

^{214}Ra α decay (68.6 μs) 2006Ku26

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia		NDS 121, 561 (2014)	31-Mar-2014

Parent: ^{214}Ra : $E=1865.2$ 4; $J^\pi=8^+$; $T_{1/2}=68.6$ μs 20; $Q(\alpha)=7273$ 3; $\% \alpha$ decay=0.09 7

^{214}Ra - $T_{1/2}$: From measurement in 2006Ku26.

^{214}Ra isotope produced by $^{170}\text{Er}(^{48}\text{Ca},4n)$ reaction at $E=4.25$ and 4.30 MeV/nucleon. Evaporation residues were separated in-flight with the velocity filter ship. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, $E\alpha$, $I\alpha$, $\alpha\gamma$ coin, ce, lifetimes using a 16-strip PIPS detector and a Ge-Clover detector placed behind the PIPS. Deduced isomeric level energy at 1710 keV 30 and α branching.

 ^{210}Rn Levels

E(level) [†]	J^π [‡]	$T_{1/2}$	Comments
0.0	0^+		
643.7 7	2^+		
1461.5 9	4^+		
1664.5 10	6^+		
1709 30	8^+	644 ns 40	E(level): Deduced from $E\alpha=7290$ 30 and $Q(\alpha)(^{214}\text{Ra})=7273$ 3 (2012Wa38). 1710 30 in 2006Ku26 using $Q(\alpha)(^{214}\text{Ra})=7273$ 3 (2003Au03). $T_{1/2}$: from Adopted Levels.

[†] From least-squares fit to γ -ray energies, except otherwise noted.

[‡] From Adopted Levels.

 α radiations

$E\alpha$	E(level)	$I\alpha$ [‡]	HF [†]
7290 30	1709	6 3	1.8
≈ 8350 [#]	643.7	≤ 3	≥ 1343
8950 30	0.0	91 6	9.0×10^3

[†] $r_0(^{210}\text{Rn})=1.4552$ 21 (1998Ak04).

[‡] For absolute intensity per 100 decays, multiply by 0.0009 7.

[#] Existence of this branch is questionable.

 $\gamma(^{210}\text{Rn})$

E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
(≈ 45)	1709	8^+	1664.5	6^+	E_γ : Not observed – from level energy difference. Highly converted transition.
203.0 5	1664.5	6^+	1461.5	4^+	
643.7 7	643.7	2^+	0.0	0^+	
817.8 5	1461.5	4^+	643.7	2^+	

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Legend

Decay Scheme----- \rightarrow γ Decay (Uncertain)