^{174}Yb(α,3nγ) 1973Hu04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 102, 719 (2004)	1-Jun-2004

E(α)=20-43 MeV. ^{174}Yb enriched (96%) targets. Measured Eγ, Iγ, $\gamma(\theta)$, and Ag(t).
Band structure well interpreted in terms of the rotational model.
The 7/2[633] rotational band is Coriolis coupled with 5/2[642] and 9/2[624] Nilsson orbitals (especially high-spin members of the band).

^{175}Hf Levels

E(level)†	Jπ	$T_{1/2}$	E(level)†	Jπ	E(level)†	Jπ
0.0‡	5/2−	70 d *2*	436.0@ *3*	(13/2+)	1082.1# *4*	17/2−
81.52‡ *14*	7/2−		460.62‡ *20*	13/2−	1253.6‡ *3*	21/2−
125.9# *2*	1/2−		566.1@ *3*	(15/2+)	1322.5@ *4*	(23/2+)
185.78‡ *15*	9/2−		629.69‡ *22*	15/2−	1477.9# *5*	19/2−
196.4# *3*	3/2−		654.3# *4*	11/2−	1497.0‡ *3*	23/2−
207.41@ *16*	7/2+		698.4# *4*	13/2−	1523.4@ *4*	(25/2+)
213.4# *3*	5/2−		710.9@ *3*	(17/2+)	1547.2# *5*	21/2−
257.91@ *25*	9/2+		818.84‡ *24*	17/2−	1757.3‡ *4*	25/2−
312.38‡ *18*	11/2−		896.7@ *3*	(19/2+)	1836.9@ *4*	(27/2+)
335.2@ *3*	(11/2+)		1025.2# *4*	15/2−	1998.0# *5*	23/2−
375.5# *3*	7/2−		1026.4‡ *3*	19/2−	2080.6# *5*	25/2−
406.1# *3*	9/2−		1075.8@ *4*	(21/2+)		

† From a least-squares fit to γ-ray energies using ΔE=1 keV for all γ rays.
‡ 5/2(512) band.
# 1/2(521) band.
@ 7/2(633) band.

$\gamma(^{175}Hf)$

Eγ†	Iγ‡	E_i(level)	J_i^π	E_f	J_f^π	Eγ†	Iγ‡	E_i(level)	J_i^π	E_f	J_f^π
50.5		257.91	9/2+	207.41	7/2+	148.0	16	460.62	13/2−	312.38	11/2−
70.5	2	196.4	3/2−	125.9	1/2−	162.0	3	375.5	7/2−	213.4	5/2−
x72.3	7					168.9	11	629.69	15/2−	460.62	13/2−
77.3	16	335.2	(11/2+)	257.91	9/2+	x172.7	8				
81.5	22	81.52	7/2−	0.0	5/2−	178.1	20	436.0	(13/2+)	257.91	9/2+
87.5	7#	213.4	5/2−	125.9	1/2−	179.1@	12@	375.5	7/2−	196.4	3/2−
100.8	22	436.0	(13/2+)	335.2	(11/2+)	179.1@	12@	1075.8	(21/2+)	896.7	(19/2+)
104.3	23	185.78	9/2−	81.52	7/2−	185.8@	20@	185.78	9/2−	0.0	5/2−
x110.0	3					185.8@	20@	896.7	(19/2+)	710.9	(17/2+)
x112.2	17					189.0	24	818.84	17/2−	629.69	15/2−
x119.3	8					192.7	16	406.1	9/2−	213.4	5/2−
125.9@	100@	125.9	1/2−	0.0	5/2−	207.4@	126@	207.41	7/2+	0.0	5/2−
125.9@&	100@	207.41	7/2+	81.52	7/2−	207.4@&	126@	1026.4	19/2−	818.84	17/2−
126.6	25	312.38	11/2−	185.78	9/2−	x218.5	6				
130.2	25	566.1	(15/2+)	436.0	(13/2+)	x220.6	21				
x138.0	7					230.8@	52@	312.38	11/2−	81.52	7/2−
144.6	19	710.9	(17/2+)	566.1	(15/2+)	230.8@	52@	566.1	(15/2+)	335.2	(11/2+)

Continued on next page (footnotes at end of table)

^{174}Yb(α,3nγ) 1973Hu04 (continued)

