

$^{92}\text{Mo}(^{19}\text{F},2\text{p}\gamma)$ 1997Ko51

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

1997Ko51: E(^{19}F)=95 MeV; Tandem Accelerator at Niels Bohr Institute, Denmark. Detectors: Nordball array with 20 Compton-suppressed Ge detectors and a plastic-photoswitch detector array to select a charge particle reaction channel. Measured: γ , $\gamma\gamma(t)$, $\gamma(\theta)$, angular correlation intensity ratios R. Deduced levels, J^π , band structures.

 ^{109}In Levels

E(level) [†]	J^π [‡]	Comments
0.0	9/2 ⁺	configuration: $\pi(g_{9/2})^{-1}$.
1027.57 10	11/2 ⁺	configuration: $\pi(g_{9/2})^{-1} \otimes \nu 2^+$.
1429.44 10	13/2 ⁺	configuration: $\pi(g_{9/2})^{-1} \otimes \nu 4^+$.
2103.3 3	17/2 ⁺	configuration: $\pi(g_{9/2})^{-1} \otimes \nu 6^+$.
2533.4 [#] 8	15/2 ⁻	
2869.3 [#] 8	17/2 ⁻	
2958.2 [#] 8	19/2 ⁻	
3092.8 [@] 8	19/2 ⁻	
3122.9 [#] 8	21/2 ⁻	
3202.9 [@] 8	21/2 ⁻	
3273.8? ^{&} 8		
3410.8 [@] 8	23/2 ⁻	
3462.3 [#] 8	23/2 ⁻	
3484.8 ^{&} 8		
3800.6 [@] 8	25/2 ⁻	
3976.8? ^{&} 9		
4037.7 [#] 9	(25/2 ⁻)	
4473.8? ^{&} 9		
4508.3 [@] 9	(27/2 ⁻)	
4832.3 [@] 9	(29/2 ⁻)	
5055.6? ^{&} 10		
5241.5 [@] 9	(31/2 ⁻)	
5423.2? ^{&} 10		
5796.7 [@] 10		
5905.0? ^{&} 10		
6258.9? ^{&} 10		
6385.7 [@] 11		

[†] From a least-squares fit to E_γ .

[‡] From 1997Ko51 based on deduced γ -ray transition multipolarities and band structure.

[#] Band(A): Band 1: $\Delta J=1$ band based on the $J^\pi=15/2^-$ level at 2533 keV.

[@] Band(B): Band 2: $\Delta J=1$ band based on the $J^\pi=19/2^-$ level at 3093 keV.

[&] Band(C): Band 3, based on the level at 3274 keV.

$^{92}\text{Mo}(^{19}\text{F}, 2\text{p}\gamma)$ 1997Ko51 (continued)

$\gamma(^{109}\text{In})$							Comments
E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	
88.9 5	28.2 2	2958.2	19/2 ⁻	2869.3	17/2 ⁻	(M1)	Mult.: R=1.02 1 (1997Ko51).
110.1 3	8.4 2	3202.9	21/2 ⁻	3092.8	19/2 ⁻	(M1)	Mult.: R=0.73 1 (1997Ko51).
150.9 [‡] 2	18.0 3	3273.8?		3122.9	21/2 ⁻		
164.7 2	27.1 5	3122.9	21/2 ⁻	2958.2	19/2 ⁻	(M1)	Mult.: R=0.82 2 (1997Ko51).
207.9 1	48.9 1	3410.8	23/2 ⁻	3202.9	21/2 ⁻	(M1)	Mult.: R=0.82 2 (1997Ko51).
211.0 2	16.0 2	3484.8		3273.8?			
223.5 2	9.5 1	3092.8	19/2 ⁻	2869.3	17/2 ⁻		
244.7 2	35.8 3	3202.9	21/2 ⁻	2958.2	19/2 ⁻	(M1)	Mult.: R=0.76 1 (1997Ko51).
287.9 3	4.9 2	3410.8	23/2 ⁻	3122.9	21/2 ⁻		
324.0 3	15.0 2	4832.3	(29/2 ⁻)	4508.3	(27/2 ⁻)	(M1)	Mult.: R=0.90 4 (1997Ko51).
335.9 1	79.6 2	2869.3	17/2 ⁻	2533.4	15/2 ⁻	(M1)	Mult.: R=0.98 3 (1997Ko51).
338.3 3	4.1 2	3800.6	25/2 ⁻	3462.3	23/2 ⁻		
339.4 2	20.6 1	3462.3	23/2 ⁻	3122.9	21/2 ⁻	(M1)	Mult.: R=1.05 4 (1997Ko51).
353.9 2	9.0 1	6258.9?		5905.0?			
361.9 2	27.9 1	3484.8		3122.9	21/2 ⁻		
367.6 2	12.6 1	5423.2?		5055.6?			
389.8 2	32.8 4	3800.6	25/2 ⁻	3410.8	23/2 ⁻	(M1)	Mult.: R=1.02 6 (1997Ko51).
402.0 2	12.8 3	1429.44	13/2 ⁺	1027.57	11/2 ⁺	(M1)	Mult.: R=1.10 3 (1997Ko51).
409.2 2	12.6 3	5241.5	(31/2 ⁻)	4832.3	(29/2 ⁻)	(M1)	Mult.: R=0.96 4 (1997Ko51).
470.6 2	4.3 2	4508.3	(27/2 ⁻)	4037.7	(25/2 ⁻)		
481.8 3	9.4 3	5905.0?		5423.2?			
492.0 2	36.9 3	3976.8?		3484.8			
497.0 3	38.8 3	4473.8?		3976.8?			
514.5 3	7.2 2	3976.8?		3462.3	23/2 ⁻		
555.2 4	10.8 2	5796.7		5241.5	(31/2 ⁻)		
575.4 4	8.9 3	4037.7	(25/2 ⁻)	3462.3	23/2 ⁻		
581.8 3	13.4 2	5055.6?		4473.8?			
589.0 3	3.5 2	6385.7		5796.7			
673.9 3	8.4 3	2103.3	17/2 ⁺	1429.44	13/2 ⁺		
707.7 3	26.9 2	4508.3	(27/2 ⁻)	3800.6	25/2 ⁻	(M1)	Mult.: R=0.95 6 (1997Ko51).
989.4 10	5.8 2	3092.8	19/2 ⁻	2103.3	17/2 ⁺	(E1)	Mult.: R=0.85 7 (1997Ko51).
1027.6 1	23.0 3	1027.57	11/2 ⁺	0.0	9/2 ⁺	(M1)	Mult.: R=0.65 3 (1997Ko51).
1104.0 10	100.0 2	2533.4	15/2 ⁻	1429.44	13/2 ⁺	(E1)	Mult.: R=0.77 2 (1997Ko51).
1429.4 1	67.3 2	1429.44	13/2 ⁺	0.0	9/2 ⁺	(E2)	Mult.: R=1.56 2 (1997Ko51).

