^{100}Mo(^{29}Si,4nγ),^{116}Sn(^{12}C,3nγ) 1978Gi08,1988Ma49,1992WaZN

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	J. Katakura	NDS 112, 495 (2011)	1-Jan-2010

1992WaZN: ^{100}Mo(^{29}Si,4nγ) E=130 MeV, 8π spectrometer, $\gamma\gamma$ coin.
1978Gi08: ^{116}Sn(^{12}C,3nγ) E=45-55 MeV ^{116}Sn metallic enriched target 84.4% on Pb foil, semi γ, $\gamma\gamma$ coin, $\gamma\gamma$ delayed coin; excitation function: 45, 49, 51, 55 MeV; $\gamma(\theta)$ θ=0°,15°,30°,45°,60°,75°,90°.
1988Ma49: ^{110}Cd+^{18}O E=80 MeV, ^{98}Mo+^{34}S E=160 MeV enriched target 93.3% on Pb foil, Compton-suppressed Ge, $\gamma\gamma$-coin, $\gamma(\theta)$ θ=30°,90°,150°.

^{125}Ba Levels

E(level)†	J$^\pi$#	Comments
0.0+x@	(5/2$^+$)	Additional information 1. J$^\pi$: From Adopted Levels.
67.6+x*c* 5	(7/2$^-$)	J$^\pi$: From Adopted Levels.
166.4+x*b* 5	(9/2$^-$)	
168.62+x& 9	(7/2$^+$)	
300.4+x*c* 5	(11/2$^-$)	
384.92+x@ 11	(9/2$^+$)	
572.9+x*b* 5	(13/2$^-$)	
639.43+x& 12	(11/2$^+$)	
751.0+x*c* 5	(15/2$^-$)	
931.30+x@ 17	(13/2$^+$)	
1163.1+x*b* 5	(17/2$^-$)	
1242.8+x*e* 5	(15/2$^-$)	
1253.02+x& 21	(15/2$^+$)	
1354.7+x*c* 5	(19/2$^-$)	
1603.47+x@ 25	(17/2$^+$)	
1803.2+x*e* 5	(19/2$^-$)	
1901.4+x*b* 5	(21/2$^-$)	
1970.4+x& 5	(19/2$^+$)	
2085.7+x*c* 5	(23/2$^-$)	
2350.3+x@ 7	(21/2$^+$)	
2402.3+x*e* 6	(23/2$^-$)	
2474.1+x‡*a* 8	(21/2$^+$)	
2678.8+x‡*a* 6	(23/2$^+$)	
2747.6+x*b* 5	(25/2$^-$)	
2911.5+x*c* 6	(27/2$^-$)	
2942.6+x‡*a* 7	(25/2$^+$)	
3222.7+x‡*a* 9	(27/2$^+$)	
3532.7+x*d* 7	(29/2$^-$)	
3554.7+x‡*a* 10	(29/2$^+$)	
3769.7+x*c* 8	(31/2$^-$)	
3873.7+x‡*a* 11	(31/2$^+$)	
3912.9+x*d* 9	(31/2$^-$)	
4168.8+x*d* 8	(33/2$^-$)	
4291.7+x‡*a* 12	(33/2$^+$)	
4565.5+x*d* 9	(35/2$^-$)	
4668.7+x‡*a* 13	(35/2$^+$)	1992WaZN report 4468 keV for this level, but the energy is inconsistent with γ rays connecting to this level.

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^{100}Mo(^{29}Si,4nγ),^{116}Sn(^{12}C,3nγ) 1978Gi08,1988Ma49,1992WaZN (continued)

^{125}Ba Levels (continued)

E(level)[†]	J$^\pi$[#]	Comments
4747.7+x[c] *13*	(35/2$^+$)	
4964.8+x[d] *10*	(37/2$^-$)	
5154.7+x[‡a] *16*	(37/2$^+$)	
5458.3+x[d] *11*	(39/2$^-$)	E(level): From 1992WaZN; 1988Ma49 assume 5216-keV level as (39/2$^-$).
5607.7+x[‡a] *17*	(39/2$^+$)	
5928.5+x[d] *12*	(41/2$^-$)	
6467.4+x[d] *13*	(43/2$^-$)	E(level): From 1992WaZN; 1988Ma49 assume 5962-keV level as (43/2$^-$).
6679.7+x[‡a] *19*	(43/2$^+$)	
7021.4+x[d] *14*	(45/2$^-$)	
7574.4+x[d] *17*	(47/2$^-$)	
7800.7+x[‡a] *22*	(47/2$^+$)	
8201.4+x[d] *17*	(49/2$^-$)	
8760.4+x[d] *19*	(51/2$^-$)	
9946.4+x[d] *22*	(55/2$^-$)	
11178.4+x[d] *24*	(59/2$^-$)	