$\gamma(^{175}Hf)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π
x241.5	5				
x267.0	6				
274.9@	84@	460.62	13/2−	185.78	9/2−
274.9@	84@	710.9	(17/2+)	436.0	(13/2+)
278.8	15	654.3	11/2−	375.5	7/2−
x292.3	15				
292.3	15	698.4	13/2−	406.1	9/2−
317.5	26	629.69	15/2−	312.38	11/2−
x328.8	4				
330.7	33	896.7	(19/2+)	566.1	(15/2+)
x348.4	2				
x353.4	2				
358.2	39	818.84	17/2−	460.62	13/2−
364.9	30	1075.8	(21/2+)	710.9	(17/2+)
370.9	7	1025.2	15/2−	654.3	11/2−
x375.6	4				
383.7	14	1082.1	17/2−	698.4	13/2−
x393.3	2				
396.9	24	1026.4	19/2−	629.69	15/2−
x408.0	4				
x420.8	4				
425.8	19	1322.5	(23/2+)	896.7	(19/2+)
434.8	18	1253.6	21/2−	818.84	17/2−
447.6	17	1523.4	(25/2+)	1075.8	(21/2+)
452.7	4	1477.9	19/2−	1025.2	15/2−
x462.0	5				
465.1	8	1547.2	21/2−	1082.1	17/2−
470.6	14	1497.0	23/2−	1026.4	19/2−
x498.6	4				
503.7	15	1757.3	25/2−	1253.6	21/2−
514.4	14	1836.9	(27/2+)	1322.5	(23/2+)
520.1	3	1998.0	23/2−	1477.9	19/2−
x523.2	10				
533.4	3	2080.6	25/2−	1547.2	21/2−
x536.0	15				
x539.5	4				
x545.9	4				
x551.5	5				
x551.5	5				
x564.9	6				
x593.4	2				
x596.1	11				
x601.1	2				
x607.2	1				
x614.7	15				
x722.4	35				
x846.8	9				
x867.0	14				
x936.6	4				
x961.2	2				
x990.7	2				
x996.1	2				

† Uncertainties are≈0.2 keV.
‡ Relative Iγ measured at 125°. Uncertainties are≈10% for well resolved peaks.
# Includes contribution from impurity.
@ Multiply placed with undivided intensity.
& Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

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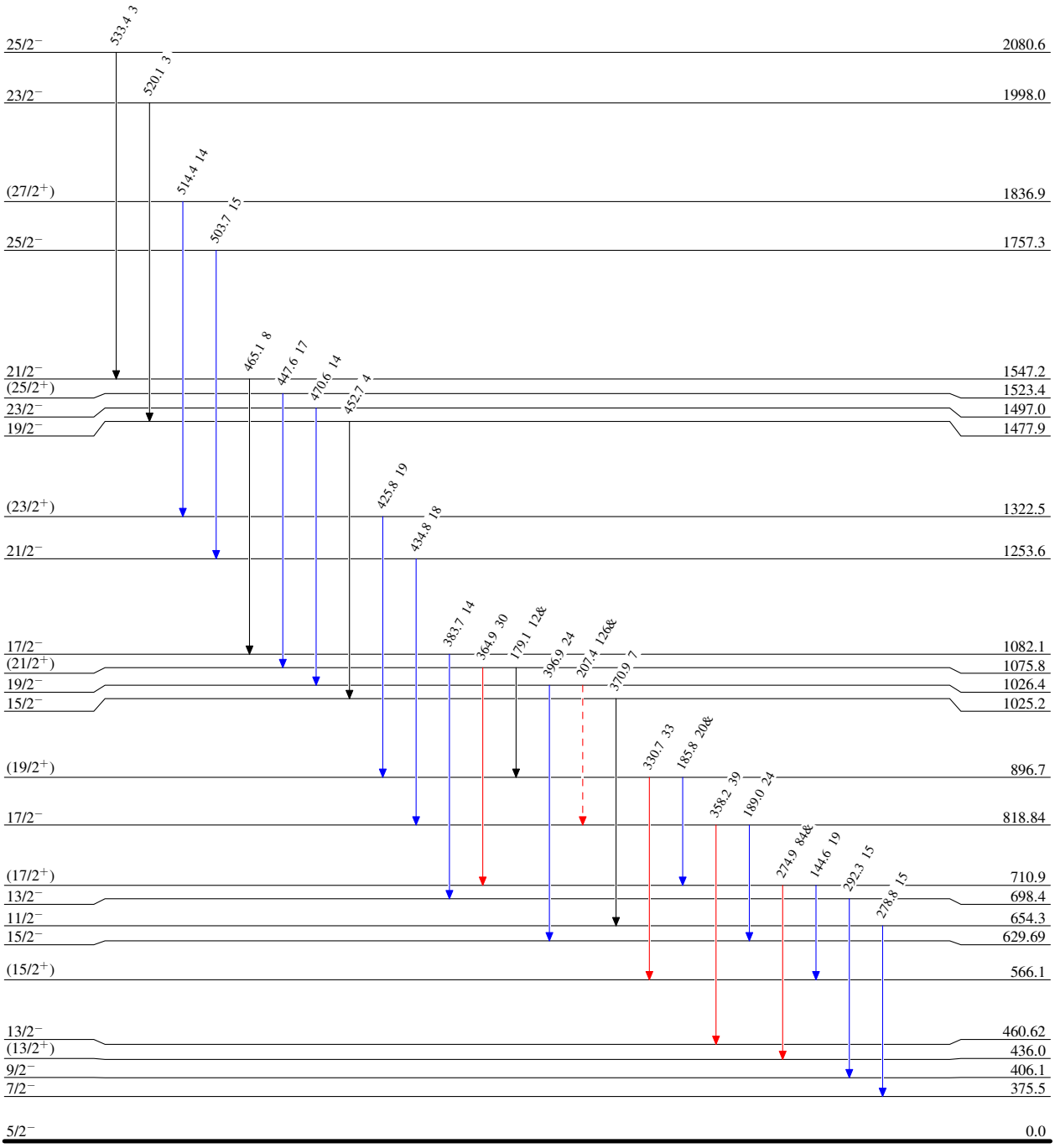
Level Scheme

