^{240}Pu(d,p) 1998Wh01,1972Br46

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 130, 183 (2015)	30-Sep-2015

1998Wh01: ^{240} Pu on carbon backing was bombarded with a 12.0 MeV deuteron beam at the Argonne FN tandem Van de Graaff accelerator. The emitted protons were momentum analyzed with an ENGE split-pole magnetic spectrometer and detected at the focal plane with emulsion plates with FWHM= 7.0 keV. (d,p) spectra was measured at 90°, 120 °, and 150°.

1972Br46: ^{240}Pu source that was prepared at Argonne isotope separator was irradiated with 12 MeV deuterons from the Argonne Tandem Van de Graaff accelerator. (d,p) spectra was measured at 90° and 140° using a Browne-Buechner spectrograph with FWHM≈17 keV (estimated by the evaluator from authors′ spectrum).

^{241}Pu Levels

E(level)‡	Jπ†	Comments
0[&]	5/2+	
42[#&] 2	7/2+	
96[&] 1	9/2+	
162[a] 1	1/2+,11/2+	E(level): Doublet.
171[a] 2	3/2+	
231[b] 2	9/2+	
244[a] 2	7/2+	
301[#b] 2	11/2+	
337[a] 1	9/2+	
373[#a] 2	11/2+	
448[#c] 2	11/2−	
571[#c] 2	15/2−	
755[d] 1	1/2+	
780[g] 1	3/2−	
801[e] 1	3/2+,5/2+	E(level): Doublet.
810[g] 1	5/2−	
831[g] 1	5/2+,7/2−	E(level): Doublet.
842[h] 1	1/2−	
852[h] 1	3/2−	
863 2		
877[e] 2	7/2+	
898[h] 2	9/2+,5/2−	Jπ: See Adopted Levels. E(level): Doublet.
918[h] 2	7/2−	
937[g] 2	9/2+,11/2−	E(level): Doublet.
950 3		
965[#f] 1	1/2−	
974 2		
996[f] 2	3/2−,11/2+	E(level): Doublet.
1020 3		
1062[#] 3		
1075[@] 3		
1084 3		
1206 3		
1219[@] 4		
1244 3		
1258[@] 4		

Continued on next page (footnotes at end of table)

^{240}Pu(d,p) 1998Wh01,1972Br46 (continued)

^{241}Pu Levels (continued)

E(level)‡	E(level)‡	E(level)‡	E(level)‡
1277@ *4*	1347 *3*	1452@ *5*	1762 *3*
1288@ *4*	1356@ *4*	1489@ *5*	1801@ *4*
1299@ *4*	1384 *3*	1546@ *5*	1826@ *4*
1309@ *4*	1441@ *5*	1594@ *5*	

† The configuration assignments are those of 1998Wh01 based on data from (d,p) and their ^{242}Pu(d,t) work. The ratio of cross sections at 90° and 150° gives information about the *l* transfer, and the ratio of (d,p) and (d,t) cross sections gives information about the particle or hole character of the level being populated. The assignments are, in most cases, consistent with those of 1972Br46.

‡ From 1998Wh01, except as noted otherwise. The authors give one set of energies for their (d,p) and (d,t) work, averaged over all spectra.

Seen by 1972Br46 but seen only in (d,t) by 1998Wh01. The energy given is that of 1998Wh01 from (d,t).

@ From 1972Br46. The level is not reported by 1998Wh01.

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

a Band(B): 1/2[631] band.

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

c Band(D): 7/2[743] band.

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

e Band(F): 3/2[631] band.

f Band(G): 1/2[501] band.

g Band(H): 1/2[761] + 1/2[631]⊗0^-.

h Band(I): 1/2[620]X0^- + 1/2[631]⊗0^-.

