^{50}Cr(^{58}Ni,2pnγ) 1999De50

History

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

1999De50: Facility: LNL XTU Tandem; Beam: E(^{58}Ni)=210 MeV; Target: ^{50}Cr; Detectors: Recoil Mass Separator (CAMEL), GASP with 40 HPGe, Si-ball ISIS; Measured: γ, γ-γ coinc.; Deduced: ^{105}Sn levels, J$^{\pi}$, band structure; Also from the same collaboration: 1997Ga01, 1995De10.
1995Sc50: Beam: E(^{58}Ni)=250 MeV; Measured: Eγ, Iγ, $\gamma\gamma$; Deduced: levels, J$^{\pi}$.
Others: 1992Sc17, 1992IsZV.

^{105}Sn Levels

E(level)†	J$^{\pi}$‡	$T_{1/2}$	Comments
0	(5/2$^+$)		
199.7 *3*	(7/2$^+$)	0.33 ns *8*	$T_{1/2}$: from RDDS in 1994IsZX.
1194.0 *3*	(9/2$^+$)		
1393.8 *4*	(11/2$^+$)		
1848.7 *4*	(13/2$^+$)		
1915.6 *6*	(13/2$^+$)		
2030.7 *4*	(15/2$^+$)		
2167.0 *6*	(15/2$^+$)		
2203.5 *5*	(17/2$^+$)	0.38 ns *5*	$T_{1/2}$: from RDDS in 1994IsZX.
3012.9 *5*	(19/2$^+$)		
3283.8 *6*	(21/2$^+$)		
3427.0 *6*	(17/2$^+$)		
3755.2 *9*	(19/2$^+$)		
3831.6 *11*	(21/2$^+$)		
4082.7 *8*	(21/2$^+$)		
4429.6 *8*	(23/2$^+$)		
4551.5 *10*	(23/2$^-$)		
5375.2 *14*			
5529.0 *8*	(25/2$^+$)		
5693.3 *14*			
5874.1 *12*	(27/2$^-$)		
6126.3 *9*	(27/2$^+$)		
6582.7 *11*	(29/2$^-$)		
7039.5# *11*	(29/2$^-$)		
7340.5# *11*	(31/2$^-$)		
7728.5# *15*	(33/2$^-$)		
8194.5# *18*	(35/2$^-$)		
8680.5# *21*	(37/2$^-$)		
9136.5# *23*	(39/2$^-$)		
9692# *3*	(41/2$^-$)		
10288# *3*	(43/2$^-$)		

† From a least-squares fit to Eγ.
‡ Suggested from shell model and observed band structure.
# Band(A): Magnetic rotational (M1) band.

