7 18 ⁻	3745.9 19 ⁻	3791.2	3827.6 20 ⁻	3907.2	4517.5	4595.4 22 ⁺
3490.1	18 ⁺	x										
3540.1		x										
3578.7	18 ⁻				x							
3745.9	19 ⁻				93.6(20)	6.4(7)						
3753.3		x										
3791.2							x					
3827.6	20 ⁻						x					
3907.2					x							
3940.9			x									
4064.2							x					
4220.5							x					
4250.2									x			
4262.2										x		
4517.5								x				
4554.8							x					
4595.4	22 ⁺								x			
4750.8												x
4858.8											x	

Energy levels and branching ratios [95El07]. Part 4

 $^{214}_{86}\text{Rn}$

E^* [keV]	J^π	Branching ratios in percentage									
		$E_f^*:$ $J_f^\pi:$	4750.8								
4977.6											x
5051.0											x

Energy levels and branching ratios [01Br31].

²¹⁵Rn
86

E^*	$2J^\pi$	$T_{1/2}$ or	Ref.	Branching ratios in percentage			
[keV]		Γ_{cm}		E_f^* : $2J_f^\pi$:	0.0 9 ⁺	214.1 $\langle 7,9 \rangle^+$	315.82 $\langle 7 \rangle^+$
0.0	9 ⁺	2.30(10) μs					
214.1(2)	$\langle 7,9 \rangle^+$				x		
290.8(3)	$\langle 7,9,11 \rangle^-$				x		
315.82(4)	$\langle 7 \rangle^+$				x		
805.7(4)	$\langle 7 \rangle^+$		94Sh02		x	x	x

Additional data on this isotope can be found in [94Sh02].

Energy levels and branching ratios [97Ar04, 06De09].

²¹⁶Rn
86

E^*	J^π	$T_{1/2}$ or	Ref.
[keV]		Γ_{cm}	
0.0	0 ⁺	45(5) μs	
461.9(2)	2 ⁺		
840.8(3)	4 ⁺		
1226.2(4)	6 ⁺		
1645.6(4)	8 ⁺		
1785.7			06De09
1837.5	$\langle 8-10 \rangle^+$		
1932.0			06De09
1939.7	[10 ⁺]		06De09
2111.5(5)*	$\langle 10^+ \rangle$		
2342.5			06De09
2405.6	12 ⁺		06De09
2598.3	13 ⁻		06De09
2826.1	14 ⁺		06De09
3072.2	15 ⁻		06De09
3238.2	16 ⁺		06De09
3469.6	17 ⁻		06De09
3572.1	18 ⁺		06De09
3780.1	19 ⁻		06De09
4071.0			06De09
4300.1			06De09

* not given in [06De09].

Comparison of the low-lying level schemes of the light actinide isotopes can be found in [06De09].

Energy levels and branching ratios [97Ar04, 06De09]. Part 2

²¹⁶Rn₈₆

E^* [keV]	J^π	Branching ratios in percentage					
		$E_f^*:$ $J_f^\pi:$	0.0 0 ⁺	461.9 2 ⁺	840.8 ⟨4 ⁺ ⟩	1226.2 ⟨6 ⁺ ⟩	1645.6 ⟨8 ⁺ ⟩
461.9(2)	2 ⁺		x				
840.8(3)	4 ⁺			x			
1226.2(4)	6 ⁺				x		
1645.6(4)	8 ⁺					x	
2111.5(5)*	⟨10 ⁺ ⟩						x

Energy levels and branching ratios [03Ak06, 97Li12].

²¹⁷Rn₈₆

E^* [keV]	$2J^\pi$	$T_{1/2}$ or Γ_{cm}
0.0	9 ⁺	0.54(5) ms
88.90(5)		≤1.5 ns
93.02(5)	7 ⁺	4.0(4) ns
149.18(8)	5 ⁺	≤1.5 ns
174.3(1)	⟨7,9,11⟩ ⁺	≤1.5 ns
235.2(6)	⟨3 ⁺ ⟩	
295		
375.0(3)	⟨3 ⁺ ⟩	
382.2(3)	⟨7⟩	
474.5(4)	⟨7,9,11⟩	
569.6(3)	⟨5,7⟩	
618.9(5)	⟨5,7⟩	

Energy levels and branching ratios [03Ak06, 97Li12]. Part 2

²¹⁷Rn₈₆

E^* [keV]	$2J^\pi$	Branching ratios in percentage					
		$E_f^*:$ $2J_f^\pi:$	0.0 9 ⁺	88.90	93.02 7 ⁺	149.18 5 ⁺	174.3 235.2 ⟨3 ⁺ ⟩
88.90(5)		x					
93.02(5)	7 ⁺	x		x			
149.18(8)	5 ⁺	98(10)			2.4(5)		
174.3(1)	⟨7,9,11⟩ ⁺	99(12)		0.87(30)			
235.2(6)	⟨3 ⁺ ⟩					x	
375.0(3)	⟨3 ⁺ ⟩					83(42)	17(8)
382.2(3)	⟨7⟩	17(6)			39(12)	11(6)	33(12)
474.5(4)	⟨7,9,11⟩	x					
569.6(3)	⟨5,7⟩				28(11)	50(15)	22(8)
618.9(5)	⟨5,7⟩				30(12)	30(12)	40(20)

Energy levels [95El08, 99Co02, 06Ja03].