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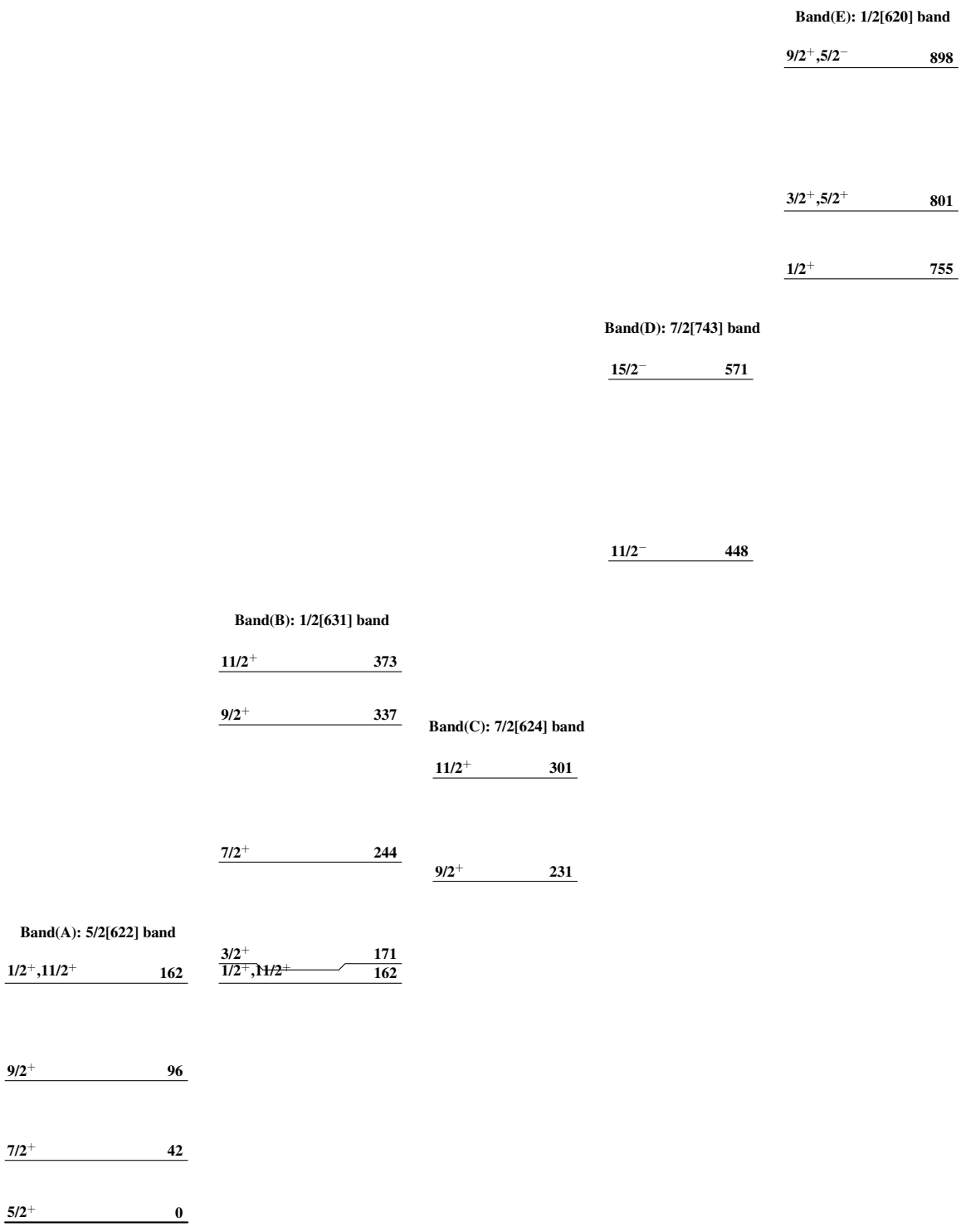

$^{241}_{94}Pu_{147}$

^{240}Pu(d,p) 1998Wh01,1972Br46 (continued)

Band(F): 3/2[631] band

3/2$^-$,11/2$^+$ **996**

9/2$^+$,11/2$^-$ **937**

7/2$^+$ **877**

5/2$^+$,7/2$^-$ **831**

3/2$^+$,5/2$^+$ **801**

Band(G): 1/2[501] band

3/2$^-$,11/2$^+$ **996**

1/2$^-$ **965**

Band(H): 1/2[761] + 1/2[631]⊗0$^-$

9/2$^+$,11/2$^-$ **937**

5/2$^+$,7/2$^-$ **831**

5/2$^-$ **810**

3/2$^-$ **780**

Band(I): 1/2[620]X0$^-$ + 1/2[631]⊗0$^-$

7/2$^-$ **918**

9/2$^+$,5/2$^-$ **898**

3/2$^-$ **852**

1/2$^-$ **842**

$^{241}_{94}Pu_{147}$