(HI,xnγ) 2003So04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 145, 25 (2017)	1-Jul-2017

2003So04: ^{50}Cr(^{58}Ni,p2$\alpha\gamma$), E=261 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$ using an array consisting of 15 BGO-shielded Ge detectors and 30 BaF_2 crystals.
1988Pi03: ^{64}Zn(^{40}Ca,3p2nγ) E(^{40}Ca)=167 MeV. Measured: γ, $\gamma\gamma$, $\gamma(\theta)$, excit.
2014Fe01: ^{92}Mo(^{14}N,2p5n), E(^{36}Ar)=125 MeV beam from Leuven cyclotron facility. Target: >97% enriched ^{92}Mo. Measured hyperfine structure using in-gas-cell laser ionization spectroscopy. Deduced magnetic dipole moment, mean-square charge radius and isotope shifts. Measurements made using LISOL facility at cyclotron center in Leuven.
All data are from 2003So04. Level scheme is from 2003So04 and is based on earlier level scheme of 1988Pi03. Some earlier placements of 1988Pi03 have been modified.

^{99}Ag Levels

E(level)†	J$^\pi$‡	$T_{1/2}$	Comments
0.0#	(9/2)$^+$		μ=5.81 *3* (2014Fe01) RMS charge radius: δ<r^2>(^{99}Ag,^{109}Ag)= 0.91 fm^2 *12*(stat) *7*(syst) (2014Fe01). Isotope shift: $\delta\nu$(^{99}Ag,^{109}Ag)= −3.21 GHz *25*(stat) *11*(syst) (2014Fe01).
506.2	(1/2)	10.5 s *5*	%IT=100 RMS charge radius: δ<r^2>(^{99m}Ag,^{109}Ag)= 1.10 fm^2 *25*(stat) *8*(syst) (2014Fe01). Isotope shift: $\delta\nu$(^{99m}Ag,^{109}Ag)= −4.00 GHz *94*(stat) *11*(syst) (2014Fe01).
916.0# *3*	(13/2)$^+$		
1645.4# *5*	(17/2)$^+$		
1980.0@ *5*	(19/2$^+$)		
2539.2# *5*	(21/2)$^+$		
2871.3 *6*	(21/2$^+$)		
3125.4@ *5*	(23/2$^+$)		
3550?			
3733.5 *6*			
3760.7# *6*	(25/2)$^+$		
3929.5@ *6*	(27/2$^+$)		
4109?			
4615.3& *6*	(29/2$^+$)		
5008.5@ *8*	(29/2)		
5137.6& *7*	(31/2)		
5838.6?& *8*			
5846.3 *8*	(31/2)		
5891.2 *8*	(29/2)		
6265.4@ *9*	(33/2)		
6475.2 *10*			
7293.4& *9*			
7596?			
7770.2@ *9*	(35/2)		

† From least-squares fit to Eγ's.
‡ Stretch Q are assumed E2. It is assumed that the high-spin states are preferably populated and decays mostly proceeds via stretched transitions. Comparison with shell-model calculations. along the yrast line.
# Band(A): g.s. band.
@ Band(B): γ sequence based on 19/2$^+$.
& Band(C): γ sequence based on 29/2$^+$.

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γ(^{99}Ag)

R=Iγ(142.6°)/(Iγ(79.1°)+Iγ(100.9°)).

