^{236}U(d,d′) 1973Bo27

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

1973Bo27: Target: Mass-separated ^{236}U. E(d)=16 MeV. Measured scattered deuterons at θ=90° and θ=125°, using a split-pole magnetic spectrograph.

^{236}U Levels

E(level)	Jπ†	Comments
0‡	0+	dσ/dΩ(90°)/dσ/dΩ(125°)=4.8 *3*.
44‡ *2*	2+	B(E2)↑=12.2 *6* B(E2)↑: unweighted average of 12.4 *8* (deduced from real form factor) and 12.0 *10* (deduced from complex form factor). dσ/dΩ(90°)/dσ/dΩ(125°)=2.37 *17*.
149‡ *2*	4+	dσ/dΩ(90°)/dσ/dΩ(125°)=2.18 *15*.
310‡ *2*	6+	dσ/dΩ(90°)/dσ/dΩ(125°)=0.8 *1*.
524‡ *2*	8+	
686# *2*	1−	dσ/dΩ(90°)/dσ/dΩ(125°)=0.40 *6*. Jπ: based on the energy and intensity pattern of the groups at 686, 746, and 848 keV that strongly resemble those of the $K^\pi = 0^-$ bands in neighboring actinide nuclei ^{232}Th, ^{234}U, ^{238}U and ^{242}Pu.
746# *2*	3−	B(E3)↑=0.70 *5* B(E3)↑: unweighted average of 0.67 *6* (deduced from real form factor) and 0.72 *8* (deduced from complex form factor). dσ/dΩ(90°)/dσ/dΩ(125°)=2.4 *3*.
848# *2*	5−	dσ/dΩ(90°)/dσ/dΩ(125°)=0.8 *1*.
919@ *2*	0+	
959 *2*	2+	B(E2)↑=0.195 *14* B(E2)↑: unweighted average of 0.19 *2* (deduced from real form factor) and 0.20 *2* (deduced from complex form factor). Jπ: proposed as member of a K=2 γ-vibrational band, from systematics of this state in other actinides. dσ/dΩ(90°)/dσ/dΩ(125°)=2.5 *3*.
1002# *2*	(7−)	Jπ: from rotational systematics, proposed as a member of K^π=0− band.
1037 *2*	3−	B(E3)↑=0.35 *2* B(E3)↑: unweighted average of 0.34 *2* (deduced from real form factor) and 0.35 *4* (deduced from complex form factor). dσ/dΩ(90°)/dσ/dΩ(125°)=1.8 *3*.
1060 *2*		dσ/dΩ(90°)/dσ/dΩ(125°)=1.7 *2*.
1150 *2*	(3−)	B(E3)↑=0.26 *3* B(E3)↑: unweighted average of 0.26 *4* (deduced from real form factor) and 0.26 *4* (deduced from complex form factor). dσ/dΩ(90°)/dσ/dΩ(125°)=1.5 *2*.
1240 *2*		
1262 *2*		
1333 *2*		

† Assignments have been based on the systematics of cross-section patterns in other actinides, and on renormalized B(E2) and B(E3) values measured here, which agree with those determined in Coulomb Excitation.

‡ Band(A): g.s. rotational band.

Band(B): K=0− octupole vibrational band.

@ Band(C): K=0+ beta vibrational band.

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Band(B): K=0⁻ octupole vibrational band

(7⁻) 1002

5⁻ 848

3⁻ 746

1⁻ 686

Band(C): K=0⁺ beta vibrational band

0⁺ 919

Band(A): g.s. rotational band

8⁺ 524

6⁺ 310

4⁺ 149

2⁺ 44

0⁺ 0