^{177}Hf(t,α) 1981De28

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia	NDS 107, 791 (2006)	15-Sep-2005

Target: 91.6% enriched ^{177}Hf(J^π=7/2$^-$,7/2[514]). Projectile: tritons, E=17 MeV. Measured scattered tritons at θ=15°, 20°, 25°, 30°, 35°, 40°, and 50°. Detector: magnetic spectrograph, FWHM=13 keV.

^{176}Lu Levels

E(level)[†]	J^π[‡]	$T_{1/2}$	L[#]	dσ/dΩ (mb/sr)[m]	Comments
0.0[&]	7$^-$		4	0.0306	
123[a] *1*	1$^-$	3.635 h *3*		0.0099	$T_{1/2}$: from Adopted Levels.
184[&] *3*	8$^-$			0.0004	
198[b] *3*	1$^+$			<0.0001	
233[b] *4*	2$^+$			0.0003	
240[a] *2*				0.0096	Doublet (J^π=0$^-$ and J^π=3$^-$ states).
301[@b] *1*	3$^+$			<0.006	dσ/dΩ (mb/sr): Unresolved.
308[@a] *1*	2$^-$			≈0.013	dσ/dΩ (mb/sr): Unresolved.
376[b]	4$^+$				
377[c] *4*	2$^+$			0.0041	
391[d] *3*	1$^-$			0.0106	
433[d] *1*	2$^-$			0.0118	
459[c] *7*	3$^+$			0.0049	
486[e] *3*	8$^+$		5	0.0085	
505[d] *2*	3$^-$			0.0069	
538[c] *3*	4$^+$			0.0023	
565[f] *3*	6$^-$		2	0.0324	
594[d] *3*	4$^-$			0.0028	
607 *10*				0.0024	
653 *6*				0.0059	
683[e] *3*	9$^+$		5	0.0132	
723[g] *2*	4$^-$		2	0.073	
757[f] *4*	7$^-$		4	0.0067	
772? *8*				<0.002	
789 *4*				0.002	
840[h] *2*	3$^-$		2	0.0716	
864[g] *6*	5$^-$		2	0.036	
889? *10*				<0.0019	
909[i] *2*	(2$^-$)			0.0164	
945[h] *2*	4$^-$		2	0.0411	
966[i] *3*	(3$^-$)			0.0094	
1006 *3*				0.0041	
1032[g] *4*	6$^-$			0.006	
1057[@j] *8*	(0$^+$)			≈0.013	dσ/dΩ (mb/sr): Unresolved.
1074[@h] *5*	5$^-$			≈0.0134	dσ/dΩ (mb/sr): Unresolved.
1106 *12*				0.0017	
1162 *4*				0.007	
1182 *5*				0.0099	
1221[@] *5*				≈0.011	dσ/dΩ (mb/sr): Unresolved.
1237[@] *4*				≈0.019	dσ/dΩ (mb/sr): Unresolved.
1273[k] *2*	7$^+$		5	0.0414	

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^{177}Hf(t,α) 1981De28 (continued)

^{176}Lu Levels (continued)

E(level)[†]	Jπ[‡]	L[#]	dσ/dΩ (mb/sr)[m]	Comments
1294[j] *2*	(4+)		0.0244	
1326 *3*			0.0059	
1349 *5*			0.0052	
1395[l] *1*	5−	2	0.0625	
1426 *9*			0.0015	
1462[k] *1*	8+	5	0.0556	
1490? *6*			≈0.001	
1510[j] *2*	(3+)		0.0314	
1533[l] *2*	6−	2	0.0364	
1569 *5*			0.00824	
1593 *9*			0.0058	
1617 *5*			0.012	
1655[k] *2*	9+	5	0.0258	
1679 *10*			0.0091	E(level): authors reported 1679 keV *1*. The spectrum suggests ΔE is much greater than 1 keV. ΔE=1 keV is possibly a typographical error.
1689[l] *7*	7−		0.0109	
1730[j] *7*	(5+)		0.0109	

[†] Level energies were determined using a calibration based on known peaks from ^{193}Ir(t,α)^{192}Os given by 1979Ba25. ΔE for the various levels include a 1-keV uncertainty in the g.s. transition. This significantly affects only uncertainties smaller than 2 keV.

[‡] Authors′ assignments are based on rotational structure, on L values, and on the agreement between experimental and theoretical cross sections.

[#] From a comparison of experimental angular distributions with theoretical DWBA values.

[@] Unresolved peak, but authors reported cross sections for the individual lines.

[&] $K^\pi=7^-$ band. Configuration=((π 7/2(404))+(ν 7/2(514))).

[a] $K^\pi=0^-$ band. Configuration=((π 7/2(404))-(ν 7/2(514))).

[b] $K^\pi=1^+$ band. Configuration=((π 7/2(404))-(ν 9/2(624))) − configuration interchanged for members of two $K^\pi=1^+$ bands in adopted dataset.

[c] $K^\pi=1^+$ band. Configuration=((π 9/2(514))-(ν 7/2(514))) − configuration interchanged for members of two $K^\pi=1^+$ bands in adopted dataset.

[d] $K^\pi=1^-$ band. Configuration=((π 5/2(402))-(ν 7/2(514))).

[e] $K^\pi=8^+$ band. Configuration=((π 9/2(514))+(ν 7/2(514))).

[f] $K^\pi=6^-$ band. Configuration=((π 5/2(402))+(ν 7/2(514))).

[g] $K^\pi=4^-$ band. Configuration=((π 1/2(411))+(ν 7/2(514))).

[h] $K^\pi=3^-$ band. Configuration=((π 1/2(411))-(ν 7/2(514))).

[i] $K^\pi=(2^-)$ band. γ-vibrational band.

[j] $K^\pi=(0^+)$ band. Configuration=((π 7/2(523))-(ν 7/2(514))).

[k] $K^\pi=7^+$ band. Configuration=((π 7/2(523))+(ν 7/2(514))).

[l] $K^\pi=5^-$ band. Configuration=((π 3/2(411))+(ν 7/2(514))).

[m] At 40°.