

^{220}Ra α decay [1961Ru06,1970Va13](#)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	S. -c. Wu	NDS 108, 1057 (2007)	1-Mar-2007

Parent: ^{220}Ra : E=0; $J^\pi=0^+$; $T_{1/2}=18$ ms 2; $Q(\alpha)=7592$ 6; % α decay=100.0

 ^{216}Rn Levels

E(level)	J^π [†]	$T_{1/2}$	Comments
0	0^+	45 μ s 5	
461.4 2	2^+		E(level): from Adopted Levels.

[†] From Adopted Levels.

 α radiations

$E\alpha$	E(level)	$I\alpha$ [‡]	HF [†]	Comments
7393 15				$E\alpha$: from 2000He17 with $I\alpha=0.05$ 3 relative to $E\alpha=7453$ peak. If this decay does exist, it implies a isomeric state of ^{216}Rn at $E_x \approx 60$. It is very unlikely to have an excited state at this energy for even-even nuclei.
7001 6	461.4	1.0 4	2.7 11	$E\alpha$: from E(level). $I\alpha$: from γ data.
7453 7	0	99.0 4	1.00	$E\alpha$: weighted average of 7449 10 from 2000He17 , 7455 10 from 1970Va13 and 7460 20 (1989An13). Other: 7450 (1961Ru06). $I\alpha$: from $I\alpha(7001\alpha)$ and requirement that $\Sigma I\alpha=100$.

[†] The requirement that $\text{HF}(7453\alpha)=1.00$ yields $r_0(^{216}\text{Rn})=1.554$ 6.

[‡] Absolute intensity per 100 decays.

 $\gamma(^{216}\text{Rn})$

I_γ normalization: I_γ per 100 α decays.

E_γ	I_γ [‡]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	$\alpha^\#$	Comments
465 4	1.0 4	461.4	2^+	0	0^+	E2	0.0431	E_γ, I_γ : from 1961Ru06 . Intensity is photons per 100 α decays.

[†] From adopted gammas.

[‡] Absolute intensity per 100 decays.

[#] Total theoretical internal conversion coefficients, calculated using the BrIcc code ([2008Ki07](#)) with Frozen orbital approximation based on γ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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Decay Scheme

Intensities: I_(γ +ce) per 100 decays through this branch

