^{112}Sn(^{60}Ni,p2nγ) 2007Sa33

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 109, 2033 (2008)	15-Jun-2008

2007Sa33: E(^{60}Ni)=266 MeV; 93% isotopically-enriched target; JUROGAM detector array (43 EUROGAM phase I and GASP type escape-suppressed Ge detectors); RITU gas-filled recoil separator with GREAT spectrometer (2 double-sided Si strip detectors, multiwire proportional counter, 28 PIN diode detectors and 2 segmented Ge detectors) In its focal plane; measured α decay correlated singles γ spectra, Eγ, Iγ, $\gamma\gamma$ coin. see also 2005Sc22.

^{169}Ir Levels

E(level)[†]	J$^\pi$[‡]	Comments
0.0		
153[@]	(11/2$^-$)	Additional information 1. E(level),J$^\pi$: from Adopted Levels. ΔE=24 keV for this level.
610.15[#] *18*	13/2$^-$	
811.20[@] *21*	15/2$^-$	
1243.2 *3*	(15/2$^-$)	
1330.98[#] *23*	17/2$^-$	
1547.0[&] *3*	(17/2$^-$)	
1572.75[@] *24*	19/2$^-$	
1724.64[&] *23*	(19/2$^-$)	
1803.1 *4*	(17/2$^-$)	
1803.45 *25*	(19/2$^-$)	
1997.8[&] *3*	(21/2$^-$)	
2045.0 *4*	(21/2$^-$)	
2115.69[#] *25*	21/2$^-$	
2221.4[&] *4*	(23/2$^-$)	
2261.23 *25*	(21/2$^-$)	
2263.84 *25*	(23/2$^-$)	
2318.4[a] *3*	(23/2$^-$)	
2406.3[@] *4*	23/2$^-$	
2448.9[a] *3*	(25/2$^-$)	
2467.7 *3*	(23/2$^-$)	
2574.4 *4*	(25/2$^-$)	
2608.4[a] *4*	(27/2$^-$)	
2851.4 *4*	(25/2$^-$)	
2861.3[a] *7*	(29/2$^-$)	
3117.9[a] *8*	(31/2$^-$)	
3441.5[a] *9*	(33/2$^-$)	

[†] From least-squares fit to Eγ, excluding the 317.6γ which fits its placement very poorly. energies are given assuming E=153 for the $h_{11/2}$ isomeric state and do not include the 24 keV uncertainty In that energy.

[‡] Authors′ values based on deduced band structure, transition multipolarities and similarity of level scheme to that for ^{171}Ir, except As noted. In Adopted Levels, all values are shown In parentheses.

[#] Band(A): π 11/2[505], α=+1/2 band. Configuration assignment supported by measured B(M1) to B(E2) ratios for In-band transitions.

[@] Band(a): π 11/2[505], α=−1/2 band. See comment on signature partner band.

[&] Band(B): π=(−) sideband 1.

[a] Band(C): π=(−) sideband 2.

