^{100}Mo(^{6}Li,3nγ), (^{7}Li,4nγ) 1988De04,1984Ch06

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne	NDS 110, 2081 (2009)	1-Mar-2009

1983Ka31: E(^{6}Li)=22-34 MeV. Enriched targets. Measured: Eγ, $\gamma\gamma$, $\gamma(\theta)$. Deduced: ^{103}Rh levels, J^{π}, mult, δ.
1984Ch06: E(^{7}Li)=28 MeV. Enriched targets. Measured: Eγ, Iγ, $\gamma\gamma$(t),$\gamma(\theta)$, γ pol. Deduced: ^{103}Rh levels, J^{π}, mult, δ.
1986Ha09: E(^{6}Li)=49 MeV. Measured: Eγ, $\gamma\gamma$, γ coin with energetic ejectiles, deduced: change in the signature splitting.
1988De04: E(^{6}Li)=49 MeV. Measured: Eγ, $\gamma\gamma$, γ coin with energetic ejectiles, $\gamma(\theta)$.

^{103}Rh Levels

E(level)	J^{π}†	E(level)	J^{π}†	E(level)	J^{π}†	E(level)	J^{π}†
0.0&	1/2$^-$	1717.7# 6	17/2$^+$	3014.5[a] 5	23/2$^-$	3942.8[e]	27/2$^+$
40.1 6	7/2$^+$	2221.4 5	15/2$^-$	3215&	21/2$^-$	4039.7&	(25/2$^-$)
93.3[d] 6	9/2$^+$	2345.6[a] 4	17/2$^-$	3218.7[e]	21/2$^+$	4324.6[e]	29/2$^+$
294.86 18	3/2$^-$	2418.8& 5	17/2$^-$	3229.6[b] 7	23/2$^-$	4339.6[a]	(29/2$^-$)
357.55& 18	5/2$^-$	2522.5[b] 5	17/2$^-$	3277.3[c] 7	23/2	4709.9[e]	31/2$^+$
658.0 6	11/2$^+$	2525.7[d] 7	19/2$^+$	3330.3[a] 7	25/2$^-$	5052.7[d]	29/2$^+$
821.7[d] 6	13/2$^+$	2540.8[a] 4	19/2$^-$	3399[e]	23/2$^+$	5200.7[e]	33/2$^+$
847.5 3	7/2$^-$‡	2702.0[b] 4	19/2$^-$	3616.8[c]	(25/2)	5667.5[e]	35/2$^+$
887.9?@		2740.2[d] 8	21/2$^+$	3634.2[e]	25/2$^+$	6212.9[e]	(37/2$^+$)
920.2& 3	9/2$^-$	2753.7[a] 5	21/2$^-$	3672.6[b] 9	(25/2)		
1524.9[d] 6	15/2$^+$	2918.4[b] 5	21/2$^-$	3772.3[a] 9	27/2$^-$		
1637.8& 4	13/2$^-$	2937.2[c] 5	21/2	3871.7[d]	25/2$^+$		

† As given by 1988De04 based on $\gamma(\theta)$ and observed band structure The values are the same as the Adopted ones apart from parentheses for some levels for the Adopted ones.
‡ 1983Ka31 give 3/2$^-$ based on γ excitation in ^{100}Mo(^{6}Li,3nγ) in disagreement with Coul. ex. results of 1972Sa03 and 1969Bl04; however, 1988De04 point out that the 73γ from 9/2$^-$ rules out 3/2$^-$.
# 1986Ha09 give 1774 keV for the 17/2$^+$ level. Evaluator suggests a misprint but that cannot be verified because no gamma energies are given.
@ Observed only by 1983Ka31.
& Band(A): g.s. band with ΔJ=2.
[a] Band(B): band based on the 17/2$^-$ level with ΔJ=1.
[b] Band(C): side band 1.
[c] Band(D): side band 2.
[d] Band(E): band based on the 9/2$^+$ state.
[e] Band(F): band based on the 21/2$^+$ state with ΔJ=1.

