$^{220}_{86}\mathrm{Rn}_{134}$

1 Decay Scheme

Rn-220 mainly decays by alpha emission to the Po-216 fundamental level.
Le radon 220 se désintègre par émission alpha principalement vers le niveau fondamental du polonium 216.

2 Nuclear Data

$T_{1/2}(^{220}\mathrm{Rn})$	:	55,8	(3)	s
$T_{1/2}(^{216}\mathrm{Po})$	:	0,150	(5)	s
$Q^{\alpha}(^{220}\mathrm{Rn})$	:	6404,67	(10)	keV

2.1 α Transitions

	Energy keV	Probability × 100	F
$\alpha_{0,1}$	5854,91 (14)	0,118 (15)	3,08
$\alpha_{0,0}$	6404,67 (10)	99,882 (15)	1

2.2 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ × 100	Multipolarity	α_K	α_L	α_M+	α_T
$\gamma_{1,0}$(Po)	549,76 (4)	0,118 (15)	E2	0,0184 (6)	0,0057 (2)	0,00190 (6)	0,0260 (8)

3 Atomic Data

3.1 Po

ω_K	:	0,965	(4)
$\bar{\omega}_L$	:	0,403	(16)
n_{KL}	:	0,807	(5)

3.1.1 X Radiations

		Energy keV		Relative probability
X_K				
	$K\alpha_2$	76,864		60
	$K\alpha_1$	79,293		100
	$K\beta_3$	89,256	}	
	$K\beta_1$	89,807	}	
	$K\beta_5''$	90,363	}	34,43
	$K\beta_2$	92,263	}	
	$K\beta_4$	92,618	}	10,71
	$KO_{2,3}$	92,983	}	
X_L				
	$L\ell$	9,658		
	$L\alpha$	11,016 – 11,13		
	$L\eta$	12,085		
	$L\beta$	12,823 – 13,778		
	$L\gamma$	15,742 – 16,213		

3.1.2 Auger Electrons

	Energy keV	Relative probability
Auger K		
KLL	58,98 – 65,21	100
KLX	71,90 – 79,29	55
KXY	84,8 – 93,1	8
Auger L	5,43 – 10,93	3400

4 α Emissions

	Energy keV	Probability × 100
$\alpha_{0,1}$	5748,46 (14)	0,118 (15)
$\alpha_{0,0}$	6288,22 (10)	99,882 (15)

5 Electron Emissions

		Energy keV	Electrons per 100 disint.
e_{AL}	(Po)	5,43 - 10,93	0,00155 (12)
e_{AK}	(Po)		0,000074 (13)
	KLL	58,98 - 65,21	
	KLX	71,90 - 79,29	
	KXY	84,8 - 93,1	

6 Photon Emissions

6.1 X-Ray Emissions

		Energy keV	Photons per 100 disint.	
XL	(Po)	9,658 — 16,213	0,00096 (7)	
$XK\alpha_2$	(Po)	76,864	0,00060 (8)	} Kα
$XK\alpha_1$	(Po)	79,293	0,00100 (14)	}
$XK\beta_3$	(Po)	89,256		
$XK\beta_1$	(Po)	89,807	0,00034 (5)	K$'\beta_1$
$XK\beta_5''$	(Po)	90,363		
$XK\beta_2$	(Po)	92,263		
$XK\beta_4$	(Po)	92,618	0,000107 (15)	K$'\beta_2$
$XKO_{2,3}$	(Po)	92,983		

