

$^{236}\text{U}(\text{n},\gamma)$ res:secondary γ 's **1979Vo05**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia	NDS 107, 2323 (2006)	15-Mar-2006

 ^{237}U Levels

E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]
0.0 [#]	1/2 ⁺	540.64 ^{&} 4	1/2 ⁻	720.50 6	3/2 ⁻	893.45 ^e 12	(5/2 ⁺)
11.423 [#] 19	3/2 ⁺	554.99 ^{&} 4	3/2 ⁻	734.36 ^c 5	(1/2 ⁻)	905.75 ^g 7	(1/2 ⁺)
56.313 [#] 18	5/2 ⁺	578.03 ^{&} 5	(5/2 ⁻)	758.17 ^c 5	3/2 ⁻	909.33 11	1/2 ⁻ , 3/2 ⁻
82.87 [#] 5	7/2 ⁺	664.27 ^b 4	3/2 ⁺	832.48 ^d 7	(5/2 ⁺)	920.66 ^g 10	(3/2 ⁺)
159.993 [@] 17	5/2 ⁺	666.46 7	(5/2 ⁺)	846.94 ^e 9	(1/2 ⁺)	947.84 ^g 8	(5/2 ⁺)
204.21 [@] 9	7/2 ⁺	677.61 6	3/2 ⁺ , 5/2 ⁺	865.01 ^f 9	1/2 ⁻	981.29 5	3/2 ⁺
426.21 ^a 6	(7/2 ⁺)	697.68 ^b 5	(5/2 ⁺)	872.16 ^e 7	3/2 ⁺		

[†] From a least squares fit to the γ -ray energies.[‡] From Adopted Levels.[#] 1/2[631] band.[@] 5/2[622] band.[&] K=1/2.^a 7/2[624] band?^b 3/2[631] band.^c K=1/2.^d 5/2[633] band.^e K=1/2: (5/2[622]-2⁺) + 1/2[620] band?^f 1/2[501] band.^g Possibly K=1/2 band. $\gamma(^{237}\text{U})$

K x-rays (uranium):

cryst **1982Ba56**

E	relative I _γ	
94.656 2	62 1	Kα ₂ x ray
98.435 2	100	Kα ₁ x ray
110.416 3	11 1	Kβ ₃ x ray
111.300 2	24 1	Kβ ₁ x ray
111.368 5		Kβ ₅ ^{II} x ray
112.043 5		Kβ ₅ ^I x ray

E _γ [†]	I _γ [†]	E _i (level)	J _i ^π	E _f	J _f ^π
77.10 [‡] 10		159.993	5/2 ⁺	82.87	7/2 ⁺
103.680 [‡] 5		159.993	5/2 ⁺	56.313	5/2 ⁺
148.567 [‡] 10		159.993	5/2 ⁺	11.423	3/2 ⁺
159.995 [‡] 20		159.993	5/2 ⁺	0.0	1/2 ⁺
^x 167.00 20	0.05 3				
179.50 30	0.31 8	734.36	(1/2 ⁻)	554.99	3/2 ⁻
^x 223.97 14	0.08 2				

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$^{236}\text{U}(\text{n},\gamma)$ res:secondary γ 's **1979Vo05** (continued) $\gamma(^{237}\text{U})$ (continued)