[†] Based on measured angular correlation intensity ratio R, defined as $R = I_\gamma(37^\circ + 143^\circ) / I_\gamma(79^\circ + 101^\circ)$, where $R \approx 0.8$ for $\Delta J = 1$ stretched dipole and $R \approx 1.5$ for $\Delta J = 2$ stretched quadrupole transitions.

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

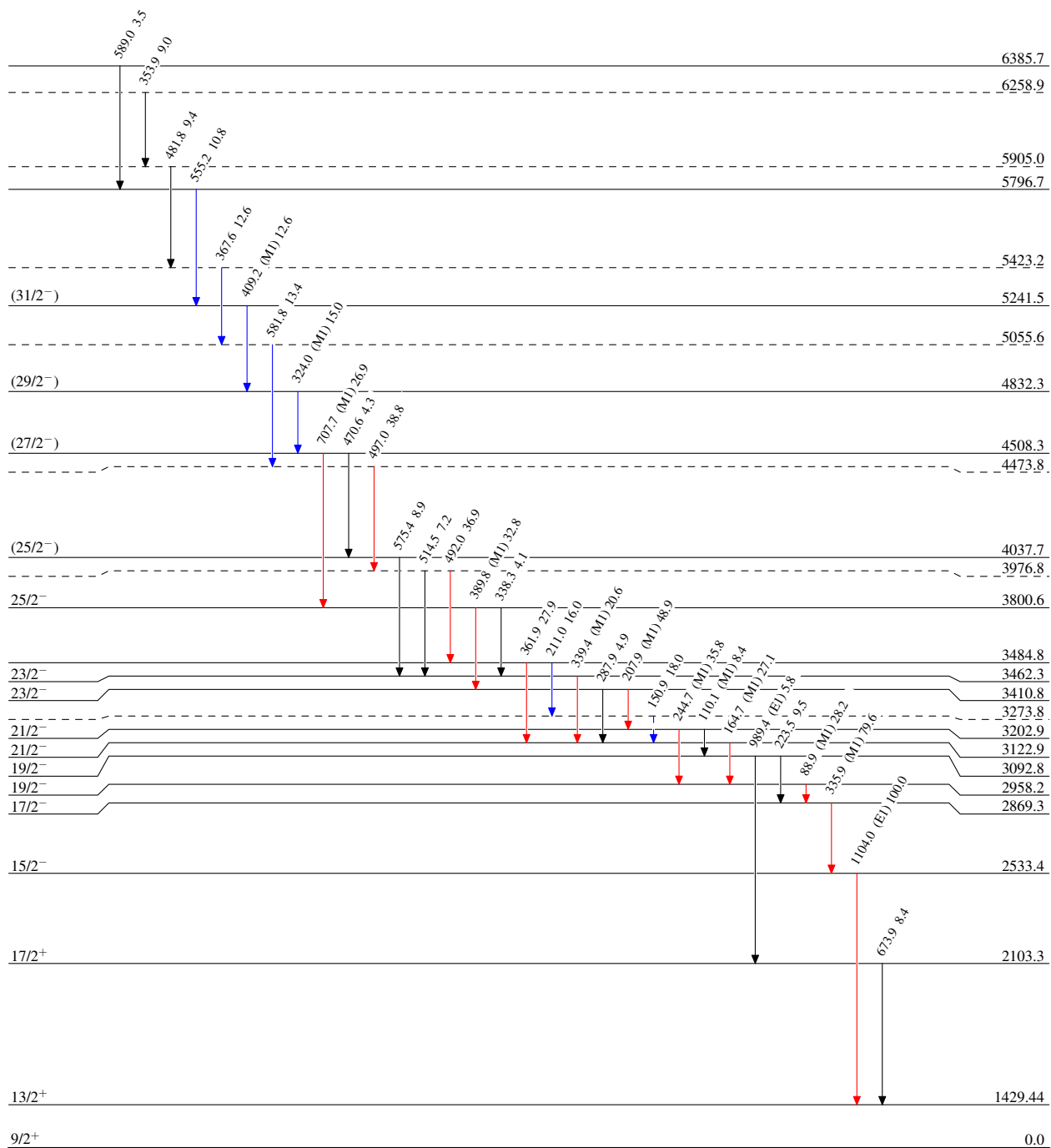
$^{92}\text{Mo}(^{19}\text{F}, 2\text{p}\gamma)$ 1997Ko51