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$\gamma(^{169}Ir)$

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	Comments
[x]101.4 *1*	6.1 *5*						
[x]121.1 *1*	6.6 *5*						
130.5 *1*	24.3 *7*	2448.9	(25/2$^-$)	2318.4	(23/2$^-$)		
152.3 *1*	23.6 *7*	1724.64	(19/2$^-$)	1572.75	19/2$^-$		
159.5 *2*	16.4 *6*	2608.4	(27/2$^-$)	2448.9	(25/2$^-$)		
178.0 *3*	12.0 *5*	1724.64	(19/2$^-$)	1547.0	(17/2$^-$)		
[x]190.6 *3*	5.5 *4*						
201.7 *3*	31.5 *8*	811.20	15/2$^-$	610.15	13/2$^-$	D	Mult.: R=0.76 *3*.
206.5 *1*	14.3 *6*	2467.7	(23/2$^-$)	2261.23	(21/2$^-$)		
223.6 *2*	17.0 *6*	2221.4	(23/2$^-$)	1997.8	(21/2$^-$)		
[x]232.5 *4*	2.7 *4*						
242.5[‡] *4*	26.8[‡] *7*	1572.75	19/2$^-$	1330.98	17/2$^-$		242γ+243γ doublet; Iγ shared between the two components. R=0.67 *2* for doublet, implying D multipolarity for one or both components.
242.5[‡] *4*	26.8[‡] *7*	2045.0	(21/2$^-$)	1803.45	(19/2$^-$)		E$_\gamma$,I$_\gamma$,Mult.: see comment on 243γ from 1420 level.
252.9 *6*	14.0 *5*	2861.3	(29/2$^-$)	2608.4	(27/2$^-$)		
256.6[‡] *4*	28.0[‡] *8*	1803.45	(19/2$^-$)	1547.0	(17/2$^-$)		transition is a self-coincident doublet.
256.6[‡] *4*	28.0[‡] *8*	3117.9	(31/2$^-$)	2861.3	(29/2$^-$)		transition is a self-coincident doublet.
263.8 *2*	4.7 *5*	2261.23	(21/2$^-$)	1997.8	(21/2$^-$)		
273.9[‡] *3*	62.6[‡] *11*	1997.8	(21/2$^-$)	1724.64	(19/2$^-$)		273γ+274γ doublet, dominated by the 274γ component. R=0.87 *3* for doublet.
273.9[‡] *3*	62.6[‡] *11*	2318.4	(23/2$^-$)	2045.0	(21/2$^-$)		E$_\gamma$,I$_\gamma$,Mult.: see comment on 274γ from 1846 level.
290.6 *3*	<2.0	2406.3	23/2$^-$	2115.69	21/2$^-$		
310.6 *2*	5.8 *5*	2574.4	(25/2$^-$)	2263.84	(23/2$^-$)		
317.6 *4*	24.5 *7*	2318.4	(23/2$^-$)	1997.8	(21/2$^-$)		E$_\gamma$: fits placement very poorly; Eγ is >5σ from expected value. Level energy difference is 320.7 *3*.
323.6 *2*	7.7 *4*	3441.5	(33/2$^-$)	3117.9	(31/2$^-$)		
[x]328.6 *1*	7.3 *4*						
[x]335.1 *2*	6.5 *4*						
[x]341.2 *2*	4.1 *4*						
[x]353.2 *2*	8.0 *4*						
[x]361.0 *2*	5.2 *4*						
383.7 *2*	5.6 *7*	2851.4	(25/2$^-$)	2467.7	(23/2$^-$)		
393.3 *1*	40.7 *9*	1724.64	(19/2$^-$)	1330.98	17/2$^-$	D	Mult.: R=0.64 *7*.
457.1 *2*	96.5 *12*	610.15	13/2$^-$	153	(11/2$^-$)	D	Mult.: R=0.92 *2*.
[x]497.0 *3*	5.7 *4*						
515.1 *3*	5.8 *21*	2318.4	(23/2$^-$)	1803.45	(19/2$^-$)		
519.3 *4*	46.6 *10*	1330.98	17/2$^-$	811.20	15/2$^-$	D	Mult.: R=0.89 *2*.
539.2 *1*	18.4 *8*	2263.84	(23/2$^-$)	1724.64	(19/2$^-$)		
542.8 *1*	8.1 *8*	2115.69	21/2$^-$	1572.75	19/2$^-$		
559.9 *2*	6.4 *9*	1803.1	(17/2$^-$)	1243.2	(15/2$^-$)		
[x]601.8 *2*	11.1 *9*						
[x]610.5 *3*	5.3 *10*						
633.1 *2*	13.6 *6*	1243.2	(15/2$^-$)	610.15	13/2$^-$		
658.3 *3*	100.0 *13*	811.20	15/2$^-$	153	(11/2$^-$)	Q	Mult.: R=1.15 *2*.
688.4 *1*	19.0 *6*	2261.23	(21/2$^-$)	1572.75	19/2$^-$		
720.3 *2*	29.6 *9*	1330.98	17/2$^-$	610.15	13/2$^-$	Q	Mult.: R=1.29 *5*.
745.4 *2*	12.4 *7*	2318.4	(23/2$^-$)	1572.75	19/2$^-$		
762.4 *4*	47.6 *10*	1572.75	19/2$^-$	811.20	15/2$^-$	Q	Mult.: R=1.26 *10*.
785.3 *2*	6.7 *5*	2115.69	21/2$^-$	1330.98	17/2$^-$	Q	Mult.: R=1.42 *10*.
833.5 *4*	11.0 *5*	2406.3	23/2$^-$	1572.75	19/2$^-$		
937.3 *3*	19.6 *7*	1547.0	(17/2$^-$)	610.15	13/2$^-$		
992.5 *2*	9.9 *6*	1803.45	(19/2$^-$)	811.20	15/2$^-$		

