^{242}Pu α decay 2013KeZZ,2011Be01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 127, 191 (2015)	1-Jun-2014

Parent: ^{242}Pu: E=0.0; $J^\pi=0^+$; $T_{1/2}=3.73\times10^5$ y *3*; Q(α)=4984.7 *10*; %α decay=100.0

Other:2005ChZU.

Additional information 1.

Others: 2013De12, 2013Is13, 2013Ra05, 2013Se17, 2012Is08, 2009De32, 2009Dr05.

Theory: 2012Pr09, 2011Qi06, 2011Zh36, 2010Wa23, 2010Wa31, 2009Ni06, 2009Wa01, 2007Pe30, 2006De05, 2006Xu08, 2005De44, 2005Re16, 2005Xu01, 2004Ro01.

x-ray: $M_{\alpha,\beta}$:L_e:L_α:$L_{\eta\beta}$:L_γ= 41 *4*:5.6 *9*: 71.7 *72*: 100 *10*: 24.5 *25* (1990Po14).

^{238}U Levels

E(level)†	J^π	$T_{1/2}$	Comments
0.0	0^+	4.468×10^9 y *6*	$T_{1/2}$: From Adopted Levels.
44.915 *13*	2^+	225 ps *20*	$T_{1/2}$: From α − ce (t) delayed coincidence measurement (1960Be25).
148.42 *4*	4^+		
307.44 *4*	6^+		

† From 2011Be01.

α radiations

Eα†	E(level)	Iα‡#	HF	Comments
4600.1 *10*	307.44	6.20×10^{-4} *3*	821	
4756.2 *10*	148.42	0.0304 *14*	238	
4858.2 *10*	44.915	23.4 *6*	1.6	Eα: Other value: 4858.1 keV *9*, recommended in 1991Ry01.
4902.3 *10*	0.0	76.5 *6*	1.000	Eα: Other value: 4902.2 keV *14*, recommended in 1991Ry01.

† From 2013KeZZ.

‡ From 2011Be01 and 1972Sc01, deduced by evaluators from I(γ+ce).

Absolute intensity per 100 decays.

γ(^{238}U)

E_γ†	I_γ‡#	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α@	Comments
44.915 *13*	0.0384 *8*	44.915	2^+	0.0	0^+	E2	610	α(L)=445 *7*; α(M)=122.8 *18*; α(N+..)=42.2 *6* α(N)=33.3 *5*; α(O)=7.63 *11*; α(P)=1.234 *18*; α(Q)=0.00294 *5*
103.50 *4*	0.0253 *12*	148.42	4^+	44.915	2^+	[E2]	11.36	α(L)=8.27 *12*; α(M)=2.29 *4*; α(N+..)=0.790 *12* α(N)=0.623 *9*; α(O)=0.1431 *21*; α(P)=0.0234 *4*; α(Q)=9.65×10^{-5} *14*
159.018 *16*	2.20×10^{-4} *8*	307.44	6^+	148.42	4^+	[E2]	1.81	α(K)=0.209 *3*; α(L)=1.168 *18*; α(M)=0.323 *5*; α(N+..)=0.1113 *17* α(N)=0.0877 *13*; α(O)=0.0202 *3*; α(P)=0.00335 *5*; α(Q)=2.38×10^{-5} *4* E_γ,I_γ: From 2011Be01.

† From 1972Sc01, unless otherwise specified.

Continued on next page (footnotes at end of table)

^{242}Pu α decay 2013KeZZ,2011Be01 (continued)

$\gamma(^{238}U)$ (continued)

‡ From 2013KeZZ, unless otherwise specified.
# Absolute intensity per 100 decays.
@ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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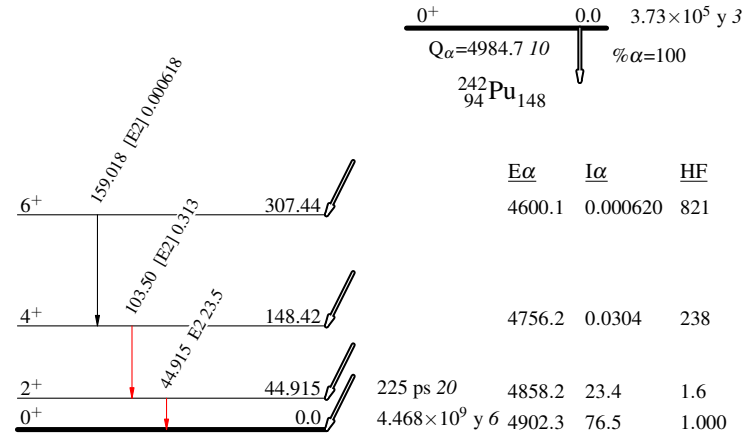
Decay Scheme

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

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



	Eα	Iα	HF
	4600.1	0.000620	821
	4756.2	0.0304	238
	4858.2	23.4	1.6
	4902.3	76.5	1.000