^{170}Er(^{136}Xe,Xγ) 2010Dr05

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 209,1 (2026)	1-Oct-2025

Edited/Adapted the XUNDL dataset compiled by B. Singh (McMaster) Sept 23, 2010.

E=830 MeV, pulsed and chopped beam from ATLAS facility at ANL. Measured Eγ, Iγ, $\gamma\gamma$, lifetimes using Gammasphere array. Comparison with multiquasiparticle calculations.

^{169}Ho Levels

In table II, 2010Dr05 also give values of transition probabilities and hindrance factors for J^π(1386 level)=19/2$^-$ and 21/2$^-$ with associated multipolarities. In this dataset, the listed values are for J^π(1386 level)=19/2$^+$.

Authors (2010Dr05) give absolute (g_K-g_R) values, calculated by assuming Q_0=7.7.

E(level)[†]	J^π[‡]	$T_{1/2}$	Comments
0.0[#]	7/2$^-$		
97.5[#] *3*	9/2$^-$		
216.9[#] *3*	11/2$^-$		Absolute (g_K-g_R)=0.68 *4*.
357.6[#] *3*	13/2$^-$		Absolute (g_K-g_R)=0.88 *+5–4*.
518.7[#] *3*	15/2$^-$		Absolute (g_K-g_R)=0.98 *+5–4*.
701.0[#] *4*	17/2$^-$		Absolute (g_K-g_R)=0.98 *3*.
902.7[#] *4*	19/2$^-$		
1386.2 *4*	(19/2$^+$)	118 μs *6*	J^π: 19/2$^+$ preferred over other possible choices of 19/2$^-$ and 21/2$^-$. Proposed configuration: π7/2[523]$\otimes\nu$5/2[512]$\otimes\nu$7/2[633]. $T_{1/2}$: from mean lifetime (τ)=170 μs *8*, determined from time dependence of the intensity of selected transitions following the decay of the isomer (2010Dr05).

[†] From a least-squares fit to Eγ's, assuming 0.3 keV uncertainty for each γ ray.

[‡] As given in 2010Dr05.

[#] Band(A): π7/2[523] band.

γ(^{169}Ho)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	Comments
97.5	9/2$^-$	97.7		0.0	7/2$^-$		
216.9	11/2$^-$	119.2	100	97.5	9/2$^-$		
		216.7	21.9 *24*	0.0	7/2$^-$		
357.6	13/2$^-$	140.4	100	216.9	11/2$^-$		
		260.4	31.0 *29*	97.5	9/2$^-$		
518.7	15/2$^-$	161.1	100	357.6	13/2$^-$		
		301.7	42.6 *37*	216.9	11/2$^-$		
701.0	17/2$^-$	182.5	100	518.7	15/2$^-$		
		343.6	61.3 *36*	357.6	13/2$^-$		
902.7	19/2$^-$	201.7		701.0	17/2$^-$		
		384.0		518.7	15/2$^-$		
1386.2	(19/2$^+$)	483.6	23.7 *17*	902.7	19/2$^-$	[E1]	Relative Iγ=223 *16*. B(E1)=6.2×10^{-14} *6*. Reduced hindrance factor f_ν=200.
		685.4	100.0 *43*	701.0	17/2$^-$	[E1]	Relative Iγ=940 *40*. B(E1)=9.1×10^{-14} *7*. Reduced hindrance factor f_ν=185.
		867.3[†]	≤2.1	518.7	15/2$^-$	[M2]	Relative Iγ≤16 *4*. B(M2)≤1.2×10^{-5} *3*. Reduced hindrance factor f_ν≥45.

