

⁵⁰Cr(⁵⁸Ni,p2n γ) **2002Li33**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	S. Lalkovski, J. Timar and Z. Elekes		NDS 161, 1 (2019)	1-Apr-2019

Facility: Argonne National Lab ATLAS; Beam: E(⁵⁸Ni) = 225 MeV; Target: 2.1 mg/cm² thick, enriched to 99% in ⁵⁰Cr. 10 mg/cm² Au backing; Detectors: 78 HPGe (GAMMASPHERE), 95 CsI (Microball), and 30 liquid scintillators (Neutron shell) covering 1 π at forward angles; Measured: particles, γ , particle- γ coinc., E γ , I γ ; Deduced: ¹⁰⁵Sb level scheme, γ -ray Mult., J $^\pi$,

¹⁰⁵Sb Levels

E(level) [†]	J $^\pi$ [‡]	Comments
0 [#]	(5/2 ⁺)	J $^\pi$: from the Adopted Levels. configuration: $\pi d_{5/2}^{+1}$.
1219.41 [#] 20	(9/2 ⁺)	
1840.7 [#] 3	(13/2 ⁺)	
2211.1 [#] 4	(15/2 ⁺)	configuration: $\pi d_{5/2}^{+1} \nu(d_{5/2}^{+3} \nu g_{7/2}^{+1})$.
2498.1 [#] 4	(17/2 ⁺)	configuration: $\pi d_{5/2}^{+1} \nu(d_{5/2}^{+3} \nu g_{7/2}^{+1})$.
2993.3 [#] 5	(19/2 ⁺)	configuration: $\pi d_{5/2}^{+1} \nu(d_{5/2}^{+3} \nu g_{7/2}^{+1})$ and one neutron pair coupled to J=0.
3728.4 [#] 6	(23/2 ⁺)	
3973.8 [#] 7		

[†] From a least-squares fit to E γ .

[‡] From **2002Li33** based on angular distribution measurements, unless otherwise noted.

[#] Seq.(A): γ sequence.

γ (¹⁰⁵Sb)

R_{DCO}=0.6 and 1.3 for stretched M1 and E2, respectively.

E γ [†]	I γ [†]	E _i (level)	J $^\pi$ _i	E _f	J $^\pi$ _f	Mult. [‡]	Comments
245.4 4	5 2	3973.8		3728.4	(23/2 ⁺)		
287.0 2	18 3	2498.1	(17/2 ⁺)	2211.1	(15/2 ⁺)	(M1)	Mult.: R _{DCO} =0.9 1 (2002Li33).
370.4 2	18 3	2211.1	(15/2 ⁺)	1840.7	(13/2 ⁺)	(M1)	Mult.: R _{DCO} =0.6 1 (2002Li33).
495.2 3	17 4	2993.3	(19/2 ⁺)	2498.1	(17/2 ⁺)	(M1)	Mult.: R _{DCO} =0.6 1 (2002Li33).
621.3 2	20 4	1840.7	(13/2 ⁺)	1219.41	(9/2 ⁺)	(E2)	Mult.: R _{DCO} =1.2 2 (2002Li33).
735.1 2	16 4	3728.4	(23/2 ⁺)	2993.3	(19/2 ⁺)	(E2)	Mult.: R _{DCO} =1.3 2 (2002Li33).
^x 1079.4 5							
1219.4 2	19 7	1219.41	(9/2 ⁺)	0	(5/2 ⁺)	(E2)	Mult.: R _{DCO} =1.3 1 (2002Li33).

[†] From **2002Li33**.

[‡] From **2002Li33**, based on DCO measurements.

^x γ ray not placed in level scheme.

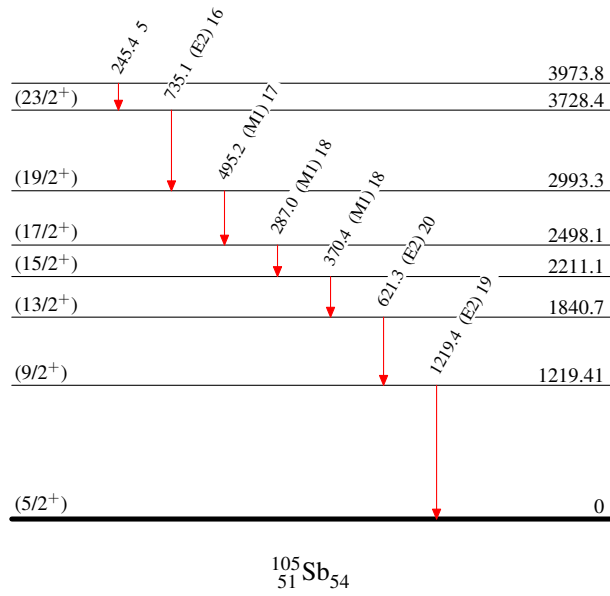
$^{50}\text{Cr}(^{58}\text{Ni},\text{p}2\text{n}\gamma)$ 2002Li33

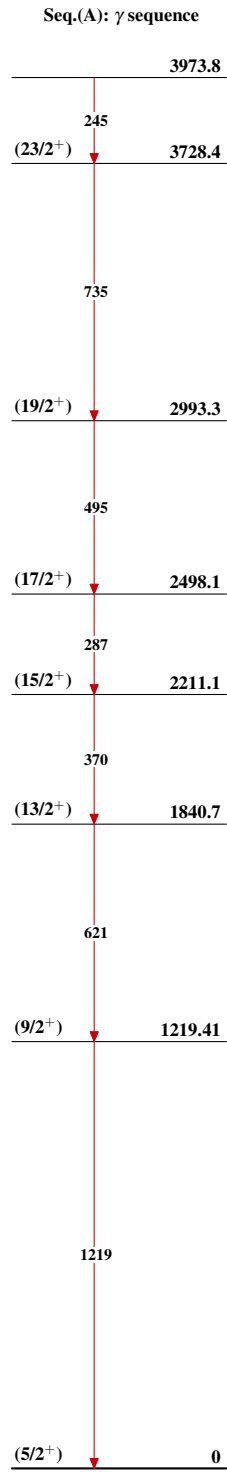
Level Scheme

Intensities: Relative I_γ

Legend

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



$^{50}\text{Cr}(^{58}\text{Ni},\text{p}2\text{n}\gamma)$ 2002Li33 $^{105}_{51}\text{Sb}_{54}$