E_γ †	I_γ †	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
251.20 20	0.05 2	677.61	$3/2^+, 5/2^+$	426.21	$(7/2^+)$	
266.17 6	0.47 4	426.21	$(7/2^+)$	159.993	$5/2^+$	
^x 276.20 30	0.05 2					
283.40 [#] 20	≤ 0.06	947.84	$(5/2)^+$	664.27	$3/2^+$	$I_\gamma=0.06$ 2 was measured for the doublet.
283.40 [#] 20	≤ 0.06	981.29	$3/2^+$	697.68	$(5/2^+)$	
310.50 30	0.07 3	865.01	$1/2^-$	554.99	$3/2^-$	
317.14 [#] 12	≤ 0.15	872.16	$3/2^+$	554.99	$3/2^-$	$I_\gamma=0.15$ 3 was measured for the doublet.
317.14 [#] 12	≤ 0.15	981.29	$3/2^+$	664.27	$3/2^+$	
^x 327.50 30	0.07 3					
331.20 [#] 30	≤ 0.07	872.16	$3/2^+$	540.64	$1/2^-$	$I_\gamma=0.07$ 3 was measured for the doublet.
331.20 [#] 30	≤ 0.07	909.33	$1/2^-, 3/2^-$	578.03	$(5/2^-)$	
^x 336.70 30	0.08 4					
^x 345.80 20	0.09 3					
403.16 7	0.23 2	981.29	$3/2^+$	578.03	$(5/2^-)$	
^x 409.80 20	0.07 2					
^x 414.20 20	0.07 2					
^x 424.30 20	0.08 3					
426.33 8	0.31 4	981.29	$3/2^+$	554.99	$3/2^-$	
^x 431.71 9	0.22 3					
440.69 6	0.61 5	981.29	$3/2^+$	540.64	$1/2^-$	
^x 449.45 6	0.58 5					
^x 454.87 11	0.16 3					
^x 464.17 11	0.10 3					
473.42 7	0.29 3	677.61	$3/2^+, 5/2^+$	204.21	$7/2^+$	
^x 475.31 11	0.15 3					
^x 477.60 20	0.07 2					
495.09 6	1.77 14	578.03	$(5/2^-)$	82.87	$7/2^+$	
498.62 5	4.56 33	554.99	$3/2^-$	56.313	$5/2^+$	
504.32 10	0.31 4	664.27	$3/2^+$	159.993	$5/2^+$	
^x 506.87 12	0.25 4					
517.50 10	0.19 3	677.61	$3/2^+, 5/2^+$	159.993	$5/2^+$	
521.53 [#] 11	≤ 0.15	578.03	$(5/2^-)$	56.313	$5/2^+$	$I_\gamma=0.15$ 3 was measured for this doubly placed γ .
521.53 [#] 11	≤ 0.15	947.84	$(5/2)^+$	426.21	$(7/2^+)$	
^x 523.45 7	0.37 4					
^x 525.80 20	0.10 3					
^x 528.13 12	0.28 5					
529.26 5	3.96 28	540.64	$1/2^-$	11.423	$3/2^+$	
537.61 9	0.22 3	697.68	$(5/2^+)$	159.993	$5/2^+$	
^x 539.64 7	0.85 9					
540.61 5	2.44 18	540.64	$1/2^-$	0.0	$1/2^+$	
543.68 6	0.57 5	554.99	$3/2^-$	11.423	$3/2^+$	
555.02 9	4.35 38	554.99	$3/2^-$	0.0	$1/2^+$	
^x 565.40 30	0.12 4					
566.65 6	2.20 16	578.03	$(5/2^-)$	11.423	$3/2^+$	
^x 568.00 20	0.18 4					
^x 571.40 20	0.10 3					
^x 573.62 14	0.13 3					
^x 576.20 20	0.10 3					
581.90 20	0.36 7	664.27	$3/2^+$	82.87	$7/2^+$	
594.60 20	0.21 5	677.61	$3/2^+, 5/2^+$	82.87	$7/2^+$	
^x 606.30 20	0.10 3					
610.29 11	0.23 4	666.46	$(5/2)^+$	56.313	$5/2^+$	
614.86 10	0.26 4	697.68	$(5/2^+)$	82.87	$7/2^+$	
^x 617.80 20	0.13 4					

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$^{236}\text{U}(\text{n},\gamma)$ res:secondary γ 's **1979Vo05** (continued) $\gamma(^{237}\text{U})$ (continued)