[†] From a least-squares fit to Eγ's.
[‡] Some of the band members are belonged to another band according to ^{64}Ni(^{64}Ni,3nγ). Assignment is questionable.
[#] From $\gamma(\theta)$, unless otherwise noted.
[@] Band(A): $d_{5/2}$ qp band, 5/2$^+$ band head, α=+1/2.
[&] Band(B): $d_{5/2}$ qp band, 7/2$^+$ band head, α=−1/2.
[a] Band(C): 3-Q(g.s.) band built on $d_{5/2}$ band.
[b] Band(D): $h_{11/2}$ qp band-1, 9/2$^-$ band head, α=+1/2.
[c] Band(E): $h_{11/2}$ qp band-1, 7/2$^-$ band head, α=−1/2.
[d] Band(F): 3-Q(g.s.) band built on $H_{11/2}$ band.
[e] Band(G): $h_{11/2}$ qp band-2.

γ(^{125}Ba)

E$_\gamma$[#]	I$_\gamma$[‡]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[†]	Comments
67.6 *5*		67.6+x	(7/2$^-$)	0.0+x	(5/2$^+$)	E1	E$_\gamma$: From ^{125}La ε decay. Mult.: From Adopted Levels, gammas.
98.8 *1*	131 *7*	166.4+x	(9/2$^-$)	67.6+x	(7/2$^-$)	M1+E2	−1.97≤δ≤−1.46 or −0.46≤δ≤−0.29. A$_2$=−0.48 *4*, A$_4$=−0.04 *6* (1978Gi08).
134.0 *1*	138 *7*	300.4+x	(11/2$^-$)	166.4+x	(9/2$^-$)	M1+E2	Mult.: From $\gamma(\theta)$ and α(K)exp in ^{125}La ε decay. −2.25≤δ≤−0.274. A$_2$=−0.592 *16*, A$_4$=0.067 *14* (1978Gi08); A$_2$=−0.19 *2* (1988Ma49).
163 *1*		2911.5+x	(27/2$^-$)	2747.6+x	(25/2$^-$)	(D+Q)	Mult.: From $\gamma(\theta)$ and α(K)exp in ^{125}La ε decay. E$_\gamma$: From 1988Ma49. A$_2$=−0.18 *10* (1988Ma49).
168.6 *1*	128 *6*	168.62+x	(7/2$^+$)	0.0+x	(5/2$^+$)	(M1)	A$_2$=−0.297 *19*, A$_4$=0.057 *19* (1978Gi08).
178.1 *1*	34.9 *24*	751.0+x	(15/2$^-$)	572.9+x	(13/2$^-$)	D+Q	Mult.: From $\gamma(\theta)$ and α(K)exp in ^{125}La ε decay. −4.00≤δ≤−1.94 or −0.38≤δ≤−0.12. A$_2$=−0.34 *5*, A$_4$=0.02 *5* (1978Gi08); A$_2$=−0.34 *9* (1988Ma49).
184.2 *2*	3.0 *7*	2085.7+x	(23/2$^-$)	1901.4+x	(21/2$^-$)		

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^{100}Mo(^{29}Si,4nγ),^{116}Sn(^{12}C,3nγ) 1978Gi08,1988Ma49,1992WaZN (continued)

γ(^{125}Ba) (continued)