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$\gamma(^{105}Sn)$

E_γ[†]	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
37	4 *1*	2203.5	(17/2$^+$)	2167.0	(15/2$^+$)	(M1)	
137		2167.0	(15/2$^+$)	2030.7	(15/2$^+$)		
172.8[‡] *3*	100[‡]	2203.5	(17/2$^+$)	2030.7	(15/2$^+$)	(M1)	
181.8[‡] *3*	100[‡] *5*	2030.7	(15/2$^+$)	1848.7	(13/2$^+$)	(M1)	
200.0[‡] *3*	100[‡] *5*	199.7	(7/2$^+$)	0	(5/2$^+$)		
252		2167.0	(15/2$^+$)	1915.6	(13/2$^+$)		
271.0[‡] *4*	6.1[‡] *1*	3283.8	(21/2$^+$)	3012.9	(19/2$^+$)	(M1)	Mult.: Suggested by 1995Sc50 from comparison with the intensity of 1080 keV gamma.
288		2203.5	(17/2$^+$)	1915.6	(13/2$^+$)		
346.6 *3*	100	4429.6	(23/2$^+$)	4082.7	(21/2$^+$)		
388		7728.5	(33/2$^-$)	7340.5	(31/2$^-$)		
455.0[‡] *5*	17[‡] *5*	1848.7	(13/2$^+$)	1393.8	(11/2$^+$)		
456	100	9136.5	(39/2$^-$)	8680.5	(37/2$^-$)		
457		7039.5	(29/2$^-$)	6582.7	(29/2$^-$)		
466	100	8194.5	(35/2$^-$)	7728.5	(33/2$^-$)		
486	100	8680.5	(37/2$^-$)	8194.5	(35/2$^-$)		
523		1915.6	(13/2$^+$)	1393.8	(11/2$^+$)		
555	100	9692	(41/2$^-$)	9136.5	(39/2$^-$)		
596	100	10288	(43/2$^-$)	9692	(41/2$^-$)		
597.3 *3*	100	6126.3	(27/2$^+$)	5529.0	(25/2$^+$)		
637.0[‡] *4*	49[‡] *8*	2030.7	(15/2$^+$)	1393.8	(11/2$^+$)		
654.4[‡] *4*	100[‡] *11*	1848.7	(13/2$^+$)	1194.0	(9/2$^+$)		
655.5 *5*	100	4082.7	(21/2$^+$)	3427.0	(17/2$^+$)		
675		4429.6	(23/2$^+$)	3755.2	(19/2$^+$)		
709	100	6582.7	(29/2$^-$)	5874.1	(27/2$^-$)		
721		1915.6	(13/2$^+$)	1194.0	(9/2$^+$)		
743	100	3755.2	(19/2$^+$)	3012.9	(19/2$^+$)		
758		7340.5	(31/2$^-$)	6582.7	(29/2$^-$)		
809.3[‡] *5*	24[‡] *10*	3012.9	(19/2$^+$)	2203.5	(17/2$^+$)		
846.0[‡] *3*	100[‡] *19*	3012.9	(19/2$^+$)	2167.0	(15/2$^+$)		
913		7039.5	(29/2$^-$)	6126.3	(27/2$^+$)		
982.3[‡] *5*	36[‡] *10*	3012.9	(19/2$^+$)	2030.7	(15/2$^+$)		
994.5[‡] *5*	6[‡] *3*	1194.0	(9/2$^+$)	199.7	(7/2$^+$)		
1080.3[‡] *5*	100[‡] *20*	3283.8	(21/2$^+$)	2203.5	(17/2$^+$)	(E2)	Mult.: Suggested by 1995Sc50 from comparison with the intensity of 271 keV gamma.
1099.2 *3*	100	5529.0	(25/2$^+$)	4429.6	(23/2$^+$)		
1193.4[‡] *4*	100[‡] *2*	1194.0	(9/2$^+$)	0	(5/2$^+$)		
1194.6[‡] *4*	100[‡]	1393.8	(11/2$^+$)	199.7	(7/2$^+$)		
1214		7340.5	(31/2$^-$)	6126.3	(27/2$^+$)		
1268	100	4551.5	(23/2$^-$)	3283.8	(21/2$^+$)		
1323	100	5874.1	(27/2$^-$)	4551.5	(23/2$^-$)		
1396.0[‡] *5*	100[‡]	3427.0	(17/2$^+$)	2030.7	(15/2$^+$)		
1448		5529.0	(25/2$^+$)	4082.7	(21/2$^+$)		
1620	100	5375.2		3755.2	(19/2$^+$)		
1628	100	3831.6	(21/2$^+$)	2203.5	(17/2$^+$)		
1938	100	5693.3		3755.2	(19/2$^+$)		

[†] From 1999De50, unless noted otherwise.
[‡] From 1995Sc50.
[#] Suggested from the fact that these transitions were not delayed on a ns scale which would be mandatory for E1 and E2 transitions.

