

<sup>94</sup>Mo(<sup>19</sup>F,p3nγ) 1996Ch37

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	S. Kumar(a), J. Chen(b) and F. G. Kondev		NDS 137, 1 (2016)	31-May-2016

1996Ch37: E(<sup>19</sup>F)=88 MeV,14 UD BARC-TIFR Pelletron accelerator, India. Target: 2 mg/cm<sup>2</sup> (99% enrichment) on a 25 mg/cm<sup>2</sup> Au backing. Detectors: 5 Compton-suppressed Ge, 14 element NaI Multiplicity Filter. Measured: Eγ, Iγ, γγ, DCO DCO ratios correspond to 75° and 15° geometry.

<sup>109</sup>Sn Levels

E(level) <sup>†</sup>	J <sup>π</sup> <sup>‡</sup>	Comments
0.0	5/2 <sup>+</sup> #	
14.0	(7/2 <sup>+</sup> )#	Additional information 1. E(level): round-off value from Adopted Levels.
1258.9 3	11/2 <sup>+</sup>	
1270.0 @ 3	11/2 <sup>-</sup>	
2091.6 5	15/2 <sup>+</sup>	
2351.2 @ 5	15/2 <sup>-</sup>	
3301.2 @ 5	19/2 <sup>-</sup>	
3316.5 5	19/2 <sup>-</sup>	
3321.9? 6	19/2 <sup>+</sup>	
3474.5 6	21/2 <sup>-</sup>	
3864.4 6		
4263.0 6	(23/2) <sup>-</sup>	
4610.3 6	25/2 <sup>-</sup>	
4985.2 7		
5287.1 7	(27/2) <sup>-</sup>	
5451.7 7	27/2 <sup>-</sup>	
6225.9 8	(31/2) <sup>-</sup>	
6338.6 8	31/2 <sup>-</sup>	
7196.3 8	35/2 <sup>-</sup>	
8125.9 9	39/2 <sup>-</sup>	
9147.5 9	43/2 <sup>-</sup>	

<sup>†</sup> From a least-squares fit to Eγ.

<sup>‡</sup> From 1996Ch37.

# From Adopted Levels.

@ Band(A): νh<sub>11/2</sub> coupled to core vibrations.

γ(<sup>109</sup>Sn)

E <sub>γ</sub> <sup>†</sup>	I <sub>γ</sub> <sup>†</sup>	E <sub>i</sub> (level)	J <sub>i</sub> <sup>π</sup>	E <sub>f</sub>	J <sub>f</sub> <sup>π</sup>	Mult. <sup>†</sup>	Comments
157.8 3	28 1	3474.5	21/2 <sup>-</sup>	3316.5	19/2 <sup>-</sup>	M1+E2	R(DCO)=0.73 5.
173.4 3	72 4	3474.5	21/2 <sup>-</sup>	3301.2	19/2 <sup>-</sup>	M1+E2	R(DCO)=0.78 5.
389.9 3	18.6 1	3864.4		3474.5	21/2 <sup>-</sup>	M1+E2	R(DCO)=1.06 20.
<sup>x</sup> 721							
<sup>x</sup> 821							
832.7 3	50 2	2091.6	15/2 <sup>+</sup>	1258.9	11/2 <sup>+</sup>		
841.4 3	13.6 1	5451.7	27/2 <sup>-</sup>	4610.3	25/2 <sup>-</sup>	M1+E2	R(DCO)=0.47 6.
857.7 3	9.5 5	7196.3	35/2 <sup>-</sup>	6338.6	31/2 <sup>-</sup>	E2	R(DCO)=1.01 12.
886.9 3	13 1	6338.6	31/2 <sup>-</sup>	5451.7	27/2 <sup>-</sup>	E2	R(DCO)=0.98 15.
929.6 3	2.5 1	8125.9	39/2 <sup>-</sup>	7196.3	35/2 <sup>-</sup>	E2	R(DCO)=1.07 22.
938.8 3	12 1	6225.9	(31/2) <sup>-</sup>	5287.1	(27/2) <sup>-</sup>	(E2)	R(DCO)=1.03 18.

Continued on next page (footnotes at end of table)

$^{94}\text{Mo}(^{19}\text{F,p3n}\gamma)$  1996Ch37 (continued) $\gamma(^{109}\text{Sn})$  (continued)

$E_\gamma^\dagger$	$I_\gamma^\dagger$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. <sup>†</sup>	Comments
950.1 3	42 2	3301.2	19/2 <sup>-</sup>	2351.2	15/2 <sup>-</sup>	E2	R(DCO)=1.03 18.
961.8 3	14 1	4263.0	(23/2) <sup>-</sup>	3301.2	19/2 <sup>-</sup>	(E2)	R(DCO)=1.4 3.
965.2 3	35.3 18	3316.5	19/2 <sup>-</sup>	2351.2	15/2 <sup>-</sup>	E2	R(DCO)=0.99 12.
1021.6 3	<2	9147.5	43/2 <sup>-</sup>	8125.9	39/2 <sup>-</sup>		
1024.1 3	10 1	5287.1	(27/2) <sup>-</sup>	4263.0	(23/2) <sup>-</sup>		
1081.2 3	90 4	2351.2	15/2 <sup>-</sup>	1270.0	11/2 <sup>-</sup>	E2	R(DCO)=1.09 9.
1120.8 3	12 1	4985.2		3864.4			
1135.8 3	31 2	4610.3	25/2 <sup>-</sup>	3474.5	21/2 <sup>-</sup>	E2	R(DCO)=1.05 12.
<sup>x</sup> 1136.0 3							
1230.3 3	25 1	3321.9?	19/2 <sup>+</sup>	2091.6	15/2 <sup>+</sup>		$E_\gamma$ : feeds directly the ground state in Adopted Gammas.
1244.9 3	70 3	1258.9	11/2 <sup>+</sup>	14.0	(7/2 <sup>+</sup> )		
1256.0 3	100 5	1270.0	11/2 <sup>-</sup>	14.0	(7/2 <sup>+</sup> )		

<sup>†</sup> From 1996Ch37.  $\Delta I_\gamma = 5\%$  is assumed by the evaluators based on the quoted upper limit in 1996Ch37.

