^{98}Mo(^{14}N,4nγ),^{108}Cd(^{3}He,2npγ) 1981El02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	ENSDF	1-Jul-2008

E(^{14}N)=55– 75 MeV. Data taken at 65 MeV. E(^{3}He)= 40 MeV.
All data given here are from (^{14}N,4nγ) reaction. Authors also give a set of relative Iγ for the (^{3}He,2npγ) reaction. Authors measured Eγ, Iγ, σ(E), $\sigma(\theta)$, $\gamma\gamma$, E(ce), Ice, γ(pol).

^{108}In Levels

E(level)	J^{π}[†]	$T_{1/2}$	Comments
0	7^+		
1119.31[‡] *20*	8^-		
1332.40[‡] *23*	9^-		
1396.2? *2*			
1633.3? *2*			
1633.3+x?		>100 ns	Additional information 1. $T_{1/2}$: 237-1396 cascade observed to have a lifetime > 100 ns with an upper limit of ≈ 100 μs. Since the 237γ appears to be E2 and would have B(E2)(W.u.)<0.25 if this lifetime were associated with the 1633 level, the authors propose an additional unobserved level which would feed the 237-1396 cascade.
1861.0[‡] *3*	(10^-)		
2465.4[‡] *4*	(11^-)		
2514.5[#] *3*	(10^-)		
2661.3[#] *3*	(11^-)		
2814.7[#] *4*	(12^-)		
3006.7[‡] *6*	(12^-)		
3045.5[#] *4*	(13^-)		
3381.2[#] *5*	(14^-)		
3908.2[#] *8*	(15^-)	≈0.10 ps	$T_{1/2}$: Doppler shift corresponds of 527γ.

[†] Authors′ proposed values based on excitation functions, $\gamma(\theta)$, γ(pol) and γ multipolarity. See Adopted Levels for detailed arguments. J^{π} of g.s. is now 7^+, so all the authors J values have been increased by 1.
[‡] Band(A): band 1.
[#] Band(B): band 2.

γ(^{108}In)

Eγ	Iγ	E$_i$(level)	J_i^{π}	E$_f$	J_f^{π}	Mult.[†]	δ[†]	Comments
146.8 *1*	26 *2*	2661.3	(11^-)	2514.5	(10^-)	M1(+E2)	0.0 *2*	α(K)exp=0.18 *4*
153.4 *1*	39 *3*	2814.7	(12^-)	2661.3	(11^-)	M1(+E2)	+0.1 *2*	α(K)exp=0.12 *3*
213.1 *1*	75 *4*	1332.40	9^-	1119.31	8^-	M1[#]		α(K)exp=0.055
230.8 *1*	49 *3*	3045.5	(13^-)	2814.7	(12^-)	M1(+E2)	+0.1 *3*	α(K)exp=0.040 *10*
237.1[‡@] *1*	33 *3*	1633.3?		1396.2?		(E2)		α(K)exp=0.085 *21*
335.7 *3*	41 *10*	3381.2	(14^-)	3045.5	(13^-)	M1(+E2)	0.0 *2*	α(K)exp=0.024 *5*
349.1 *6*	7 *3*	2814.7	(12^-)	2465.4	(11^-)			Iγ: doublet with 350.5γ in ^{108}Cd produced by (^{14}N,p3nγ).
527.0 *6*	25 *4*	3908.2	(15^-)	3381.2	(14^-)			
528.6 *2*	30 *5*	1861.0	(10^-)	1332.40	9^-	M1(+E2)	+0.15 *20*	α(K)exp=0.0043 *10*
541.3 *4*	8 *2*	3006.7	(12^-)	2465.4	(11^-)			
604.3 *2*	15 *3*	2465.4	(11^-)	1861.0	(10^-)	M1(+E2)	+0.2 *2*	α(K)exp=0.0043 *10*

Continued on next page (footnotes at end of table)

^{98}Mo(^{14}N,4nγ),^{108}Cd(^{3}He,2npγ) 1981El02 (continued)

$\gamma(^{108}In)$ (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[†]
1119.3 *2*	100	1119.31	8^-	0	7^+	E1[#]	
1182.0 *3*	18 *3*	2514.5	(10^-)	1332.40	9^-	M1+E2[#]	−0.6 *2*
1329.1 *3*	17 *3*	2661.3	(11^-)	1332.40	9^-	E2[#]	
1394.8 *7*	15 *5*	2514.5	(10^-)	1119.31	8^-		
1396.2[‡@] *2*	46 *5*	1396.2?		0	7^+		

[†] From α(K)exp, $\gamma(\theta)$ and γ(pol) data, except where noted otherwise. α(K)exp data are from relative Iγ and Ice(K) normalized so that α(K)exp(213γ)=0.055 (M1 theory).

[‡] 1981An15, on the basis of their (^{19}F,2pnγ) data, suggest that the 237 and 1396 transitions do not belong to ^{108}In.