E_γ[#]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	Comments
191.6 *2*	6.6 *11*	1354.7+x	(19/2$^-$)	1163.1+x	(17/2$^-$)		A_2=−0.08 *3* (1988Ma49).
205[a]		2678.8+x	(23/2$^+$)	2474.1+x	(21/2$^+$)		
216.3 *1*	35.6 *25*	384.92+x	(9/2$^+$)	168.62+x	(7/2$^+$)	M1+E2	−2.71≤δ≤−2.29 or −0.23≤δ≤−0.176. A_2=−0.59 *4*, A_4=0.05 *4* (1978Gi08). Mult.: From $\gamma(\theta)$ and α(K)exp in ^{125}La ε decay.
232.7 *1*	24 *3*	300.4+x	(11/2$^-$)	67.6+x	(7/2$^-$)		A_2=−0.16 *8*, A_4=0.09 *10* (1978Gi08); A_2=0.20 *4* (1988Ma49).
236.9[&] *7*		3769.7+x	(31/2$^-$)	3532.7+x	(29/2$^-$)	(D+Q)	A_2=0.18 *18* (1988Ma49).
254.5 *1*	30.6 *21*	639.43+x	(11/2$^+$)	384.92+x	(9/2$^+$)	D+Q	−4.36≤δ≤−2.38 or −0.25≤δ≤−0.071. A_2=−0.50 *6*, A_4=0.01 *6* (1978Gi08).
256[a]		4168.8+x	(33/2$^-$)	3912.9+x	(31/2$^-$)		
264[a]		2942.6+x	(25/2$^+$)	2678.8+x	(23/2$^+$)		
272.4 *1*	78 *4*	572.9+x	(13/2$^-$)	300.4+x	(11/2$^-$)	D+Q	−1.73≤δ≤−0.82. A_2=−0.742 *10*, A_4=0.095 *6*(1978Gi08); A_2=−0.54 *9* (1988Ma49).
280[a]		3222.7+x	(27/2$^+$)	2942.6+x	(25/2$^+$)		
291.7 *2*	9.0 *13*	931.30+x	(13/2$^+$)	639.43+x	(11/2$^+$)	D+Q	A_2=−0.43 *15*, A_4=0.05 *14* (1978Gi08).
319[a]		3873.7+x	(31/2$^+$)	3554.7+x	(29/2$^+$)		
321.7 *2*	11.8 *18*	1253.02+x	(15/2$^+$)	931.30+x	(13/2$^+$)	D+Q	−4.71≤δ≤−2.57 or −0.25≤δ≤−0.087. A_2=−0.56 *6*, A_4=0.09 *5* (1978Gi08).
329[a]		2678.8+x	(23/2$^+$)	2350.3+x	(21/2$^+$)		
332[a]		3554.7+x	(29/2$^+$)	3222.7+x	(27/2$^+$)		
350.5 *2*	7.0 *17*	1603.47+x	(17/2$^+$)	1253.02+x	(15/2$^+$)	D+Q	−7.0≤δ≤−1.94 or −0.39≤δ≤−0.03. A_2=−0.41 *16*, A_4=0.27 *13* (1978Gi08).
367[a]		1970.4+x	(19/2$^+$)	1603.47+x	(17/2$^+$)		
377[a]		4668.7+x	(35/2$^+$)	4291.7+x	(33/2$^+$)		
380[a]		2350.3+x	(21/2$^+$)	1970.4+x	(19/2$^+$)		
380[a]		3912.9+x	(31/2$^-$)	3532.7+x	(29/2$^-$)		
385.0 *2*	3.0 *6*	384.92+x	(9/2$^+$)	0.0+x	(5/2$^+$)		A_2=0.05 *15*, A_4=−0.01 *18* (1978Gi08).
396.9[&] *7*		4565.5+x	(35/2$^-$)	4168.8+x	(33/2$^-$)	(D+Q)	A_2=−0.47 *9* (1988Ma49).
399[&] *1*		4168.8+x	(33/2$^-$)	3769.7+x	(31/2$^-$)	D+Q	A_2=−0.55 *16* (1988Ma49).
400[&] *1*		4964.8+x	(37/2$^-$)	4565.5+x	(35/2$^-$)		
406.5 *1*	38.5 *20*	572.9+x	(13/2$^-$)	166.4+x	(9/2$^-$)	(Q)	A_2=0.28 *3*, A_4=−0.03 *5* (1978Gi08); A_2=0.40 *9* (1988Ma49).
412.1 *1*	35 *3*	1163.1+x	(17/2$^-$)	751.0+x	(15/2$^-$)	(D+Q)	−2.84≤δ≤−1.88 or −0.42≤δ≤−0.10. A_2=−0.39 *5*, A_4=−0.04 *8* (1978Gi08); −0.71 *10* (1988Ma49).
418[a]		4291.7+x	(33/2$^+$)	3873.7+x	(31/2$^+$)		
450.7 *1*	100 *5*	751.0+x	(15/2$^-$)	300.4+x	(11/2$^-$)	(Q)	A_2=0.197 *25*, A_4=0.017 *33* (1978Gi08); A_2=0.36 *3* (1988Ma49).
468[ac]		2942.6+x	(25/2$^+$)	2474.1+x	(21/2$^+$)		
470[a]		5928.5+x	(41/2$^-$)	5458.3+x	(39/2$^-$)		
470.8 *1*	29 *4*	639.43+x	(11/2$^+$)	168.62+x	(7/2$^+$)	Q	A_2=0.36 *4*, A_4=−0.08 *7* (1978Gi08).
494[a]		5458.3+x	(39/2$^-$)	4964.8+x	(37/2$^-$)		
539[a]		6467.4+x	(43/2$^-$)	5928.5+x	(41/2$^-$)		
544[a]		3222.7+x	(27/2$^+$)	2678.8+x	(23/2$^+$)		
546.5[b] *2*	≤28[b]	931.30+x	(13/2$^+$)	384.92+x	(9/2$^+$)		I_γ: Multiply placed, undivided intensity given. A_2=−0.01 *4*, A_4=−0.08 *5* (1978Gi08); A_2=−0.13 *3* (1988Ma49).
546.5[b] *2*	≤28[b]	1901.4+x	(21/2$^-$)	1354.7+x	(19/2$^-$)		I_γ: Multiply placed, undivided intensity given. A_2=−0.01 *4*, A_4=−0.08 *5* (1978Gi08); A_2=−0.13 *3* (1988Ma49).
554[a]		7021.4+x	(45/2$^-$)	6467.4+x	(43/2$^-$)		

