^{244}Pu(pol t,α) 1979Fl02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja, E. A. Mccutchan	NDS 121, 695 (2014)	30-Sep-2013

1979Fl02: E(pol t)=17 MeV. Measurements at θ=15°, 20°, 30°, 40°, 50°, 60°. Enriched Pu oxide target with 102 μg/cm^2. Energy resolution≈15 keV. Energy calibration using known levels in ^{205}Tl.

Q(t,α)=12405 *10* was measured by 1979Fl02.

Mass excess=−59923 keV *10* was deduced by 1981FlZW.

^{243}Np Levels

E(level)[†]	J$^\pi$[‡]	S[#]	Comments
0.0			J=L−1/2 (1979Fl02). J$^\pi$: possibly 5/2$^-$ or 9/2$^-$ member of the 5/2[523] band (1979Fl02). Fit for J$^\pi$=3/2$^+$ is best, but due to the poor statistics associated with the weak nature of the state, other J=L−1/2 possibilities were considered; the 5/2[523] orbital is favored by systematics.
76	1/2$^+$,3/2$^-$	0.34,0.10	J$^\pi$: possibly 1/2$^+$ bandhead of the 1/2[400] orbital, or 3/2$^-$ member of the 1/2[530] band; another candidate for the 1/2$^+$, 1/2[400] state is the 295-keV level (1979Fl02).
105	3/2$^-$,1/2$^+$	0.07,0.22	
175	7/2$^-$,9/2$^+$	0.04,0.04	J$^\pi$: Could be the 7/2$^-$ member of the 1/2[530] band.
251	5/2$^+$	0.08	
295	3/2$^-$,1/2$^+$	0.11,0.38	J$^\pi$: See 76-keV level.
330	3/2$^+$	0.03	
380			
400	(7/2$^-$)	0.007	
422	(3/2$^-$)	0.004	
532	(1/2$^+$)	0.08	
580	(9/2$^+$)	0.009	
675	(11/2$^-$)	0.08	
710			J$^\pi$: L+1/2.
772			J$^\pi$: L-1/2.
808			
853			J$^\pi$: L-1/2.
1044			J$^\pi$: L+1/2.
1128			
1173			
1268			
1391			
1430			

[†] Level energies are relative to the highest energy α group in the ^{244}Pu(t,α) reaction; this peak was assumed by 1979Fl02 to correspond to the ground state of ^{243}Np.

[‡] Deduced by 1979Fl02 from angular distribution of analyzing power. Strong configurations from Nilsson Model conform with experimental observations.

[#] S=dσ/dΩ(exp)/N$\sigma_{(DWBA)}$; N=23 was used (1979Fl02). See 1979Fl02 for cross sections measured at θ=50°.