Eγ	Iγ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[‡]	Comments
168.7 *3*	33.6 *23*	3929.5	(27/2+)	3760.7	(25/2)+	(M1)	0.0989	α(K)=0.0859 *13*; α(L)=0.01054 *16*; α(M)=0.00201 *3* α(N)=0.000347 *6*; α(O)=1.614×10−5 *24* R=0.83 *12*.
180.1[#] *4*	3.4 *4*	4109?		3929.5	(27/2+)			
254.1 *3*	3.3 *4*	3125.4	(23/2+)	2871.3	(21/2+)			R=0.61 *20*.
x287.2 *4*	7.8 *12*							R=0.77 *15*.
x292.4 *4*	2.3 *3*							
334.6 *3*	30 *4*	1980.0	(19/2+)	1645.4	(17/2)+	(M1)	0.01645	α(K)=0.01434 *21*; α(L)=0.001723 *25*; α(M)=0.000327 *5* α(N)=5.67×10−5 *8*; α(O)=2.67×10−6 *4* R=0.86 *12*.
379.2[#] *4*	2.1 *4*	3929.5	(27/2+)	3550?				
419.1 *3*	10.1 *8*	6265.4	(33/2)	5846.3	(31/2)	D		R=0.82 *14*.
424.6[#] *4*	4.6 *7*	3550?		3125.4	(23/2+)			
522.3 *3*	19.7 *21*	5137.6	(31/2)	4615.3	(29/2+)			R=0.72 *14*.
559.1 *3*	9.1 *19*	2539.2	(21/2)+	1980.0	(19/2+)	(M1)	0.00466	α(K)=0.00407 *6*; α(L)=0.000481 *7*; α(M)=9.13×10−5 *13* α(N)=1.584×10−5 *23*; α(O)=7.54×10−7 *11* R=0.82 *17*.
584.0 *6*	2.1 *3*	6475.2		5891.2	(29/2)			
586.3 *3*	36.5 *26*	3125.4	(23/2+)	2539.2	(21/2)+	(M1)	0.00417	α(K)=0.00364 *6*; α(L)=0.000430 *6*; α(M)=8.14×10−5 *12* α(N)=1.413×10−5 *20*; α(O)=6.73×10−7 *10* R=0.81 *12*.
635.4 *3*	8.1 *8*	3760.7	(25/2)+	3125.4	(23/2+)			
685.8 *3*	45 *3*	4615.3	(29/2+)	3929.5	(27/2+)			R=0.73 *12*.
701.0 *4*	3.7 *6*	5838.6?		5137.6	(31/2)			
729.4 *3*	98 *8*	1645.4	(17/2)+	916.0	(13/2)+	(E2)	0.00227	α(K)=0.00197 *3*; α(L)=0.000242 *4*; α(M)=4.60×10−5 *7* α(N)=7.92×10−6 *12*; α(O)=3.53×10−7 *5* R=1.50 *14*.
804.1 *3*	41 *3*	3929.5	(27/2+)	3125.4	(23/2+)	(E2)	0.00178	α(K)=0.001553 *22*; α(L)=0.000189 *3*; α(M)=3.58×10−5 *5* α(N)=6.17×10−6 *9*; α(O)=2.78×10−7 *4* R=1.38 *14*.
837.8 *3*	13.3 *11*	5846.3	(31/2)	5008.5	(29/2)	D		R=0.86 *20*.
854.6 *4*	4.0 *6*	4615.3	(29/2+)	3760.7	(25/2)+			
862.4 *4*	8.0 *8*	3733.5		2871.3	(21/2+)			
891.4 *3*	10.6 *22*	2871.3	(21/2+)	1980.0	(19/2+)			
893.8 *3*	72 *6*	2539.2	(21/2)+	1645.4	(17/2)+	(E2)	1.39×10−3	α(K)=0.001208 *17*; α(L)=0.0001453 *21*; α(M)=2.76×10−5 *4* α(N)=4.76×10−6 *7*; α(O)=2.17×10−7 *3* R=1.47 *17*.
916.0 *3*	100 *8*	916.0	(13/2)+	0.0	(9/2)+	(E2)	1.31×10−3	α(K)=0.001142 *16*; α(L)=0.0001370 *20*; α(M)=2.60×10−5 *4*

Continued on next page (footnotes at end of table)

(HI,xnγ) 2003So04 (continued)

