^{27}Al(^{178}Hf,Xγ) 2007Jo13

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 145, 25 (2017)	1-Jul-2017

Based on XUNDL. Compiled by S. Geraedts and B. Singh (McMaster): Oct 11, 2007.

Activity produced by a fusion-fission reaction of ^{178}Hf projectiles (E=1150 MeV), provided by the ATLAS accelerator at the Argonne National Laboratory, on a target of ^{27}Al. Measured Eγ, Iγ, $\gamma\gamma$ coin, $\gamma\gamma$(t) using the gammasphere array of 101 Compton-suppressed HPGe detectors. Measured isomer half-life using beam on-beam off method. A new high-spin isomer was found at 3010 keV.

^{99}Mo Levels

E(level)[†]	J$^\pi$	$T_{1/2}$	Comments
0	1/2$^+$		
97.8 *3*	5/2$^+$	15.5[‡] μs *2*	
235.5 *5*	7/2$^+$		
684.5[#] *6*	11/2$^-$	0.76[‡] μs *6*	
1166.3[#] *6*	15/2$^-$		
1859.4[#] *7*	19/2$^-$		
2705.3[#] *8*	23/2$^-$		
3010.2 *8*	(27/2$^-$)	8 ns *2*	$T_{1/2}$: from 2007Jo13, $\gamma\gamma$(t). Configuration=$\nu h_{11/2}\otimes\pi g^2_{9/2}$.
3685.3[#] *13*	(27/2$^-$)		
4749.3[#] *16*	(31/2$^-$)		

[†] Deduced from Eγ's.
[‡] From Adopted Levels.
[#] Band(A): $h_{11/2}$ band, α=−1/2.

γ(^{99}Mo)

E$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
97.8 *3*	97.8	5/2$^+$	0	1/2$^+$
137.7 *3*	235.5	7/2$^+$	97.8	5/2$^+$
304.9 *3*	3010.2	(27/2$^-$)	2705.3	23/2$^-$
449.0 *3*	684.5	11/2$^-$	235.5	7/2$^+$
481.8 *3*	1166.3	15/2$^-$	684.5	11/2$^-$
693.1 *3*	1859.4	19/2$^-$	1166.3	15/2$^-$
845.9 *3*	2705.3	23/2$^-$	1859.4	19/2$^-$
980 *1*	3685.3	(27/2$^-$)	2705.3	23/2$^-$
1064 *1*	4749.3	(31/2$^-$)	3685.3	(27/2$^-$)
1739[†] *1*	4749.3	(31/2$^-$)	3010.2	(27/2$^-$)

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

Legend

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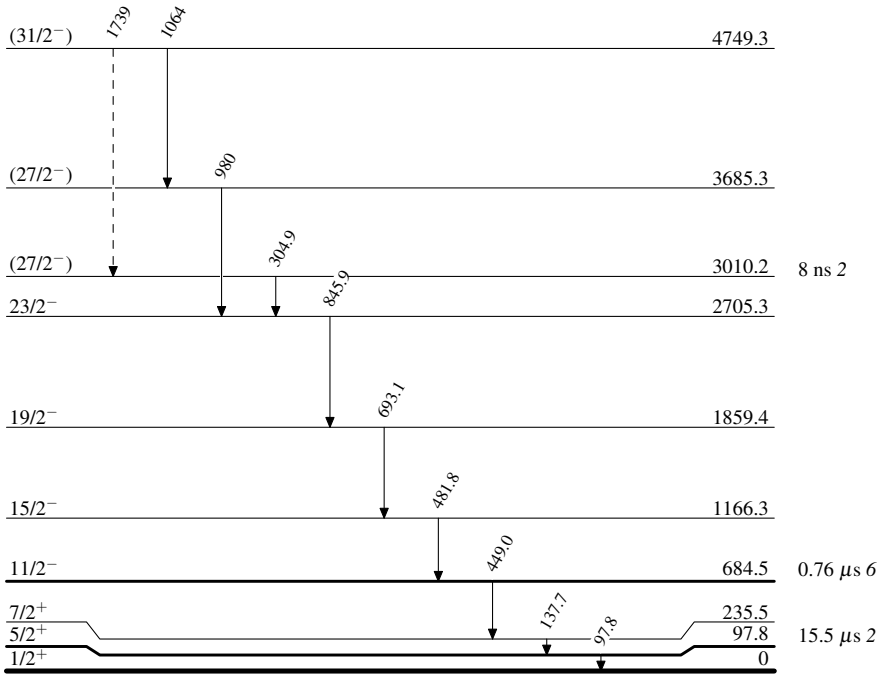
Level Scheme

γ Decay (Uncertain)



$^{99}_{42}Mo_{57}$

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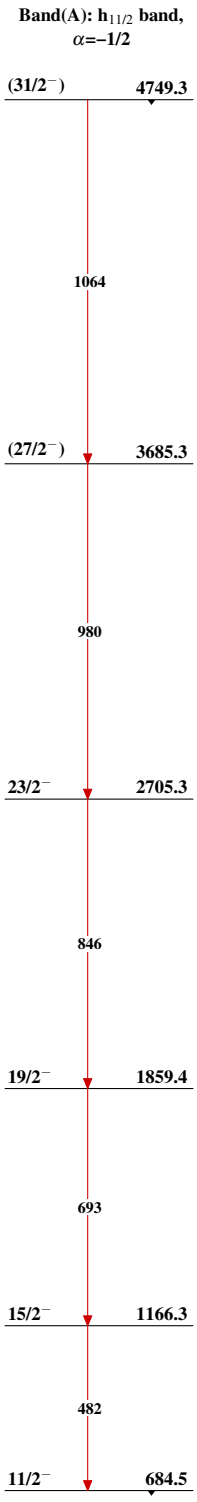

$^{99}_{42}Mo_{57}$