

$^{124}\text{Sn}(^7\text{Li},2n\gamma)$  2013De02

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Janos Timar and Zoltan Elekes, Balraj Singh		NDS 121, 143 (2014)	31-May-2014

2013De02: E=23 MeV. Measured  $E_\gamma$ ,  $I_\gamma$ ,  $\gamma\gamma$ , DCO using an array of eight HPGe detectors and five  $\text{LaBr}_3(\text{Ce})$  scintillation detectors at Bucharest Tandem Van de Graaff accelerator facility.

$^{129}\text{I}$  Levels

E(level) <sup>†</sup>	$J^\pi$ <sup>‡</sup>	Comments
0	7/2 <sup>+</sup>	
27.7	5/2 <sup>+</sup>	
695.7 2	11/2 <sup>+</sup>	
729.6 2	9/2 <sup>+</sup>	
844.9 3	(9/2) <sup>+</sup>	$J^\pi$ : (7/2) <sup>+</sup> in Adopted Levels.
1376.1 5	13/2 <sup>+</sup>	
1401.7 5	(11/2) <sup>-</sup>	$J^\pi$ : (9/2) <sup>-</sup> in Adopted Levels.
1469.6 4	15/2 <sup>+</sup>	
1666.9 4	(13/2) <sup>+</sup>	
1833.4 4	15/2 <sup>(+)</sup>	
1850.1 5	(15/2)	
2099.1 5	17/2 <sup>(+)</sup>	
2324.6 8	19/2 <sup>+</sup>	
2529.5 6		
2569?		
2633.0 5	23/2 <sup>+</sup>	
2882.2 6		
2924?		
2933.6 5	25/2 <sup>+</sup>	
3408?		

<sup>†</sup> From least-squares fit to  $E_\gamma$  data.

<sup>‡</sup> As proposed in 2013De02 based on DCO ratios for selected transitions and decay patterns.

$\gamma(^{129}\text{I})$

$E_\gamma$	$I_\gamma$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. <sup>†</sup>	Comments
183.2 4	3 1	1850.1	(15/2)	1666.9	(13/2) <sup>+</sup>		
204.9 4	7 2	2529.5		2324.6	19/2 <sup>+</sup>		
265.8 3	26 14	2099.1	17/2 <sup>(+)</sup>	1833.4	15/2 <sup>(+)</sup>	D+Q	DCO=0.56 11 for $\Delta J=2$ , quadrupole gate. DCO=0.75 9 for $\Delta J=1$ , dipole gate.
300.7 3	10 2	2933.6	25/2 <sup>+</sup>	2633.0	23/2 <sup>+</sup>	D+Q	DCO=0.68 27, 0.60 28 for $\Delta J=2$ , quadrupole gates.
308.4 2	23 3	2633.0	23/2 <sup>+</sup>	2324.6	19/2 <sup>+</sup>	Q	DCO=1.10 34, 1.05 21 for $\Delta J=2$ , quadrupole gates.
352.7 4	7 3	2882.2		2529.5			
363.8 4	3 1	1833.4	15/2 <sup>(+)</sup>	1469.6	15/2 <sup>+</sup>		
380.5 3	14 2	1850.1	(15/2)	1469.6	15/2 <sup>+</sup>		
457.3 3	35 4	1833.4	15/2 <sup>(+)</sup>	1376.1	13/2 <sup>+</sup>	D+Q	DCO=0.55 13 for $\Delta J=2$ , quadrupole gate. DCO=1.11 51 for $\Delta J=1$ , dipole gate.
470 <sup>‡</sup>		2569?		2099.1	17/2 <sup>(+)</sup>		
474 <sup>‡</sup>		3408?		2933.6	25/2 <sup>+</sup>		
556.7 2	21 10	1401.7	(11/2) <sup>-</sup>	844.9	(9/2) <sup>+</sup>	D	DCO=0.58 10 for $\Delta J=2$ , quadrupole gate. DCO=0.47 25 for $\Delta J=1$ , dipole gate.
646.5 3	13 2	1376.1	13/2 <sup>+</sup>	729.6	9/2 <sup>+</sup>	Q	DCO=2.62 79 for $\Delta J=1$ , dipole gate.
672.2 3	5 2	1401.7	(11/2) <sup>-</sup>	729.6	9/2 <sup>+</sup>		

Continued on next page (footnotes at end of table)

$^{124}\text{Sn}(^7\text{Li},2n\gamma)$  **2013De02** (continued) $\gamma(^{129}\text{I})$  (continued)