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^{100}Mo(^{29}Si,4nγ),^{116}Sn(^{12}C,3nγ) 1978Gi08,1988Ma49,1992WaZN (continued)

γ(^{125}Ba) (continued)

E_γ[#]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	Comments
560.3 *2*	31 *5*	1803.2+x	(19/2$^-$)	1242.8+x	(15/2$^-$)	Q	A_2=0.23 *3*, A_4=−0.06 *4* (1978Gi08).
590.2 *1*	31 *5*	1163.1+x	(17/2$^-$)	572.9+x	(13/2$^-$)	(Q)	A_2=0.35 *7*, A_4=−0.07 *13* (1978Gi08); A_2=0.19 *3* (1988Ma49).
592[a]		2942.6+x	(25/2$^+$)	2350.3+x	(21/2$^+$)		
599.1 *2*	24 *4*	2402.3+x	(23/2$^-$)	1803.2+x	(19/2$^-$)	Q	A_2=0.253 *21*, A_4=−0.09 *3* (1978Gi08).
603.6 *2*	56 *8*	1354.7+x	(19/2$^-$)	751.0+x	(15/2$^-$)	Q	A_2=0.24 *5*, A_4=0.02 *9* (1978Gi08); A_2=0.17 *3* (1988Ma49).
612[a]		3554.7+x	(29/2$^+$)	2942.6+x	(25/2$^+$)		
613.7 *3*	16.5 *13*	1253.02+x	(15/2$^+$)	639.43+x	(11/2$^+$)	Q	A_2=0.38 *5*, A_4=0.07 *15* (1978Gi08).
621[&] *1*	36 *18*	3532.7+x	(29/2$^-$)	2911.5+x	(27/2$^-$)	(D+Q)	A_2=0.14 *5* (1988Ma49).
636.3[&] *7*		4168.8+x	(33/2$^-$)	3532.7+x	(29/2$^-$)		A_2=0.09 *7* (1988Ma49).
640.2 *2*	15 *3*	1803.2+x	(19/2$^-$)	1163.1+x	(17/2$^-$)	D+Q	0.11≤δ≤0.40. A_2=0.10 *12*, A_4=−0.02 *14* (1978Gi08).
651[a]		3873.7+x	(31/2$^+$)	3222.7+x	(27/2$^+$)		A_2=0.07 *2* (1988Ma49).
653[a]		4565.5+x	(35/2$^-$)	3912.9+x	(31/2$^-$)		
661.8 *2*	15 *3*	2747.6+x	(25/2$^-$)	2085.7+x	(23/2$^-$)	(D+Q)	−7.69≤δ≤−0.045. A_2=−0.36 *4*, A_4=−0.04 *4* (1978Gi08); A_2=−0.60 *4* (1988Ma49).
669.9 *1*	26 *4*	1242.8+x	(15/2$^-$)	572.9+x	(13/2$^-$)	D+Q	−3.0≤δ≤−2.45 or −0.25≤δ≤−0.19. A_2=−0.45 *3*, A_4=0.17 *5* (1978Gi08).
672.1 *3*	17 *3*	1603.47+x	(17/2$^+$)	931.30+x	(13/2$^+$)	Q	A_2=0.259 *17*, A_4=0.04 *6* (1978Gi08).
708[a]		2678.8+x	(23/2$^+$)	1970.4+x	(19/2$^+$)		
717.3[@] *5*	33 *4*	1970.4+x	(19/2$^+$)	1253.02+x	(15/2$^+$)	Q	A_2=0.33 *5*, A_4=−0.01 *7* (1978Gi08).
731.1 *2*	40 *5*	2085.7+x	(23/2$^-$)	1354.7+x	(19/2$^-$)	Q	A_2=0.194 *14*, A_4=−0.026 *21* (1978Gi08); A_2=0.22 *3* (1988Ma49).
737[a]		4291.7+x	(33/2$^+$)	3554.7+x	(29/2$^+$)		
738.5 *2*	23 *3*	1901.4+x	(21/2$^-$)	1163.1+x	(17/2$^-$)	Q	A_2=0.221 *24*, A_4=−0.04 *3* (1978Gi08); A_2=0.23 *4* (1988Ma49).
747[a]		2350.3+x	(21/2$^+$)	1603.47+x	(17/2$^+$)		A_2=0.07 *3* (1988Ma49).
777[a]		2678.8+x	(23/2$^+$)	1901.4+x	(21/2$^-$)		
785.3 *7*		3532.7+x	(29/2$^-$)	2747.6+x	(25/2$^-$)	(Q)	E_γ: From 1988Ma49. A_2=0.41 *9* (1988Ma49).
795[&] *1*		4565.5+x	(35/2$^-$)	3769.7+x	(31/2$^-$)		A_2=0.11 *6* (1988Ma49).
795[a]		4668.7+x	(35/2$^+$)	3873.7+x	(31/2$^+$)		
796[&] *1*		4964.8+x	(37/2$^-$)	4168.8+x	(33/2$^-$)		
825.8 *3*	15 *3*	2911.5+x	(27/2$^-$)	2085.7+x	(23/2$^-$)	Q	A_2=0.35 *4*, A_4=−0.02 *6* (1978Gi08); A_2=0.35 *3* (1988Ma49).
846.2 *2*	6.4 *12*	2747.6+x	(25/2$^-$)	1901.4+x	(21/2$^-$)	(Q)	A_2=0.18 *8*, A_2=−0.01 *11* (1978Gi08); A_2=0.16 *4* (1988Ma49).
857[a]		2942.6+x	(25/2$^+$)	2085.7+x	(23/2$^-$)		
857.8[&] *7*		3769.7+x	(31/2$^-$)	2911.5+x	(27/2$^-$)	(Q)	A_2=0.16 *3* (1988Ma49).
863[a]		5154.7+x	(37/2$^+$)	4291.7+x	(33/2$^+$)		
871[a]		2474.1+x	(21/2$^+$)	1603.47+x	(17/2$^+$)		
892[a]		5458.3+x	(39/2$^-$)	4565.5+x	(35/2$^-$)		
939[a]		5607.7+x	(39/2$^+$)	4668.7+x	(35/2$^+$)		
964[a]		5928.5+x	(41/2$^-$)	4964.8+x	(37/2$^-$)		
978[a]		4747.7+x	(35/2$^+$)	3769.7+x	(31/2$^-$)		
1002[a]		3912.9+x	(31/2$^-$)	2911.5+x	(27/2$^-$)		
1009[a]		6467.4+x	(43/2$^-$)	5458.3+x	(39/2$^-$)		
1072[a]		6679.7+x	(43/2$^+$)	5607.7+x	(39/2$^+$)		
1093[a]		7021.4+x	(45/2$^-$)	5928.5+x	(41/2$^-$)		
1107[a]		7574.4+x	(47/2$^-$)	6467.4+x	(43/2$^-$)		

