^{124}Sn(^{48}Ca,3nγ) 1985Ba47

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

1985Ba47: E(^{48}Ca)=201 MeV; θ=30°, 90°, 150°; measured Eγ, Iγ (6 Ge(Li), Compton-suppressed germanium, 50 bismuth germanate crystal detectors), $\gamma\gamma$ coin, γ-ray yields, Iγ(30°)/Iγ(90°); used cranking-model and gauge-space analyses to interpret level structure.

^{169}Yb Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0[&]	7/2+[#]	834.1[a] 18	17/2−	2669.2[a] 21	33/2−	5257.7[a] 22	49/2−
24.2[a] 10	1/2−[#]	902.8[@] 6	21/2+	2929[&] 3	35/2+	5272.4[@] 16	(49/2+)
70.1[@] 6	9/2+[#]	1157.1[&] 6	23/2+	3075.1[@] 12	37/2+	6046.1[@] 17	(53/2+)
99.2[a] 15	5/2−[#]	1218.8[a] 19	21/2−	3239.8[a] 21	37/2−	6049.5[a] 22	53/2−
161.0[&] 3	11/2+[#]	1336.1[@] 7	25/2+	3588[&] 4	(39/2+)	6875[@] 3	(57/2+)
264.2[a] 18	9/2−[#]	1656.7[a] 20	25/2−	3782.1[@] 14	41/2+	6904.8[a] 23	57/2−
269.1[@] 6	13/2+[#]	1666.2[&] 8	27/2+	3857.3[a] 21	41/2−	7771[@] 4	(61/2+)
404.4[&] 4	15/2+[#]	1844.5[@] 9	29/2+	4330[&] 4	(43/2+)	7824.5[a] 23	(61/2−)
512.3[a] 18	13/2−	2141.4[a] 20	29/2−	4524.3[@] 15	45/2+	8807.8[a] 23	(65/2−)
546.7[@] 6	17/2+	2258.2[&] 22	31/2+	4528.1[a] 22	45/2−	9855.3[a] 24	(69/2−)
735.8[&] 5	19/2+	2426.0[@] 11	33/2+	5116[&] 4	(47/2+)	10962[a] 3	(73/2−)

† From least-squares fit to Eγ, arbitrarily allowing 1 keV uncertainty In all data shown without an uncertainty.
‡ Authors′ values, based on coincidence data, rotational band structure, and inferred γ-ray multipolarities (Iγ(30°)/Iγ(90°) yield ratios determined), except where noted. See ^{169}Yb Adopted Levels for evaluator′s assignments; these differ only As a result of the introduction of parentheses for some of the adopted values.
# From Adopted Levels.
@ Band(A): 7/2[633], α=+1/2 band.
& Band(a): 7/2[633], α=−1/2 band.
a Band(B): 1/2[521], α=+1/2 band.

γ(^{169}Yb)

Eγ†	Iγ‡	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.#	Comments
24.2[@]		24.2	1/2−	0.0	7/2+		
70.9[@]		70.1	9/2+	0.0	7/2+		
75.0[@]		99.2	5/2−	24.2	1/2−		
90.8[@]		161.0	11/2+	70.1	9/2+		
108.0[@]		269.1	13/2+	161.0	11/2+		
135.3[@]		404.4	15/2+	269.1	13/2+		
141.9[@]		546.7	17/2+	404.4	15/2+		
160.9 3	19	161.0	11/2+	0.0	7/2+	Q	Iγ(30°)/Iγ(90°)=1.06 8.
165.0[@]		264.2	9/2−	99.2	5/2−		
166.8[@]		902.8	21/2+	735.8	19/2+		
177.9[@]		1336.1	25/2+	1157.1	23/2+		
189.1[@]		735.8	19/2+	546.7	17/2+		
199.4 6	[&]	269.1	13/2+	70.1	9/2+		

Continued on next page (footnotes at end of table)

^{124}Sn(^{48}Ca,3nγ) 1985Ba47 (continued)

