^{140}Ce(p,nγ) 1973GuZD,1974Hu03

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 154, 1 (2018)	20-Nov-2018

E(p)=4.78 MeV (1974Hu03), E(p) is not given (1973GuZD).
Others: 1976Fo08, 1977Bo06.
Measured: γ, γγ, γ(θ).
The decay scheme is mostly from 1973GuZD.

^{140}Pr Levels

E(level)	Jπ†	$T_{1/2}$	Comments
0.0	1^+		
27.23 *3*	2^+		
29.5 *3*	3^+		
127.5 *3*	5^+	0.5 μs	$T_{1/2}$: from 1973GuZD.
191.8 *3*	3^+		
271.0 *3*	2^+		
287.1 *3*	3^+		
331.0 *5*	$(4,5)^+$		
390.8 *4*	$(4,5)^+$		
419.9 *3*	$2^+,3^+$		
576.6 *4*	$(4,5)^+$		
604.4 *4*	$(3)^+$		
670.2 *7*			
862.0 *5*	$(4)^-$		
888.0 *4*			
904.1 *4*	(2^-)		
913.4 *7*			
967.0 *6*			
983.4 *8*			
1033.9 *6*	$2^-,3^-$		
1053.8 *6*	$(1^+,2,3^+)$		
1061.6 *8*			
1147.1 *6*	$(2)^-$		
1183.2 *7*	$(2)^+$		

† Adopted values.

γ(^{140}Pr)

Eγ	Ei(level)	J_i^π	E_f	J_f^π	Mult.	Comments
27.23 *3*	27.23	2^+	0.0	1^+		Eγ: from 1976Fo08 (E(p)=6.6 MeV).
95.3 *3*	287.1	3^+	191.8	3^+		
98.0 *3*	127.5	5^+	29.5	3^+		
132.8 *4*	419.9	$2^+,3^+$	287.1	3^+		
139.2 *3*	331.0	$(4,5)^+$	191.8	3^+		
140.3 *4*	1053.8	$(1^+,2,3^+)$	913.4			
162.2 *3*	191.8	3^+	29.5	3^+	D+Q	Mult.: A_2=+0.28 *6*, ΔJ=0 (1974Hu03).
164.4 *3*	191.8	3^+	27.23	2^+	D	Mult.: A_2=−0.44 *8*, ΔJ=1 (1974Hu03).
198.9 *4*	390.8	$(4,5)^+$	191.8	3^+		
213.5 *5*	604.4	$(3)^+$	390.8	$(4,5)^+$		
228.1 *3*	419.9	$2^+,3^+$	191.8	3^+		
241.6 *3*	271.0	2^+	29.5	3^+		Mult.: A_2=+0.02 *8* (1974Hu03).
243.2 *5*	913.4		670.2			

Continued on next page (footnotes at end of table)

^{140}Ce(p,nγ) 1973GuZD,1974Hu03 (continued)

γ(^{140}Pr) (continued)

E_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
243.8 *3*	271.0	2^+	27.23	2^+	D+Q	Mult.: A_2=+0.15 *9*, ΔJ=0 (1974Hu03).
257.6 *3*	287.1	3^+	29.5	3^+	D+Q	Mult.: A_2=+0.42 *9*, ΔJ=0 (1974Hu03).
259.8 *3*	287.1	3^+	27.23	2^+		
263.2 *3*	390.8	$(4,5)^+$	127.5	5^+		
271.0 *3*	271.0	2^+	0.0	1^+		
287.1 *3*	287.1	3^+	0.0	1^+		
301.4 *5*	331.0	$(4,5)^+$	29.5	3^+		
384.9 *4*	576.6	$(4,5)^+$	191.8	3^+		
390.5 *4*	419.9	$2^+,3^+$	29.5	3^+		
392.7 *3*	419.9	$2^+,3^+$	27.23	2^+		
412.6 *4*	604.4	$(3)^+$	191.8	3^+		
419.9 *3*	419.9	$2^+,3^+$	0.0	1^+		
449.2 *5*	1053.8	$(1^+,2,3^+)$	604.4	$(3)^+$		
471.2 *4*	862.0	$(4)^-$	390.8	$(4,5)^+$		
547.2 *4*	576.6	$(4,5)^+$	29.5	3^+		
574.7 *4*	604.4	$(3)^+$	29.5	3^+		
633.3 *4*	904.1	(2^-)	271.0	2^+		
640.7 *6*	670.2		29.5	3^+		
652.4 *8*	983.4		331.0	$(4,5)^+$		
670.2 *5*	862.0	$(4)^-$	191.8	3^+		
730.6 *7*	1061.6		331.0	$(4,5)^+$		
763.1 *5*	1033.9	$2^-,3^-$	271.0	2^+		
876.4 *5*	1147.1	$(2)^-$	271.0	2^+		
888.0 *4*	888.0		0.0	1^+		
896.1 *6*	1183.2	$(2)^+$	287.1	3^+		
904.1 *4*	904.1	(2^-)	0.0	1^+		
939.7 *6*	967.0		27.23	2^+		
955.8 *7*	983.4		27.23	2^+		
967.0 *6*	967.0		0.0	1^+		
1053.8 *6*	1053.8	$(1^+,2,3^+)$	0.0	1^+		
1147.1 *6*	1147.1	$(2)^-$	0.0	1^+		
1155.9 *7*	1183.2	$(2)^+$	27.23	2^+		
1183.2 *7*	1183.2	$(2)^+$	0.0	1^+		

