^{140}Ce(α,7nγ) 1975No08

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 108,2173 (2007)	1-Oct-2006

E<104 MeV; measured: γ, $\gamma\gamma$, $\gamma(\theta)$, ce, Ce(θ).

^{137}Nd Levels

E(level)	J$^\pi$[†]	$T_{1/2}$	Comments
0.0	$1/2^+$		
108.6 *2*	$3/2^+$		
268.7 *3*	$(3/2)^+$		
286.0 *2*	$5/2^+$		
519.6 *4*	$11/2^-$	1.60 s *15*	$T_{1/2}$: from 1970Dr04.
1100.0 *10*	$13/2^-$		
1188.6 *6*	$15/2^-$		
1682.0 *14*	$(15/2^-)$		
1894.4 *14*	$17/2^-$		
1976.5 *15*	$(19/2^-)$		Level not seen by 1997Pe06 and not included as adopted value.
2222.5 *16*	$(19/2^+)$		
2629.1 *17*	$(23/2^+)$		

[†] From adopted values.

$\gamma(^{137}Nd)$

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	α[†]	Comments
108.6 *2*	110	108.6	$3/2^+$	0.0	$1/2^+$			
177.5 *2*	106	286.0	$5/2^+$	108.6	$3/2^+$			
[x]224.4 *3*	19.5 *6*					D+Q		Mult.: A_2=−0.41 *20*.
233.4 *3*	170	519.6	$11/2^-$	286.0	$5/2^+$			
[x]263.6 *3*	22.8 *6*					D+Q		Mult.: A_2=−0.57 *30*.
268.7 *3*	9	268.7	$(3/2)^+$	0.0	$1/2^+$			
286.0 *2*	44	286.0	$5/2^+$	0.0	$1/2^+$			
295.0 *3*	17.2 *7*	1976.5	$(19/2^-)$	1682.0	$(15/2^-)$	E2		Mult.: A_2=+0.62 *25*.
[x]318.0 *5*	7 *2*							
328.1 *3*	72.9 *13*	2222.5	$(19/2^+)$	1894.4	$17/2^-$	(E1)		Mult.: A_2=−0.13 *10*.
[x]402.4 *3*	47 *2*					D		Mult.: A_2=−0.26 *10*.
406.7 *3*	30.8 *13*	2629.1	$(23/2^+)$	2222.5	$(19/2^+)$	E2		Mult.: A_2=+0.67 *8*.
[x]409.4 *3*	39.0 *14*					Q		Mult.: A_2=+0.44 *7*.
493.5[‡]	<5	1682.0	$(15/2^-)$	1188.6	$15/2^-$			
[x]502 *1*	21.7 *20*					Q		Mult.: A_2=+0.37 *20*; for Ce(θ) A_2=+0.8 *+3−6*.
580.4 *10*	70 *4*	1100.0	$13/2^-$	519.6	$11/2^-$	M1+E2	0.0105 *25*	α(K)=0.0088 *22*; α(L)=0.00124 *21* Mult.: A_2=−0.38 *15*; for Ce(θ) A_2=+0.2 *+3−4*.
582 *1*	50 *4*	1682.0	$(15/2^-)$	1100.0	$13/2^-$	M1+E2	0.0104 *25*	α(K)=0.0087 *22*; α(L)=0.00124 *21* A_2=−0.38 *15*; for Ce(θ) A_2=+0.2 *+3−4*.
669.0 *3*	100	1188.6	$15/2^-$	519.6	$11/2^-$	E2		Mult.: A_2=+0.49 *7*.
[x]688 *1*	4 *1*							
705.6 *3*	77.0 *25*	1894.4	$17/2^-$	1188.6	$15/2^-$	M1+E2	0.0065 *16*	α=0.0065 *16*; α(K)=0.0055 *14*; α(L)=0.00075 *15* Mult.: A_2=−0.76 *30*; for Ce(θ) A_2=−0.5 *3*.
[x]748.6 *3*	29.8 *17*					D+Q		Mult.: A_2=−0.57 *50*.
[x]763 *1*	10 *3*							Mult.: A_2=+0.51 *15*.

