

$^{50}\text{Cr}(^{58}\text{Ni},\alpha\text{pn}\gamma)$ 2002Li04,2002Jo05

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne	NDS 110, 1745 (2009)	31-Dec-2008

Includes $^{54}\text{Fe}(^{58}\text{Ni},2\text{apn}\gamma)$ E=240 MeV from 2002Jo05.

2002Li04: $^{50}\text{Cr}(^{58}\text{Ni},\text{apn}\gamma)$ E=225 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, $\gamma(\theta)$ using Gammasphere array with 78 Compton-suppressed HPGe detectors, Microball array of 95 CsI scintillators and Neutron Shell array of 30 liquid scintillators.

2002Jo05: $^{54}\text{Fe}(^{58}\text{Ni},2\text{apng})$ E=240 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$ using EUROBALL detector array with 15 clusters, 26 clovers supplemented with ISIS charged-particle ball and a 50-element neutron wall covering.

All data are from 2002Li04, unless otherwise stated.

 ^{102}In Levels

E(level) [†]	J ^π	Comments
0	(6 ⁺)	T _{1/2} : from ENSDF for ^{102}In .
144.9 2	(7 ⁺)	
352.0 2	(7 ⁺)	
979.6 2	(8 ⁺)	
1281.6 2	(9 ⁺)	
1316	(9 ⁺)	E(level): from 2002Jo05.
1499.9 3	(9 ⁺)	
1663.1 3	(10 ⁺)	
1722.9 3	(10 ⁺)	
1912.7 3	(11 ⁺)	
2038.7 3	(11 ⁺)	
2703?	(10,12)	E(level): from 2002Ko05.
3062.8 4	(12 ⁺)	J ^π : (10 ⁺ ,12 ⁺) (2002Jo05).
3179.5 4	(12 ⁺)	J ^π : (10 ⁺ ,12 ⁺) (2002Jo05).
3680		E(level): from 2002Jo05.
3857.4 4	(13 ⁺)	
3940.4 4	(12 ⁻)	
4045.8 5	(12 ⁻)	
4118.6 [#] 4	(13 ⁻)	J ^π : (11 ⁺) (2002Jo05).
4212.4 4	(13 ⁻)	
4237.3 4	(12 ⁻)	
4313.5 5	(12 ⁻)	
4340.5 [#] 4	(14 ⁻)	J ^π : (12 ⁺) (2002Jo05).
4478.9 4	(13 ⁻)	
4732.6 [‡] 4	(13 ⁺)	
4813.8 4	(14 ⁻)	
4893.8 5	(14 ⁻)	
4928.1 5	(13 ⁺)	
4957.1 [#] 4	(15 ⁻)	
5191.5 [‡] 4	(14 ⁺)	
5852.5 [‡] 4	(15 ⁺)	
6236.0 [‡] 4	(16 ⁺)	
6483.1 [#] 4	(16 ⁻)	
6627.2 [‡] 5	(17 ⁺)	
7415.2 6		
7459.1 [#] 5	(17 ⁻)	
8174.8 6		
8247.5 [#] 6		
9058.4 [#] 6		

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⁵⁰Cr(⁵⁸Ni,αpnγ) **2002Li04,2002Jo05** (continued)

¹⁰²In Levels (continued)

† From least-squares fit to E_γ's (by the compiler).

‡ Band(A): γ sequence based on (13⁺). Probable νg_{9/2} coupled to ¹⁰³In core.

Band(B): γ sequence based on (13⁻). Probable νg_{9/2} coupled to ¹⁰³In core.

