

$^{180}\text{Hf}(t,\alpha)$ 1992Bu12

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 110, 265 (2009)	15-Nov-2008

E(t)=17 MeV. 93.9% ^{180}Hf target, magnetic spectrograph with photographic plates, FWHM \approx 18 keV; measured $\sigma(\theta)$ at $\theta(\text{lab})=12^\circ-55^\circ$; DWBA analysis.

 ^{179}Lu Levels

E(level)	J^π [†]	L [‡]	C^2S [‡]	Comments
0 [@]	7/2 ⁺	4	0.60	
35 ^{&} 5	9/2 ⁻	(5)	0.11	
123 [@] 2	9/2 ⁺	(4)	0.05	
186 ^{&} 1	11/2 ⁻	5	0.78	
273? [@] 2	(11/2 ⁺) [#]			
357? ^{&} 2	(13/2 ⁻) [#]			
593 ^a 2	1/2 ⁺ &3/2 ⁺	2	0.82	C ² S: if all strength is attributed to 3/2 ⁺ member of 1/2,3/2 doublet in 1/2[411] band.
653 ^b 2	5/2 ⁺	(2)	0.19	
735 ^a 2	5/2 ⁺ &7/2 ⁺	2	0.40	C ² S: if all strength is attributed to 5/2 ⁺ member of 5/2,7/2 doublet in 1/2[411] band.
872? ^b 3	(9/2 ⁺)		0.03	C ² S: if $J^\pi=9/2^+$.
987 ^a 2	9/2 ⁺	(4)	0.12	
1099 4				
1126 ^c 2	3/2 ⁺	(2)	0.16	
1189 ^c 2	5/2 ⁺	2	0.40	Peak broader than others in spectrum; probable doublet.
1262 3				
1292 5			0.11	C ² S: if $J^\pi=7/2^+$.
1354 3				
1412 4				
1473 ^d 2	11/2 ⁻	5	1.4	
1599 3		5		
1679 4				
1771 4				
1820 4				
2048 4				
2115 5				
2136 5				
2216 3				
2239 4				
2336 3				

[†] Proposed by authors based on band structure information deduced from comparison of C^2S with predictions from Nilsson model (with pairing and Coriolis mixing included), except As noted.

[‡] Based on comparison of measured $\sigma(\theta)$ with DWBA predictions; $C^2S(\text{exp})=\sigma(\theta)(\text{exp})/(2N \sigma(\theta)(\text{DWBA}))$. The shape of $\sigma(\theta)$ can differentiate between $L=2$ and $L\geq 4$ for strong transitions. Evaluator shows L as tentative, unless distribution is fitted definitively and has good statistics. C^2S values serve only to indicate relative spectroscopic strengths.

[#] Tentative assignment from 1992Bu12 based on consistency of level energy with that expected for the band indicated assuming $J(J+1)$ rule (1992Bu12).

[@] Band(A): 7/2[404] band.

[&] Band(B): 9/2[514] band.

^a Band(C): 1/2[411] band.

^b Band(D): 5/2[402] band.

Continued on next page (footnotes at end of table)

 ${}^{180}\text{Hf}(t,\alpha)$ **1992Bu12 (continued)**

 ${}^{179}\text{Lu}$ Levels (continued)

^c Band(E): tentative 3/2[411] band.

^d Band(F): 7/2[523] band.

$^{180}\text{Hf}(t,\alpha)$ **1992Bu12**

Band(F): 7/2[523] band

11/2⁻ 1473Band(E): Tentative
3/2[411] band5/2⁺ 11893/2⁺ 1126

Band(C): 1/2[411] band

9/2⁺ 987

Band(D): 5/2[402] band

(9/2⁺) 8725/2⁺ & 7/2⁺ 7355/2⁺ 6531/2⁺ & 3/2⁺ 593

Band(B): 9/2[514] band

(13/2⁻) 357

Band(A): 7/2[404] band

(11/2⁺) 27311/2⁻ 1869/2⁺ 1239/2⁻ 357/2⁺ 0