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^{100}Mo(^{29}Si,4nγ),^{116}Sn(^{12}C,3nγ) 1978Gi08,1988Ma49,1992WaZN (continued)

γ(^{125}Ba) (continued)

E_γ [#]	E_i(level)	J_i^π	E_f	J_f^π
1121[a]	7800.7+x	(47/2$^+$)	6679.7+x	(43/2$^+$)
1180[a]	8201.4+x	(49/2$^-$)	7021.4+x	(45/2$^-$)
1186[a]	8760.4+x	(51/2$^-$)	7574.4+x	(47/2$^-$)
1186[a]	9946.4+x	(55/2$^-$)	8760.4+x	(51/2$^-$)
1232[a]	11178.4+x	(59/2$^-$)	9946.4+x	(55/2$^-$)

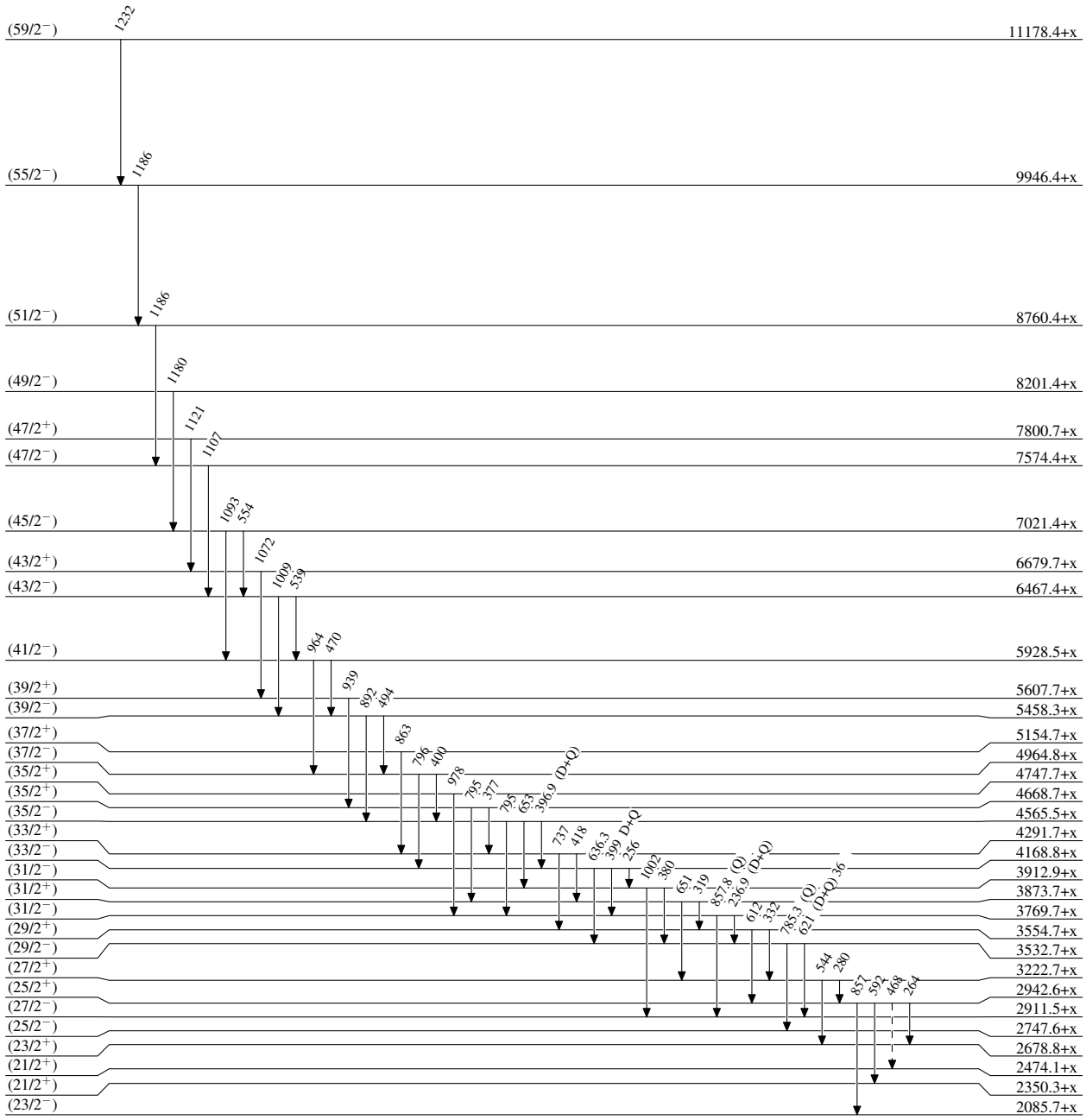
† From $\gamma(\theta)$, unless otherwise noted.
‡ Relative to I(450.7γ)=100 at E=54 MeV and θ=125° (1978Gi08), unless otherwise indicated.
# From 1978Gi08, unless otherwise noted.
@ Complex peak.
& From (1988Ma49). Uncertainties of energy and intensity are assumed based on the experimental uncertainties of 0.1-0.7 keV for energy and 0.5-50% for intensity.
a From (1992WaZN). Uncertainties of energy and intensity are not given.
b Multiply placed with undivided intensity.
c Placement of transition in the level scheme is uncertain.

^{100}Mo(^{29}Si,4nγ),^{116}Sn(^{12}C,3nγ) 1978Gi08,1988Ma49,1992WaZN Legend

Level Scheme

Intensities: Relative I_γ

γ Decay (Uncertain)