γ(^{99}Ag) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.†	α‡	Comments
								α(N)=4.48×10^{-6} *7*; α(O)=2.05×10^{-7} *3* R=1.56 *18*.
1079.0 *5*	16.0 *18*	5008.5	(29/2)	3929.5	(27/2$^+$)			R=0.69 *18*.
1121.4# *6*	2.1 *4*	7596?		6475.2				
1145.4 *3*	17.1 *24*	3125.4	(23/2$^+$)	1980.0	(19/2$^+$)	(E2)	7.98×10^{-4}	α(K)=0.000696 *10*; α(L)=8.21×10^{-5} *12*; α(M)=1.554×10^{-5} *22* α(N)=2.69×10^{-6} *4*; α(O)=1.253×10^{-7} *18*; α(IPF)=2.15×10^{-6} *4* R=1.38 *21*.
1194.1 *4*	5.3 *7*	3733.5		2539.2	(21/2)$^+$			
1221.4 *3*	28.1 *24*	3760.7	(25/2)$^+$	2539.2	(21/2)$^+$	(E2)	7.05×10^{-4}	α(K)=0.000607 *9*; α(L)=7.13×10^{-5} *10*; α(M)=1.351×10^{-5} *19* α(N)=2.34×10^{-6} *4*; α(O)=1.095×10^{-7} *16*; α(IPF)=1.019×10^{-5} *15* R=1.42 *18*.
1257.0# *5*	4.2 *6*	6265.4	(33/2)	5008.5	(29/2)			
1454.8 *3*	2.7 *6*	7293.4		5838.6?				
1504.8 *3*	5.0 *6*	7770.2	(35/2)	6265.4	(33/2)			R=0.66 *15*.
1961.7 *5*	5.1 *8*	5891.2	(29/2)	3929.5	(27/2$^+$)	D		R=0.74 *30*.

† R≈1.5 corresponds to a stretched Q or non-stretched D. R≈0.8 corresponds stretched D. Shown multipolarities are consistent with J^π values.
‡ Additional information 1.
# Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

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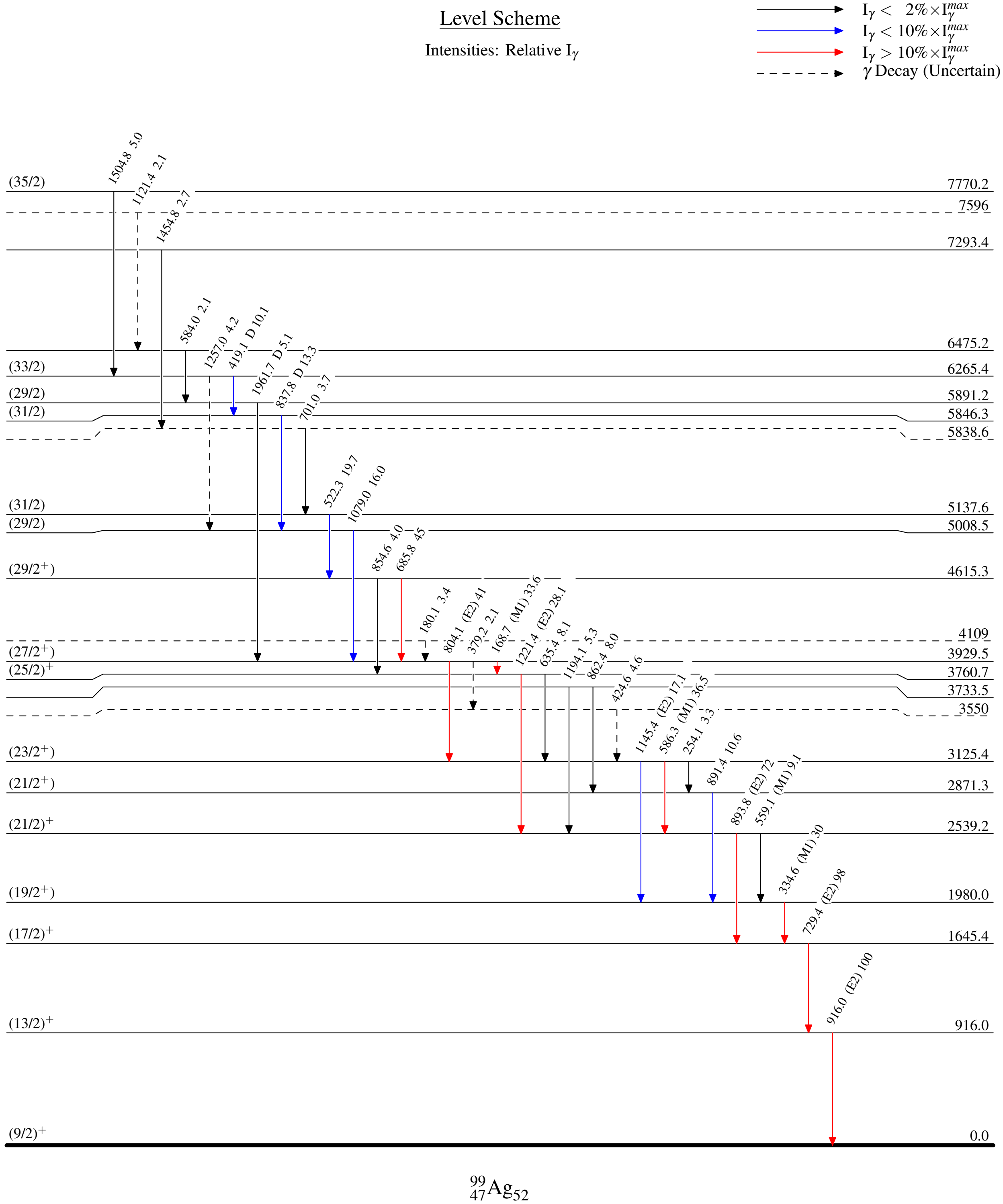