Continued on next page (footnotes at end of table)

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γ(^{169}Ir) (continued)

† Based on Iγ ratio R=2(Iγ(158°)/((Iγ(86°)+Iγ(94°)); measured values of this ratio are 1.26 *2* for the stretched Q 463γ In ^{170}Os and 0.87 *6* for the ΔJ=1 246γ from ^{169}Re, so authors expect R≈1.2 and 0.8, respectively, for stretched Q and D transitions.
‡ Multiply placed with undivided intensity.
^{x} γ ray not placed in level scheme.

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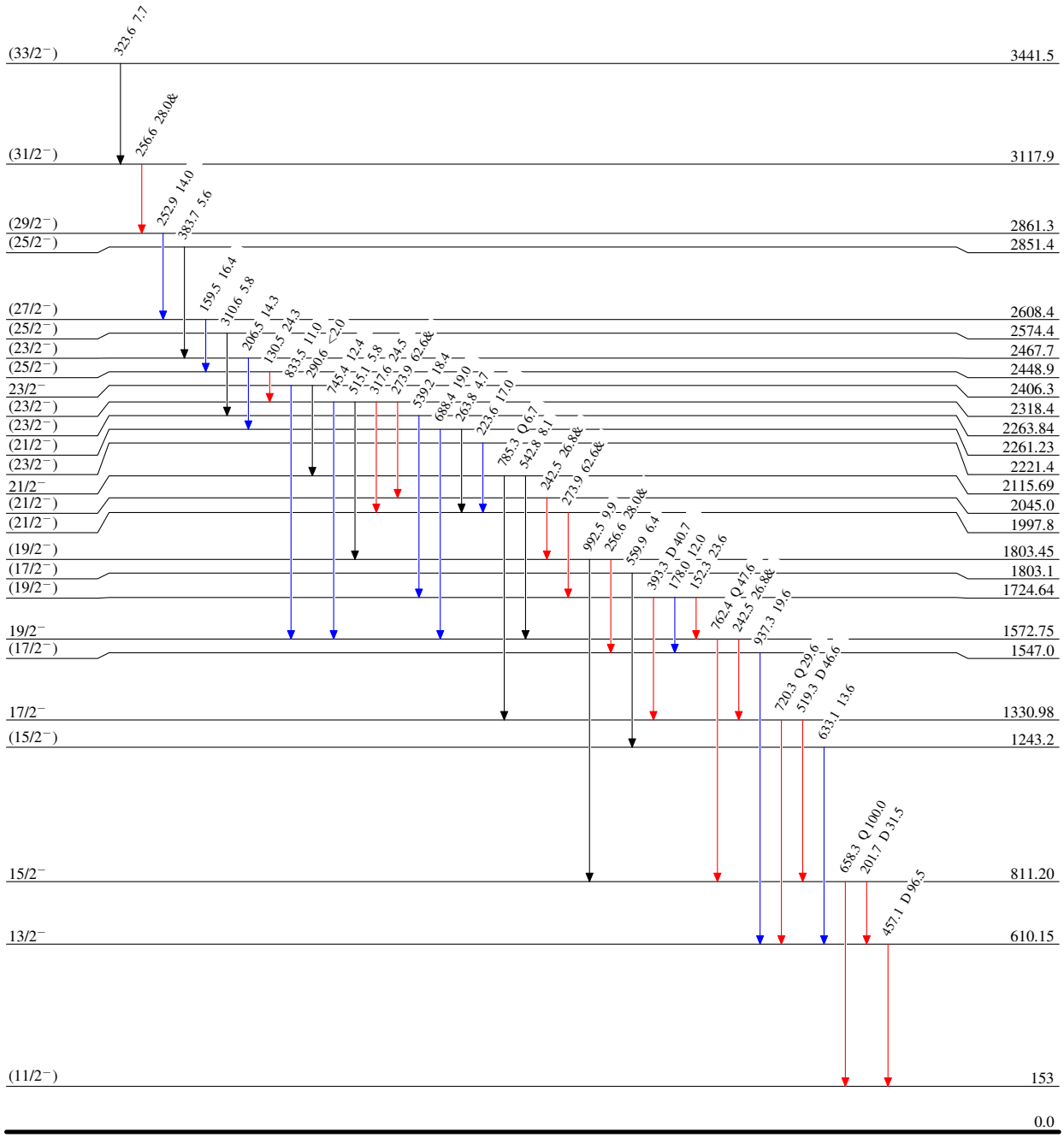
Level Scheme

