

$^{176}\text{Yb}(\alpha,3n\gamma)$ 1997Mu05,1999MuZY

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. Achterberg, O. A. Capurro, G. V. Marti		NDS 110, 1473 (2009)	31-May-2008

1997Mu05,1999MuZY: $^{176}\text{Yb}(\alpha,3n\gamma)$ reaction, at 55, 60 and 70 MeV. Used an array of 14 charged-particle plastic scintillator detectors covering $\approx 85\%$ of 4π , together with an array of six n-type HPGe detectors (CAESAR array). Observed singles, $\gamma\gamma(t)$ and $\alpha\gamma\gamma(t)$ coincidences. Added new levels to known bands, established the $K^\pi=14^-$ isomer band, determined g_K values.

 ^{178}Hf Levels

E(level) [†]	J^π [‡]	$T_{1/2}$	Comments
0 [#]	0 ⁺		
93 [#]	2 ⁺		
306 [#]	4 ⁺		
632 [#]	6 ⁺		
1058 [#]	8 ⁺		
1571 [#]	10 ⁺		
2151 [#]	12 ⁺		
2447 [@]	16 ⁺	31 y	4-qp state with configuration $\nu^2(7/2[514]9/2[624])\pi^2(7/2[404]9/2[514])$. $g_K=0.53$ 4 (1997Mu05).
2573 ^{&}	14 ⁻	68 μs	4-qp state with possible configuration $\nu^2(7/2[514]9/2[624])\pi^2(7/2[404]5/2[402])$ or $\nu^2(7/2[514]5/2[512])\pi^2(7/2[404]9/2[514])$. $g_K=0.6$ 1 (1997Mu05).
2777 [#]	14 ⁺		
2804 [@]	17 ⁺		
2910 ^{&}	15 ⁻		
3182 [@]	18 ⁺		
3265 ^{&}	16 ⁻		
3436 [#]	16 ⁺		
3580 [@]	19 ⁺		
3997 [@]	20 ⁺		
4122 [#]	18 ⁺		
4433 [@]	21 ⁺		
4839 ^{?#}	(20 ⁺)		
4887 [@]	22 ⁺		
5361 ^{?@}	(23 ⁺)		

[†] From a least-squares fit to γ -ray energies.

[‡] From rotational band structure.

[#] Band(A): g.s. band.

[@] Band(B): $K^\pi=16^+$ isomer band based on the 2447-keV level.

[&] Band(C): $K^\pi=14^-$ isomer band based on the 2573-keV level.

$^{176}\text{Yb}(\text{}^9\text{Be},\alpha 3n\gamma)$ **1997Mu05,1999MuZY (continued)** $\gamma(^{178}\text{Hf})$

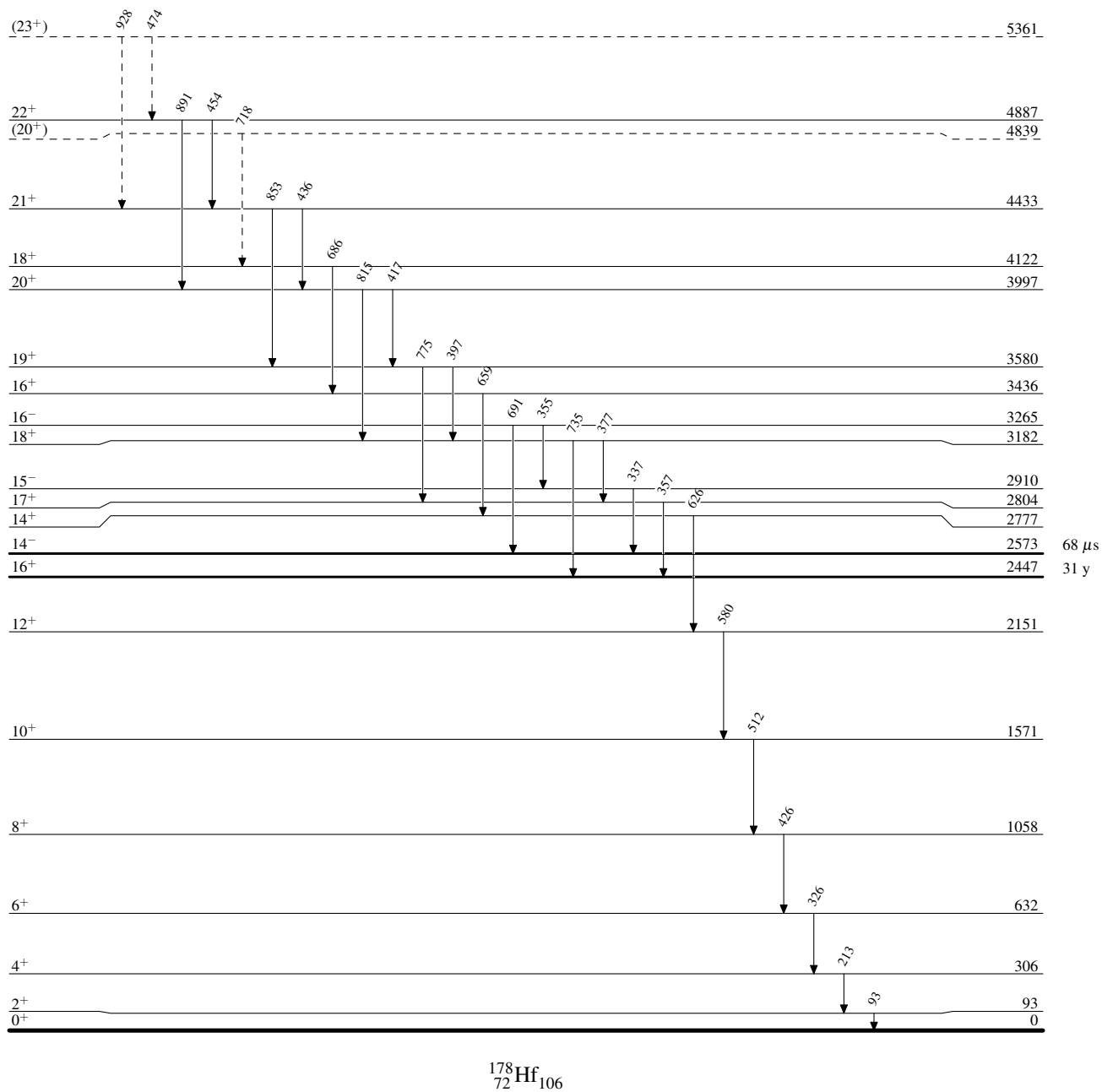
E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
93	93	2 ⁺	0	0 ⁺	426	1058	8 ⁺	632	6 ⁺	691	3265	16 ⁻	2573	14 ⁻
213	306	4 ⁺	93	2 ⁺	436	4433	21 ⁺	3997	20 ⁺	718 [†]	4839?	(20 ⁺)	4122	18 ⁺
326	632	6 ⁺	306	4 ⁺	454	4887	22 ⁺	4433	21 ⁺	735	3182	18 ⁺	2447	16 ⁺
337	2910	15 ⁻	2573	14 ⁻	474 [†]	5361?	(23 ⁺)	4887	22 ⁺	775	3580	19 ⁺	2804	17 ⁺
355	3265	16 ⁻	2910	15 ⁻	512	1571	10 ⁺	1058	8 ⁺	815	3997	20 ⁺	3182	18 ⁺
357	2804	17 ⁺	2447	16 ⁺	580	2151	12 ⁺	1571	10 ⁺	853	4433	21 ⁺	3580	19 ⁺
377	3182	18 ⁺	2804	17 ⁺	626	2777	14 ⁺	2151	12 ⁺	891	4887	22 ⁺	3997	20 ⁺
397	3580	19 ⁺	3182	18 ⁺	659	3436	16 ⁺	2777	14 ⁺	928 [†]	5361?	(23 ⁺)	4433	21 ⁺
417	3997	20 ⁺	3580	19 ⁺	686	4122	18 ⁺	3436	16 ⁺					