$\gamma(^{103}Rh)$

E$_\gamma$†	I$_\gamma$#	E$_i$(level)	J^{π}_i	E$_f$	J^{π}_f	Mult.@	α&	Comments
53.3‡ 2	51 5	93.3	9/2$^+$	40.1	7/2$^+$	M1	2.08 3	A_2=−0.12 4, A_4=+0.007 5 (1984Ch06). Mult.,I$_\gamma$: from 1984Ch06.
62.4‡ 5	5.4	357.55	5/2$^-$	294.86	3/2$^-$			A_2=−0.3 2 (1984Ch06).
73.5‡ 5	8.2	920.2	9/2$^-$	847.5	7/2$^-$			A_2=−0.03 6 (1984Ch06).
122.3 5	7.5	2540.8	19/2$^-$	2418.8	17/2$^-$	D		A_2=−0.27 4, A_4=+0.09 6 (1984Ch06).
124.4 3	19.5	2345.6	17/2$^-$	2221.4	15/2$^-$	D		A_2=−0.25 3, A_4=+0.02 5 (1984Ch06).
163.5‡ 5	6.0	821.7	13/2$^+$	658.0	11/2$^+$	D		A_2=−0.175 or ±0.003, A_4=0.003 or ±0.045

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^{100}Mo(^{6}Li,3nγ), (^{7}Li,4nγ) 1988De04,1984Ch06 (continued)

γ(^{103}Rh) (continued)

E_γ[†]	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	α[&]	Comments
								(1983Ka31).
								A_2=−0.10 *3*, A_4=+0.03 *5* (1984Ch06).
179.4 *3*	28.4	2702.0	19/2$^-$	2522.5	17/2$^-$	D		A_2=+0.05 *5* (1984Ch06).
180.5[‡] *3*	26.9	3399	23/2$^+$	3218.7	21/2$^+$	D		A_2=+0.05 *5* (1984Ch06).
191.9 *5*	5.2	1717.7	17/2$^+$	1524.9	15/2$^+$			
195.4 *3*	71.8	2540.8	19/2$^-$	2345.6	17/2$^-$	M1	0.0549 *8*	A_2=−0.146 or ±0.015, A_4=0.018 or ±0.017 (1983Ka31).
								Mult.: in agreement with ΔJ=1 (1984Ch06).
212.9 *3*	77.6	2753.7	21/2$^-$	2540.8	19/2$^-$	M1	0.0438 *7*	A_2=−0.169 or ±0.014, A_4=0.004 or ±0.015 (1983Ka31).
								A_2=−0.26 *5*, A_4=−0.03 *8* (1984Ch06).
								Mult.: in agreement with ΔJ=1 (1984Ch06).
214.0 *5*	5.2	2740.2	21/2$^+$	2525.7	19/2$^+$			A_2=−0.26 *5*, A_4=−0.03 *8* (1984Ch06).
216.5[‡] *3*	22.8	2918.4	21/2$^-$	2702.0	19/2$^-$	D		A_2=−0.16 *3*, A_4=+0.03 *5* (1984Ch06).
234.1 *3*	21.5	2937.2	21/2	2702.0	19/2$^-$			A_2=+0.09 *5*, A_4=−0.07 *5* Pol= +0.10 *4* (1984Ch06).
								A_2=+0.20 *5*, A_4=−0.20 *8* Pol= −0.55 *15* (1984Ch06) given for unresolved doublet.
