^{175}Lu(^{3}He,α) 1972On02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, Huo Junde	NDS 87, 15 (1999)	1-Nov-1998

Target: 99.9% enriched ^{175}Lu($J^\pi=7/2^+$). Spectrometer: magnetic. E=24 MeV, FWHM≈30 keV, θ=25°, 35°, 45°.
Results have been interpreted using the Nilsson model with pairing and Coriolis mixing included. The only orbitals considered are those for which the unpaired neutron is coupled to the 7/2[404] proton of the target.

^{174}Lu Levels

E(level)[e]	J^π[†]	$T_{1/2}$	Comments
≈10[‡]	1^-		
47[‡]	2^-		
119[‡]	3^-		
178[#]	6^-	142 d *2*	$T_{1/2}$: from Adopted Levels.
197[‡]	4^-		
324			E(level): doublet containing states with $J^\pi=5^-$, Configuration=(π 7/2[404])-(ν 5/2[512]), and $J^\pi=7^-$, Configuration=(π 7/2[404])+(ν 5/2[512]).
369[a]	4^-		
433			E(level): multiplet containing states with $J^\pi=7^+$, Configuration=(π 7/2[404])+(ν 7/2[633]), and $J^\pi=3^-$, Configuration=(π 7/2[404])-(ν 1/2[521]).
490			E(level): doublet containing states with $J^\pi=5^-$, Configuration=(π 7/2[404])+(ν 1/2[521]), and $J^\pi=8^-$, Configuration=(π 7/2[404])+(ν 5/2[512]).
538[@]	8^+		
582[b]	(5^+)		
592[b]	(6^+)		
676			E(level): possible multiplet.
741?			
788[b]	7^+		
847			E(level): doublet containing states with $J^\pi=8^+$, Configuration=(π 7/2[404])-(ν 7/2[633]), and $J^\pi=10^+$, Configuration=(π 7/2[404])+(ν 7/2[633]).
966[&]	7^-		
1027			
1071			
1156			
1194			
1250[c]	3^-		
1310[d]	5^-		
1429			
1456[d]	6^-		
1484			
1555			
1587			
1617[d]	7^-		
1651			
1682?			
1732			
1840			
2041			
2082			

[†] Spin assignments are based on rotational band structure, and on measured cross sections (fingerprint). See Adopted Levels for evaluator's spin assignments.

Continued on next page (footnotes at end of table)

^{175}Lu(^{3}He,α) 1972On02 (continued)

^{174}Lu Levels (continued)

‡ Band(A): $K^{\pi}=1^{-}$ ground-state rotational band member. Proposed Configuration=(π 7/2[404])-(ν 5/2[512]).
# Band(B): $K^{\pi}=6^{-}$ band member. Proposed Configuration=(π 7/2[404])+(ν 5/2[512]).
@ Band(C): $K^{\pi}=7^{+}$ band member. Proposed Configuration=(π 7/2[404])+(ν 7/2[633]).
& Band(D): $K^{\pi}=3^{-}$ band member. Proposed Configuration=(π 7/2[404])-(ν 1/2[521]).
a Band(E): $K^{\pi}=4^{-}$ band member. Proposed Configuration=(π 7/2[404])+(ν 1/2[521]).
b Band(F): $K^{\pi}=0^{+}$ band member. Proposed Configuration=(π 7/2[404])-(ν 7/2[633]).
c Band(G): $K^{\pi}=2^{-}$ band member. Proposed Configuration=(π 7/2[404])-(ν 3/2[521]).
d Band(H): $K^{\pi}=5^{-}$ band member. Proposed Configuration=(π 7/2[404])+(ν 3/2[521]).
e Energy uncertainties are≈1 keV, except for levels populated by very weak peaks or unresolved doublets.

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Band(A): $K^{\pi}=1^{-}$ ground-state rotational band member

4^{-}	197
3^{-}	119
2^{-}	47
1^{-}	≈10

Band(B): $K^{\pi}=6^{-}$ band member

6^{-}	178

Band(C): $K^{\pi}=7^{+}$ band member

8^{+}	538

Band(D): $K^{\pi}=3^{-}$ band member

7^{-}	966

Band(E): $K^{\pi}=4^{-}$ band member

4^{-}	369

Band(F): $K^{\pi}=0^{+}$ band member

7^{+}	788
(6^{+})	592
(5^{+})	582

$^{174}_{71}Lu_{103}$

^{175}Lu(^{3}He,α) 1972On02 (continued)

Band(H): $K^{\pi}=5^{-}$ band member

7^{-}	1617
6^{-}	1456
5^{-}	1310

Band(G): $K^{\pi}=2^{-}$ band member

3^{-}	1250

$^{174}_{71}Lu_{103}$