$\gamma(^{169}Yb)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult. #	Comments
243.4 *3*	69	404.4	$15/2^+$	161.0	$11/2^+$	Q	Iγ(30°)/Iγ(90°)=0.97 *3*.
248.1 *3*	100	512.3	$13/2^-$	264.2	$9/2^-$	[Q]	Iγ(30°)/Iγ(90°) normalized to 1.00 *2*.
253.3 @		1157.1	$23/2^+$	902.8	$21/2^+$		
277.6 *3*	82	546.7	$17/2^+$	269.1	$13/2^+$	Q	Iγ(30°)/Iγ(90°)=1.05 *3*.
321.8 *3*	110	834.1	$17/2^-$	512.3	$13/2^-$	Q	Iγ(30°)/Iγ(90°)=1.04 *3*.
331.3 *3*	85	735.8	$19/2^+$	404.4	$15/2^+$	Q	Iγ(30°)/Iγ(90°)=1.05 *3*.
356.2 *3*	113	902.8	$21/2^+$	546.7	$17/2^+$	Q	Iγ(30°)/Iγ(90°)=1.10 *3*.
384.7 *6*	&	1218.8	$21/2^-$	834.1	$17/2^-$		
421.3 *3*	71	1157.1	$23/2^+$	735.8	$19/2^+$	Q	Iγ(30°)/Iγ(90°)=0.97 *5*.
433.3 *3*	125	1336.1	$25/2^+$	902.8	$21/2^+$	Q	Iγ(30°)/Iγ(90°)=1.08 *3*.
437.9 *6*	&	1656.7	$25/2^-$	1218.8	$21/2^-$		
484.7 *3*	95	2141.4	$29/2^-$	1656.7	$25/2^-$	Q	Iγ(30°)/Iγ(90°)=1.04 *3*.
508.4 *6*	&	1844.5	$29/2^+$	1336.1	$25/2^+$		
509.1 *6*	&	1666.2	$27/2^+$	1157.1	$23/2^+$		
527.8 *3*	80	2669.2	$33/2^-$	2141.4	$29/2^-$	Q	Iγ(30°)/Iγ(90°)=1.02 *5*.
570.6 *3*	143	3239.8	$37/2^-$	2669.2	$33/2^-$	Q	Iγ(30°)/Iγ(90°)=1.09 *3*.
581.5 *6*	&	2426.0	$33/2^+$	1844.5	$29/2^+$		
592 *2*	&	2258.2	$31/2^+$	1666.2	$27/2^+$		
617.5 *3*	84	3857.3	$41/2^-$	3239.8	$37/2^-$		Iγ(30°)/Iγ(90°)=1.34 *9*.
649.1 *6*	&	3075.1	$37/2^+$	2426.0	$33/2^+$		
659 *1*	42	3588	$(39/2^+)$	2929	$35/2^+$		Iγ(30°)/Iγ(90°)=1.38 *10*.
670.8 *6*	≤170	4528.1	$45/2^-$	3857.3	$41/2^-$		Iγ=170 for 670.8γ and 671γ combined. Iγ(30°)/Iγ(90°)=1.44 *8* for doublet.
671 *2*	≤170	2929	$35/2^+$	2258.2	$31/2^+$		I_γ: see comment with 670.8γ. Iγ(30°)/Iγ(90°)=1.44 *8* for doublet.
707.0 *6*	150	3782.1	$41/2^+$	3075.1	$37/2^+$		I_γ: masked by transition in ^{167}Yb or ^{168}Yb. Iγ(30°)/Iγ(90°)=1.19 *5*.
729.6 *3*	152	5257.7	$49/2^-$	4528.1	$45/2^-$		Iγ(30°)/Iγ(90°)=1.14 *10*.
742 *2*	≤97	4330	$(43/2^+)$	3588	$(39/2^+)$		Iγ=97 for 742γ and 742.2γ combined. Iγ(30°)/Iγ(90°)=1.35 *11* for doublet.
742.2 *6*	≤97	4524.3	$45/2^+$	3782.1	$41/2^+$		see comments with 742γ.
748.1 *6*	&	5272.4	$(49/2^+)$	4524.3	$45/2^+$		
773.7 *3*	41	6046.1	$(53/2^+)$	5272.4	$(49/2^+)$		Iγ(30°)/Iγ(90°)=1.07 *11*.
786 *1*	91	5116	$(47/2^+)$	4330	$(43/2^+)$		Iγ(30°)/Iγ(90°)=1.24 *11*.
791.8 *3*	31	6049.5	$53/2^-$	5257.7	$49/2^-$	Q	Iγ(30°)/Iγ(90°)=1.10 *6*.
829 *2*	&	6875	$(57/2^+)$	6046.1	$(53/2^+)$		
855.3 *3*	26	6904.8	$57/2^-$	6049.5	$53/2^-$		Iγ(30°)/Iγ(90°)=1.2 *3*.
896 *2*	&	7771	$(61/2^+)$	6875	$(57/2^+)$		
919.7 *3*	14	7824.5	$(61/2^-)$	6904.8	$57/2^-$		Iγ(30°)/Iγ(90°)=2.17 *16*.
983.3 *3*	10	8807.8	$(65/2^-)$	7824.5	$(61/2^-)$		Iγ(30°)/Iγ(90°)=1.29 *25*.
1047.5 *6*	&	9855.3	$(69/2^-)$	8807.8	$(65/2^-)$		
1107 *2*	&	10962	$(73/2^-)$	9855.3	$(69/2^-)$		