$E_\gamma$	$I_\gamma$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. <sup>†</sup>	Comments
680.4 2	45 5	1376.1	13/2 <sup>+</sup>	695.7	11/2 <sup>+</sup>	D+Q	DCO=0.50 6 for $\Delta J=2$ , quadrupole gate. DCO=0.81 17 for $\Delta J=1$ , dipole gate.
695.7 2	100	695.7	11/2 <sup>+</sup>	0	7/2 <sup>+</sup>	Q	DCO=1.00 10 for $\Delta J=2$ , quadrupole gate. DCO=1.42 24 for $\Delta J=1$ , dipole gate.
729.6 2	40 7	729.6	9/2 <sup>+</sup>	0	7/2 <sup>+</sup>		
773.9 3	66 6	1469.6	15/2 <sup>+</sup>	695.7	11/2 <sup>+</sup>	Q	DCO=1.04 13 for $\Delta J=2$ , quadrupole gate.
817.2 2	22 2	844.9	(9/2) <sup>+</sup>	27.7	5/2 <sup>+</sup>		
825 <sup>‡</sup>		2924?		2099.1	17/2 <sup>(+)</sup>		
844.9 3	8 2	844.9	(9/2) <sup>+</sup>	0	7/2 <sup>+</sup>		$I_\gamma$ : based on branching ratio In Adopted Gammas.
855.0 2	44 2	2324.6	19/2 <sup>+</sup>	1469.6	15/2 <sup>+</sup>	Q	DCO=0.87 16, 1.03 19 for $\Delta J=2$ , quadrupole gates.
937.3 4	8 2	1666.9	(13/2 <sup>+</sup> )	729.6	9/2 <sup>+</sup>	(Q)	DCO=1.55 87 for $\Delta J=1$ , dipole gate.

<sup>†</sup> In **2013De02**, mult=Q implies  $\Delta J=2$ , E2; mult=D+Q implies M1+E2, and mult=D implies possible E1.

<sup>‡</sup> Placement of transition in the level scheme is uncertain.

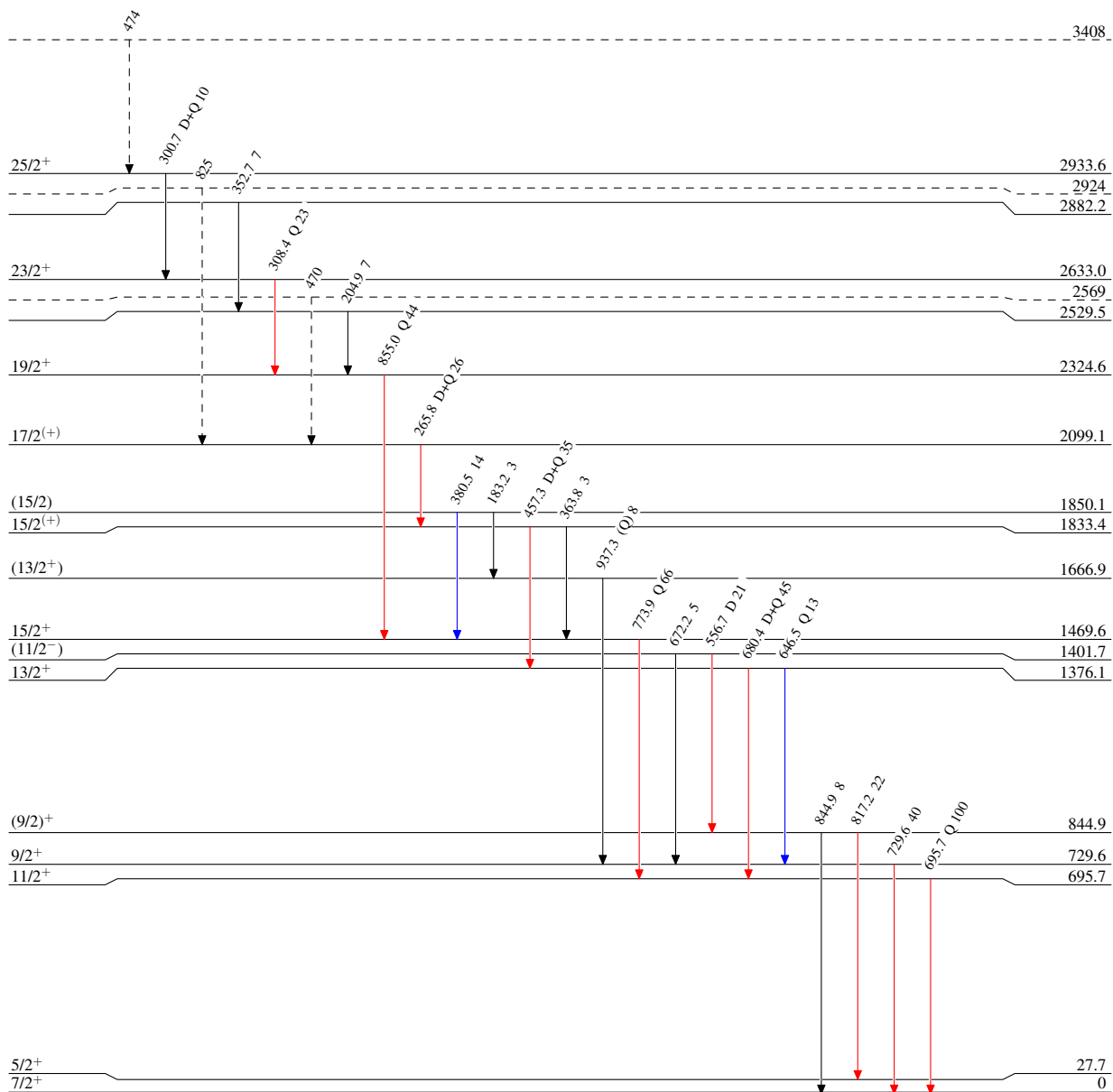
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Legend

## Level Scheme

Intensities: Relative  $I_\gamma$ 

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

 $^{129}_{53}\text{I}_{76}^{-3}$