^{235}U(d,pγ)   **1977Bo09,1980Bu13,1989Sc30**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Shaofei Zhu	NDS 182, 2 (2022).	1-Apr-2022

^{236}U Levels

E(level)[†]	J$^\pi$	T$_{1/2}$	Comments
0.0	0$^+$		
45.243 7	2$^{+‡}$		
148.8 7	4$^{+‡}$		
308.8 12	6$^{+‡}$		
520.9 16	8$^{+‡}$		
687.0 7	1$^{-‡}$	3.78 ns 9	T$_{1/2}$: from Adopted Levels.
743.6 8	3$^{-‡}$		J$^\pi$: from 1973Br05.
847.7 9	5$^{-‡}$		
966.1 7	(1$^-$)‡		
987.2 8	2$^{-‡}$		
1052.0 9	(4)$^-$	105 ns 6	T$_{1/2}$: weighted average of 125 ns 20 (1973Br05) and 103 ns 6 (1980Bu13). J$^\pi$: based on two-quasineutron configuration ν7/2$^-$[743]$\otimes\nu$1/2$^+$[631] and comparison with (d,p) results (1973Br05).
1580? 9	(1,2)		E(level): alternately 1170 keV (1989Sc30).
2189 11			
2750 10	(0$^+$)	67 ns 3	%IT=87 6; %SF=11 4; %α<10 T$_{1/2}$: from Adopted Levels. Measured: 110 ns 50 (1969La14), 130 ns 15 (1971Br38), 130 ns 40 (1972Pe01), 116 ns 7 (1975Ch09), 120 ns 15 (1977Bo09), 115 ns 5 (1978Gu02) and 125 ns 30 (1989Sc30). E(level): from 1989Sc30, other: 2795 keV 5 (1987ScZP). %IT,%SF,%α: from 1989Sc30. J$^\pi$: ground state of the fission isomer and $\gamma\gamma$ angular correlations (1989Sc30). Γ_γ/Γ_f=7 2 (1976An11), $\Gamma_\gamma/\Gamma_f\approx$6 (1978Gu02), Γ_γ/Γ_f<4.5 (1980Bu13) and Γ_γ/Γ_f=8 3 (1989Sc30).
2769[#] 7	(2$^+$)		E(level): a rotational band with E=AJ(J+1) deduced based on the maximum likelihood of conversion electron spectrum (1977Bo09).
2816[#] 7	(4$^+$)		
2890[#] 7	(6$^+$)		
2991[#] 7	(8$^+$)		
3118[#] 7	(10$^+$)		

[†] Deduced by the evaluators from a least-squares fit to γ-ray energies.
[‡] From the Adopted Levels.
[#] Rotational band in the second well of the nuclear potential following E=AJ(J+1) with A=3.36 keV 1 and E(0$^+$)=2750 keV 10 (1977Bo09).

γ(^{236}U)

E$_i$(level)	J$^\pi_i$	E$_\gamma$	E$_f$	J$^\pi_f$	Mult.	α^c	Comments
45.243	2$^+$	45.243^b 2	0.0	0$^+$	E2^b	6.0×10^2 7	α(L)=4.4×10^2 6; α(M)=122 15; α(N)=33 4; α(O)=7.6 9; α(P)=1.22 15; α(Q)=0.0029 3; α(N+..)=42 5
148.8	4$^+$	104.237^b 4	45.243	2$^+$	E2^b	11.1 6	α(L)=8.1 4; α(M)=2.23 11; α(N)=0.61 3; α(O)=0.139 7;

^{235}U(d,pγ)   **1977Bo09,1980Bu13,1989Sc30 (continued)**

$\gamma(^{236}$U) (continued)

E$_i$(level)	J$_i^\pi$	E$_\gamma$	I$_\gamma$	E$_f$	J$_f^\pi$	Mult.	α^c	Comments
								α(P)=0.0228 *11*; α(Q)=9.5×10^{-5} *4*
								α(N+..)=0.77 *4*
308.8	6$^+$	160.308^b *3*		148.8	4$^+$	E2^b	1.774	α(K)=0.208 *3*; α(L)=1.142 *16*; α(M)=0.316 *5*; α(N)=0.0857 *12*; α(O)=0.0197 *3*
								α(P)=0.00327 *5*; α(Q)=2.34×10^{-5} *4*; α(N+..)=0.1087 *16*
								I$_\gamma$: I$_\gamma$=19 *4* relative to I$_\gamma$ of 104γ (1977Bo09).
520.9	8$^+$	212.47^b *4*		308.8	6$^+$	E2^b	0.603	α(K)=0.1405 *20*; α(L)=0.338 *5*; α(M)=0.0929 *13*; α(N)=0.0252 *4*; α(O)=0.00583 *9*
								α(P)=0.000977 *14*; α(Q)=1.074×10^{-5} *15*; α(N+..)=0.0320 *5*
								I$_\gamma$: I$_\gamma$=11.1 *27* relative to I$_\gamma$ of 104γ (1977Bo09).
687.0	1$^-$	538.10 *8*		148.8	4$^+$			E$_\gamma$: from 1980Bu13.
		642‡	100†	45.243	2$^+$			E$_\gamma$: also from 1989Sc30.
		687‡	23†	0.0	0$^+$			E$_\gamma$: also from 1989Sc30.
743.6	3$^-$	56^d		687.0	1$^-$		210 *20*	E$_\gamma$: from level energy difference, not observed in 1973Br05.
847.7	5$^-$	104		743.6	3$^-$			E$_\gamma$: deduced from level energy difference, but not observed in 1973Br05.
966.1	(1$^-$)	279‡	14†	687.0	1$^-$		0.7 *5*	E$_\gamma$: also from 1989Sc30.
		921‡ *10*	6†	45.243	2$^+$		0.00432	E$_\gamma$: also from 1989Sc30.
		966‡ *10*	16†	0.0	0$^+$		0.00398	E$_\gamma$: also from 1989Sc30.
987.2	2$^-$	243‡	18†	743.6	3$^-$			
		300‡	13†	687.0	1$^-$			
		839		148.8	4$^+$			E$_\gamma$: from 1980Bu13.
		942‡	36†	45.243	2$^+$			
1052.0	(4)$^-$	(65)		987.2	2$^-$			E$_\gamma$: from level energy difference, but not observed in 1973Br05.
		204‡	23†	847.7	5$^-$			
		308‡	38†	743.6	3$^-$			
		903‡	18†	148.8	4$^+$			
		1007		45.243	2$^+$			E$_\gamma$: from 1980Bu13.
1580?	(1,2)	1580$^\#$ *11*		0.0	0$^+$			Alternative placement: feeding the 1170-keV level from the 2749-keV level (1989Sc30).
2189		2190$^\#$ *30*		0.0	0$^+$			
2750	(0$^+$)	560$^\#$ *10*	6.0$^\&$ *12*	2189		E1		Mult.: from $\gamma\gamma$ angular correlation (1989Sc30).
		1170$^\#$ *10*	10$^\&$ *2*	1580?	(1,2)	E1		Alternative placement: from a possible 1170 level following 1580-keV transition (1989Sc30).
								Mult.: from $\gamma\gamma$ angular correlation (1989Sc30).
		1783$^\#$ *10*	50$^\&$ *10*	966.1	(1$^-$)	E1		Mult.: from $\gamma\gamma$ angular correlation (1989Sc30).
		2062$^\#$ *10*	13.0$^\&$ *26*	687.0	1$^-$	E1		Mult.: from $\gamma\gamma$ angular correlation (1989Sc30).