²¹⁸Rn
86

E^*	J^π	$T_{1/2}$ or	Ref.
[keV]		Γ_{cm}	
0.0	0 ⁺	35(5) ms	
324.32(2)	2 ⁺	<80 ps	
653.2(2)	⟨4 ⁺ ⟩		
796.91(2)	⟨3 ⁻ ⟩		
840.17(2)	⟨3 ⁻ ⟩		
1014.3(3)	⟨6 ⁺ ⟩		
1026.1(4)	⟨5 ⁻ ⟩		
1327.9(4)	⟨7 ⁻ ⟩		
1392.9(4)	⟨8 ⁺ ⟩		
1694.3(5)	⟨9 ⁻ ⟩		
1775.2(4)	⟨10 ⁺ ⟩		
2070.9(7)	⟨11 ⁻ ⟩		
2168.9(7)	⟨12 ⁺ ⟩		
2457.8(9)	⟨13 ⁻ ⟩		
2576.6(8)	⟨14 ⁺ ⟩		
2853.0(10)*	⟨15 ⁻ ⟩		
3002.0(10)	⟨16 ⁺ ⟩		99Co02
3265.2(11)*	⟨17 ⁻ ⟩		
3437.5(11)*	⟨18 ⁺ ⟩		99Co02
3683.2(13)*	⟨19 ⁻ ⟩		
3859.4(12)	⟨20 ⁺ ⟩		99Co02
4287.0(13)	⟨22 ⁺ ⟩		99Co02
4725.0(14)	⟨24 ⁺ ⟩		99Co02
5167.8(15)*	⟨26 ⁺ ⟩		99Co02
	99Co02		Ref.

* uncertain [06Ja03].

Energy levels and branching ratios [01Br31, 98Sh02].

²¹⁹Rn
86

E^*	$2J^\pi$	$T_{1/2}$ or
[keV]		Γ_{cm}
0.0	5 ⁺	3.96(1) s
4.47(1)	⟨9⟩ ⁺	15.4(13) ns
14.37(1)	⟨7⟩ ⁺	875(30) ps
126.77(2)	⟨11⟩ ⁺	402(20) ps
158.64(1)	⟨7⟩ ⁺	42.3(50) ps
269.48(1)	3 ⁺	14.2(23) ps
338.27(1)	⟨5⟩ ⁺	6.1(28) ps
342.78(2)	⟨5,7⟩ ⁻	
376.26(2)	⟨9⟩ ⁺	6.9(38) ps
377.33(6)	⟨7,9⟩ ⁻	

(continued)

 $^{219}_{86}\text{Rn}$

E^*	$2J^\pi$	$T_{1/2}$ or Γ_{cm}
[keV]		
397.1(4)		
445.03(1)	$\langle 5 \rangle^+$	6.2(31) ps
446.82(3)	$\langle 5 \rangle^-$	
490.92(2)	$\langle 5, 7, 9 \rangle^-$	
514.5(1)	$\langle 9^+ \rangle$	
517.7		
541.99(2)	$\langle 7^+ \rangle$	
594.1(1)	$\langle 7 \rangle^-$	
598.72(2)	$\langle 5, 7, 9 \rangle^+$	
623.68(4)		
646.1(1)		
672.6(5)		
711.3(1)		
732.8(1)		
748		
773		
800		
830		
851		
861		
873		

Energy levels and branching ratios [01Br31, 98Sh02]. Part 2

 $^{219}_{86}\text{Rn}$

E^*	$2J^\pi$	Branching ratios in percentage							
[keV]		$E_{\text{f}}^*:$ $2J_{\text{f}}^\pi:$	0.0 5^+	4.47 $\langle 9 \rangle^+$	14.37 $\langle 7 \rangle^+$	126.77 $\langle 11 \rangle^+$	158.64 $\langle 7 \rangle^+$	269.48 3^+	338.27 $\langle 5 \rangle^+$
4.47(1)	$\langle 9 \rangle^+$		100						
14.37(1)	$\langle 7 \rangle^+$		55(4)	45(4)					
126.77(2)	$\langle 11 \rangle^+$			100					
158.64(1)	$\langle 7 \rangle^+$		7.2(1)	59(2)	34(1)	≈ 0.001			
269.48(1)	3^+		99(2)		0.38(5)		0.42(3)		
338.27(1)	$\langle 5 \rangle^+$		40(1)	1.4(1)	56(1)		2.1(2)		
342.78(2)	$\langle 5, 7 \rangle^-$		52(3)		48(2)				
376.26(2)	$\langle 9 \rangle^+$		2.2(8)	83(2)	7.8(5)	7(2)			
377.33(6)	$\langle 7, 9 \rangle^-$			77	23(11)				
397.1(4)						100			
445.03(1)	$\langle 5 \rangle^+$		95(3)		1.4(4)			1.4(3)	1.7(1)
446.82(3)	$\langle 5 \rangle^-$				13(1)		58(2)	18(2)	1.9(9)
514.5(1)	$\langle 9^+ \rangle$			2(1)	6(3)	71(28)	13(6)		
541.99(2)	$\langle 7^+ \rangle$		1.5(6)	2.2(2)	75(5)		15(5)		
594.1(1)	$\langle 7 \rangle^-$		2(1)		2(1)				9(5)

