

^{234}Am ε decay

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 108, 681 (2007)		1-Jun-2006

Parent: ^{234}Am : E=0.0; $T_{1/2}$ =2.32 min 8; $Q(\varepsilon)$ =4180 SY; % ε +% β^+ decay=99.961 12

Additional information 1.

The observed fission activity was interpreted in [1972Sk03](#) as due to SF decay of a shape isomer in ^{234}Pu following ε decay of ^{234}Am , and confirmed in [1990Ha02](#) by observation of prompt coincidences between plutonium K x-rays and fission products. ^{234}Am ε decay to deformed states in the first well of the potential energy in ^{234}Pu has not been studied.

 ^{234}Pu Levels

E(level)	$T_{1/2}$	Comments
0.0		
<4170	<3 ns	E(level): the upper limit on the level energy is from $Q(\varepsilon)$ =4180 keV. This level may be complex, comprised of several levels in the second well of the nuclear potential, and connected by the weak 112-, 147-, 168- and 185-keV γ -ray transitions. $T_{1/2}$: plutonium K x-rays and the fission products reported in 1990Ha02 were observed in prompt coincidence, thus the inferred limits on the level's half-life of 1×10^{-8} ns < $T_{1/2}$ < 3 ns.

 ε, β^+ radiations

E(decay)	E(level)	$I(\varepsilon + \beta^+)^{\dagger}$	Comments
(10 SY)	<4170	6.6×10^{-3} 18	$I\varepsilon$: the delayed-SF probability was determined in 1990Ha02 as 6.6×10^{-5} 18 from SF/plutonium K x-rays. If the isomeric level decayed also by γ -ray transitions, then $I\varepsilon > 0.0066\%$ 18. The ε branch given here may be the total ε intensity to superdeformed levels in the second well of the nuclear potential.

† For absolute intensity per 100 decays, multiply by 0.99961 12.

 $\gamma(^{234}\text{Pu})$

E_{γ}	$E_i(\text{level})$
$^{x112}_{\gamma}$	
$^{x147}_{\gamma}$	
$^{x168}_{\gamma}$	
$^{x185}_{\gamma}$	

† Reported in [1990Ha02](#) in coincidence with fission products. These transitions were found to be very weak, and they should be considered as "not well established".

x γ ray not placed in level scheme.