6.2 Gamma Emissions

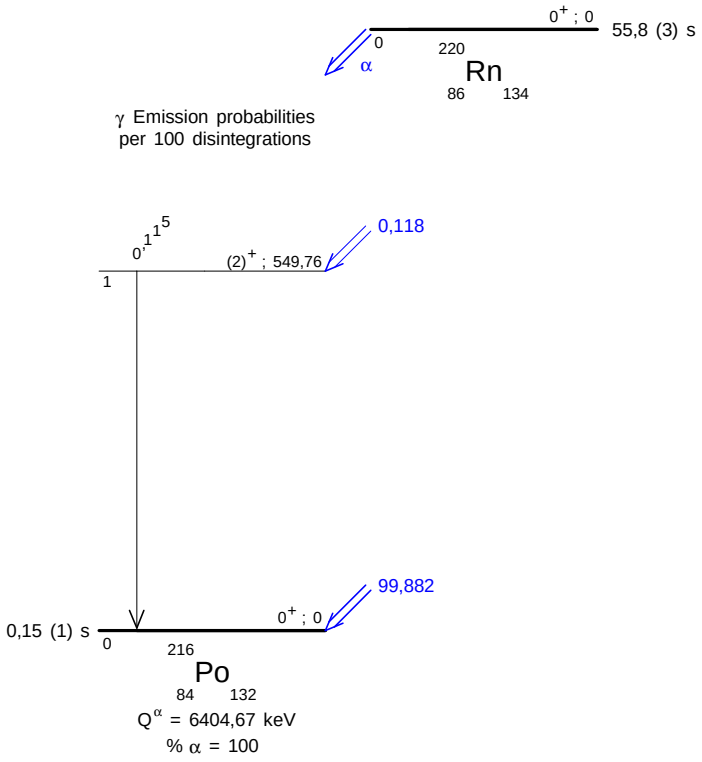
	Energy keV	Photons per 100 disint.
$\gamma_{1,0}$(Po)	549,76 (4)	0,115 (15)

7 Main Production Modes

Th – 228 α decays()

8 References

- A.G. WARD. Proc. Roy. Soc. (London) 181A (1942) 183
  (Half-life)
- H. SCHMIED, R.W. FINK, B.L. ROBINSON. J. Inorg. Nucl. Chem. 1 (1955) 342
  (Half-life)
- L. MADANSKY, F. RASETTI. Phys. Rev. 102 (1956) 464
  (Gamma-ray emission probabilities)
- H. RODENBUSCH, G. HERRMANN. Z. Naturforsch. 16a (1961) 577
  (Half-life)
- R.J. WALEN. Compt. Rend. Ac. Sci. (Paris) 255 (1962) 1604
  (Alpha emission energies, Alpha emission probabilities)
- J.E. GINDLER, D.W. ENGELKEMEIR. Radiochim. Acta 2 (1963) 58
  (Half-life)
- H. DIAMOND, J.E. GINDLER. J. Inorg. Nucl. Chem. 25 (1963) 143
  (Half-life)
- J.B. HURSH. J. Inorg. Nucl. Chem. 28 (1966) 2771
  (Half-life)
- J. DALMASSO. Report FRNC-TH-441 (1972)
  (Gamma-ray emission probabilities)
- J. DALMASSO. Comp. Rend. Acad. Sci. (Paris) 277B (1973) 467
  (Gamma-ray emission probabilities)
- W. KURCEWICZ, N. KAFFRELL, N. TRAUTMANN, A. PLOCHOCKI, J. ZYLICZ, A. MATUL, K. STRYCZNIEWICZ. Nucl. Phys. A289 (1977) 1
  (Gamma-ray emission probabilities)
- F. RÖSEL, H.M. FRIES, K. ALDER, H.C. PAULI. At. Data. Nucl. Data Tables 21 (1978) 291
  (Internal conversion coefficients)
- R.J. GEHRKE, V.J. NOVICK, J.D. BAKER. Int. J. Appl. Radiat. Isotop. 35 (1984) 581
  (Gamma-ray emission probabilities)
- G. AUDI, A.H. WAPSTRA. Nucl. Phys. A595 (1995) 409
  (Q value)
- E. SCHÖNFELD, H . JANSSEN. Nucl. Instrum. Methods Phys. Res. A369 (1996) 527
  (K-x ray, L-x ray, Auger electrons)
- A. ARTNA-COHEN. Nucl. Data Sheets 80 (1997) 157
  (Nuclear structure, energies)
- E. SCHÖNFELD, G. RODLOFF. PTB Report 6.11-98-1 (1998)
  (Auger electrons)
- E. SCHÖNFELD, G. RODLOFF. PTB Report 6.11-1999-1 (1999)
  (K-x ray)


0+ ; 0
55,8 (3) s
0
220
Rn
86
134
α
γ Emission probabilities
per 100 disintegrations
0,118
0+
1
1
5
(2)+ ; 549,76
1
99,882
0+ ; 0
0,15 (1) s
0
216
Po
84
132
Q α = 6404,67 keV
% α = 100