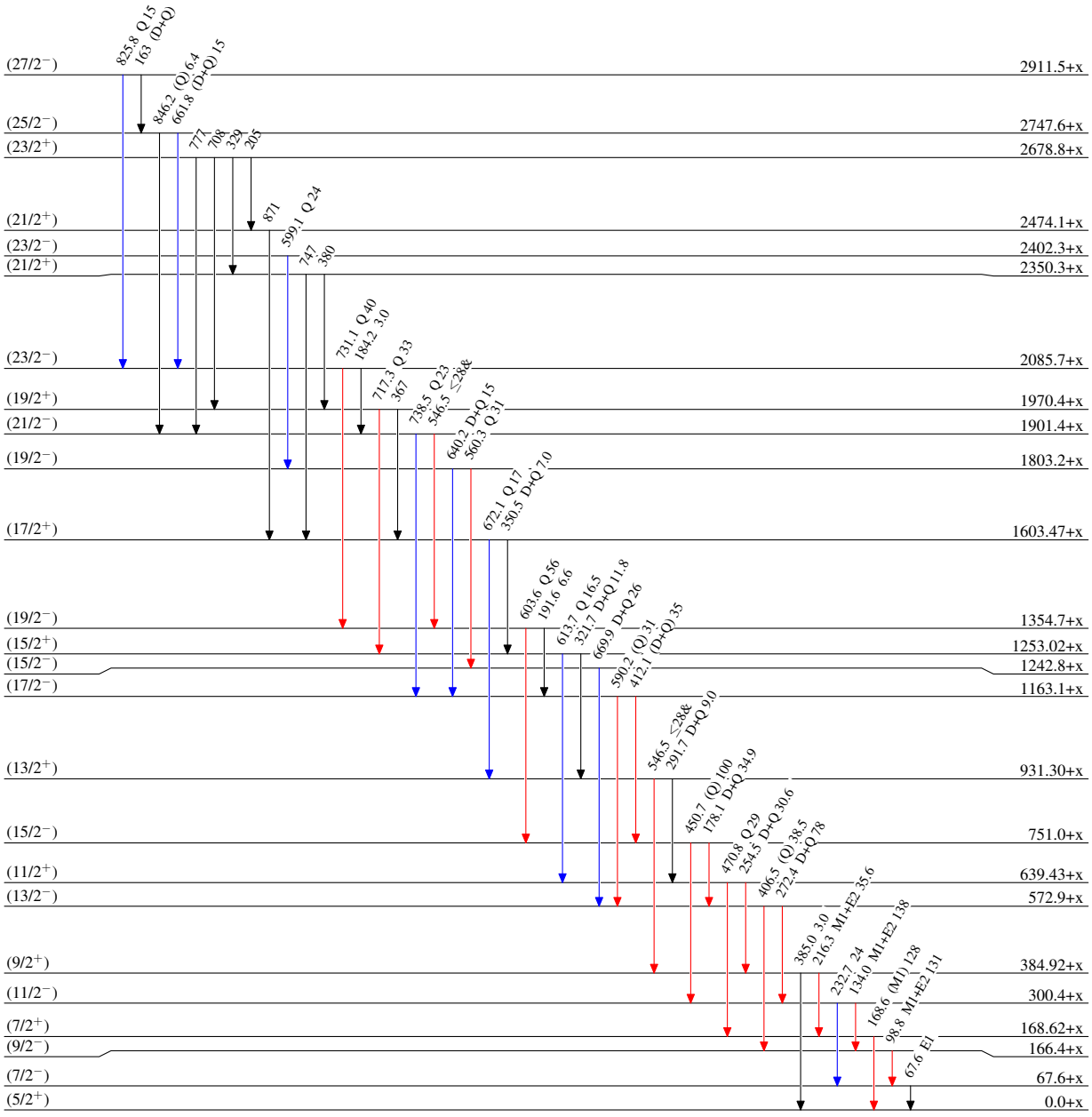
$^{125}_{56}Ba_{69}$

^{100}Mo(^{29}Si,4nγ),^{116}Sn(^{12}C,3nγ) 1978Gi08,1988Ma49,1992WaZN

Level Scheme (continued)