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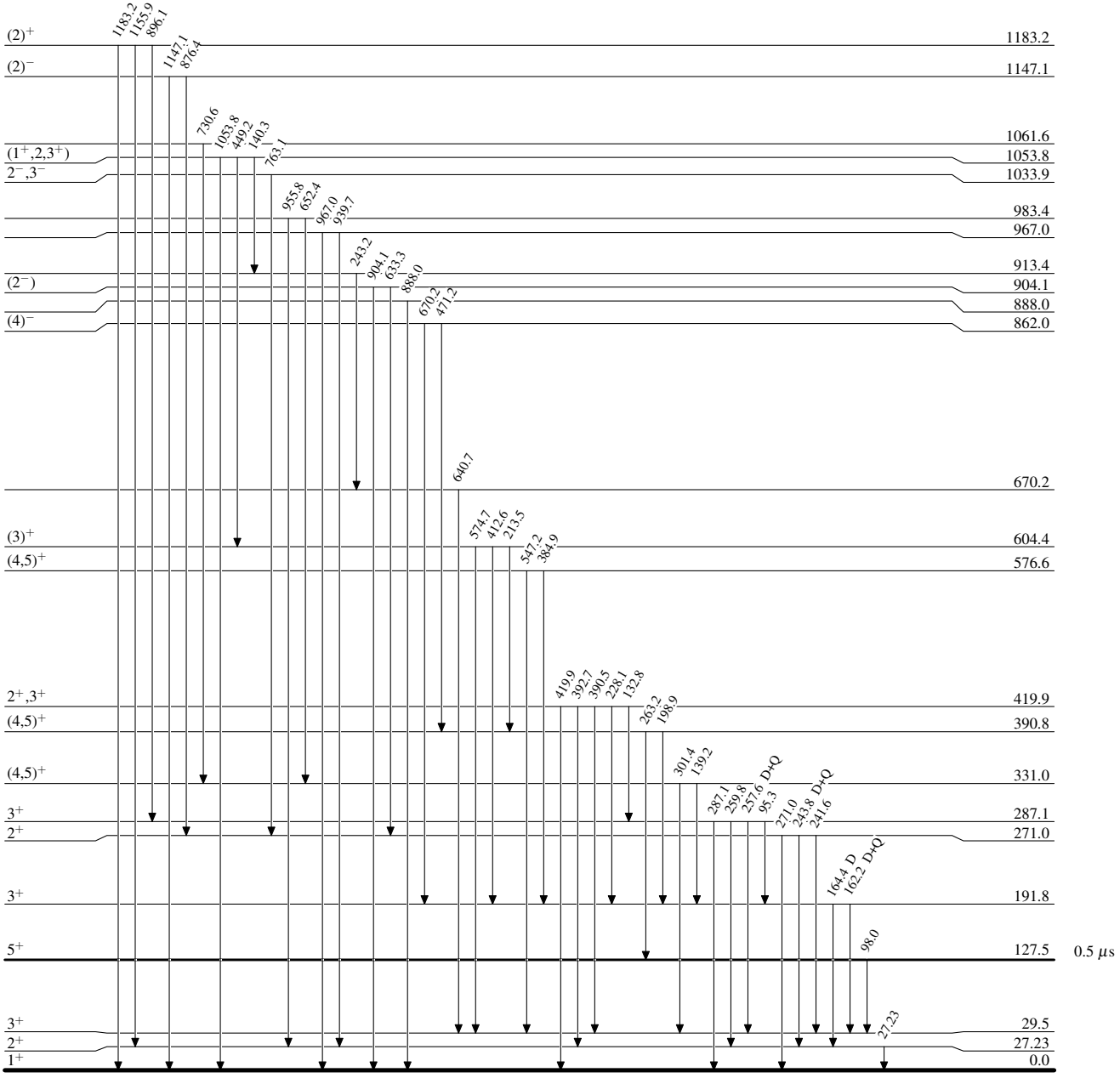
Level Scheme



$^{140}_{59}Pr_{81}$