^{211}Rn α decay 1971Go35,1972As11

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev, S. Lalkovski	NDS 112, 707 (2011)	1-Aug-2010

Parent: ^{211}Rn: E=0.0; $J^\pi=1/2^-$; $T_{1/2}$=14.6 h *2*; Q(α)=5965.4 *14*; %α decay=27.4 *17*

^{207}Po Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	5/2−	5.80 h *2*	
68.5 *1*	1/2−	205 ns *10*	E(level): E=69.1 keV *21* from ΔQ(α). $T_{1/2}$: From (α)(ce)(t) in 1963As02.
236.4 *1*	3/2−		
392# *4*	3/2−		
586# *4*	7/2−		
685# *4*	5/2−		
811# *4*	9/2−		

† From Eγ, unless otherwise specified.
‡ From ^{207}Po Adopted Levels.
# From ΔQ(α).

α radiations

Eα†	E(level)	Iα†@	HF‡
5055 *4*	811	6×10^{-4} *2*	23 *8*
5179 *3*	685	2.6×10^{-3} *2*	28 *3*
5276 *3*	586	0.015 *1*	17.2 *17*
5466 *3*	392	0.014 *1*	199 *20*
5616 *3*	236.4	2.7 *2*	6.3 *7*
5783.9# *17*	68.5	63 *1*	1.77 *12*
5852.2# *24*	0.0	34 *1*	6.9 *5*

† From 1971Go35, unless otherwise specified. Iα were normalized to give Σ Iα=100. Other: 1955Mo69.
‡ $r_0(^{207}Po)$=1.4466 *16*, weighted average of 1.4569 *22* (^{206}Po) and 1.4343 *24* (^{208}Po).
# From 1991Ry01, based on values of 1971Go35 (Eα=5850 keV *2* and 5783 keV *2*) and 1955Mo69 (Eα=5847 keV *2* and 5779 keV *3*).
@ For absolute intensity per 100 decays, multiply by 0.274 *17*.

γ(^{207}Po)

Iγ normalization: From Ti(236.4γ)+Ti(68.5γ)=65.7 % 12 per 100 ^{211}Rn α decay.

Eγ	Iγ‡@	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α†	$I_{(\gamma+ce)}$@	Comments
68.55 *2*	0.95 *15*	68.5	1/2−	0.0	5/2−	E2	41.2	40 *6*	ce(L)/(γ+ce)=0.724 *8*; ce(M)/(γ+ce)=0.193 *4*; ce(N+)/(γ+ce)=0.0596 *13* ce(N)/(γ+ce)=0.0494 *11*; ce(O)/(γ+ce)=0.00936 *21*; ce(P)/(γ+ce)=0.000827 *18* Eγ: From adopted gammas. Other: 68.5 keV *1*

Continued on next page (footnotes at end of table)

^{211}Rn α decay 1971Go35,1972As11 (continued)

γ(^{207}Po) (continued)

E_γ	I_γ[‡][@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α[†]	Comments
									(1972As11). I_γ: From I(γ+ce) and α. The measured Iγ=1.4 *2* appears to be too large. $I_{(\gamma+ce)}$: From an intensity balance at the 68.5-keV level. Mult.: From L and M subshell ratios. L2/L3=1.26 *10* (1972As11), 1.1 (1956St60); M2/M3=0.97 (1956St60); Ice(L23)=28.9 *12* (1972As11) with Iγ=0.93 *7* gives α(L23)exp=31.1 *26* (theory: α(L23)=30.1, L2/L3=1.14, M2/M3=1.09).
167.900 *20*	0.15 *2*	236.4	3/2$^-$	68.5	1/2$^-$	M1(+E2)[#]	0.08[#] *8*	2.53 *6*	α(K)=2.05 *6*; α(L)=0.366 *7*; α(M)=0.0864 *17*; α(N+..)=0.0275 *6* α(N)=0.0222 *5*; α(O)=0.00465 *8*; α(P)=0.000598 *9* E_γ: From adopted gammas. γ masked by a strong 168.7γ in ^{211}Rn ε decay. I_γ: From I(167.90γ)/I(236.48γ)=1.04 *8* in ^{207}Po adopted gammas.
236.900 *20*	0.14 *2*	236.4	3/2$^-$	0.0	5/2$^-$	M1(+E2)[#]	0.25[#] *9*	0.95 *6*	α(K)=0.77 *6*; α(L)=0.138 *3*; α(M)=0.0327 *6*; α(N+..)=0.01041 *18* α(N)=0.00842 *14*; α(O)=0.00176 *4*; α(P)=0.000226 *8* E_γ: From adopted gammas. Other: 236.4 keV *1* (1972As11).

[†] Additional information 1.
[‡] From 1972As11, unless otherwise specified. Iγ were measured relative to I(674γ,^{211}At)=100 following ^{211}Rn ε decay.
[#] From adopted gammas.
[@] For absolute intensity per 100 decays, multiply by 0.45 *3*.

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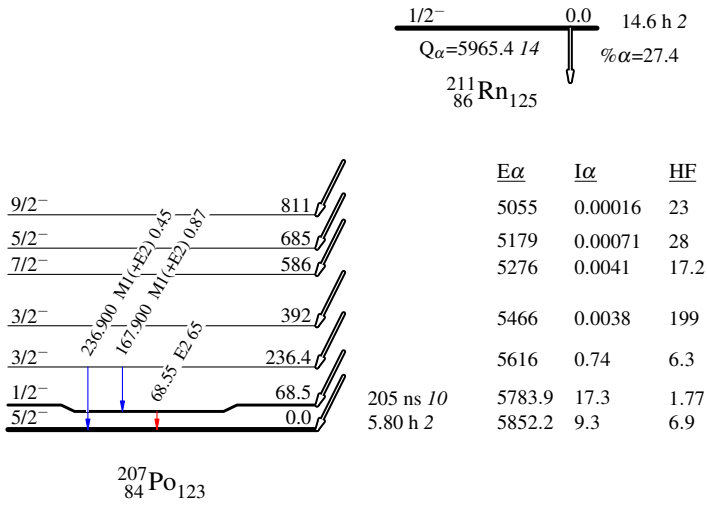
Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 decays through this branch

Legend

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



	Eα	Iα	HF
	5055	0.00016	23
	5179	0.00071	28
	5276	0.0041	17.2
	5466	0.0038	199
	5616	0.74	6.3
	5783.9	17.3	1.77
	5852.2	9.3	6.9