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Level Scheme

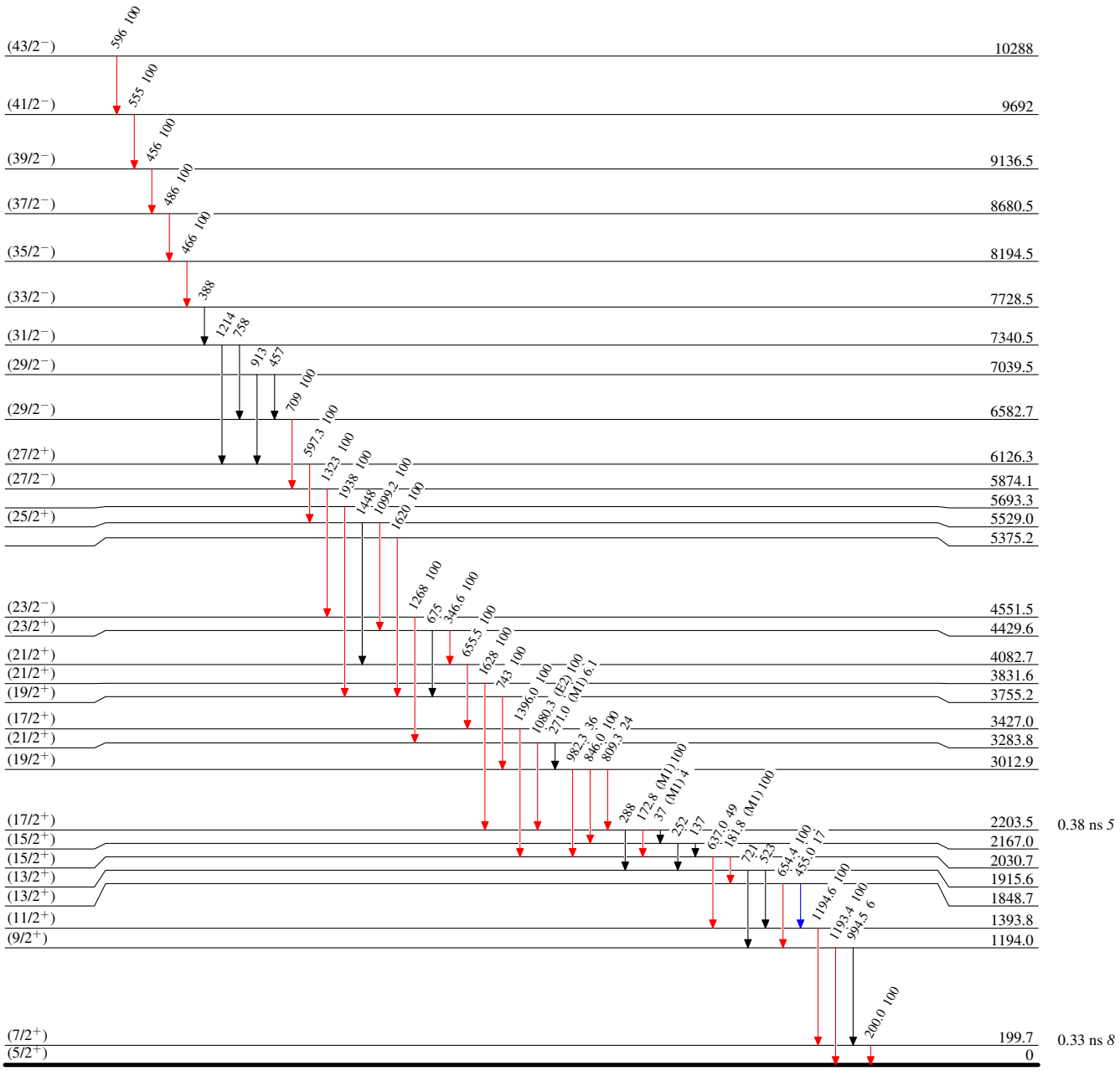
Intensities: Type not specified

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{105}_{50}Sn_{55}$

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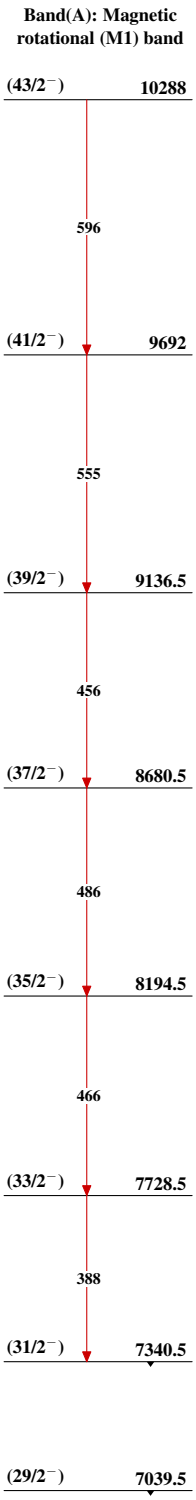

$^{105}_{50}Sn_{55}$