

^{220}Th α decay

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

Parent: ^{220}Th : $E=0.0$; $J^\pi=0^+$; $T_{1/2}=9.7 \mu\text{s}$ 6; $Q(\alpha)=8953$ 20; $\% \alpha$ decay=100.0

$T_{1/2}(^{220}\text{Th})=9.7 \mu\text{s}$ 6, measured by [1973Ha32](#), is adopted by [1997Ar04](#) and used in calculations here. The half-life, $T_{1/2}=12 \mu\text{s}$ +4-3, measured by [1991An13](#), agrees with the one adopted here.

$\% \alpha(^{220}\text{Th})=100$ from the β decay branch of $2 \times 10^{-7}\%$, estimated by [1997Ar04](#) from the gross β -decay calculations of [1973Ta30](#). The partial half-life of ^{220}Th β^+ decay has been calculated by [1997Mo25](#) as >100 s.

 ^{216}Ra Levels

<u>E(level)</u>	<u>J^π</u>
0.0	0^+

 α radiations

<u>E_α</u>	<u>E(level)</u>	<u>HF†</u>	<u>Comments</u>
8790 20	0.0	1.0	$E\alpha$: measured by 1973Ha32 . $I\alpha$: only one α group has been observed. Intensity of an unobserved 8115-keV α to the 2^+ state at 688.2 keV is calculated to be $\leq 1.4\%$ by assuming its hindrance factor to be ≥ 1.0 . $I\alpha(8790\alpha$ to g.s.)= 99.3% 7 is used in computation.

$^\dagger r_0(^{216}\text{Ra})=1.566$ 9 from $\text{HF}(8790\alpha)=1.0$ ([1998Ak04](#)).