<sup>x</sup>  $\gamma$  ray not placed in level scheme.

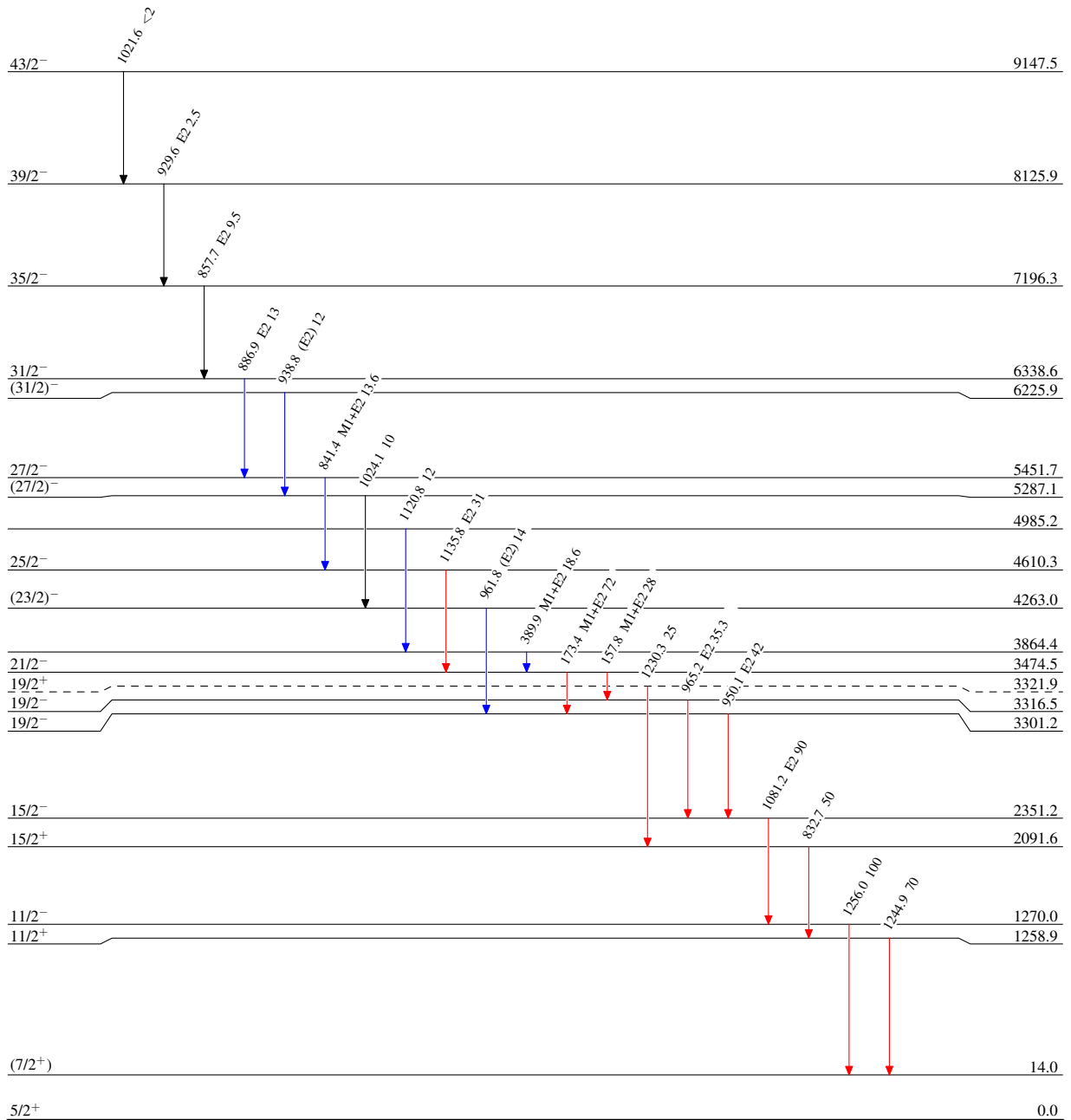
$^{94}\text{Mo}(^{19}\text{F},\text{p}3\text{n}\gamma)$  1996Ch37

## Level Scheme

Intensities: Relative  $I_\gamma$ 

## Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$

 $^{109}_{50}\text{Sn}_{59}$

$^{94}\text{Mo}(^{19}\text{F},\text{p}3\text{n}\gamma)$  1996Ch37

Band(A):  $\nu\text{h}_{11/2}$   
coupled to core  
vibrations

$19/2^-$  3301.2

950

$15/2^-$  2351.2

1081

$11/2^-$  1270.0

$^{109}_{50}\text{Sn}_{59}$