^{235}U(d,pγ) 1977Bo09,1980Bu13,1989Sc30 (continued)

$\gamma(^{236}$U) (continued)

E$_i$(level)	J$^\pi_i$	E$_\gamma$	I$_\gamma$	E$_f$	J$^\pi_f$	Mult.	α^c	I$_{(\gamma+ce)}$	Comments
2750	(0$^+$)	2705$^{\#d}$	<6$^\&$	45.243	2$^+$				I$_\gamma$: estimated but not observed (1989Sc30).
		2750^d		0.0	0$^+$	[E0]		<2	I$_{(\gamma+ce)}$: estimated but not observed (1989Sc30).
2769	(2$^+$)	20.2 *1*		2750	(0$^+$)	(E2)			
2816	(4$^+$)	47.0$^@$ *1*	100^a	2769	(2$^+$)	(E2)$^@$	489		α(L)=357 *5*; α(M)=98.6 *14*; α(N)=26.7 *4*; α(O)=6.12 *9*; α(P)=0.990 *14*; α(Q)=0.00241 *4* α(N+..)=33.8 *5*
2890	(6$^+$)	73.9$^@$ *2*	24^a *4*	2816	(4$^+$)	(E2)$^@$	55.5		α(L)=40.4 *6*; α(M)=11.20 *16*; α(N)=3.04 *5*; α(O)=0.697 *10*; α(P)=0.1135 *16* α(Q)=0.000352 *5*; α(N+..)=3.85 *6*
2991	(8$^+$)	100.8$^@$ *3*	6.9^a *17*	2890	(6$^+$)	(E2)$^@$	12.84		α(L)=9.35 *13*; α(M)=2.59 *4*; α(N)=0.704 *10*; α(O)=0.1619 *23*; α(P)=0.0265 *4* α(Q)=0.0001062 *15*; α(N+..)=0.893 *13*
3118	(10$^+$)	127.7$^@$ *4*	<0.7^a	2991	(8$^+$)	(E2)$^@$			

† From 1973Br05.

‡ From 1973Br05 and 1980Bu13.

$^\#$ Detected in coincidence with protons (1989Sc30).

$^@$ In band transition of rotational band in the second well of the nuclear potential (1977Bo09).

$^\&$ From 1989Sc30, 100% of isomeric γ decay accounting 5% 2 γs and ≤3% 3 γs decay.

^{a} From 1977Bo09.

^{b} From Adopted Gammas.

^{c} 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.

^{d} Placement of transition in the level scheme is uncertain.

^{235}**U(d,pγ)**   **1977Bo09,1980Bu13,1989Sc30**   Legend

Level Scheme

Intensities: Relative photon branching from each level

- - - - - ▶ γ Decay (Uncertain)

(10^+) 3118

(8^+) 2991

(6^+) 2890

(4^+) 2816

(2^+) 2769

(0^+) 2750   67 ns *3*

127.7 (E2) <0.7
100.8 (E2) 6.9
73.9 (E2) 24
47.0 (E2)
20.2 (E2) 100
2750 (E0)
2705 <6
2062 E1 13.0
1783 E1 50
1170 E1 10
560 E1 6.0

2189

2190

1580   (1,2) 1580

1580

(4^-) 1052.0   105 ns *6*

2^- 987.2

(1^-) 966.1

5^- 847.7

3^- 743.6

1^- 687.0   3.78 ns *9*

8^+ 520.9

6^+ 308.8

4^+ 148.8

2^+ 45.243

0^+ 0.0

1007
903 18
308 38
204 23
65
942 36
839
300 13
243 18
966 16
921 6
279 14
104
56
687 23
642 100
538.10
212.47 E2
160.308 E2
104.237 E2
45.243 E2

$^{236}_{92}$U$_{144}$