							<u>γ(¹⁰²In)</u>		
E _γ	I _γ	E _i (level)	J _i ^π	E _f	J _f ^π	Mult.	Comments		
144.9 2	72 2	144.9	(7 ⁺)	0	(6 ⁺)	D	A ₂ =-0.1 1, A ₄ =-0.2 2.		
163.2 3	1.2 2	1663.1	(10 ⁺)	1499.9	(9 ⁺)				
165.2 4	0.5 2	4478.9	(13 ⁻)	4313.5	(12 ⁻)				
178.3 3	2.8 2	4118.6	(13 ⁻)	3940.4	(12 ⁻)		A ₂ =0.0 2.		
189.9 2	21.4 7	1912.7	(11 ⁺)	1722.9	(10 ⁺)		A ₂ =0.00 8.		
222.0 2	11.7 5	4340.5	(14 ⁻)	4118.6	(13 ⁻)	D	A ₂ =-0.12 9.		
223.0 5	0.5 2	1722.9	(10 ⁺)	1499.9	(9 ⁺)				
241.5 3	2.6 2	4478.9	(13 ⁻)	4237.3	(12 ⁻)		A ₂ =-0.1 2.		
249.6 2	16.7 7	1912.7	(11 ⁺)	1663.1	(10 ⁺)		A ₂ =-0.1 2.		
272.0 2	9.2 2	4212.4	(13 ⁻)	3940.4	(12 ⁻)	D	A ₂ =-0.1 1.		
302.1 2	19 1	1281.6	(9 ⁺)	979.6	(8 ⁺)	D	A ₂ =-0.10 9.		
315.8 3	6.8 2	2038.7	(11 ⁺)	1722.9	(10 ⁺)	D	A ₂ =-0.2 1.		
334.8 3	6.6 2	4813.8	(14 ⁻)	4478.9	(13 ⁻)	D	A ₂ =-0.2 1.		
336 [†]		1316	(9 ⁺)	979.6	(8 ⁺)				
352.1 3	28 2	352.0	(7 ⁺)	0	(6 ⁺)				
375.7 2	17.4 5	2038.7	(11 ⁺)	1663.1	(10 ⁺)	D	A ₂ =-0.17 6, A ₄ =+0.07 8.		
381.4 2	43 1	1663.1	(10 ⁺)	1281.6	(9 ⁺)	D	A ₂ =-0.12 4, A ₄ =-0.02 5.		
383.7 2	12.0 5	6236.0	(16 ⁺)	5852.5	(15 ⁺)	D	A ₂ =-0.4 3.		
391 [†]		4732.6	(13 ⁺)	4340.5	(14 ⁻)				
391.2 3	7.0 2	6627.2	(17 ⁺)	6236.0	(16 ⁺)	D	A ₂ =-0.4 1.		
433.1 3	1.4 2	4478.9	(13 ⁻)	4045.8	(12 ⁻)		A ₂ =+0.1 2.		
441.3 2	43 1	1722.9	(10 ⁺)	1281.6	(9 ⁺)		A ₂ =-0.17 3, A ₄ =+0.06 4.		
458.9 2	12.3 5	5191.5	(14 ⁺)	4732.6	(13 ⁺)	D	A ₂ =-0.14 9.		
520.3 3	4.7 2	1499.9	(9 ⁺)	979.6	(8 ⁺)				
601.5 4	1.4 2	4813.8	(14 ⁻)	4212.4	(13 ⁻)		A ₂ =+0.3 2.		
616.7 3	8.2 5	4957.1	(15 ⁻)	4340.5	(14 ⁻)	D	A ₂ =-0.2 1.		
628.0 3	3.1 2	979.6	(8 ⁺)	352.0	(7 ⁺)				
661.1 2	9.2 5	5852.5	(15 ⁺)	5191.5	(14 ⁺)		A ₂ =+0.01 9.		
678.0 3	2.8 2	3857.4	(13 ⁺)	3179.5	(12 ⁺)	D	A ₂ =-0.2 2.		
681.5 4	2.6 2	4893.8	(14 ⁻)	4212.4	(13 ⁻)		A ₂ =-0.1 2.		
715.7 3	2.1 2	8174.8		7459.1	(17 ⁻)				
724 [†]		2038.7	(11 ⁺)	1316	(9 ⁺)				
788.4 3	10.6 5	8247.5		7459.1	(17 ⁻)		A ₂ =+0.3 1.		
789 [†]		2703?	(10,12)	1912.7	(11 ⁺)				
794.6 4	2.6 2	3857.4	(13 ⁺)	3062.8	(12 ⁺)	D	A ₂ =-0.3 2.		
810.9 3	3.1 2	9058.4		8247.5					
834.7 2	30 2	979.6	(8 ⁺)	144.9	(7 ⁺)		A ₂ =0.0 1.		
924.5 4	1.2 2	5852.5	(15 ⁺)	4928.1	(13 ⁺)				
929.4 3	7.0 2	1281.6	(9 ⁺)	352.0	(7 ⁺)				
939.1 3	8.7 5	4118.6	(13 ⁻)	3179.5	(12 ⁺)	D	A ₂ =-0.3 1.		
975.9 2	12.4 5	7459.1	(17 ⁻)	6483.1	(16 ⁻)		A ₂ =+0.15 2, A ₄ =-0.06 3.		
977 [†]		3680		2703?	(10,12)				
1024.1 3	8.7 5	3062.8	(12 ⁺)	2038.7	(11 ⁺)		A ₂ =0.0 1.		
1044.1 3	2.8 2	6236.0	(16 ⁺)	5191.5	(14 ⁺)		A ₂ =+0.2 2.		
1055.6 3	7.7 5	4118.6	(13 ⁻)	3062.8	(12 ⁺)	D	A ₂ =-0.1 1.		
1120.0 4	1.9 2	5852.5	(15 ⁺)	4732.6	(13 ⁺)		A ₂ =+0.1 2.		
1136.6 2	61 2	1281.6	(9 ⁺)	144.9	(7 ⁺)		A ₂ =+0.25 3, A ₄ =+0.02 4.		

