Adopted Levels

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, E. Browne	NDS 109,2439 (2008)	31-Jul-2008

Q(β^-)=−214 *14*; S(n)=5952 *14*; S(p)=4367 *14*; Q(α)=5.71×10^3 *6* 2012Wa38
Note: Current evaluation has used the following Q record $ −214 *14* 5952 *14* 4367 *14* 5710 *50* 2003Au03.
Additional information 1.

^{240}Am Levels

Cross Reference (XREF) Flags

A ^{244}Bk α decay (4.35 h)
B ^{241}Am(d,t)

E(level)	J$^\pi$ †	T$_{1/2}$	XREF	Comments
0#	(3$^-$)	50.8 h *3*	AB	%ε=100; %α=1.9×10^{-4} *7* %α: as recommended by 1986LoZT; ≈1.9×10^{-4} (1970Go42). %β^-<6×10^{-6} (1960Gl01). T$_{1/2}$: from 1972Ah07. Others: 50 h (1949se01), 53 h (1952Hi63,1952Hi11), 51.0 h *5* (1960Gl01); 50.9 h *7* (1966Bi03). J$^\pi$: log ft=5.8 to 3$^+$, probable configuration: π5/2[523]+ν1/2[631].
41#	(4$^-$)		AB	
53@	(2$^-$)		B	
87@	(3$^-$)		B	
96#	(5$^-$)		B	
130@	(4$^-$)		B	
158#	(6$^-$)		B	
186@	(5$^-$)		B	
213			B	
233#	(7$^-$)		B	
252@	(6$^-$)		B	
281			B	
316#	(8$^-$)		B	
329@	(7$^-$)		B	
346&	(1$^-$)		B	
398‡a	(3$^-$)&(5$^-$)		B	
423&	(2$^-$)		B	
458a	(6$^-$)		B	
474			B	
498‡&	(4$^-$)&(5$^-$)		B	
534a	(7$^-$)		B	
551			B	
616‡a	(6$^-$)&(8$^-$)		B	
640&	(7$^-$)		B	
660			B	
757			B	
777			B	
809			B	
819			B	
845			B	
856			B	

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Adopted Levels (continued)

^{240}Am Levels (continued)

E(level)	J^{π}[†]	$T_{1/2}$	XREF	Comments
877			B	
898			B	
917			B	
932			B	
956			B	
973[b]	(3^+)		B	
997			B	
1016[‡c]	(2^+)&(4^+)		B	
1052[c]	(3^+)		B	
1066			B	
1079			B	
1194			B	
1218			B	
1235			B	
1248			B	
1305			B	
1318			B	
1335			B	
1349			B	
1372			B	
1386			B	
1407			B	
1437			B	
1495			B	
1515			B	
1545			B	
3.0×10^3 *2*		0.94 ms *4*		%SF≤100 E(level): fission isomer; energy from 1971Br39. Others: 1979Ku12, 1974Ga41, 1973Be04, 1973Be05, 1972Wo07, 1972Br35, 1970Ga04, 1968Bj04, 1967Ga14. Reactions used are: ^{240}Pu(p,n); ^{240}Pu(d,2n); ^{240}Pu(t,3n); ^{241}Am(γ,n); ^{241}Am(n,2n); ^{241}Am(d,t); ^{241}Am(^{22}Ne,^{23}Ne). $T_{1/2}$: from 1979Be46, SF isomer. Others: 1973Be05, 1972Wo07, 1971Br39, 1970Ga04, 1967Bj03. Intrinsic electric-quadruple moment: Q_0=33.9 *8* deduced by 2001Ba65 (also 2000Bb15) from optical isotope shift. Others: Q_0=29.0 *13* (1985Jo04); 32.7 *20* (1979Be46,1981Be48, 1985Be58); 1985Jo04 (muonic x rays). $\Delta\langle r^2\rangle(^{242m}Am-^{240m}Am)$(fission isomers)= −0.288 fm^2 *24* (1998Ba04).

[†] Based on observed and theoretical cross section patterns for the bands (fingerprint method); rotational parameter A in the range 5-7; sequence of Nilsson orbitals in neighboring odd mass isotopes; Gallagher-Moszkowski coupling rule; and summed cross sections for two bands belonging to the same Nilsson neutron orbital should be equal. These rules are best obeyed for the π5/2[523]ν1/2[631] bands.
[‡] Doublet.
[#] Band(A): $K^{\pi}=3^-$, π5/2[523]+ν1/2[631]. A=5.3.
[@] Band(B): $K^{\pi}=2^-$, π5/2[523]-ν1/2[631]. A=5.5.
[&] Band(C): $K^{\pi}=0^-$, π5/2[523]-ν5/2[622]. A=5.4.
[a] Band(D): $K^{\pi}=5^-$, π5/2[523]+ν5/2[622]. A=5.2.
[b] Band(E): $K^{\pi}=3^+$, π5/2[523]+ν1/2[501]. A=5.4.
[c] Band(F): $K^{\pi}=2^+$, π5/2[523]-ν1/2[501]. A=6.0.

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Band(A): $K^{\pi}=3^{-}$, $\pi 5/2[523]+\nu 1/2[631]$

(8^{-})	316
(7^{-})	233
(6^{-})	158
(5^{-})	96
(4^{-})	41
(3^{-})	0

Band(B): $K^{\pi}=2^{-}$, $\pi 5/2[523]-\nu 1/2[631]$

(7^{-})	329
(6^{-})	252
(5^{-})	186
(4^{-})	130
(3^{-})	87
(2^{-})	53

Band(C): $K^{\pi}=0^{-}$, $\pi 5/2[523]-\nu 5/2[622]$

(7^{-})	640
$(6^{-})\&(8^{-})$	616
$(4^{-})\&(5^{-})$	498
(2^{-})	423
$(3^{-})\&(5^{-})$	398
(1^{-})	346

Band(D): $K^{\pi}=5^{-}$, $\pi 5/2[523]+\nu 5/2[622]$

$(6^{-})\&(8^{-})$	616
(7^{-})	534
(6^{-})	458
$(3^{-})\&(5^{-})$	398

Band(E): $K^{\pi}=3^{+}$, $\pi 5/2[523]+\nu 1/2[501]$

(3^{+})	973
$(2^{+})\&(4^{+})$	1016

Band(F): $K^{\pi}=2^{+}$, $\pi 5/2[523]-\nu 1/2[501]$

(3^{+})	1052
$(2^{+})\&(4^{+})$	1016

$^{240}_{95}Am_{145}$