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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



$^{169}_{77}Ir_{92}$

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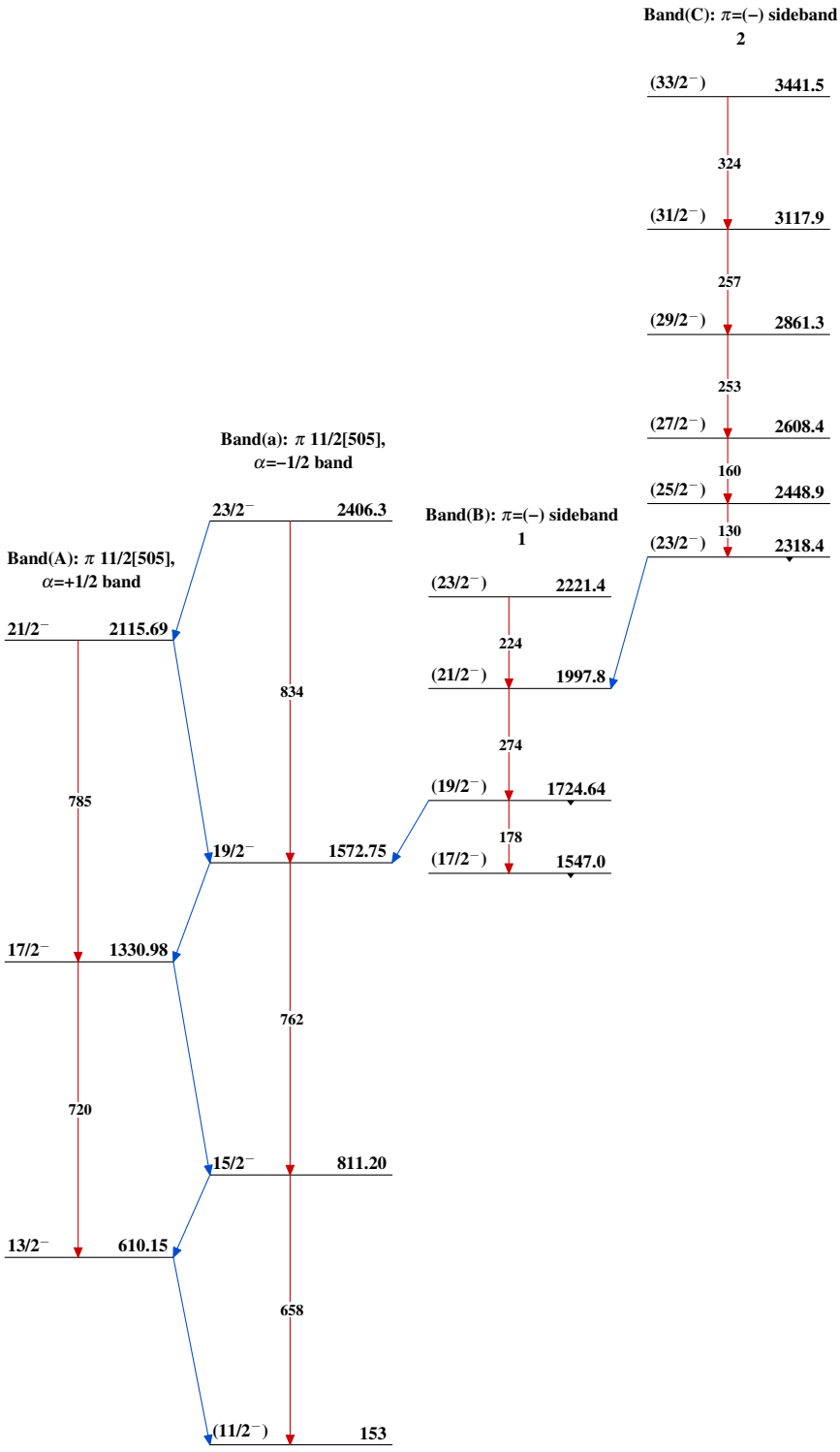

$^{169}_{77}Ir_{92}$