

^{216}Pa α decay [2000He17](#)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	K. Auranen and E. A. Mccutchan		NDS 168, 117 (2020)	1-Aug-2020

Parent: ^{216}Pa : $E=0.0$; $T_{1/2}=105$ ms *12*; $Q(\alpha)=8097$ *15*; $\% \alpha$ decay ≈ 100.0

^{216}Pa - $T_{1/2}$: from [1996An21](#). Others : 0.15 s +7-4 and 0.14 s +5-3 ([1998Ik01](#)), 0.92 s +50-24 ([2019Zh23](#)), 0.17 s +10-4 ([1979Sc09](#)), 0.20 s 4 ([1971Su14](#)).

^{216}Pa - $\% \alpha$ decay: only α decay has been observed. From the theoretical partial β -decay half-life in [2019Mo01](#) the $\% \epsilon + \% \beta^+$ branch is predicted to be approximately 0.2%.

[2000He17](#): ^{216}Pa activity from $^{170}\text{Er}(^{51}\text{V}, 5n)^{216}\text{Pa}$ reaction with $E(^{51}\text{V})=214-286$ MeV. Recoil products separated with velocity filter SHIP: Implanted into a position sensitive PIPS detector. Measured $E\alpha$, $I\alpha$, and recoil- α .

Others: [2019Zh23](#), [1998Ik01](#), [1979Sc09](#), [1971Su14](#).

 ^{212}Ac Levels

E(level)	Comments
0.0	
133.6 3	E(level): from $E\gamma$.
158 20	E(level): from measured $E\alpha$ and $Q(\alpha)=8097$ keV <i>15</i> (2017Wa10).

 α radiations

$E\alpha^{\dagger}$	E(level)	$I\alpha^{\ddagger\#}$	HF $^{\ddagger\#}$	Comments
7793 <i>15</i>	158	4 <i>1</i>	≈ 26	$E\alpha$: Other: 7720 keV (1971Su14).
7815 <i>15</i>	133.6	45 <i>5</i>	≈ 2.8	$E\alpha$: Others: 7820 keV (1971Su14), 7812 keV <i>13</i> (1979Sc09), 7830 keV <i>50</i> (1998Ik01), 7838 <i>20</i> (2019Zh23).
				$I\alpha$: other: 29 <i>23</i> (2019Zh23).
7948 <i>15</i>	0.0	51 <i>4</i>	≈ 6.3	$E\alpha$: Others: 7920 keV (1971Su14), 7865 keV <i>70</i> (1979Sc09), 7960 keV <i>50</i> (1998Ik01), 7952 <i>17</i> (2019Zh23).
				$I\alpha$: other: 71 <i>42</i> (2019Zh23).

† From [2000He17](#).

‡ Using $r_0(^{212}\text{Ac})=1.492$ *14*, average of $r_0(^{214}\text{Th})=1.512$ *14*, $r_0(^{212}\text{Th})=1.486$ *33*, $r_0(^{212}\text{Ra})=1.4695$ *14*, and $r_0(^{210}\text{Ra})=1.4986$ *56* ([2020Si16](#)).

$^{\#}$ For absolute intensity per 100 decays, multiply by ≈ 1 .

 $\gamma(^{212}\text{Ac})$

E_{γ}	$E_i(\text{level})$	E_f	Comments
133.6 3	133.6	0.0	E_{γ} : from 2000He17 . Seen in coincidence with 7815 α .

^{216}Pa α decay $^{2000}\text{He}17$

Decay Scheme