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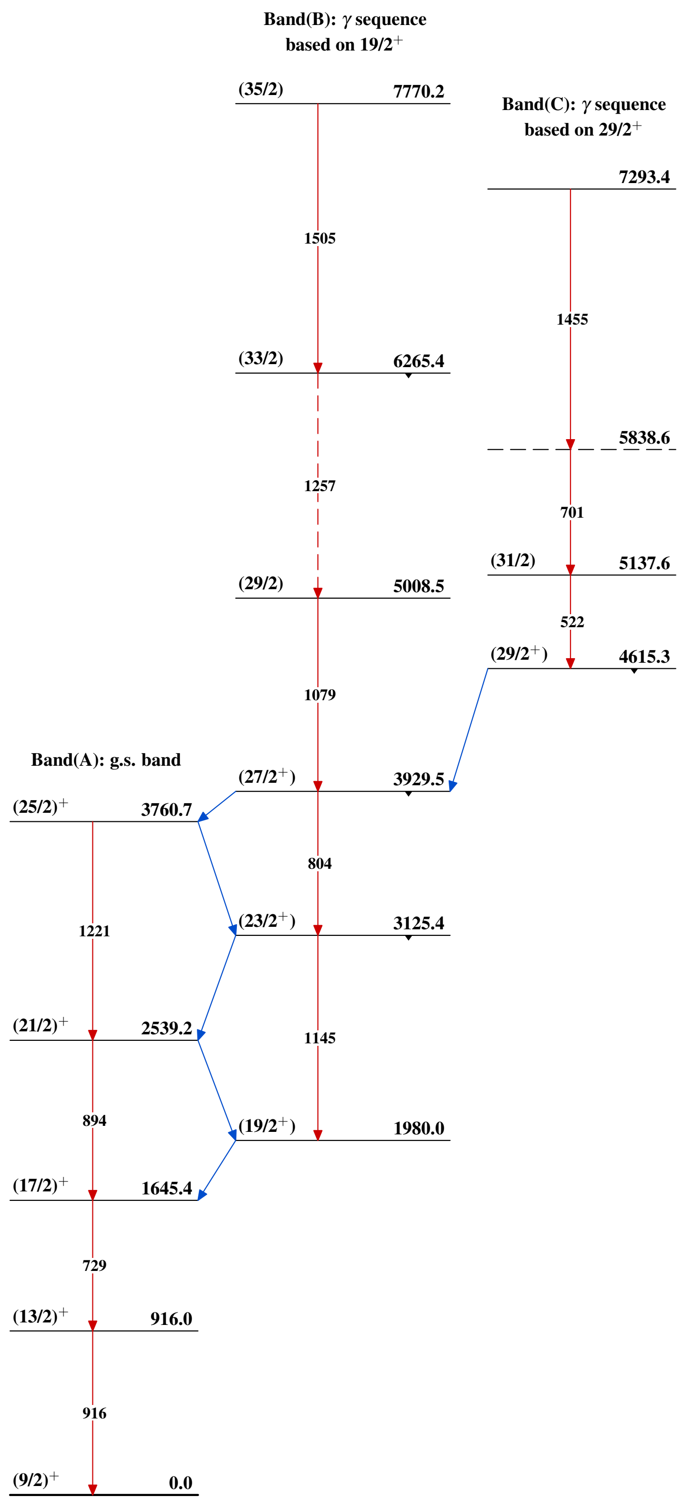

$^{99}_{47}Ag_{52}$