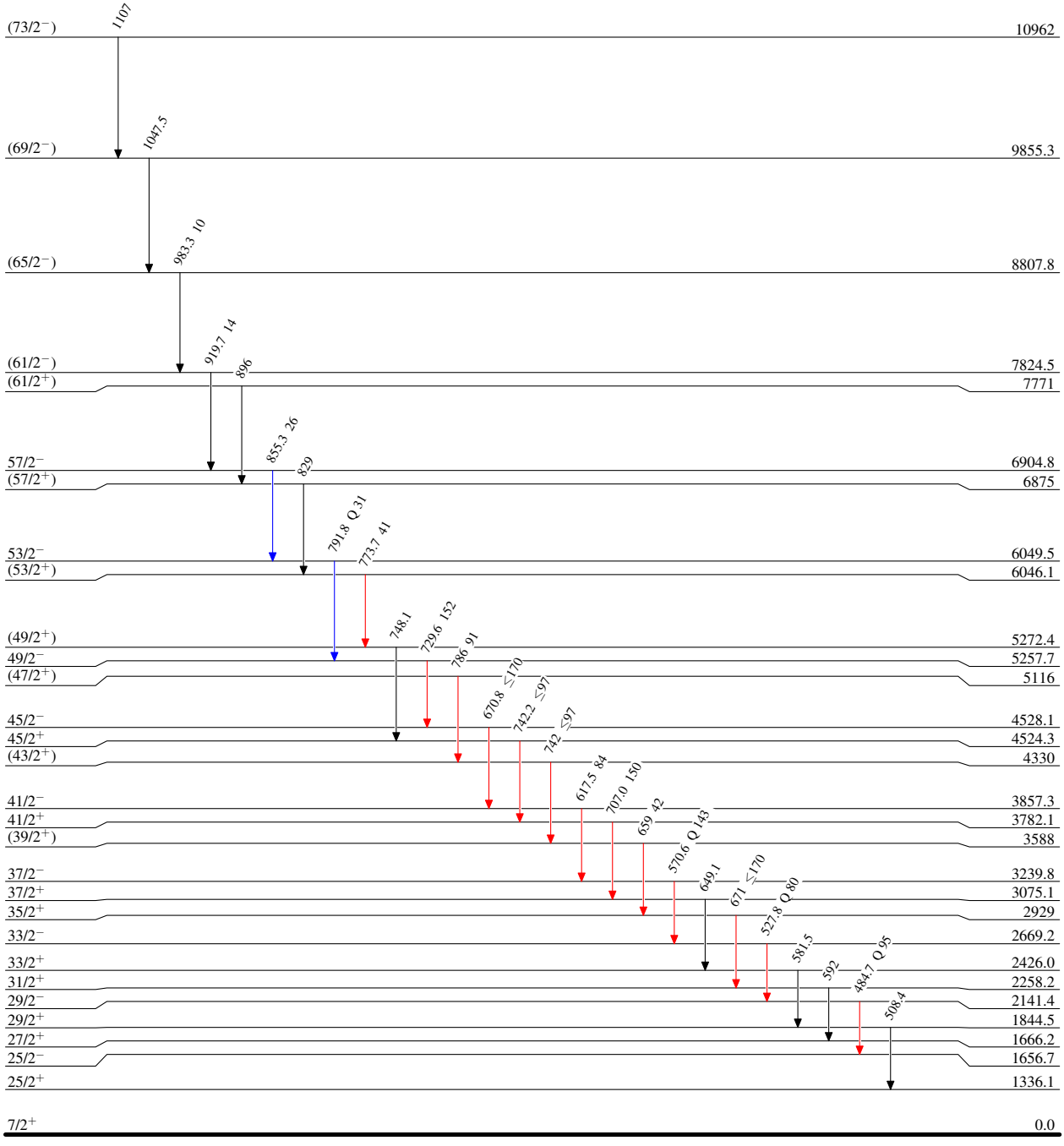
† Uncertainties not reported, but estimated by evaluator from implied precision of authors' level energies.
‡ Arbitrary units relative to Iγ=100 for 248.1γ; values are averages from 30° and 90° projected spectra.
# From ratios of Iγ(30° or 150°) to Iγ(90°), normalized so ratio=1.00 *2* for the 248.1-keV stretched Q transition.
@ Adopted value (rounded). Transition shown In level drawing In fig. 3 of 1985Ba47 but not included In table 3.
& Measurement not possible (background interference and/or low intensity).