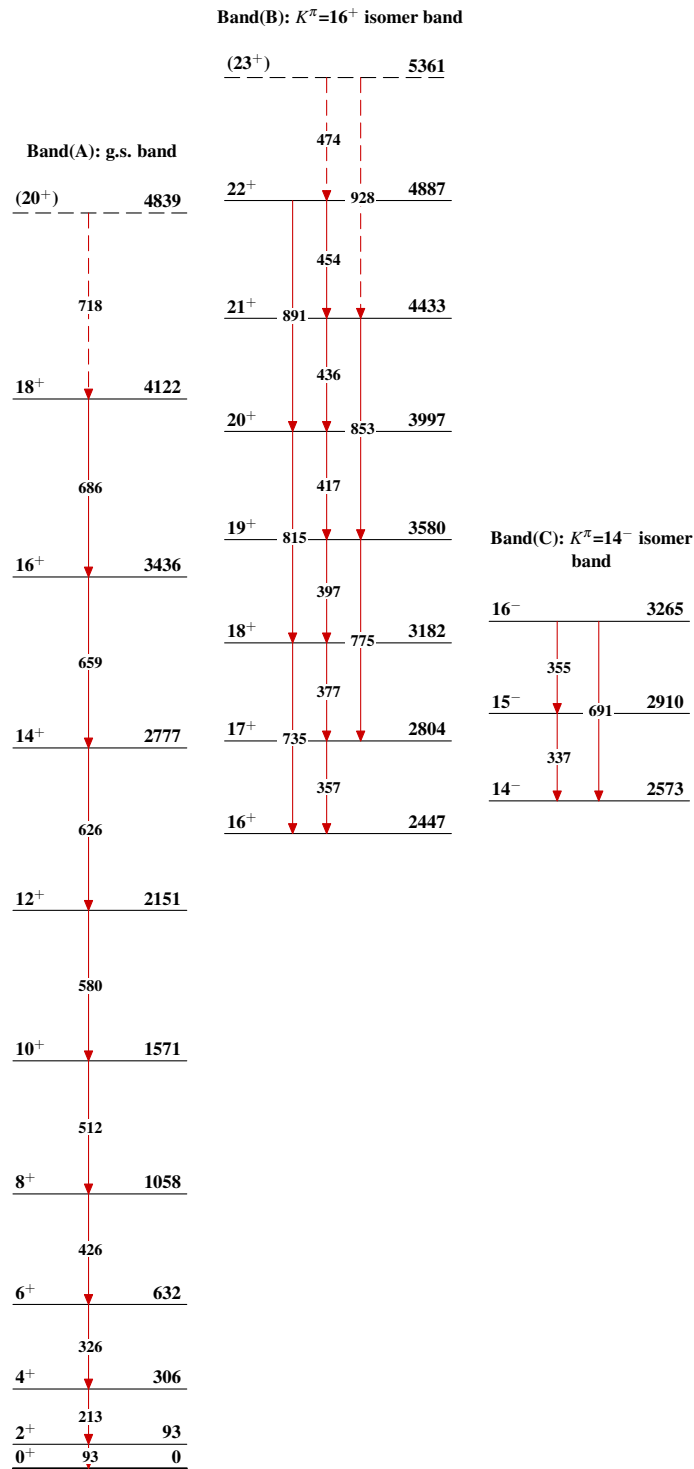
[†] Placement of transition in the level scheme is uncertain.

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Legend

Level Scheme

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