235.0 *5*	31.0	3634.2	25/2$^+$	3399	23/2$^+$	D		
260.9[‡] *3*	49.5	3014.5	23/2$^-$	2753.7	21/2$^-$	M1	0.0258 *4*	A_2=−0.124 or ±0.050, A_4=−0.044 or ±0.058 (1983Ka31).
								A_2=0.0 *1* (1984Ch06).
294.9 *5*	18.7	294.86	3/2$^-$	0.0	1/2$^-$			A_2=−0.186 or ±0.016, A_4=0.011 or ±0.018 (1983Ka31).
								A_2=+0.10 *6*, A_4=+0.01 *5* Pol= +0.06 *5* (1984Ch06) given for unresolved doublet.
301.0[‡] *3*	23.9	2522.5	17/2$^-$	2221.4	15/2$^-$	D		A_2=−0.3 *1* (1984Ch06).
308.6[‡] *3*	30.5	3942.8	27/2$^+$	3634.2	25/2$^+$	D		
311.8 *5*	6.7	3229.6	23/2$^-$	2918.4	21/2$^-$	D		A_2=−0.12 *8* (1984Ch06).
315.9 *3*	34.8	3330.3	25/2$^-$	3014.5	23/2$^-$	M1	0.01580 *23*	A_2=−0.161 or ±0.068, A_4=0.041 or ±0.074 (1983Ka31).
								A_2=−0.05 *7* (1984Ch06).
319.7 *5*	1.9	2540.8	19/2$^-$	2221.4	15/2$^-$			
339.9[‡] *5*	10.4	3277.3	23/2	2937.2	21/2			
341.8 *5*	10.3	3616.8	(25/2)	3277.3	23/2			
357.5[a] *3*	142[a]	357.55	5/2$^-$	0.0	1/2$^-$			A_2=+0.09 *5*, A_4=−0.07 *5* Pol= +0.10 *4* (1984Ch06) given for unresolved doublet.
357.6[a] *2*	142[a]	2702.0	19/2$^-$	2345.6	17/2$^-$			A_2=+0.09 *5*, A_4=−0.07 *5* Pol= +0.10 *4* (1984Ch06) given for unresolved doublet.
382.3 *3*	22.1	4324.6	29/2$^+$	3942.8	27/2$^+$	D		
384.9[‡] *5*	19.1	4709.9	31/2$^+$	4324.6	29/2$^+$	D		
[x]396.5[‡] *5*	5.3							
406.5 *5*	1.0	2753.7	21/2$^-$	2345.6	17/2$^-$			
[x]427.5[‡] *5*	17.4							
440.7[‡] *5*	17.0	3772.3	27/2$^-$	3330.3	25/2$^-$			A_2=0.0 *1* (1984Ch06).
441.8[‡] *5*	16.4	3672.6	(25/2)	3229.6	23/2$^-$	D		A_2=0.0 *1* (1984Ch06).
[x]447.5[‡] *5*	8.3							
[x]455.6[‡] *5*	6.5							
466.8[‡] *5*	6.3	5667.5	35/2$^+$	5200.7	33/2$^+$	D		
473.2 *5*	7.8	3014.5	23/2$^-$	2540.8	19/2$^-$			
479.8 *5*	3.6	3218.7	21/2$^+$	2740.2	21/2$^+$	D		
490.8[a] *5*	13.4[a]	847.5	7/2$^-$	357.55	5/2$^-$			A_2=−0.219 or ±0.041, A_4=0.035 or ±0.046