(continued)

 $^{219}_{86}\text{Rn}$

E^* [keV]	$2J^\pi$	Branching ratios in percentage							
		$E_f^*:$ $2J_f^\pi:$	0.0 5^+	4.47 $\langle 9 \rangle^+$	14.37 $\langle 7 \rangle^+$	126.77 $\langle 11 \rangle^+$	158.64 $\langle 7 \rangle^+$	269.48 3^+	338.27 $\langle 5 \rangle^+$
598.72(2)	$\langle 5,7,9 \rangle^+$		68(3)		1.0(4)				5(2)
623.68(4)			11(5)	4(1)	72(4)				
646.1(1)			2(2)	8(3)	2(2)		51(7)		
672.6(5)						100			
711.3(1)			28(8)		5(2)				
732.8(1)			2(1)	2(1)	9(4)		7(4)		

Energy levels and branching ratios [01Br31, 98Sh02]. Part 3

 $^{219}_{86}\text{Rn}$

E^* [keV]	$2J^\pi$	Branching ratios in percentage							
		$E_f^*:$ $2J_f^\pi:$	342.78 $\langle 5,7 \rangle^-$	376.26 $\langle 9 \rangle^+$	377.33 $\langle 7,9 \rangle^-$	446.82 $\langle 5 \rangle^-$	490.92	514.5 $\langle 9^+ \rangle$	598.72
377.33(6)	$\langle 7,9 \rangle^-$		x						
445.03(1)	$\langle 5 \rangle^+$		0.06(3)						
446.82(3)	$\langle 5 \rangle^-$		7(1)		2(1)				
490.92(2)	$\langle 5,7,9 \rangle^-$			100					
514.5(1)	$\langle 9^+ \rangle$			8(4)					
517.7						100			
541.99(2)	$\langle 7^+ \rangle$			6(3)					
594.1(1)	$\langle 7 \rangle^-$		69(21)			9(5)	9(5)		
598.72(2)	$\langle 5,7,9 \rangle^+$				26(4)				
623.68(4)				12(4)					
646.1(1)						13(7)		25(13)	
711.3(1)			66(33)						x
732.8(1)			45(18)		27(9)	7(4)			

Energy levels [97Ar04, 99Co02].

 $^{220}_{86}\text{Rn}$

E^* [keV]	J^π	$T_{1/2}$ or Γ_{cm}	Ref.
0	0^+	55.6(1) s	
240.986(6)	2^+	0.146(5) ns	
533.69(10)	4^+		
645.44(9)	1^-		
663.03(10)	$\langle 3^- \rangle$		
852.1	$\langle 5^- \rangle$		
874.0	$\langle 6^+ \rangle$		
1128.3	$\langle 7^- \rangle$		

(continued)

 $^{220}_{86}\text{Rn}$

E^*	J^π	$T_{1/2}$ or	Ref.
[keV]		Γ_{cm}	
1244.6	$\langle 8^+ \rangle$		
1462.2	$\langle 9^- \rangle$		
1631.3	$\langle 10^+ \rangle$		99Co02
1834.1	$\langle 11^- \rangle$		99Co02
2034.0	$\langle 12^+ \rangle$		99Co02
2227.2	$\langle 13^- \rangle$		99Co02
2452.8	$\langle 14^+ \rangle$		99Co02
2638.4	$\langle 15^- \rangle$		99Co02
2887.1	$\langle 16^+ \rangle$		99Co02
3068.7	$\langle 17^- \rangle$		99Co02
3325.4	$\langle 18^+ \rangle$		99Co02
3509.9	$\langle 19^- \rangle$		99Co02
3764.0	$\langle 20^+ \rangle$		99Co02
			Ref.

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

Energy levels [96El01, 99Co02].

 $^{222}_{86}\text{Rn}$

E^*	J^π	$T_{1/2}$ or	Ref.
[keV]		Γ_{cm}	
0.0	0^+	3.8235(4) d	
186.211(13)	2^+	0.32(2) ns	
448.37(12)	4^+		
600.66(5)	1^-		
635.47(15)	3^-		
768.5	$\langle 6^+ \rangle$		
797.8	$\langle 5^- \rangle$		
1049.1	$\langle 7^- \rangle$		
1128.1	$\langle 8^+ \rangle$		99Co02
1356.9	$\langle 9^- \rangle$		99Co02
1513.0	$\langle 10^+ \rangle$		99Co02
1708.1	$\langle 11^- \rangle$		99Co02
2089.0	$\langle 13^- \rangle$		99Co02
			Ref.

The ground-state band and the band built on 1^- level are extended up to $J^\pi=16^+$ and 21^- in [99Co02].

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