Legend

Level Scheme

Intensities: Relative I_γ

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



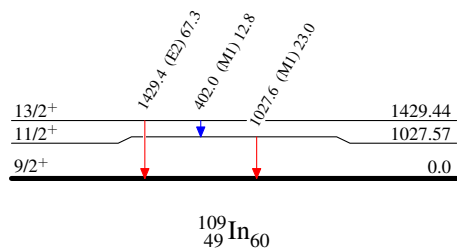
$^{92}\text{Mo}(^{19}\text{F}, 2\text{p}\gamma)$ **1997Ko51**

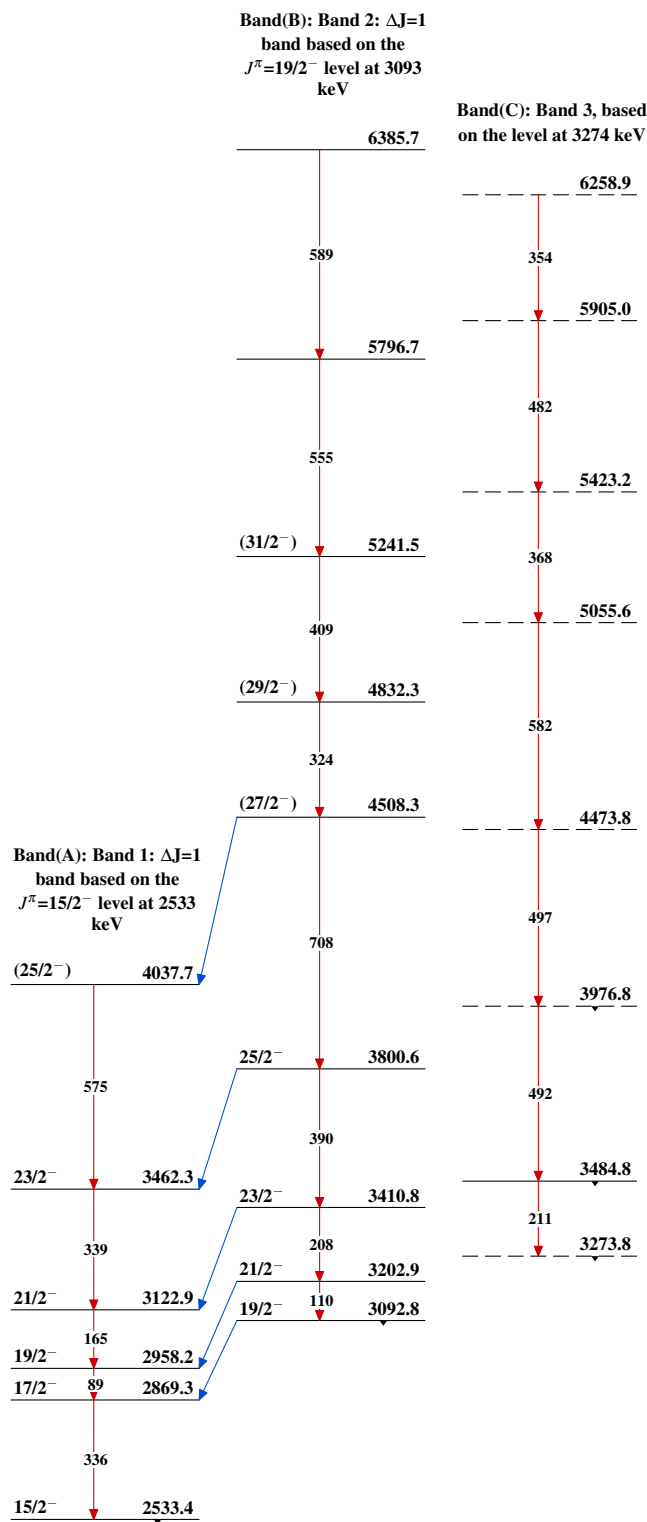
Level Scheme (continued)

 Intensities: Relative I_γ

Legend

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



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