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^{100}Mo(^{6}Li,3nγ), (^{7}Li,4nγ) 1988De04,1984Ch06 (continued)

γ(^{103}Rh) (continued)

E_γ †	I_γ #	E_i(level)	J_i^π	E_f	J_f^π	Mult. @	δ †	Comments
								(1983Ka31). E_γ: not given by 1984Ch06 although clearly observed by 1983Ka31, 1988De04 and in (n,n′γ).
490.8 [a] *5*	13.4 [a]	5200.7	33/2$^+$	4709.9	31/2$^+$	D		
530.3 *5*	4.8 *3*	887.9?		357.55	5/2$^-$			A_2=0.095 or ±0.081, A_4=−0.012 or ±0.059 (1983Ka31).
545.4 *5*	13.7	6212.9	(37/2$^+$)	5667.5	35/2$^+$	D		
552.7 *5*	9.5	847.5	7/2$^-$	294.86	3/2$^-$			A_2=0.101 or ±0.082, A_4=−0.082 or ±0.097 (1983Ka31). A_2=0.0 *1* (1984Ch06) given for unresolved doublet.
562.8 *3*	104	920.2	9/2$^-$	357.55	5/2$^-$	E2		A_2=+0.34 *6*, A_4=−0.10 *7* Pol= +0.5 *1* (1984Ch06). A_2=0.212 or ±0.015, A_4=−0.083 or ±0.019 (1983Ka31).
564.5 *3*	46.5	658.0	11/2$^+$	93.3	9/2$^+$	M1+E2	+0.15 *2*	A_2=0.223 or ±0.015, A_4=−0.024 or +0.024 (1983Ka31). A_2=+0.41 *6*, A_4=+0.09 *5* Pol= −0.6 *1* (1984Ch06).
567.9 ‡ *5*	8.8	4339.6	(29/2$^-$)	3772.3	27/2$^-$	D		
583.6 *5*	10.9	2221.4	15/2$^-$	1637.8	13/2$^-$			
618.5 ‡ *5*	6.5	658.0	11/2$^+$	40.1	7/2$^+$			A_2=0.16 or ±0.038, A_4=−0.027 or ±0.046 (1983Ka31).
659.2 ‡ *5*	15.8	3399	23/2$^+$	2740.2	21/2$^+$			
692.6 *5*	17.5	3218.7	21/2$^+$	2525.7	19/2$^+$	D		
703.6 *5*	18.7	1524.9	15/2$^+$	821.7	13/2$^+$	M1+E2	+0.10 *2*	A_2=0.139 or ±0.028, A_4=0.011 or ±0.034 (1983Ka31). A_2=+0.26 *7*, A_4=0.01 *8* Pol= −0.5 *2* (1984Ch06).
707.9 *3*	42	2345.6	17/2$^-$	1637.8	13/2$^-$	E2		A_2=0.250 or ±0.022, A_4=−0.096 or ±0.028 (1983Ka31). A_2=+0.45 *10*, A_4=−0.13 *12* Pol= +0.56 *12* (1984Ch06).
717.8 *3*	77.3	1637.8	13/2$^-$	920.2	9/2$^-$	E2		A_2=+0.24 *6*, A_4=−0.14 *9* Pol= +0.47 *8* (1984Ch06). A_2=0.240 or ±0.007, A_4=−0.098 or ±0.096 (1983Ka31).
