^{244}Pu(d,d′) 1975Th11

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 146, 387 (2017)	31-Aug-2017

1975Th11: Deuterons with E(d)=16 MeV from the Rochester MP tandem Van de Graaff accelerator were scattered of a ^{244}Pu target. The inelastic scattered deuterons were detected at lab angles of θ=90° and 125° with the Kodak NTB50 photographic plate. B(E3) and B(E2) values were extracted by 1975Th11 by normalizing the (d,d′) cross section such that B(E3;957-keV level)= 0.37 *7* (1974Mc15) and B(E2;46-keV level)= 13.61 *18* (1973Be44), respectively measured in Coulomb Excitation. Ground state band up to and including J^π=8$^+$ level, octupole, and gamma vibrational bands were observed.

^{244}Pu Levels

E(level)	J^π[†]	Comments
0[‡]	0$^+$	
46[‡] *2*	2$^+$	
154[‡] *2*	4$^+$	
315[‡] *2*	6$^+$	
537[‡] *4*	8$^+$	
957[#] *2*	(3$^-$)	B(E3)=0.37 *7* (Normalization value from Coulomb Excitation).
1015[@] *2*	(2$^+$)	B(E2)=0.30 10. J^π: Assignment is uncertain, could possibly be a 3$^-$ with BE3=0.26 (1975Th11). However a comparison of the reduced transition probability with values from Coulomb Excitation measurement (1974Mc15): B(E3)=1.16 *12* if J^π=3$^-$; B(E2)=0.195 *18*, if J^π=2$^+$ makes it a possible 2$^+$ rather than a 3$^-$.
1068 *4*		E(level): Doublet. The level may contain the 5$^-$ member of the K=2$^-$ octupole-vibrational band (1975Th11).
1108 *2*	(3$^-$)	B(E3)=0.35. E(level): The level is possibly the 3$^-$ member of a K=0$^-$ or 1$^-$ octupole band (1975Th11).
1194 *3*	(5$^-$)	E(level): The level is possibly the 5$^-$ member of the band that the 1108-keV belongs to (1975Th11).
1210 *3*		
1353 *4*		
1378 *3*		
1434 *3*		
1613 *3*	(3$^-$)	B(E3)=0.27.
1783 *3*		
1805 *3*		
1847 *3*		
1896 *3*		

[†] Based on the cross-section pattern and the rotational energy spacing (1975Th11).
[‡] Band(A): K=0$^+$ g.s. band.
[#] Band(B): Possibly K=2$^-$ octupole-vibrational band. K=2$^-$ assignment was suggested from non-observation of 1$^-$ level.
[@] Band(C): Possibly K=2 gamma-vibrational band.

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Band(C): Possibly K=2 gamma-vibrational band

(2^+) 1015

Band(B): Possibly K=2$^-$ octupole-vibrational band

(3^-) 957

Band(A): K=0$^+$ g.s. band

8^+ 537

6^+ 315

4^+ 154

2^+ 46

0^+ 0

$^{244}_{94}Pu_{150}$