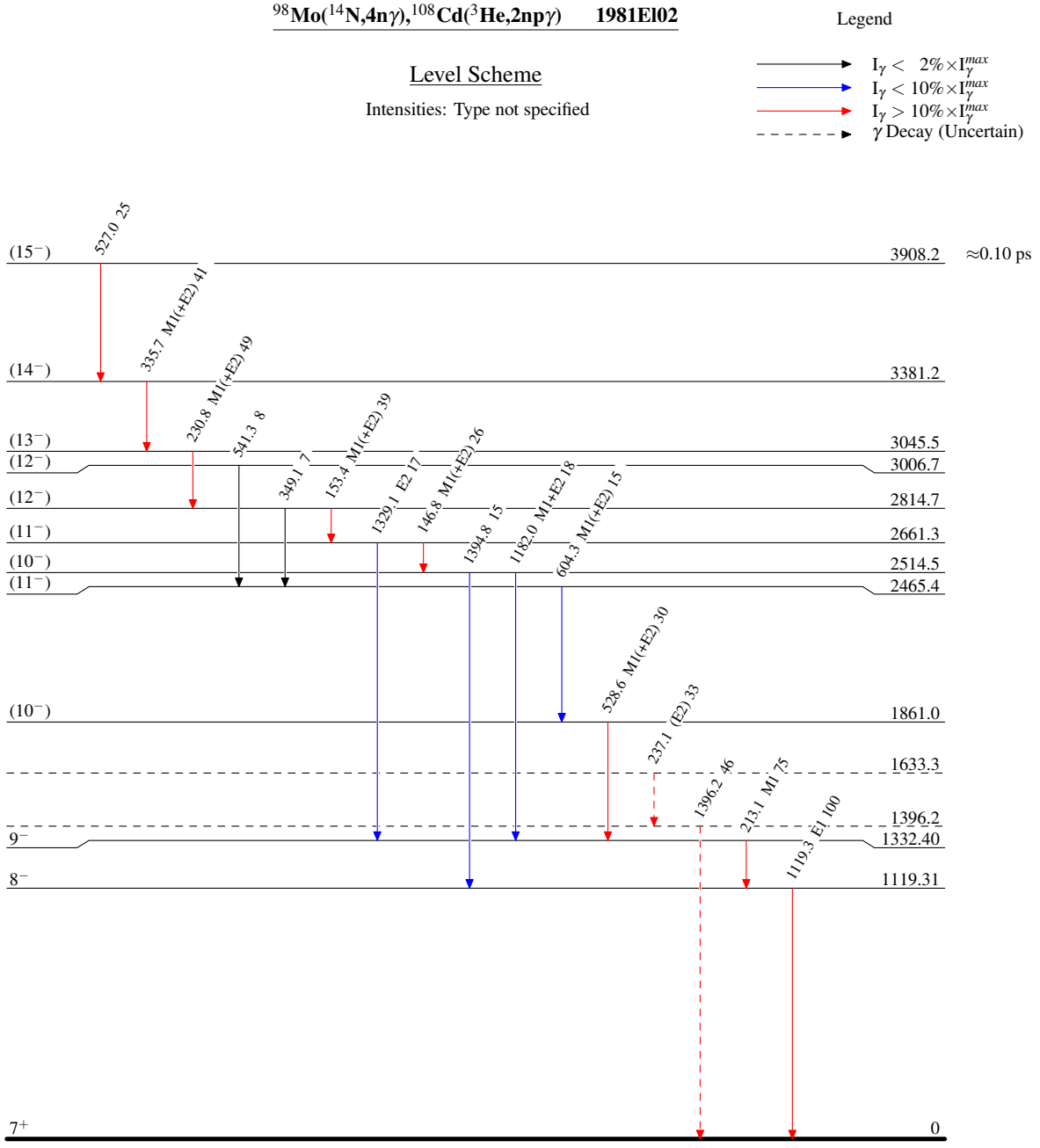
[#] From $\gamma(\theta)$, γ(pol).

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

^{98}Mo(^{14}N,4nγ),^{108}Cd(^{3}He,2npγ) **1981El02**

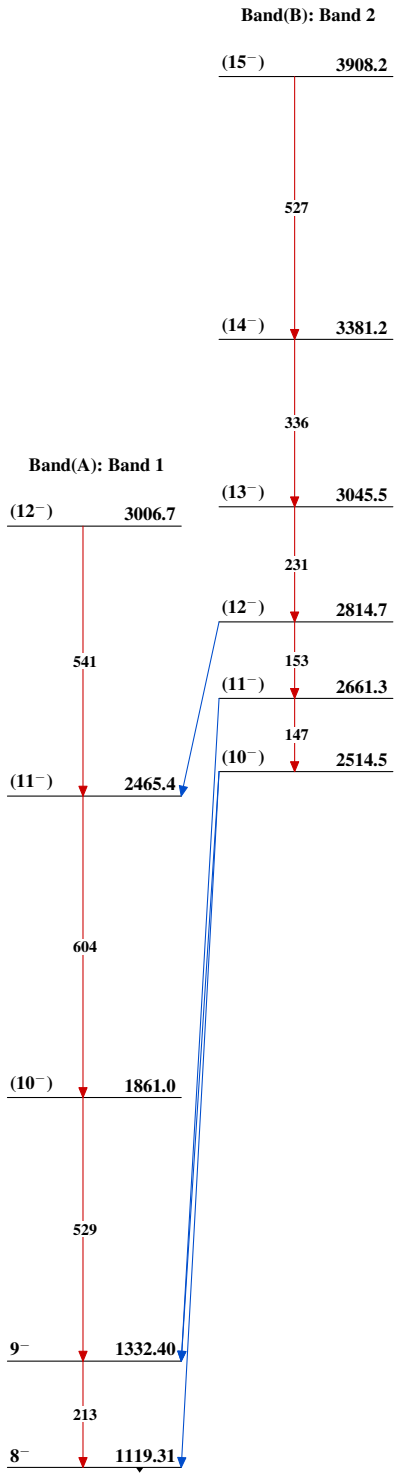
Level Scheme

Intensities: Type not specified



$^{108}_{49}In_{59}$

^{98}Mo(^{14}N,4nγ),^{108}Cd(^{3}He,2npγ) 1981El02



$^{108}_{49}In_{59}$