728.6 *3*	100	821.7	13/2$^+$	93.3	9/2$^+$	E2		A_2=0.225 or ±0.017, A_4=−0.087 or ±0.022 (1983Ka31). A_2=+0.25 *5*, A_4=−0.11 *8* Pol= +0.46 *8* (1984Ch06).
756.8 *5*	4.5	3772.3	27/2$^-$	3014.5	23/2$^-$			
767.1 *5*	4.2	4709.9	31/2$^+$	3942.8	27/2$^+$			
780.9 ‡ *5*	17.7 ‡	2418.8	17/2$^-$	1637.8	13/2$^-$	E2		A_2=0.245 or ±0.037, A_4=−0.087 or ±0.048 (1983Ka31). A_2=+0.45 *12*, A_4=−0.10 *15* (1984Ch06). 1983Ka31: excit suggests possible doublet.
795.8 *5*	1.3	3215	21/2$^-$	2418.8	17/2$^-$			
808.9 *5*	15.8	2525.7	19/2$^+$	1717.7	17/2$^+$	(M1+E2)	+0.06 *2*	A_2=+0.0 *1* (1984Ch06).
821.0 *5*	6.2	2345.6	17/2$^-$	1524.9	15/2$^+$			
824.9 *5*	10.5	4039.7	(25/2$^-$)	3215	21/2$^-$			
867.3 *5*	10.3	1524.9	15/2$^+$	658.0	11/2$^+$	E2		A_2=0.272 or ±0.037, A_4=−0.123 or ±0.049 (1983Ka31). A_2=0.20 *12* (1984Ch06).

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^{100}Mo(^{6}Li,3nγ), (^{7}Li,4nγ) 1988De04,1984Ch06 (continued)

γ(^{103}Rh) (continued)

E_γ[†]	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	Comments
873.2 *5*	10.3	3399	$23/2^+$	2525.7	$19/2^+$		
876.5 *5*	1.5	5200.7	$33/2^+$	4324.6	$29/2^+$		
884.2 *5*	6.4	2522.5	$17/2^-$	1637.8	$13/2^-$	Q	A_2=+0.4 *2* (1984Ch06).
892.9 *5*	15.3	3634.2	$25/2^+$	2740.2	$21/2^+$		
895.9 *3*	74.8	1717.7	$17/2^+$	821.7	$13/2^+$	E2	A_2=0.228 or ±0.030, A_4=−0.094 or ±0.035 (1983Ka31). A_2=+0.18 *6*, A_4=−0.07 *10* Pol= +0.51 *10* (1984Ch06).
[x]900.2[‡] *5*	13.1[‡]						
[x]914.1[‡] *5*	7.6[‡]						
958.3 *5*	1.8	5667.5	$35/2^+$	4709.9	$31/2^+$		
1000.8 *5*	8.2	2525.7	$19/2^+$	1524.9	$15/2^+$		A_2=+0.3 *1* (1984Ch06).
1022.5 *3*	36.3	2740.2	$21/2^+$	1717.7	$17/2^+$	E2	A_2=0.312 or ±0.060, A_4=−0.144 or ±0.077 (1983Ka31). A_2=+0.27 *9*, A_4=−0.06 *12* Pol= +0.2 *2* (1984Ch06). Mult.: M1+E2 cannot be excluded (1984Ch06).
1131.0 *5*	3.7	3871.7	$25/2^+$	2740.2	$21/2^+$		
1181.8 *5*	2.7	5052.7	$29/2^+$	3871.7	$25/2^+$		
1399.6 *5*	10.2	2221.4	$15/2^-$	821.7	$13/2^+$		