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{175}_{72}Hf_{103}$

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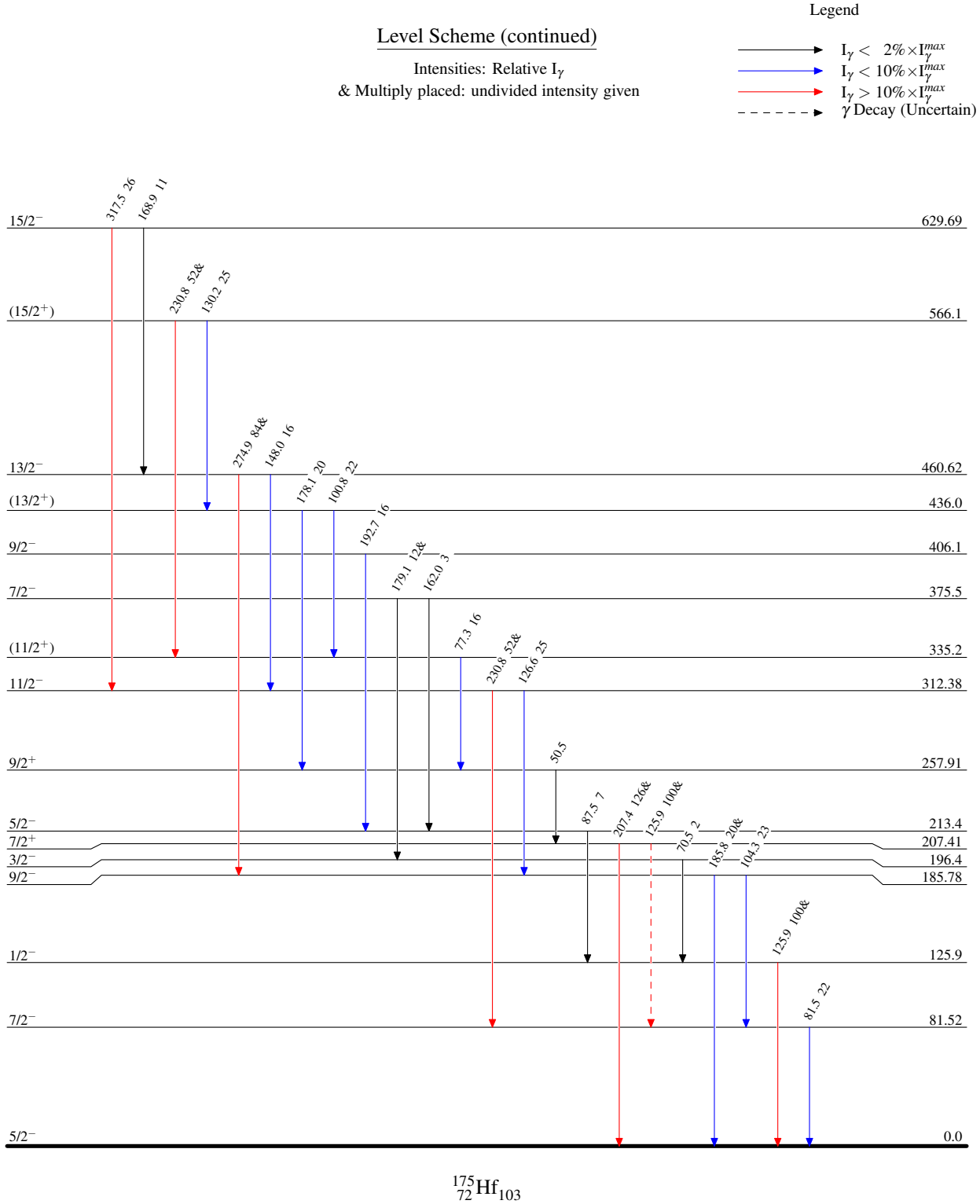
Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given



$^{175}_{72}Hf_{103}$