^{242}Am β^- decay (16.01 h)

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. J. Martin, C. D. Nesaraja	NDS 186, 261 (2022)	31-Dec-2021

Parent: ^{242}Am: E=0.0; $J^\pi=1^-$; $T_{1/2}$=16.01 h *2*; Q(β^-)=664.3 *4*; %β^- decay=83.0 *3*
^{242}Am-Q(β^-): From 2021Wa16.

^{242}Cm Levels

E(level)	J^π	$T_{1/2}$
0.0	0^+	162.88 d *8*
42.129 *7*	2^+	

β^- radiations

E(decay)†	E(level)	Iβ⁻‡	Log *ft*	Comments
(622.2 *4*)	42.129	42 *4*	6.88 *5*	av Eβ=185.85 *14* E(decay): E(β^-)=625 *5* was measured by 1955Ba31, 620 *20* by 1955Ho67. Iβ⁻: From (β)(L x-ray) coincidence measurements 1955Ho67 deduced I(β^- to the 42 level)/$\sum\beta^-$=0.51 *5*.
(664.3 *4*)	0.0	41 *4*	6.99 *5*	av Eβ=200.10 *14* E(decay): E(β^-)=667 *5* was measured by 1955Ba31. Other measurement: 1982Wi05. Iβ⁻: From 83-I(β^- to the 42 level).

† From Q(β^-) and level energies.
‡ Absolute intensity per 100 decays.

γ(^{242}Cm)

Iγ normalization, I(γ+ce) normalization: From I(γ+ce)(42γ)=I(β^- to the 42 level).

E_γ	I_γ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α†	$I_{(\gamma+ce)}$‡	Comments
42.129 *7*	0.036 *4*	42.129	2^+	0.0	0^+	E2	1155 *16*	42 *4*	ce(N)/(γ+ce)=0.0566 *11*; ce(O)/(γ+ce)=0.01368 *27*; ce(P)/(γ+ce)=0.00223 *4*; ce(Q)/(γ+ce)=5.44×10^{-6} *11* α(L)=836 *12*; α(M)=235.5 *33* α(N)=65.5 *9*; α(O)=15.82 *22*; α(P)=2.58 *4*; α(Q)=0.00629 *9* ce(L)/(γ+ce)=0.723 *8*; ce(M)/(γ+ce)=0.204 *4* E_γ: From 1980VyZZ. Others: 42.18 (1955Ba31), 42.2 *3* (1955Ho67), 42.12 *6* (1956Al41), 42.20 (1960As05). I_γ: Photons per 100 16.01-h ^{242}Am β^- decays from I(γ+ce) and α. $I_{(\gamma+ce)}$: Total intensity per 100 16.01-h ^{242}Am β^- decays from the requirement of an intensity balance at the 42 level, where I(γ+ce)(42γ)=I(β^-) feeding the 42 level. Other: ($\sum$ce 42γ)/$\sum$I(β^-)=0.551 was measured by 1955Ba31. This corresponds to I(γ+ce)(42γ)=45.6% per 100 parent decays, in good agreement with the value deduced from

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^{242}Am β^- decay (16.01 h) (continued)

$\gamma(^{242}Cm)$ (continued)

E_γ	E_i(level)	Comments
		the intensity balance. Mult.: From L3/L2=0.73 (1955Ho67). Other: I(L-ray)/Iγ(42.13γ)=16 *3*/0.039 *5* is listed in 1980VyZZ.

† Additional information 1.
‡ Absolute intensity per 100 decays.

^{242}Am β^- decay (16.01 h)

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays