Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 198,449 (2024)	31-Jul-2022

Q(β^-)=2377 *syst*; S(n)=4978 *syst*; S(p)=5473 *syst*; Q(α)=5150 *syst* 2021Wa16
ΔQ(β^-)=18, ΔS(n)=18, ΔS(p)=22, ΔQ(α)=200 (syst,2021Wa16).
S(2n)=11028 *18*, S(2p)=12820 *100* (syst,2021Wa16).

Theoretical structure calculations:
Q(α), $T_{1/2}(\alpha)$, $T_{1/2}$(SF):
2020Ja01,2019Sr04,2005Re16,1983Bo15.
Fission:
2020Ja01.
Compilation of long lived isomer:
2011He12,1987So10.
Compilation of β-decay.
2009So02, 1992So06.
Bandhead energies Rotational structure configurations:
1984So03.
Rotational structure configurations:
1994So16.

^{246}Am Levels

Cross Reference (XREF) Flags

A ^{246}Pu β^- decay
B ^{244}Pu(α,pn)

E(level)[†]	J$^\pi$	$T_{1/2}$	XREF	Comments
0.0	(7$^-$)[‡]	39 min *3*		%β^-=100 Configuration=((π 5/2[642])+(ν 9/2[734])) (1984So03). $T_{1/2}$: weighted average of 39 min *3* (1968Fi03) and 40 min *7* (1967Or02).
0.0+x	(2$^-$)[‡]	25.0 min *2*	A	%β^-=100; %IT=? Additional information 1. E(level): From single-particle state calculations with configuration=((π 5/2[642])-(ν 9/2[734])), X =30 keV *10* (1984So03). $T_{1/2}$: Weighted average of 25.0 min *2* (1955En16) and 24.7 min *7* (1983Po14).
16.22+x *3*	(0$^-$,1$^-$,2$^-$)		A	Additional information 2. J$^\pi$: (E1) 27.58 from (1$^+$) 43.8+X−keV level.
43.797+x *12*	(1$^+$)	4.3 ns *3*	A	$T_{1/2}$: From $\gamma\gamma$(t) in ^{246}Pu β^- decay (1965St10). J$^\pi$: (E1) γ to 2$^{(-)}$ 0.0+X−keV level; (M1) γ from (1$^+$) 223.7+X−keV level gives (1$^+$) or (2$^+$); β^- feeding from 0$^+$ rules out 2$^+$.
74.323+x *24*			A	
223.733+x *14*	(1$^+$)		A	J$^\pi$: (E1) 223.75γ to 2$^{(-)}$ g.s., log *ft*=6.0 from 0$^+$ excludes $J^\pi \geq 2^+$.
232.754+x *14*			A	
299.358+x *16*	0,1		A	J$^\pi$: log *ft*=7.3 from 0$^+$.
≈2000		73 μs *10*	B	%SF≤100 E(level): From 2002Si26. Fission isomer observed in ^{244}Pu(α,pn) (1972Wo07,2002Si26). $T_{1/2}$: From 1972Wo07.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{246}Am Levels (continued)

† From ^{246}Pu β^- decay, unless otherwise noted.
‡ From Nilsson single-particle states: for Z=95 the proton configuration is either 5/2[642] or 5/2[523] and for N=151 the neutron configuration is 9/2[734]. β decay to ^{246}Cm suggests a spin change transition, therefore proton configuration=(π 5/2[642]) is preferred. According to the Gallagher-Moszkowski rules for coupling of the two odd nucleons; spin parallel state (7^-) should be the lowest state and the spin-antiparallel (2^-) is the isomeric state.

$\gamma(^{246}Am)$

E_i(level)	J_i^π	E_γ†	I_γ	E_f	J_f^π	Mult.†	α‡	Comments
16.22+x	(0^-,1^-,2^-)	(16.23 *3*)	100	0.0+x	(2^-)			
43.797+x	(1^+)	27.58 *2*	14.1 *15*	16.22+x	(0^-,1^-,2^-)	(E1)	3.90 *6*	α(L)=2.89 *4*; α(M)=0.759 *11* α(N)=0.2030 *29*; α(O)=0.0461 *7*; α(P)=0.00608 *9*; α(Q)=0.0001418 *20* B(E1)(W.u.)=9.4×10^{-5} *+11−10*
		43.81 *2*	100 *5*	0.0+x	(2^-)	(E1)	1.175 *17*	α(L)=0.877 *12*; α(M)=0.2220 *31* α(N)=0.0596 *8*; α(O)=0.01394 *20*; α(P)=0.002061 *29*; α(Q)=5.75×10^{-5} *8* B(E1)(W.u.)=1.66×10^{-4} *+14−12*
223.733+x	(1^+)	149.42 *3*	0.24 *20*	74.323+x				
		179.94 *2*	41.3 *20*	43.797+x	(1^+)	(M1)	5.46 *8*	α(K)=4.30 *6*; α(L)=0.872 *12*; α(M)=0.2127 *30* α(N)=0.0581 *8*; α(O)=0.01464 *20*; α(P)=0.00280 *4*; α(Q)=0.0001780 *25*
		223.75 *2*	100 *7*	0.0+x	(2^-)	(E1)	0.0811 *11*	α(K)=0.0633 *9*; α(L)=0.01346 *19*; α(M)=0.00329 *5* α(N)=0.000891 *12*; α(O)=0.0002191 *31*; α(P)=3.90×10^{-5} *5*; α(Q)=1.837×10^{-6} *26*
232.754+x		158.42 *3*	31 *7*	74.323+x				
		189.00 *4*	42 *7*	43.797+x	(1^+)			
		216.55 *4*	100 *16*	16.22+x	(0^-,1^-,2^-)			
		232.75 *2*	71 *11*	0.0+x	(2^-)			
299.358+x	0,1	66.60 *2*	100 *7*	232.754+x				
		75.64 *2*	71 *10*	223.733+x	(1^+)			
		255.54 *3*	90 *7*	43.797+x	(1^+)			
		299.34 *6*	12 *3*	0.0+x	(2^-)			

