

²³⁶U(d,p) 1965Br22

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia	NDS 107, 3323 (2006)	15-Mar-2006

Other: 1988BI03.

1965Br22: Target: ²³⁶U; Projectile: d, E=11.96 MeV (1965Br22), FWHM=15 keV.

1988BI03: E(d)=12.5 MeV; fission probability was measured from the ²³⁶U(d,pF) reaction for excitation energy range of 5.5 to 6.4 MeV. Three broad peaks, two around 6.05 and one around 6.25 MeV, were observed. No fine structure corresponding to levels in the second well of the nuclear potential could be identified due to resolution being larger than the expected average level spacing of ≈0.3 MeV in the second well.

Based on the comparison of fission probabilities measured in (n,γF) and in (d,pF), the authors of 1988BI03 tentatively suggested that the lower energy peak of the doublet seems to be at ≈6.05 MeV [which was also seen in (n,γF)] could correspond to the K=3/2 phonon-vibrational band built on the K=1/2 ground state, and that the peak seen at 6.25 MeV [not observed in (n,γF)] may possibly correspond to the K=5/2 phonon vibrational band. See 1988BI03 for the fission-barrier parameters deduced from their (d,pF) data. See also 1970Br32 and 1970Re05.

Q(d,p)=2896 5 (1965Br22).

Q(d,p)=2898 8 (1967Er02).

²³⁷U Levels

E(level)	J ^π †	dσ/dΩ (μb/sr)#	E(level)	J ^π †	dσ/dΩ (μb/sr)#
0 @	1/2 ⁺	27	896 2		81
12 @ 1	3/2 ⁺	63	952 2		41
83 @ 1	7/2 ⁺	10	987 3		59
161 a 1	9/2 ⁺ & 5/2 ⁺	51	1051 3		25
259 & 1	9/2 ⁺	91	1084 2		45
482 b 1	(9/2 ⁺)	47	1110 c 2	(1/2 ⁺)	80
552 b 2	(11/2 ⁺)	22	1126 d 2	(9/2 ⁺)	119
657 3		16	1162 c 2	(5/2 ⁺)	93
698 2		22	1192 ‡ 2		86
846 2		38	1235 ‡ 3		87
866 3		23	1372 3		44

† Assignments of 1965Br22 were based on the cross sections measured at θ=90° and 140° (from which the L value of the captured neutron was inferred but not given) and on comparison of differential cross sections with those expected from theory.

‡ May possibly belong to the 3/2[622] band.

At 140°.

@ Band(A): 1/2[631] band.

& Band(B): 5/2[622] band.

a Band(C): 9/2⁺, 1/2[631] and 5/2⁺, 5/2[622] states.

b Band(D): probably 7/2[624] band.

c Band(E): probably 1/2[620] band.

d Band(F): probably belongs to the 7/2[613] band.

$^{236}\text{U}(\text{d,p})$ 1965Br22**Band(E): Probably
1/2[620] band**(5/2⁺) 1162**Band(F): Probably
belongs to the 7/2[613]
band**(9/2⁺) 1126(1/2⁺) 1110**Band(D): Probably
7/2[624] band**(11/2⁺) 552(9/2⁺) 482**Band(B): 5/2[622] band**9/2⁺ 259**Band(C): 9/2⁺, 1/2[631] and 5/2⁺,
5/2[622] states**9/2⁺ & 5/2⁺ 161**Band(A): 1/2[631] band**7/2⁺ 833/2⁺ 121/2⁺ 0