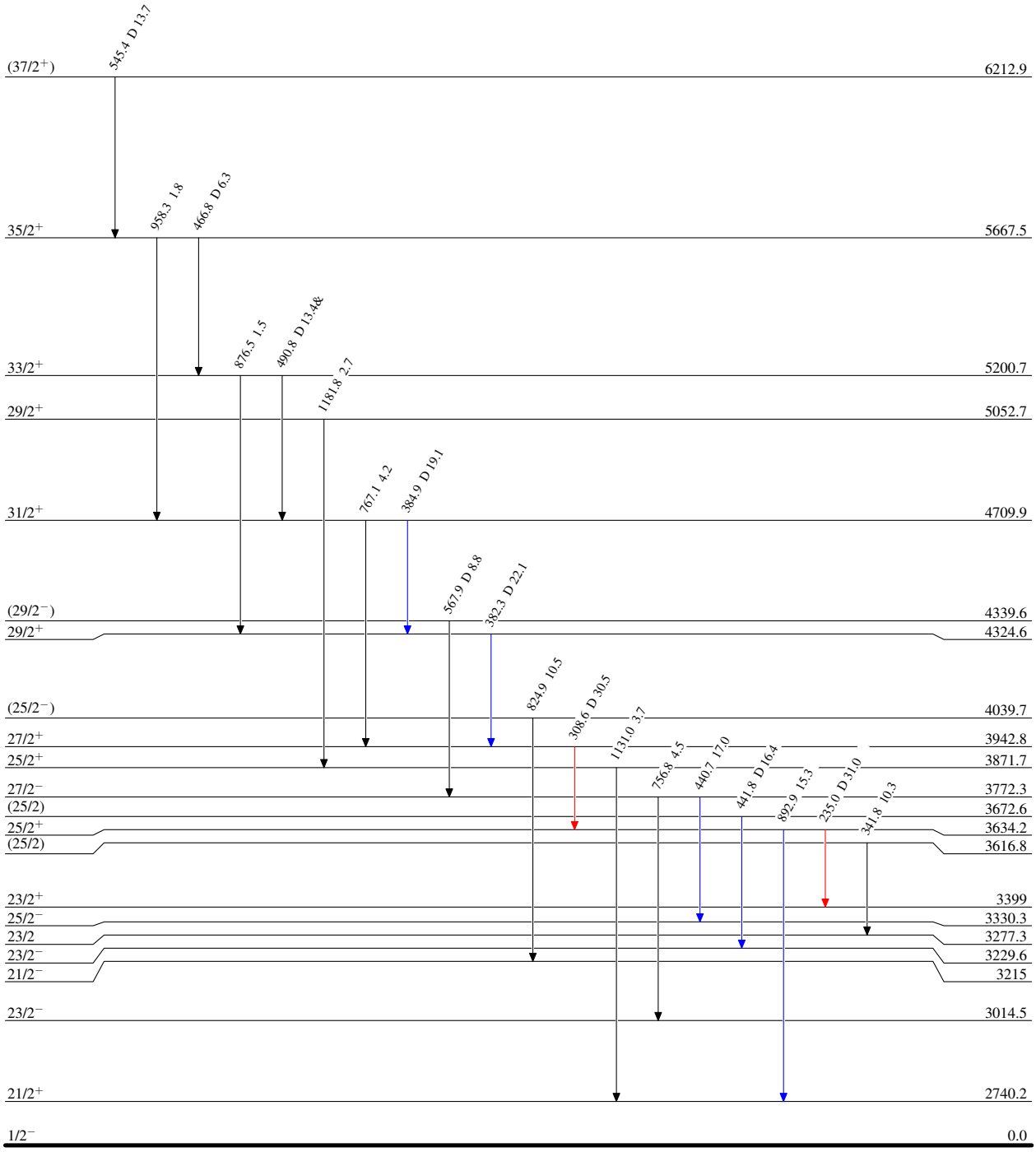
[†] From 1988De04, unless noted otherwise, Eγ values of 1984Ch06 are systematically 0.5 to 1 keV higher than the values of 1983Ka31.
[‡] Contaminated by ^{102}Rh. Iγ not corrected.
[#] From 1988De04.
[@] From 1983Ka31 and 1984Ch06. Based on A_2, A_4 coefficient from $\gamma(\theta)$ and linear pol, dipole or quadrupole character (1988De04,1984Ch06). No definition or details on linear pol is given by 1984Ch06. 1983Ka31 does not give any explanation for the use of ± signs for the A_2 and A_4 coefficients given in the paper.
[&] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
[a] Multiply placed with undivided intensity.
[x] γ ray not placed in level scheme.