^{124}Sn(^{48}Ca,3nγ) 1985Ba47

Level Scheme

Intensities: Relative Iγ for E(^{48}Ca)=201 MeV (average from 30° and 90° projected spectra)90° projected spectra)

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



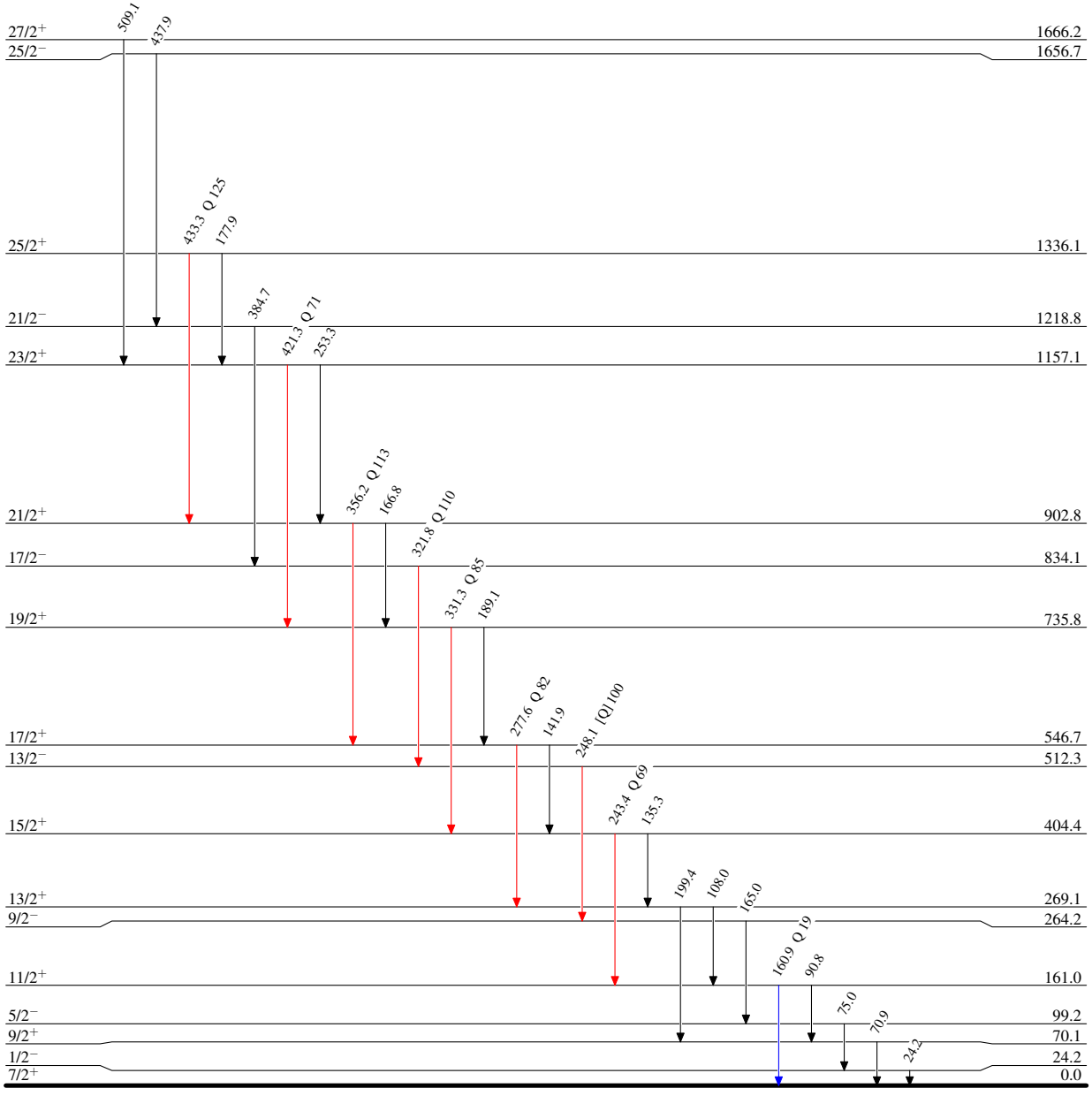
$^{169}_{70}Yb_{99}$

^{124}Sn(^{48}Ca,3nγ) 1985Ba47