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$^{50}\text{Cr}(^{58}\text{Ni},\alpha p n\gamma)$ [2002Li04](#), [2002Jo05](#) (continued) $\gamma(^{102}\text{In})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	Comments
1140.9 4	4.5 5	3179.5	(12 ⁺)	2038.7	(11 ⁺)	D	$A_2=-0.3$ 1.
1150.2 3	5.9 2	3062.8	(12 ⁺)	1912.7	(11 ⁺)		$A_2=+0.1$ 1.
1267.0 3	5.2 5	3179.5	(12 ⁺)	1912.7	(11 ⁺)	D	$A_2=-0.2$ 1.
1279.0 3	1.4 2	6236.0	(16 ⁺)	4957.1	(15 ⁻)	D	$A_2=-0.8$ 4.
1333.8 4	2.6 5	5191.5	(14 ⁺)	3857.4	(13 ⁺)		$A_2=+0.1$ 3.
1416.3 4	2.3 5	4478.9	(13 ⁻)	3062.8	(12 ⁺)		$A_2=+0.2$ 3.
1526.0 4	2.3 2	6483.1	(16 ⁻)	4957.1	(15 ⁻)		$A_2=+0.1$ 2.
1553.1 5	1.2 2	4732.6	(13 ⁺)	3179.5	(12 ⁺)	D	$A_2=-0.5$ 3.
1589.4 3	0.7 2	6483.1	(16 ⁻)	4893.8	(14 ⁻)		
1669.2 3	5.9 2	6483.1	(16 ⁻)	4813.8	(14 ⁻)		$A_2=+0.1$ 1.
1669.8 3	2.1 2	4732.6	(13 ⁺)	3062.8	(12 ⁺)		
1818.4 3	0.7 2	3857.4	(13 ⁺)	2038.7	(11 ⁺)		
2007.0 5	1.6 2	4045.8	(12 ⁻)	2038.7	(11 ⁺)	D	$A_2=-0.2$ 2.
2027.9 3	9.2 5	3940.4	(12 ⁻)	1912.7	(11 ⁺)	D	$A_2=-0.2$ 1, $A_4=+0.1$ 1.
2142		6483.1	(16 ⁻)	4340.5	(14 ⁻)		E_γ : from level-scheme figure 2 of 2002Li04 , not given in table I.
2302 [†]		4340.5	(14 ⁻)	2038.7	(11 ⁺)		
2324.4 4	2.3 2	4237.3	(12 ⁻)	1912.7	(11 ⁺)	D	$A_2=-0.3$ 3.
2400.4 5	1.4 2	4313.5	(12 ⁻)	1912.7	(11 ⁺)		$A_2=-0.1$ 2.
2458.1 4	0.9 2	7415.2		4957.1	(15 ⁻)		
2502.5 6	1.2 2	7459.1	(17 ⁻)	4957.1	(15 ⁻)		$A_2=+0.6$ 4.
2819.7 3	12.0 7	4732.6	(13 ⁺)	1912.7	(11 ⁺)		$A_2=+0.41$ 6, $A_4=-0.1$ 1.
2889.8 6	1.2 2	4928.1	(13 ⁺)	2038.7	(11 ⁺)		$A_2=0.7$ 3.
3015.0 6	1.2 2	4928.1	(13 ⁺)	1912.7	(11 ⁺)		$A_2=+0.3$ 3.

