

^{229}U α decay

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	A. K. Jain (a), R. Raut (b), J. K. Tuli		NDS 110, 1409 (2009)	1-Dec-2008

Parent: ^{229}U : E=0.0; $J^\pi=(3/2^+)$; $T_{1/2}=58$ min 3; $Q(\alpha)=6475$ 3; % α decay \approx 20.0

No gammas were observed by [1961Ru06](#) in singles and $\alpha\gamma$ -coincidence spectra (<2% of α decays) belonging to ^{229}U α decay.

However, Th L x rays were observed, and their intensity was measured as 13% of α decays. These data indicate, as concluded by [1961Ru06](#), that the levels populated by the 6332- and 6297-keV α 's are deexcited by M1,E2 transitions, not by E1.

 ^{225}Th Levels

E(level)	J^π
0.0	(3/2 ⁺)
28 5	(5/2 ⁺)
64 5	(7/2 ⁺)
102 5	(9/2 ⁺)
139 5	
178 5	

 α radiations

$E\alpha^\dagger$	E(level)	$I\alpha^\ddagger@$	HF [#]	Comments
6185 3	178	1.0 5	\approx 17	
6223 3	139	3 1	\approx 8.6	
6260 3	102	1.0 5	\approx 38	
6297 3	64	11 1	\approx 5.1	
6332 3	28	20 2	\approx 4.1	
6360 6	0.0	64 6	\approx 1.7	$I\alpha$: uncertainty was recommended by 1979Ry03 . The 6360-keV α was not seen in coincidence with gammas, indicating that it feeds either the g.s. or a low-energy level deexcited by γ 's with E_γ less than the Th L-electron binding energy.

[†] Measurements of [1961Ru06](#). Original energies have been increased by 5 keV due to calibration, as recommended by [1979Ry03](#).

[‡] α intensity per 100 α decays, measured by [1961Ru06](#).

[#] $r_0(^{225}\text{Th})=1.53$ is used in calculations.

@ For absolute intensity per 100 decays, multiply by \approx 0.20.