^{238}Pu(d,t)   1973Gr26

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

Target: ^{238}Pu (>99% enriched); Projectile: d, E=12.1 MeV; spectra were analyzed with magnetic spectrograph; deduced level energy, cross sections at 90° 125 °, J$^\pi$ and band assignments.

Q(d,t)=−746 *10* (1973Gr26).

Scattered triton particles were observed at θ=90°, 120°, 125° and 150°. See 1973Gr26 for measured and calculated, including Coriolis coupling, cross sections.

^{237}Pu Levels

E(level)[†]	J$^{\pi}$[‡]	dσ/dΩ (μb/sr),[g]	Comments
0[#]	7/2⁻	<1	dσ/dΩ (μb/sr),: 1 at 90° (Theory).
50[#]	9/2⁻	1	dσ/dΩ (μb/sr),: 0 at 90° (Theory-Coriolis coupling included).
106[#]	11/2⁻	17	dσ/dΩ (μb/sr),: 16 at 90° (Theory-Coriolis coupling included).
146[@]	1/2⁺	58	dσ/dΩ (μb/sr),: 67 at 90° (Theory).
156[@]	3/2⁺	157	dσ/dΩ (μb/sr),: 72 at 90° (Theory).
183[#]	13/2⁻	9	dσ/dΩ (μb/sr),: 0 at 90° (Theory-Coriolis coupling included).
199[@]	5/2⁺	5	dσ/dΩ (μb/sr),: 9 at 90°.
224[@]	7/2⁺	11	dσ/dΩ (μb/sr),: 8 at 90°.
257[#]	15/2⁻	17	dσ/dΩ (μb/sr),: 26 at 90° (Theory-Coriolis coupling included).
280[&]	5/2⁺	40	dσ/dΩ (μb/sr),: 8 at 90° (Theory).
305[@]	9/2⁺	54	dσ/dΩ (μb/sr),: 12 at 90° (Theory).
371[&]	9/2⁺	85	dσ/dΩ (μb/sr),: 28 at 90° (Theory).
405[a]	5/2⁺	322	405-keV level was assumed doublet. dσ/dΩ (μb/sr),: Expt. value for doublet. 110 at 90° (Theory).
405[b]	(5/2⁺)	322	405-keV level was assumed doublet. dσ/dΩ (μb/sr),: Expt. value for doublet. 20 at 90° (Theory).
437[b]	(7/2⁺)	30	dσ/dΩ (μb/sr),: 29 at 90° (Theory).
454[a]	(7/2⁺)	13	dσ/dΩ (μb/sr),: 8 at 90° (Theory).
471[c]	(7/2⁺)		
486[b]	(9/2⁺)	45	dσ/dΩ (μb/sr),: 47 at 90° (Theory).
513[a]	9/2⁺	84	dσ/dΩ (μb/sr),: 112 at 90° (Theory).
545[d]	1/2⁻	807	dσ/dΩ (μb/sr),: 801 at 90° (Theory).
582[d]	(5/2⁻)	47	dσ/dΩ (μb/sr),: 91 at 90° (Theory).
591[d]	3/2⁻	175	dσ/dΩ (μb/sr),: 159 at 90° (Theory).
655			
691[d]	(7/2⁻)	6	dσ/dΩ (μb/sr),: 8 at 90° (Theory).
716			
741			
757			
775			
809			
840			
852[e]	(5/2⁻)	106	dσ/dΩ (μb/sr),: 437 at 90° (Theory).
884			
933			
964			
1000			
1014[f]	(3/2⁻)	543	dσ/dΩ (μb/sr),: 917 at 90° (Theory).
1053			

^{238}Pu(d,t)   **1973Gr26** (continued)

^{237}Pu Levels (continued)

E(level)[†]	E(level)[†]	E(level)[†]	E(level)[†]
1104	1250	1383	1481
1189	1264	1397	1534
1216	1348	1463	

[†] Overall resolution was 10 keV.

[‡] Assignments were based on the absolute cross sections, patterns expected of the rotational bands, L transfer deduced from $\sigma(90°)/\sigma(125°)$ ratio and the energy systematics of the orbitals.

[#] 7/2[743] band.

[@] 1/2[631] band.

[&] 5/2[622] band.

[a] 3/2[631] band.

[b] 5/2[633] band.

[c] 7/2[624] state.

[d] 1/2[501] band. Assignment to the $5/2^-$ and $7/2^-$ members are tentative.

[e] Tentatively assigned to 5/2[503] state.

[f] Tentatively assigned to 3/2[501] state.

[g] At 90°. Theoretical cross section values are given in the comment section.

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