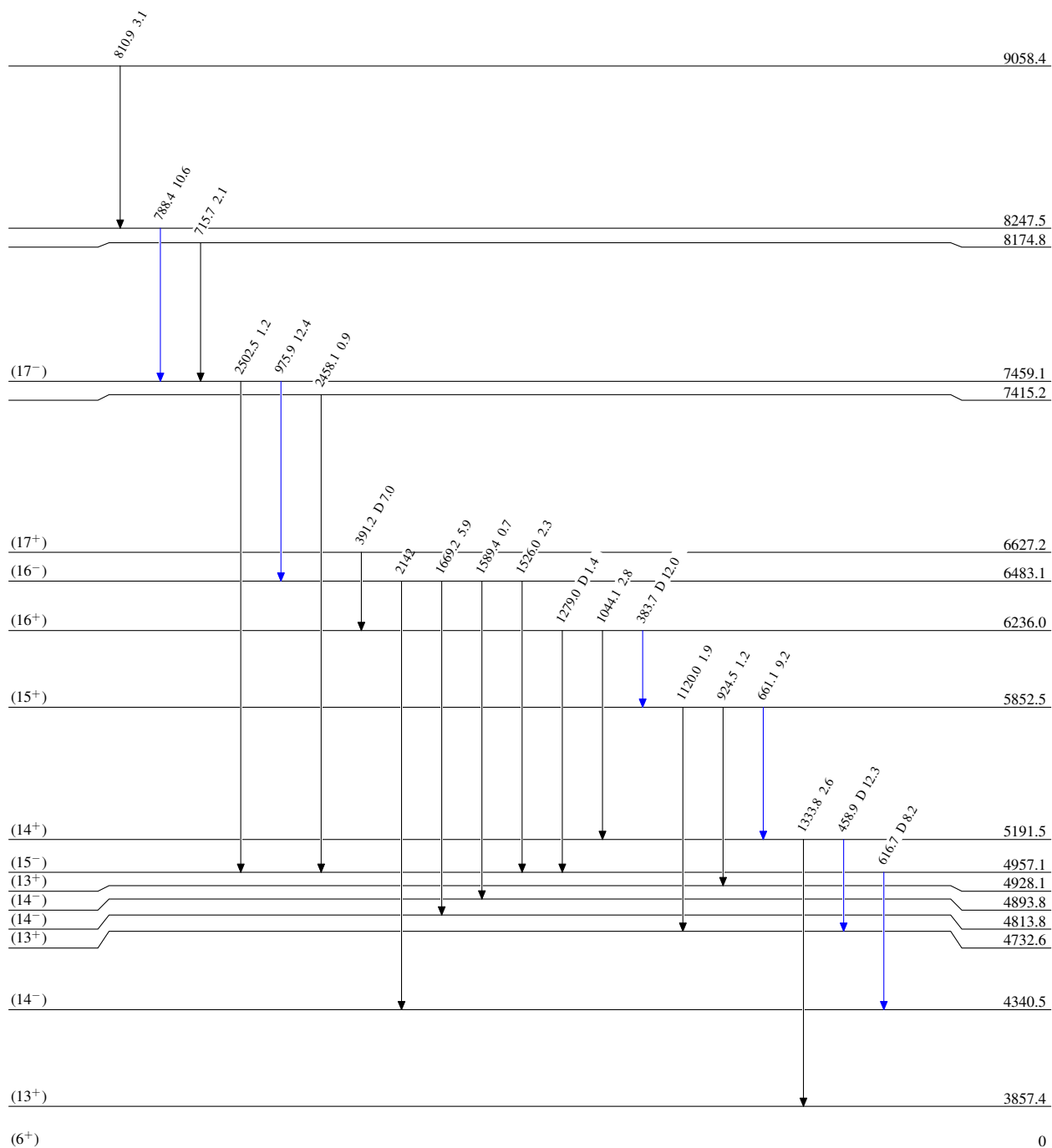
[†] From [2002Jo05](#), not reported by [2002Li04](#).

