

^{209}Th α decay [1996Ik01,2010He25](#)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 166, 1 (2020)	20-Apr-2020

Parent: ^{209}Th : $E \approx 436$; $J^\pi = (13/2^+)$; $T_{1/2} = 2.5 \text{ ms } +17-7$; $Q(\alpha) \approx 8100$; $\% \alpha \text{ decay} \approx 100.0$

^{209}Th -E: From $E(^{205}\text{Ra}) = 263 \text{ keV } 52$ in Adopted Levels and $Q\alpha(13/2^+) = 8273 \text{ keV } 23$ and $Q\alpha(\text{g.s.}) = 8100 \text{ keV } (2017Hu03)$.

 ^{205}Ra Levels

<u>E(level)[†]</u>	<u>J^π[†]</u>	<u>$T_{1/2}$[†]</u>
263 52	(13/2 ⁺)	170 ms +60-40

[†] From Adopted Levels.

 α radiations

<u>E_α</u>	<u>E(level)</u>	<u>I_α[‡]</u>	<u>HF[†]</u>	<u>Comments</u>
8080 50	263	100	≈ 1.0	E_α, I_α : From 1996Ik01 , correlated with $E_\alpha = 7390 \text{ keV } 50$, depopulating the $J^\pi = (13/2^+)$ isomer in ^{205}Ra and $E_\alpha = 6440 \text{ keV } 50$, depopulating the $J^\pi = (13/2^+)$ isomer in ^{197}Po . Other: 8123 keV 25 (2010He25).

[†] Using $r_0(^{205}\text{Ra}) = 1.54 + 3-5$, from ^{206}Ra and $\text{HF}\alpha = 1$.

[‡] For absolute intensity per 100 decays, multiply by ≈ 1.0 .