^{100}Mo(^{6}Li,3nγ), (^{7}Li,4nγ) **1988De04,1984Ch06**

Level Scheme

Intensities: Type not specified
& Multiply placed: undivided intensity given

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



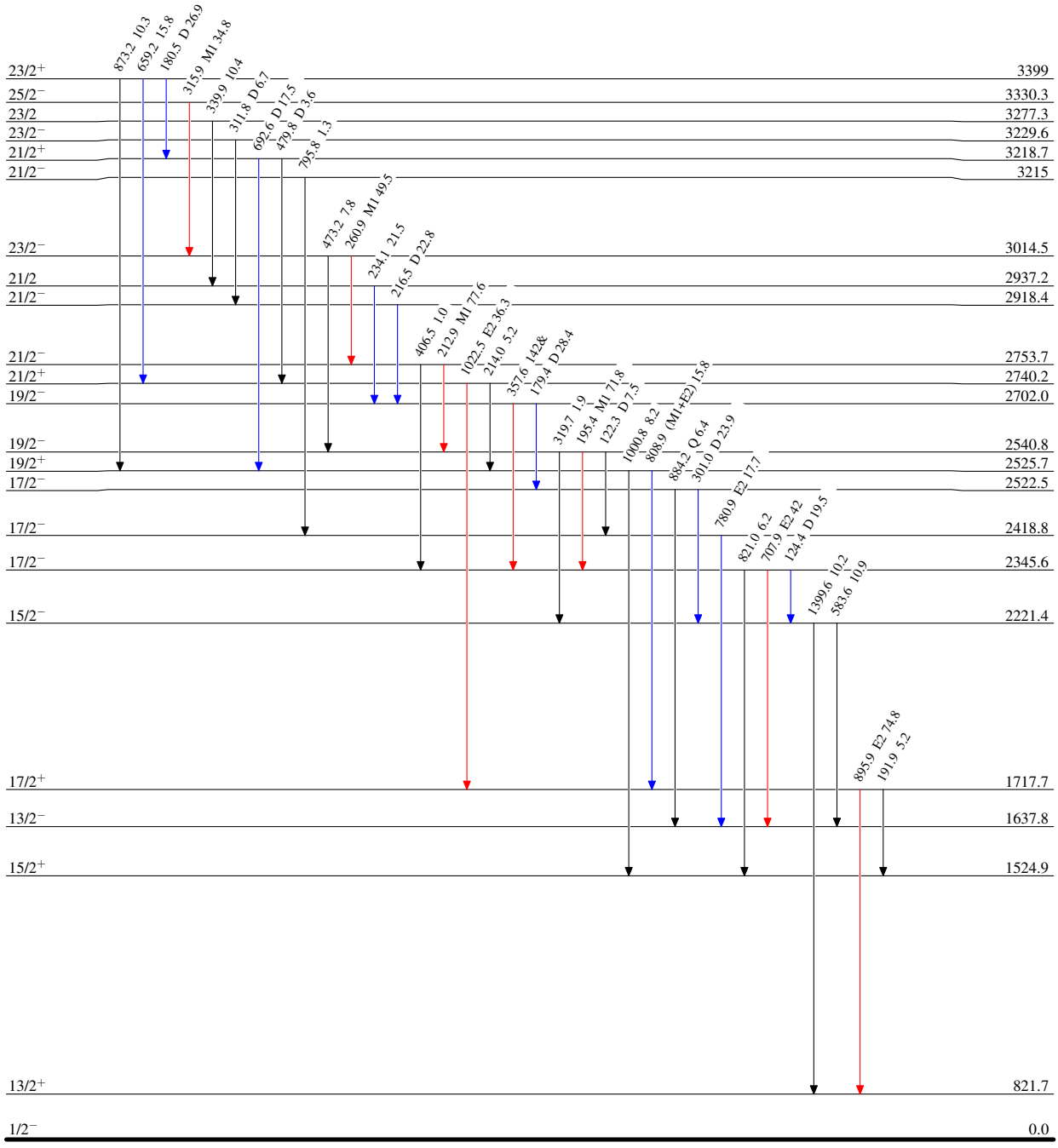
$^{103}_{45}Rh_{58}$

^{100}Mo(^{6}Li,3nγ), (^{7}Li,4nγ) 1988De04,1984Ch06

Level Scheme (continued)

Intensities: Type not specified
& Multiply placed: undivided intensity given

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



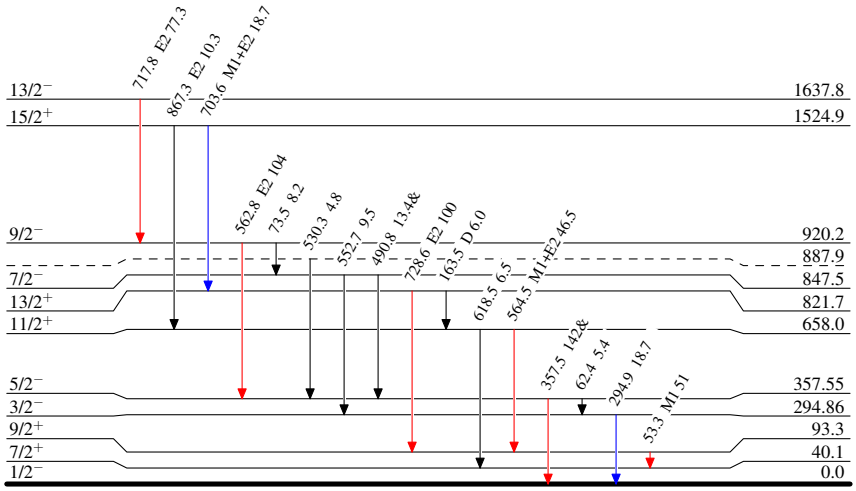
$^{103}_{45}Rh_{58}$

^{100}Mo(^{6}Li,3nγ), (^{7}Li,4nγ) 1988De04,1984Ch06

Level Scheme (continued)