$^{50}\text{Cr}(^{58}\text{Ni},\alpha\text{pn}\gamma)$ 2002Li04,2002Jo05

Level Scheme
 Intensities: Relative I_γ

Legend

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

 $^{102}_{49}\text{In}_{53}$

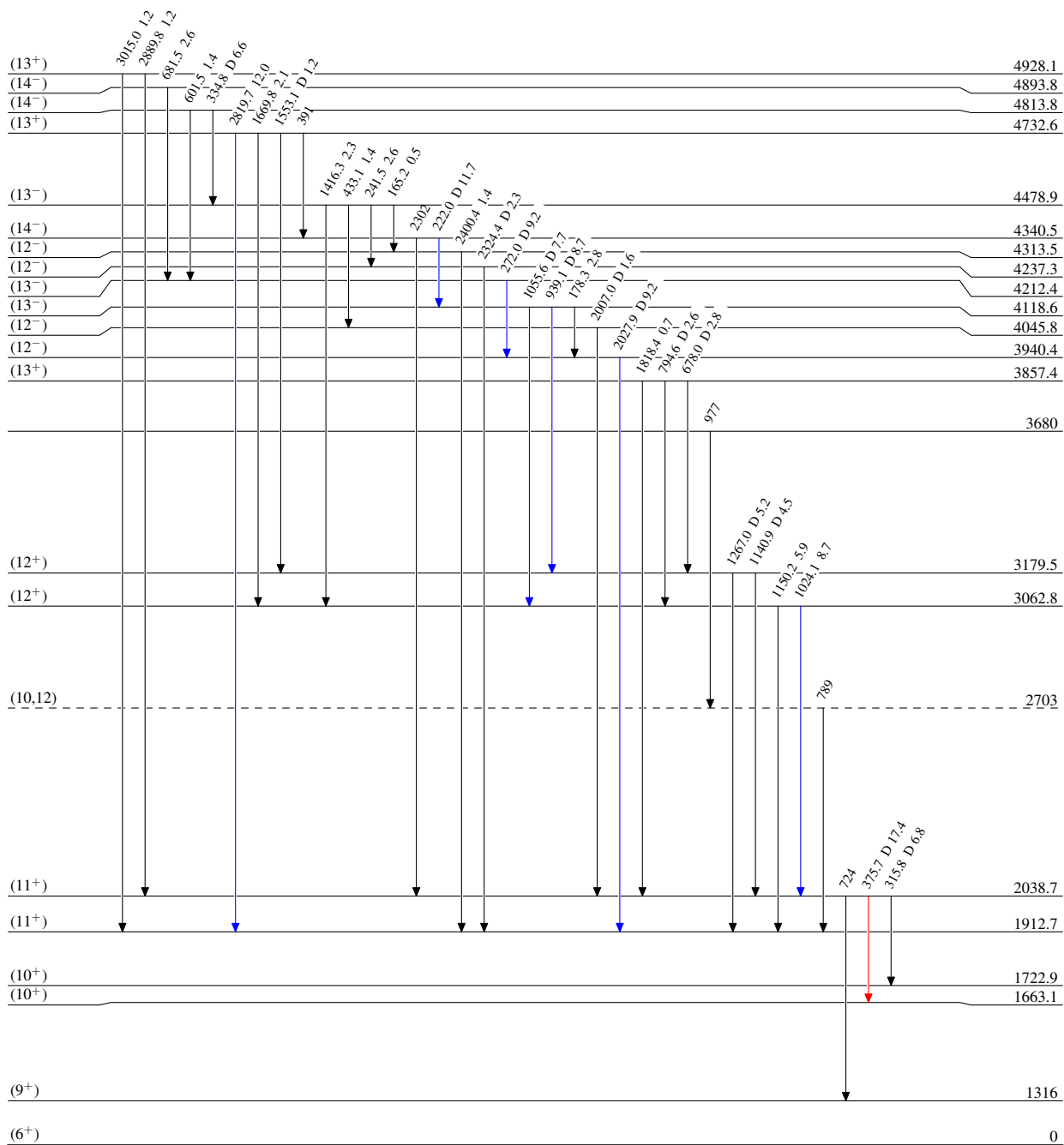
$^{50}\text{Cr}(^{58}\text{Ni},\alpha\text{pn}\gamma)$ 2002Li04,2002Jo05