E_γ †	I_γ †	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
621.37 7	0.36 4	677.61	3/2 ⁺ , 5/2 ⁺	56.313	5/2 ⁺	
^x 624.86 12	0.16 3					
^x 634.65 14	0.14 3					
^x 639.90 20	0.11 3					
641.34 6	0.68 6	697.68	(5/2 ⁺)	56.313	5/2 ⁺	
652.87 6	1.29 10	664.27	3/2 ⁺	11.423	3/2 ⁺	
654.80 20	0.13 4	666.46	(5/2 ⁺)	11.423	3/2 ⁺	
^x 661.20 30	0.14 5					
^x 662.80 30	0.18 5					
664.21# 6	≤2.19	664.27	3/2 ⁺	0.0	1/2 ⁺	
664.21# 6	≤2.19	720.50	3/2 ⁻	56.313	5/2 ⁺	I γ =2.19 17 was measured for the doublet.
666.41 9	0.83 10	666.46	(5/2 ⁺)	0.0	1/2 ⁺	
667.50 30	0.21 8	872.16	3/2 ⁺	204.21	7/2 ⁺	
672.51 6	0.58 5	832.48?	(5/2 ⁺)	159.993	5/2 ⁺	
^x 677.00 20	0.13 3					
686.29 8	0.81 8	697.68	(5/2 ⁺)	11.423	3/2 ⁺	
687.50 30	0.16 6	846.94	(1/2 ⁺)	159.993	5/2 ⁺	
701.87 6	1.20 10	758.17	3/2 ⁻	56.313	5/2 ⁺	
^x 707.30 20	0.17 5					
709.06 12	0.37 6	720.50	3/2 ⁻	11.423	3/2 ⁺	
712.10 20	0.19 5	872.16	3/2 ⁺	159.993	5/2 ⁺	
720.44 12	0.25 4	720.50	3/2 ⁻	0.0	1/2 ⁺	
722.88 6	0.96 8	734.36	(1/2 ⁻)	11.423	3/2 ⁺	
734.42 7	0.65 6	734.36	(1/2 ⁻)	0.0	1/2 ⁺	
^x 738.35 10	0.32 5					
746.80 20	0.17 4	758.17	3/2 ⁻	11.423	3/2 ⁺	
758.15 6	0.82 7	758.17	3/2 ⁻	0.0	1/2 ⁺	
815.95 9	1.27 10	872.16	3/2 ⁺	56.313	5/2 ⁺	
820.40 30	0.19 5	832.48?	(5/2 ⁺)	11.423	3/2 ⁺	
^x 822.00 20	0.34 6					
^x 834.40 20	0.24 7					
837.14 14	0.40 7	893.45	(5/2 ⁺)	56.313	5/2 ⁺	
^x 839.00 20	0.33 6					
846.89 9	1.41 11	846.94	(1/2 ⁺)	0.0	1/2 ⁺	
849.45 13	0.41 6	905.75	(1/2 ⁺)	56.313	5/2 ⁺	
853.52 9	1.32 11	865.01	1/2 ⁻	11.423	3/2 ⁺	
864.00 20	0.89 16	920.66	(3/2 ⁺)	56.313	5/2 ⁺	
865.20# 30	≤0.31	865.01	1/2 ⁻	0.0	1/2 ⁺	I γ =0.31 15 was measured for the doubly placed 865.20 γ .
865.20# 20	≤0.31	947.84	(5/2 ⁺)	82.87	7/2 ⁺	
^x 873.30 20	0.40 6					
^x 875.00 30	0.22 6					
^x 878.80 20	0.26 6					
882.00 20	0.35 6	893.45	(5/2 ⁺)	11.423	3/2 ⁺	
^x 884.17 12	0.58 7					
^x 890.80 9	1.14 9					
894.14 10	0.84 8	905.75	(1/2 ⁺)	11.423	3/2 ⁺	
906.01 12	0.73 10	905.75	(1/2 ⁺)	0.0	1/2 ⁺	
909.34# 11	≤0.95	909.33	1/2 ⁻ , 3/2 ⁻	0.0	1/2 ⁺	
909.34# 11	≤0.95	920.66	(3/2 ⁺)	11.423	3/2 ⁺	I γ =0.95 11 was measured for the doublet.
936.40 20	0.28 5	947.84	(5/2 ⁺)	11.423	3/2 ⁺	
947.97 14	0.31 6	947.84	(5/2 ⁺)	0.0	1/2 ⁺	
^x 1013.46 15	0.30 6					
^x 1053.98 25	0.21 7					
^x 1058.40 30	0.16 6					
^x 1068.40 30	0.22 7					

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$^{236}\text{U}(\text{n},\gamma)$ res:secondary γ 's **1979Vo05** (continued) $\gamma(^{237}\text{U})$ (continued)

$E_\gamma^\dagger$	$I_\gamma^\dagger$	$E_i(\text{level})$	$E_\gamma^\dagger$	$I_\gamma^\dagger$	$E_i(\text{level})$	$E_\gamma^\dagger$	$I_\gamma^\dagger$	$E_i(\text{level})$
$^x1074.30$ 30	0.25 7		$^x1165.67$ 17	0.37 8		$^x1230.40$ 30	0.32 12	
$^x1107.40$ 22	0.22 7		$^x1176.00$ 40	0.17 7		$^x1297.00$ 30	0.19 6	
$^x1112.37$ 11	0.73 9		$^x1178.00$ 30	0.26 7		$^x1311.89$ 18	0.32 7	
$^x1119.06$ 14	0.37 6		$^x1183.97$ 15	0.48 8		$^x1332.35$ 18	0.37 8	
$^x1123.95$ 19	0.25 6		$^x1186.56$ 12	0.65 9		$^x1343.34$ 13	0.54 8	
$^x1139.98$ 20	0.50 11		$^x1202.25$ 15	0.38 7		$^x1366.94$ 21	0.27 7	
$^x1141.40$ 30	0.33 11		$^x1205.09$ 19	0.27 7				
$^x1163.60$ 30	0.17 6		$^x1218.37$ 25	0.19 6				

† From **1979Vo05**. Gammas were measured following the neutron capture in the 5.45-eV resonance (**1979Vo05**).