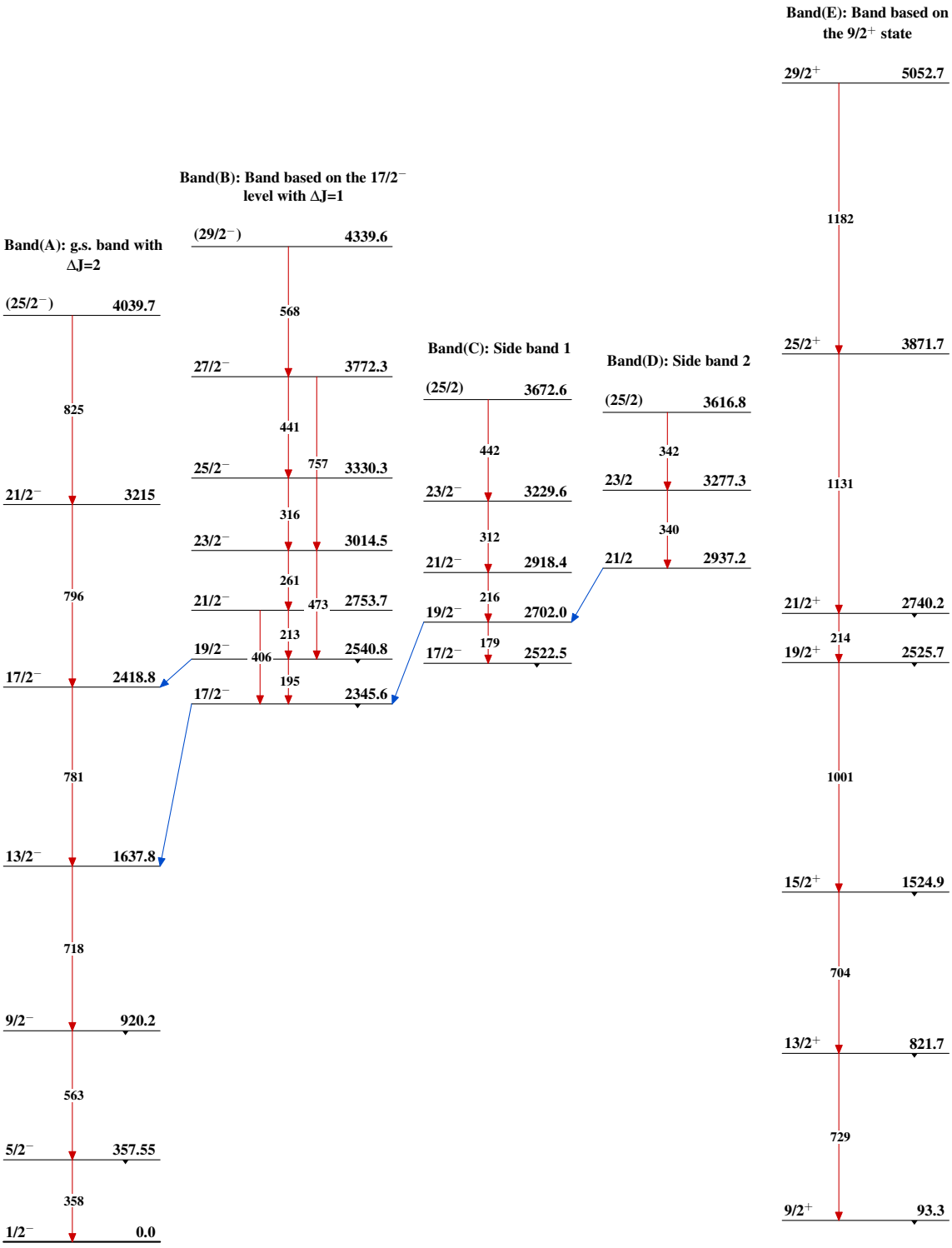
Intensities: Type not specified
& Multiply placed: undivided intensity given

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



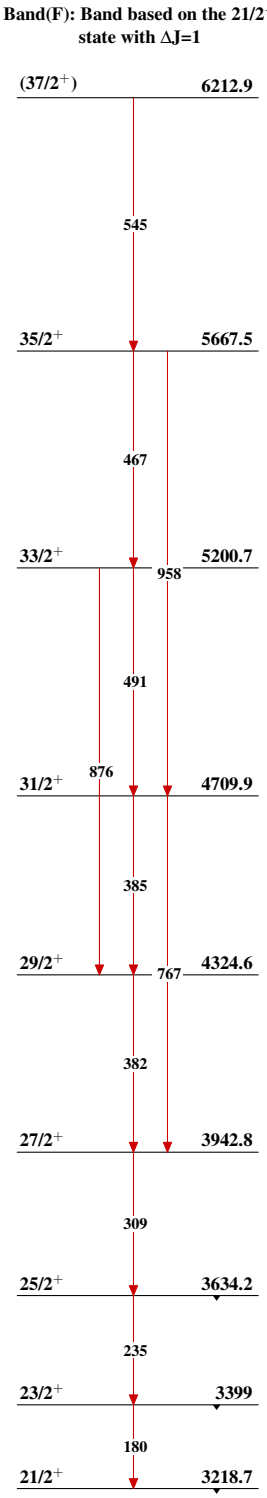
$^{103}_{45}Rh_{58}$

^{100}Mo(^{6}Li,3nγ), (^{7}Li,4nγ) 1988De04,1984Ch06



$^{103}_{45}Rh_{58}$

^{100}Mo(^{6}Li,3nγ), (^{7}Li,4nγ) 1988De04,1984Ch06 (continued)



$^{103}_{45}Rh_{58}$