Level Scheme (continued)

Intensities: Relative I_γ

Legend

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



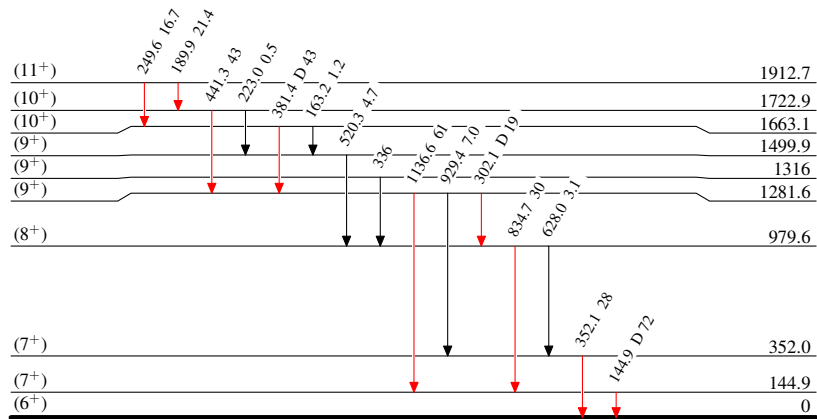
$^{50}\text{Cr}(^{58}\text{Ni},\alpha p n \gamma)$ 2002Li04,2002Jo05

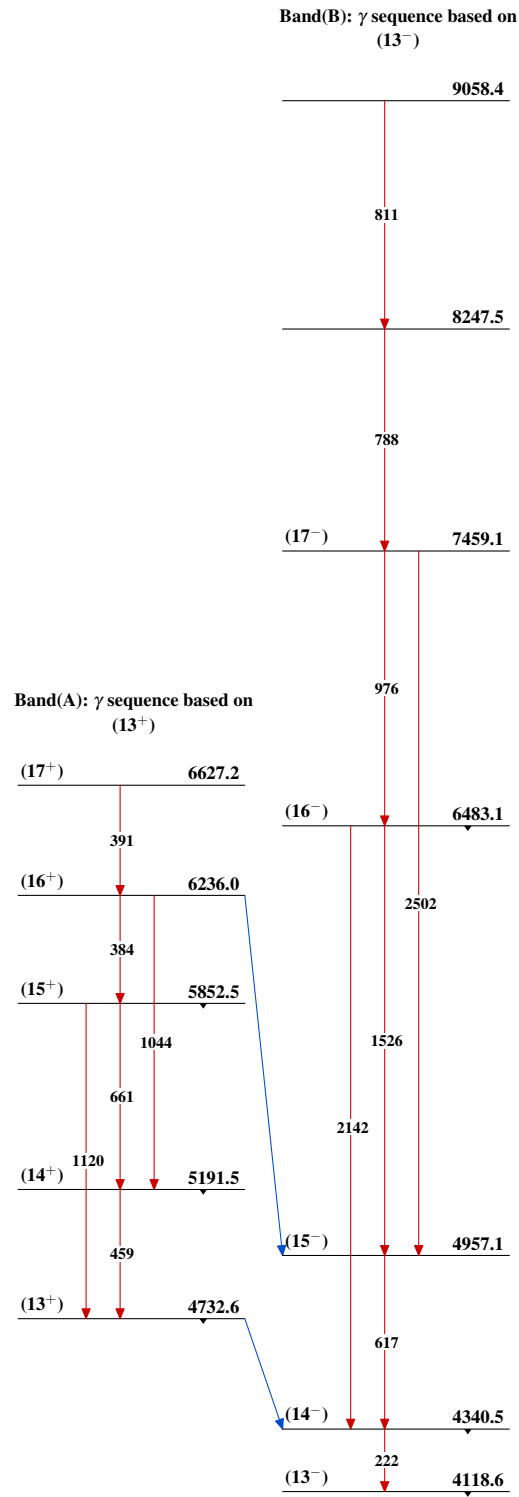
Level Scheme (continued)

Intensities: Relative I_{γ}

Legend

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

 $^{102}_{49}\text{In}_{53}$

$^{50}\text{Cr}(^{58}\text{Ni},\alpha\text{pn}\gamma)$ 2002Li04,2002Jo05 $^{102}_{49}\text{In}_{53}$