^{139}La(^{82}Se,Xγ) 2004Sh15

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 152, 331 (2018)	1-Apr-2018

2004Sh15: E(^{82}Se)=450 MeV. Measured Eγ, Iγ, γγ, γγ(θ)(DCO), γγ(t) using the GEMINI detector array consisting of 12 Compton-suppressed HPGe detectors.

^{136}Ba Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	0^+		
818.50 *10*	2^+		
1866.59 *13*	4^+		
2030.40 *14*	7^-		
2053.92 *13*	4^+		
2140.22 *14*	5^-		
2207.14 *13*	6^+		
2994.07 *15*	$8^{(+)}$		
3356.78 *18*	$10^{(+)}$	94 ns *10*	$T_{1/2}$: from γγ(t) using the time difference between the 349γ and the 340γ, 363γ, 787γ, 819γ and 1048γ (2004Sh15).
3706.0 *3*			
4214.9 *3*			

† From least-squares fit to Eγ, by evaluator.
‡ As proposed by 2004Sh15 based on multipolarities, systematics and comparison to shell model calculations.

γ(^{136}Ba)

R(DCO)=(Iγ at (32°(or 148°)) gated on γ_{gate} at 90°)/ (Iγ at (90°) gated on γ_{gate} at 32° (or 148°)). DCO values correspond to gates on ΔJ=2, Q transitions, giving DCO=1 for stretched quadrupole and unstretched (ΔJ=0) dipole transitions and 0.6 for stretched dipole transitions.

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
66.9 *1*	11 *1*	2207.14	6^+	2140.22	5^-		
86.3 *1*	6 *1*	2140.22	5^-	2053.92	4^+		
153.2 *1*	7 *1*	2207.14	6^+	2053.92	4^+		DCO=0.7 *1* Mult.: based on placement in level scheme as 6^+ to 4^+ transition, E2 is suggested for the 153γ, while the DCO ratio is characteristic of a stretched dipole transition.
163.9 *1*	12 *1*	2030.40	7^-	1866.59	4^+		DCO=0.6 *1*
176.9 *1*	16 *1*	2207.14	6^+	2030.40	7^-	D	DCO=0.7 *1*
273.6 *1*	13 *1*	2140.22	5^-	1866.59	4^+	D	DCO=0.8 *1*
340.5 *1*	48 *2*	2207.14	6^+	1866.59	4^+	Q	DCO=0.9 *1*
349.2 *2*	70 *2*	3706.0		3356.78	$10^{(+)}$		
362.7 *1*	46 *2*	3356.78	$10^{(+)}$	2994.07	$8^{(+)}$	Q	DCO=0.9 *1*
508.9 *1*	40 *2*	4214.9		3706.0			
787.0 *1*	85 *3*	2994.07	$8^{(+)}$	2207.14	6^+	Q	DCO=0.9 *1*
818.5 *1*	100 *3*	818.50	2^+	0.0	0^+	Q	DCO=1.2 *1*
963.6 *1*	8 *1*	2994.07	$8^{(+)}$	2030.40	7^-		
1048.1 *1*	75 *3*	1866.59	4^+	818.50	2^+	Q	DCO=1.0 *1*
1235.4 *1*	25 *2*	2053.92	4^+	818.50	2^+	Q	DCO=1.0 *1*

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Level Scheme

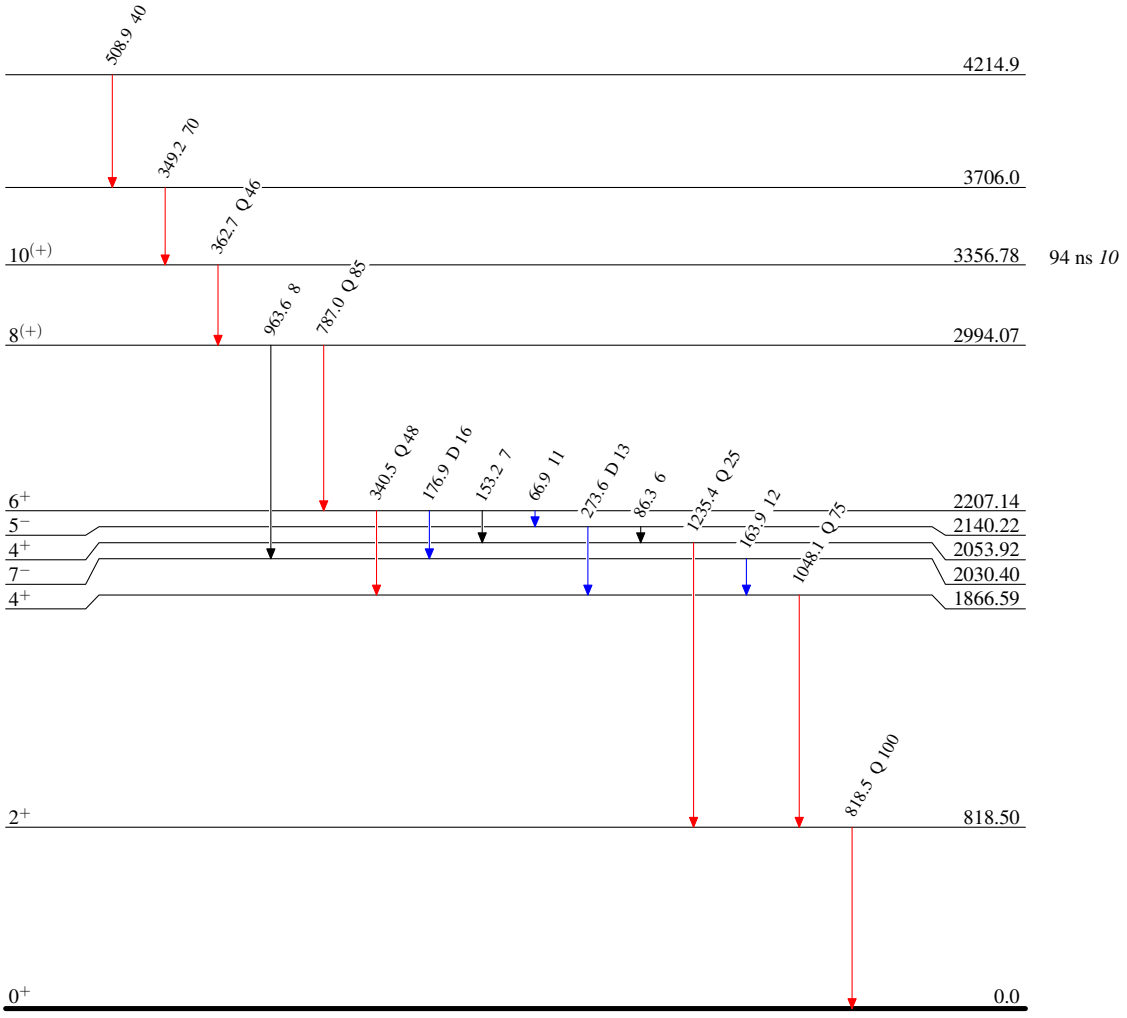
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{136}_{56}Ba_{80}$