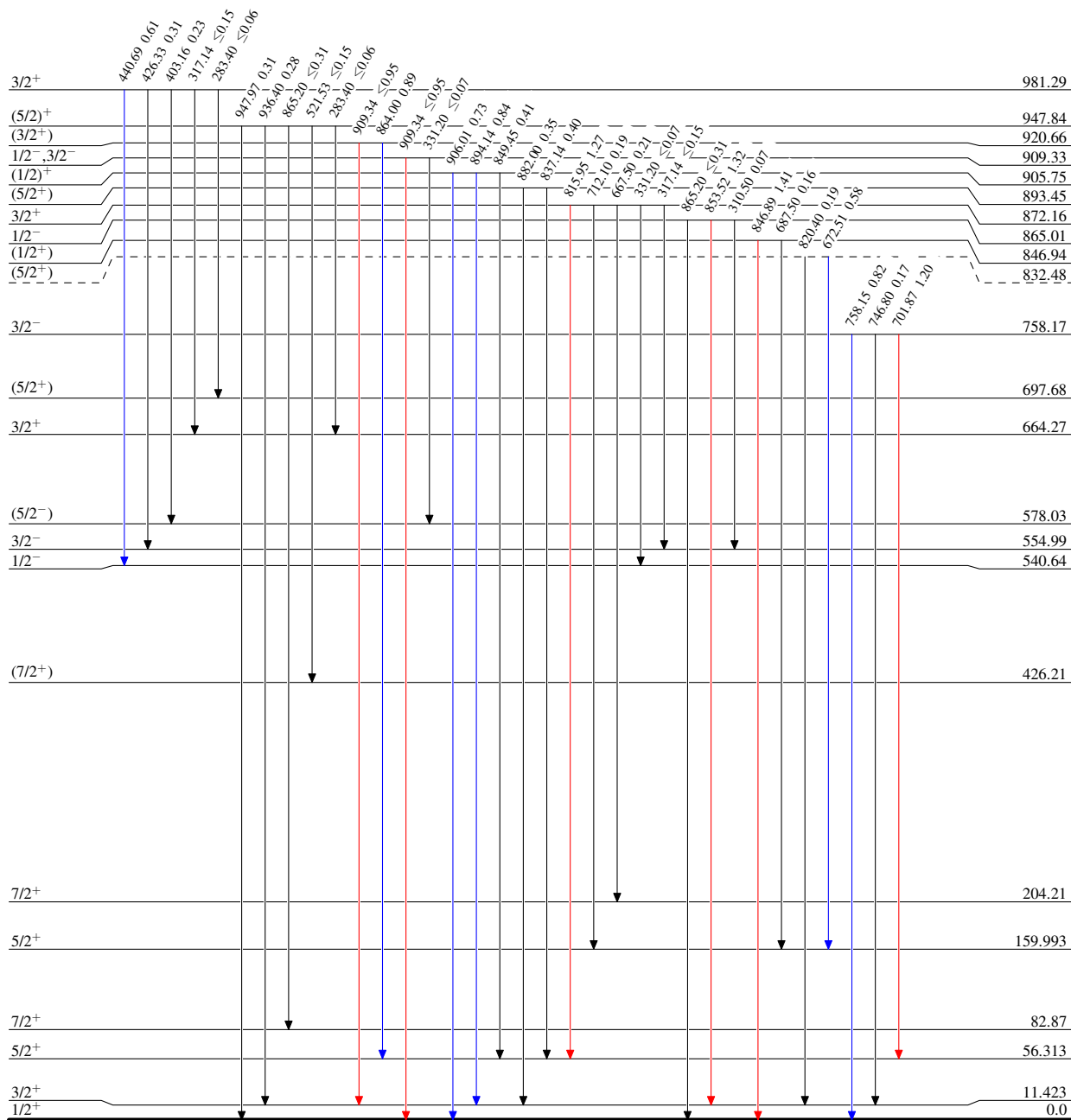
‡ From ^{241}Pu α decay.

Multiply placed.

x γ ray not placed in level scheme.

