

^{214}Th α decay

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

Parent: ^{214}Th : $E=0.0$; $J^\pi=0^+$; $T_{1/2}=87$ ms 10; $Q(\alpha)=7827$ 5; $\% \alpha$ decay=99.9 1

^{214}Th ε branch was estimated by [1995EI07](#) as $\leq 0.2\%$ from the β gross theory of [1973Ta30](#). The r_0 parameter, calculated by using $\% \alpha=99.9$ 1, fits the local r_0 trend.

Additional information 1.

The partial half-life for ^{214}Th β^+ decay was calculated by [1997Mo25](#) as 19.4328 s, which gives $\% \beta^+=0.51$.

 ^{210}Ra Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	0^+	3.7 s 2	$T_{1/2}$: From Adopted Levels.

 α radiations

E_α	E(level)	HF [†]	Comments
7678 10	0.0	1.0	E_α : Weighted average of 7680 10 (1968Va18), 7677 10 (1980Ve01) and 7670 20 (1984Sc13). Uncertainty – lowest experimental value. I_α : only one α group has been observed. Upper limit on intensity of an unobserved 7090-keV α to 2^+ state is estimated as <0.93 per 100 α decays by assuming its hindrance factor to be <1 (the 2^+ level energy of $E(2^+) \approx 600$ is used which is obtained by extrapolation from 2^+ level energies in heavier radium isotopes). Possible α transitions to higher level are neglected.

[†] $r_0(^{210}\text{Ra})=1.499$ 6 is calculated by evaluator from $Hf(7678\alpha)=1.0$. Other: $r_0(^{210}\text{Ra})=1.492$ 16 ([1998Ak04](#)) using $T_{1/2}(^{214}\text{Th})=100$ ms 25, $Q(\alpha)=7826$ 7 ([2003Au03](#)), and $I_\alpha(7678\alpha$ to g.s.) =99.5 5 per 100 α decays.