Level Scheme (continued)

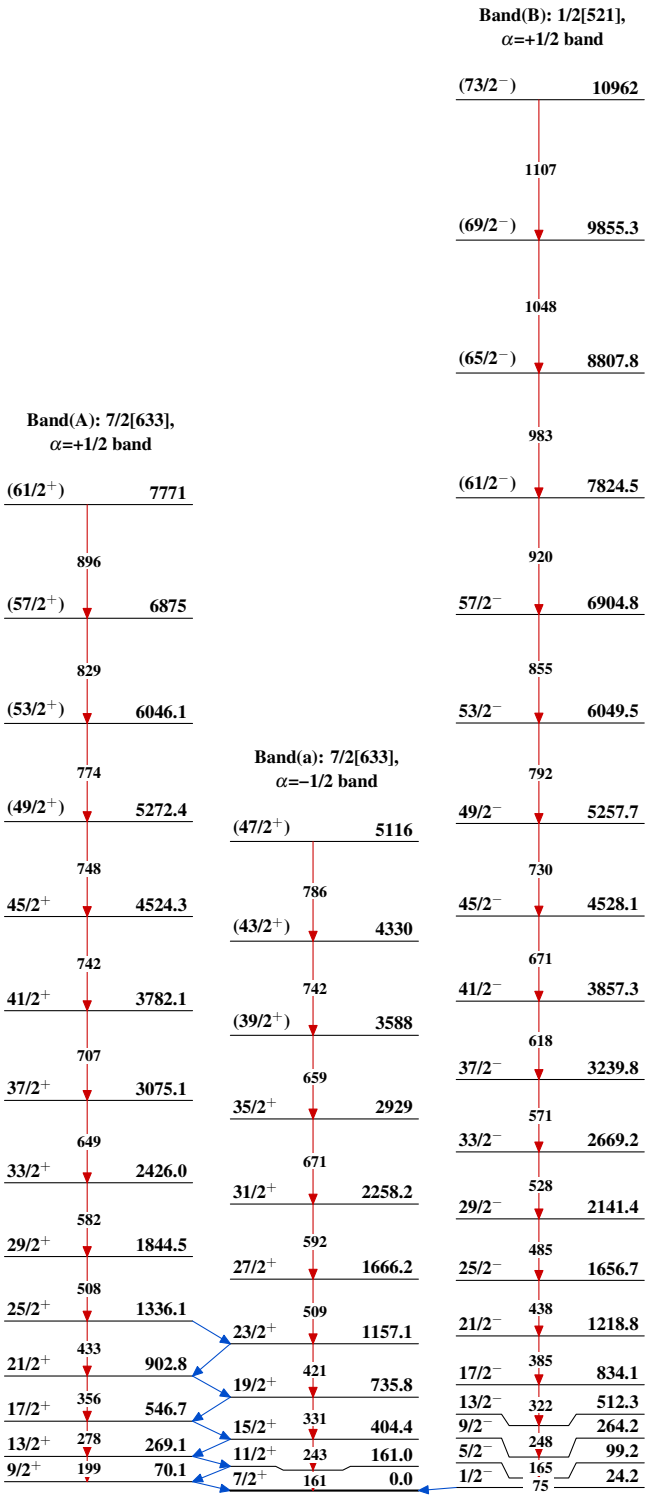
Intensities: Relative Iγ for E(^{48}Ca)=201 MeV (average from 30° and 90° projected spectra)90° projected spectra)

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



$^{169}_{70}Yb_{99}$

^{124}Sn(^{48}Ca,3nγ) 1985Ba47



$^{169}_{70}Yb_{99}$