Continued on next page (footnotes at end of table)

^{140}Ce(α,7nγ) 1975No08 (continued)

$\gamma(^{137}Nd)$ (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
[x]780.4 *3*	16.5 *14*						
788 *1*	20 *3*	1976.5	(19/2$^-$)	1188.6	15/2$^-$	E2	Mult.: A_2=+0.56 *36*.
794 *1*	20 *3*	1894.4	17/2$^-$	1100.0	13/2$^-$	E2	Mult.: A_2=+0.38 *11*.
[x]881.4 *5*	50.0 *25*					Q	Mult.: A_2=+0.22 *13*.
[x]892.1 *5*	13.5 *13*						
[x]904 *1*	12 *3*						Mult.: A_2=+0.66 *44*.
[x]977.8 *5*	26.8 *17*					D+Q	Mult.: A_2=−0.56 *60*.
[x]986.4 *5*	12.9 *14*						
[x]1009.3 *5*	18.3 *16*						
[x]1111.7 *5*	17.9 *17*						
[x]1141 *1*	9 *2*						
[x]1592.5 *10*	34.5 *25*						

[†] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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

[x] γ ray not placed in level scheme.

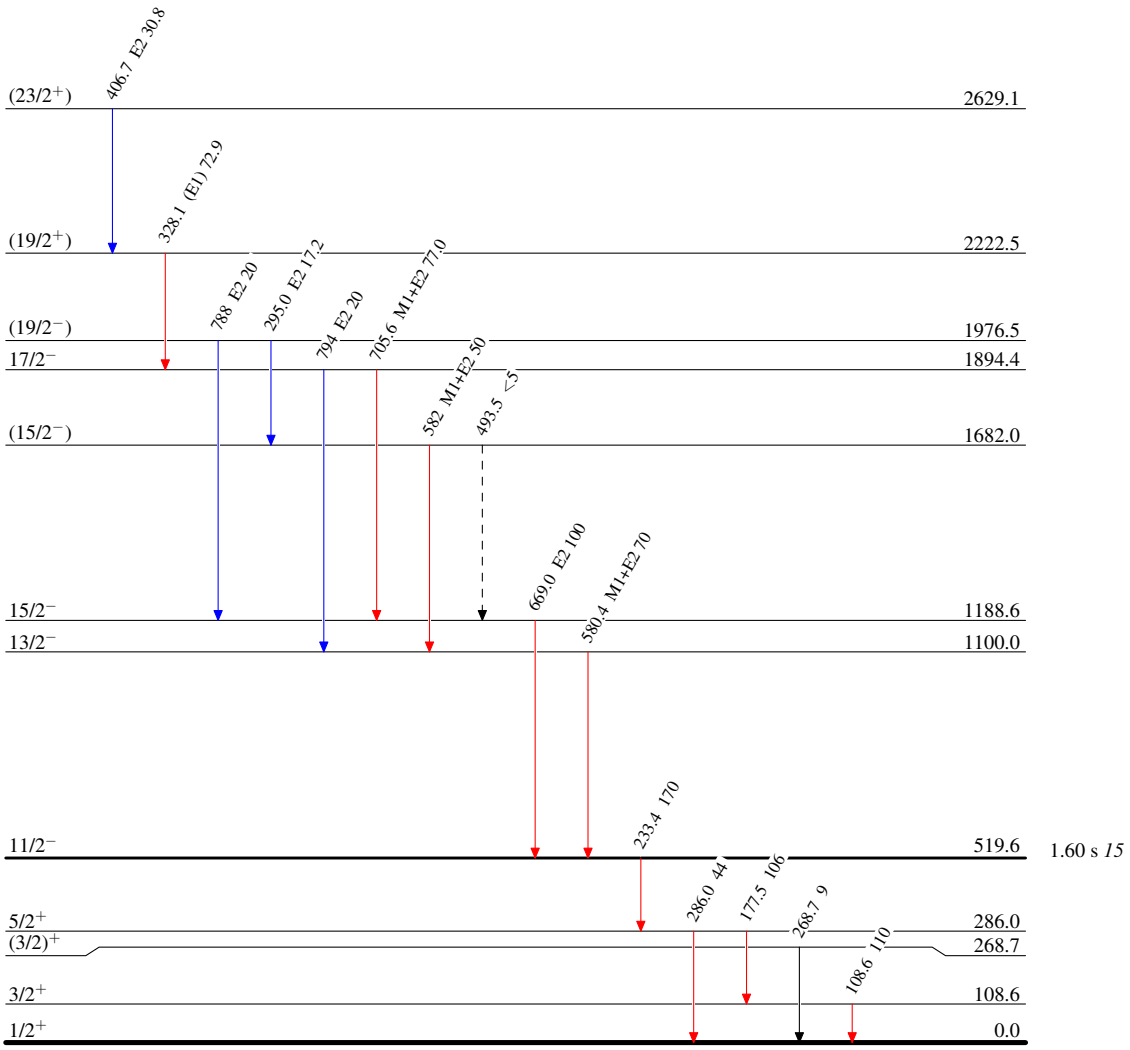
^{140}Ce(α,7nγ) 1975No08

Level Scheme

Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{137}_{60}Nd_{77}$