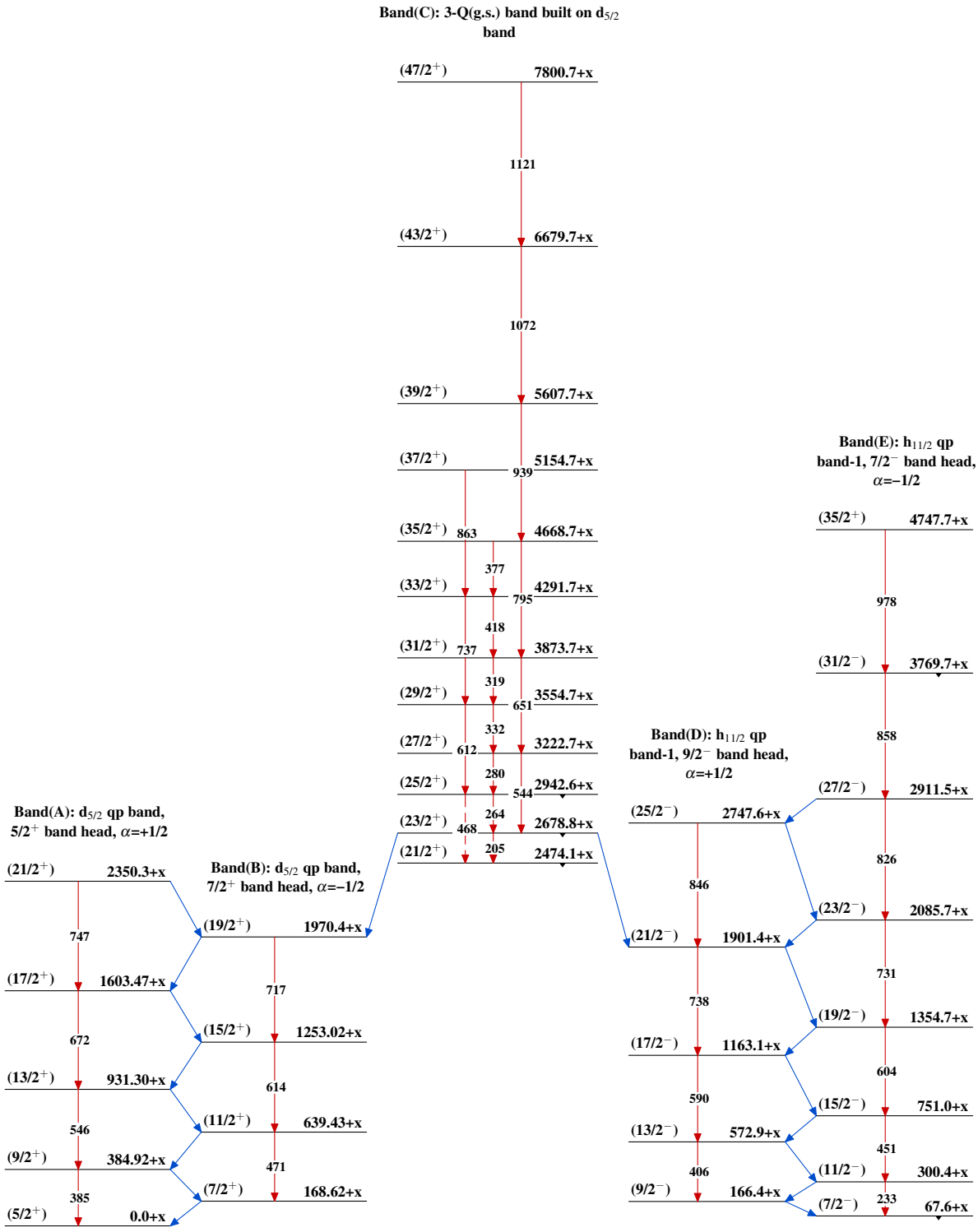
Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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



