

^{238}Am α decay

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

Parent: ^{238}Am : $E=0.0$; $J^\pi=1^+$; $T_{1/2}=98$ min 2; $Q(\alpha)=6040$ 50; $\% \alpha$ decay= 1.0×10^{-4} 4

[Additional information 1.](#)

 ^{234}Np Levels

If the ^{238}Am g.s. configuration, in analogy to ^{241}Am proton and ^{235}U neutron states, were: $J^\pi=1^+$: π 5/2[523], ν 7/2[743], and if the ^{234}Np g.s. configuration were: $J^\pi=0^+$; p 5/2[642], n 5/2[633], α decay from ^{238}Am to ^{234}Np g.s. would involve spin flips for both proton and neutron states. A hindrance factor of ≈ 60 (using $I_\alpha=100\%$) for 5940α is not consistent with such a transition (see [1972EI21](#)). Therefore, 5940α from ^{238}Am g.s. should feed an excited state.

E(level)	Comments
0.0	
0.0+x	The level fed by the 5940-keV α -particle group from ^{238}Am may be the $J^\pi=1^-$: p 5/2[523], n 3/2[631] state. a γ ray between this state and the g.s. (probable $J^\pi=0^+$: π 5/2[642], ν 5/2[633]) is forbidden. If a $J^\pi=1^+$: p 5/2[642], n 3/2[631] state lay below the 1^- level, then this 1^- state would preferably deexcite by cascade γ rays.

 α radiations

$\% \alpha=1.0 \times 10^{-4}$ 4.

$E\alpha$	E(level)	I_α^\dagger	HF	Comments
5940	0.0+x	≤ 100	≥ 60	$E\alpha$: From 1972Ah04 . HF: $r_0(^{234}\text{Np})=1.502$ has been used in the calculation.

† For absolute intensity per 100 decays, multiply by 1.0×10^{-6} 4.