^{139}La(p,4nγ) 1975Yo01

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

1975Yo01: ^{139}La(p,4nγ) with E(p)=32.5-52 MeV. Measured Eγ, Iγ, γ(t), $\gamma(\theta)$, excitation function using Ge(Li) detector and Ece, Ice using multigap reaction conversion electron spectrometer (M-Race).

^{136}Ce Levels

E(level)†	J$^\pi$‡	$T_{1/2}$	Comments
0.0	0^+		
553.0 *4*	2^+		
1093.8 *4*	2^+		
1316.1 *6*	4^+		
1555.3 *5*	3^+		
1980.6 *8*	5^-		
2216.4 *8*	6^+		
2309.7 *10*	7^-		
2369.9 *8*			
2994.2 *8*		2.1 μs *2*	$T_{1/2}$: from γ(t) of 553γ (1975Yo01). 1975Yo01 additionally state that the half-lives of the 624γ, 763γ, 778γ, 900γ and 1054γ were the same within an uncertainty of 0.4 μs.

† From a least-squares fit to Eγ, by evaluator.
‡ As proposed by 1975Yo01 based on measured multipolarities and deduced band structure.

γ(^{136}Ce)

α(K)exp from 1975Yo01, normalized to α(K)(552γ)=0.00694 (E2 theory).

E$_\gamma$†	I$_\gamma$‡	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.#	Comments
329.1 *5*	18 *1*	2309.7	7^-	1980.6	5^-	E2	α(K)exp=0.026 *3* (1975Yo01) A_2=+0.19 *6*, A_4=−0.12 *8* (1975Yo01).
461.1 *5*	4 *1*	1555.3	3^+	1093.8	2^+		
540.3 *5*	9 *2*	1093.8	2^+	553.0	2^+		
552.9 *5*	100 *5*	553.0	2^+	0.0	0^+	E2	A_2=+0.012 *1*, A_4=−0.04 *5* (1975Yo01).
624.3 *5*	4 *1*	2994.2		2369.9			
664.5 *5*	45 *3*	1980.6	5^-	1316.1	4^+	(E1)	α(K)exp=0.0038 *6* (1975Yo01) A_2=−0.04 *6*, A_4=−0.02 *11* (1975Yo01). Mult.: α(K)exp suggests E2 or E1 multipolarity, while $\gamma(\theta)$ favors the latter.
763.1 *5*	85 *5*	1316.1	4^+	553.0	2^+	E2	α(K)exp=0.0036 *4* (1975Yo01) A_2=+0.13 *5*, A_4=−0.04 *8* (1975Yo01).
777.8 *5*	3 *1*	2994.2		2216.4	6^+		
900.3 *5*	21 *1*	2216.4	6^+	1316.1	4^+	E2	α(K)exp=0.0026 *5* (1975Yo01) A_2=+0.31 *12*, A_4=+0.05 *18* (1975Yo01).
1002.8 *5*	3 *1*	1555.3	3^+	553.0	2^+		
1053.9 *5*	22 *1*	2369.9		1316.1	4^+	M1,E2	α(K)exp=0.0020 *9* (1975Yo01) A_2=+0.01 *15*, A_4=−0.02 *24* (1975Yo01).
1093.8 *5*	3 *1*	1093.8	2^+	0.0	0^+		

† From 1975Yo01. 1975Yo01 provide only a general statement that energies are known to 0.5 keV.
‡ From 1975Yo01. From a general statement by 1975Yo01 that Iγ are to within 5% for strong lines and 20% for weak lines,

Continued on next page (footnotes at end of table)

^{139}La(p,4nγ) 1975Yo01 (continued)

$\gamma(^{136}Ce)$ (continued)

evaluator assigns 5% uncertainty for Iγ>10 and 20% uncertainty for Iγ<10.
From α(K)exp in 1975Yo01. Results from $\gamma(\theta)$ measurements are in agreement.

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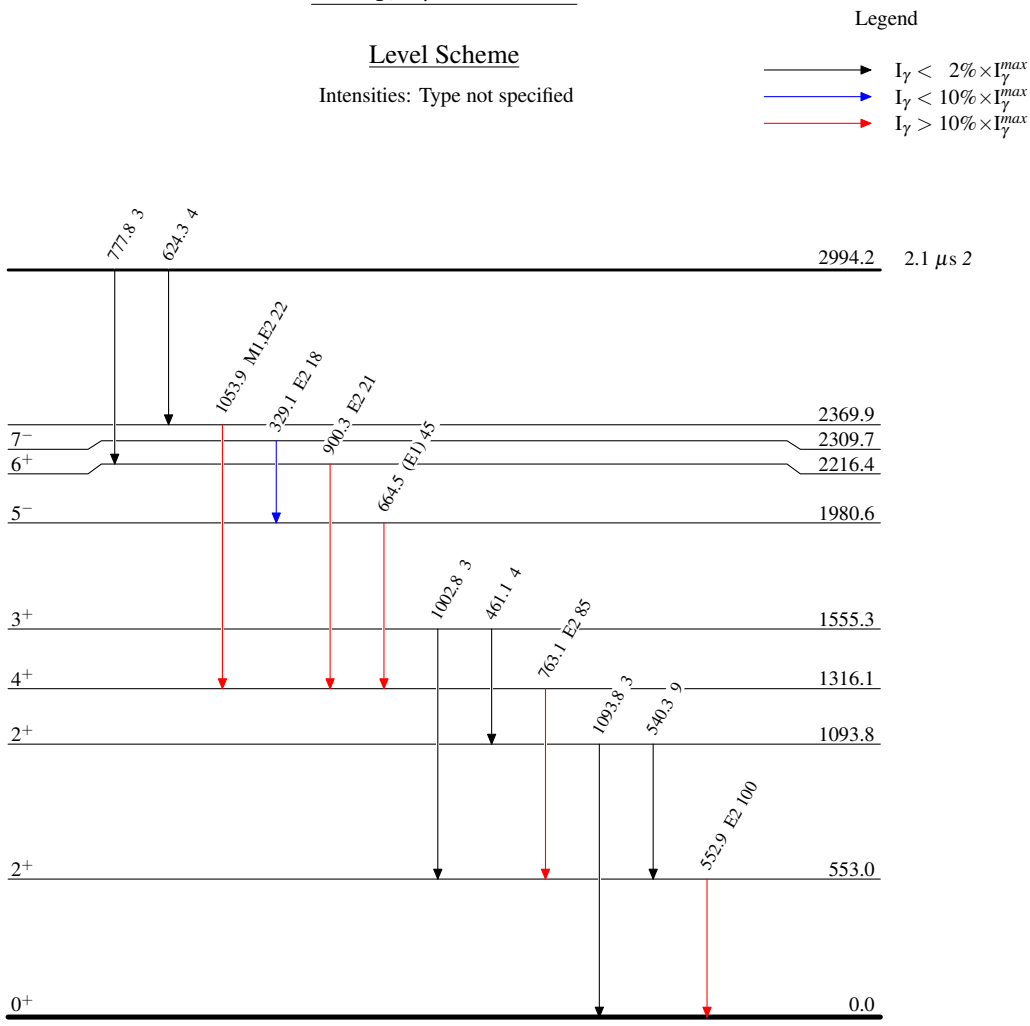
Level Scheme

Intensities: Type not specified



$^{136}_{58}Ce_{78}$