† From ^{246}Pu β^- decay (1971Mu05).
‡ Additional information 3.

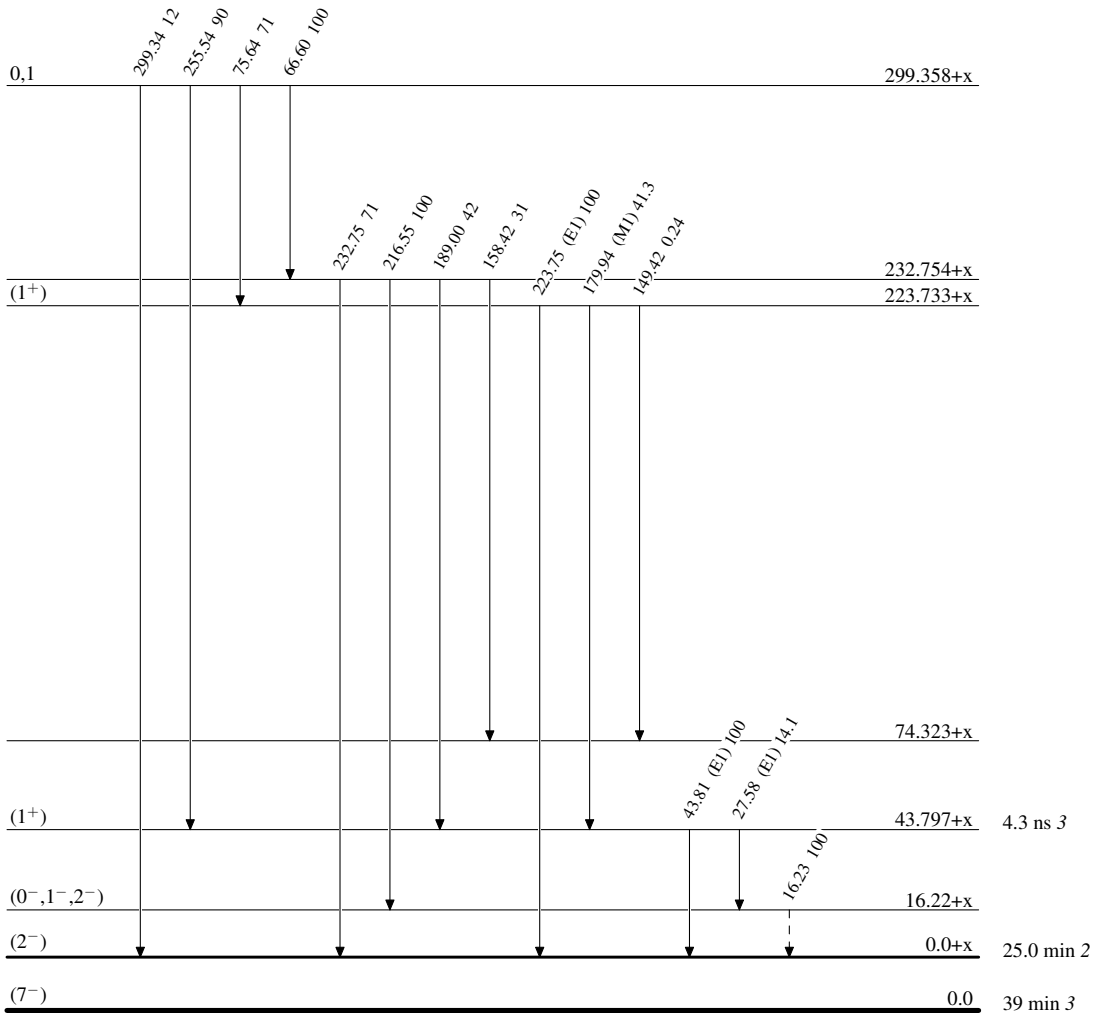
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{246}_{95}Am_{151}$