Legend

Intensities: Relative I_{γ}

 ${}_{92}^{237}\text{U}_{145}$

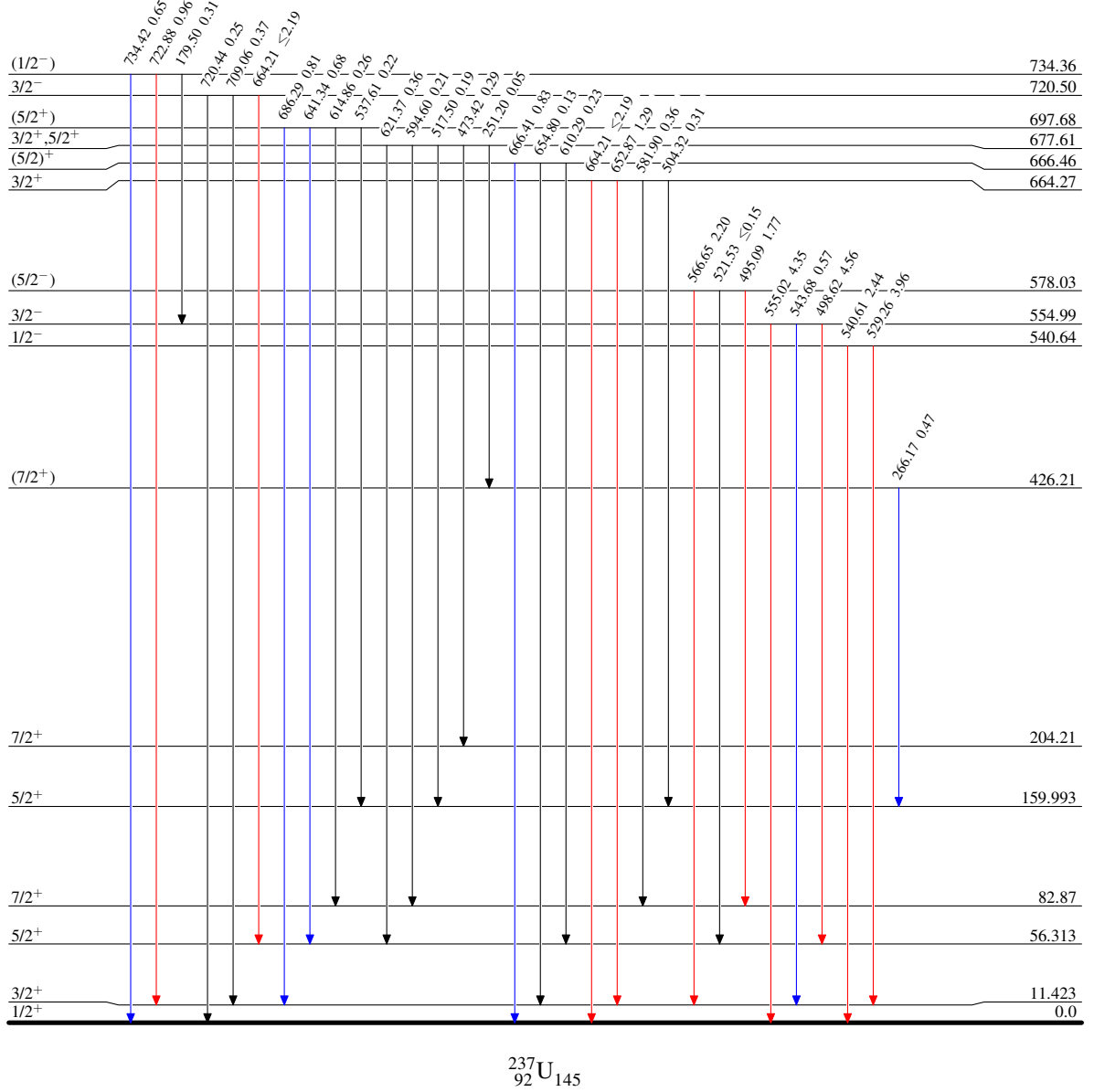
$^{236}\text{U}(\text{n},\gamma)$ res:secondary γ 's 1979Vo05

Level Scheme (continued)

Intensities: Relative I_γ

Legend

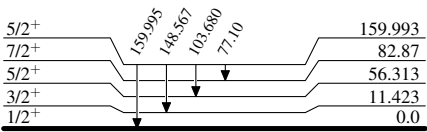
- $\longrightarrow$ $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
 $\longrightarrow$ $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
 $\longrightarrow$ $I_\gamma > 10\% \times I_\gamma^{\text{max}}$



$^{236}\text{U}(\text{n},\gamma)$ res:secondary γ 's 1979Vo05

Level Scheme (continued)

Intensities: Relative I_γ



$^{237}_{92}\text{U}_{145}$