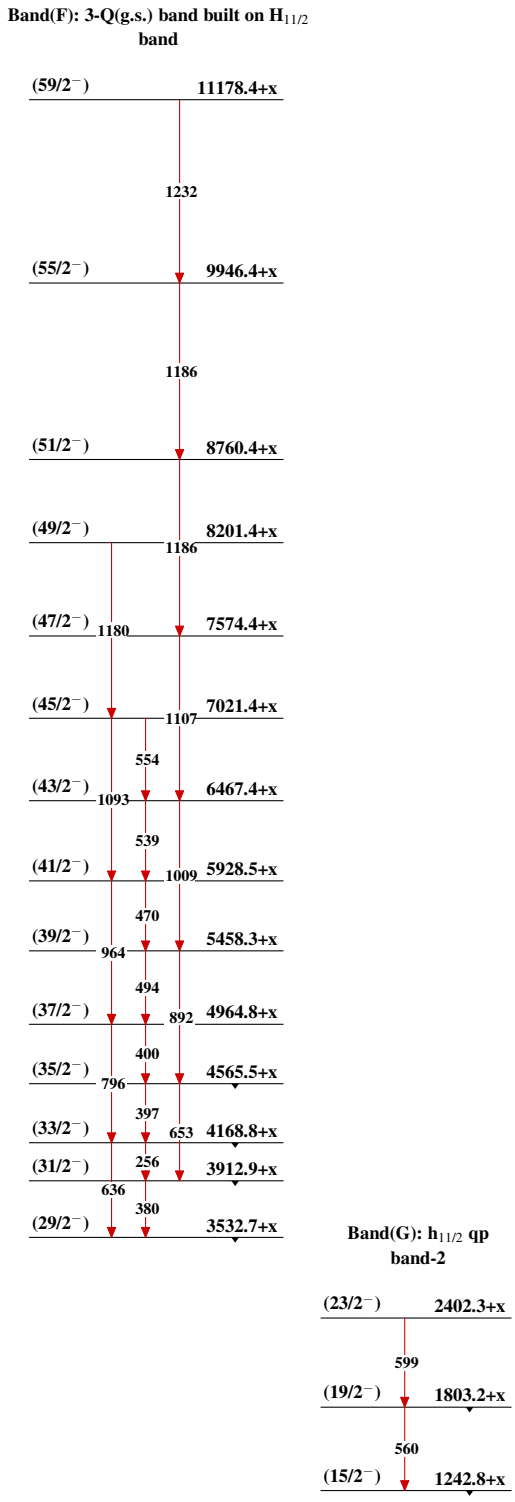
$^{125}_{56}Ba_{69}$

^{100}Mo(^{29}Si,4nγ),^{116}Sn(^{12}C,3nγ) 1978Gi08,1988Ma49,1992WaZN



$^{125}_{56}Ba_{69}$

^{100}Mo(^{29}Si,4nγ),^{116}Sn(^{12}C,3nγ) 1978Gi08,1988Ma49,1992WaZN (continued)



$^{125}_{56}Ba_{69}$