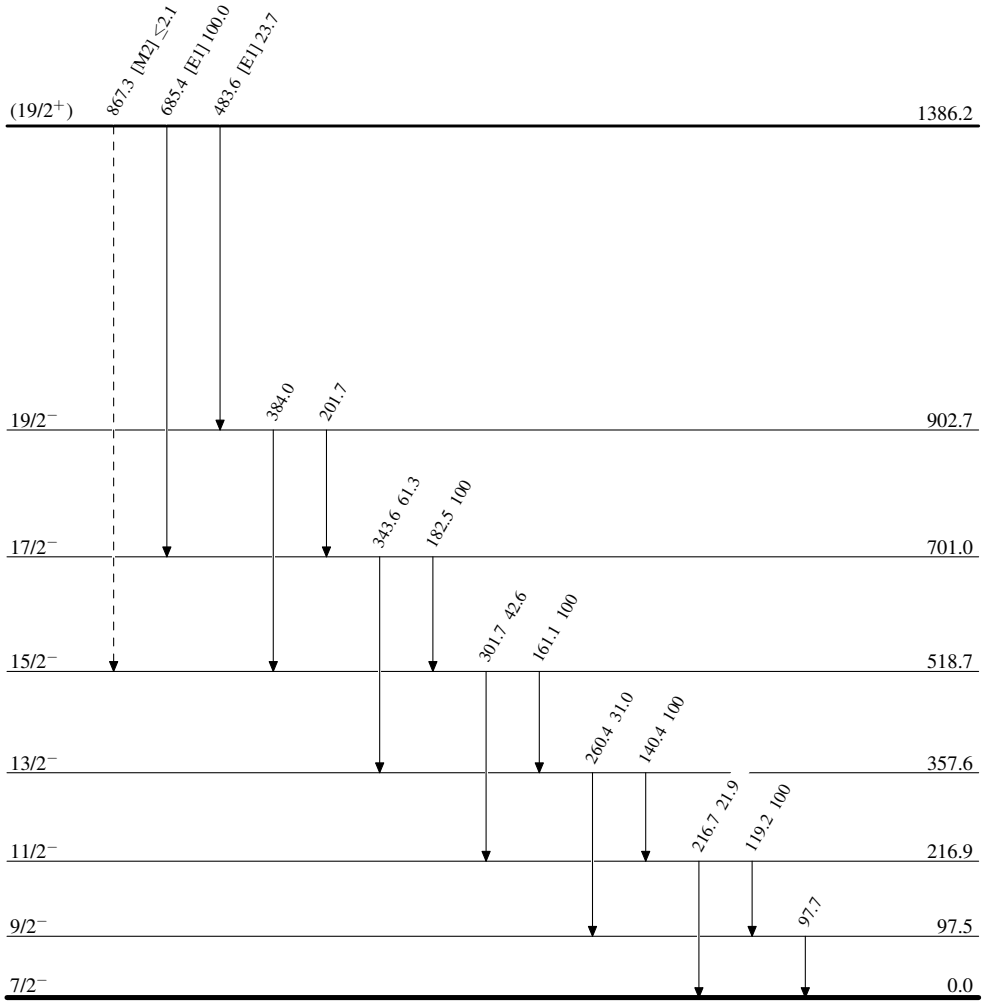
[†] Placement of transition in the level scheme is uncertain.

^{170}Er(^{136}Xe,Xγ) 2010Dr05 Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{169}_{67}Ho_{102}$

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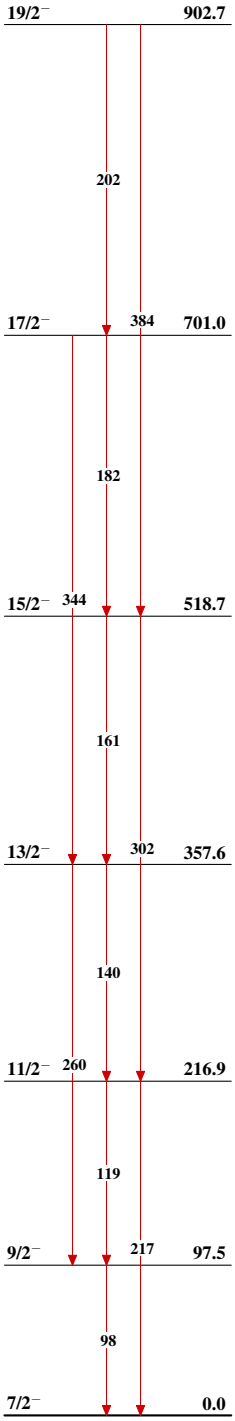
Band(A): π7/2[523] band



$^{169}_{67}Ho_{102}$