^{94}Mo(^{40}Ca,2αpγ) 1999Ha29

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

1999Ha29: E=180 MeV. Measured Eγ, Iγ, γγ, γγ(θ)(DCO) using the Gammasphere spectrometer with 92 Compton-suppressed detectors and the Microball array with 95 CsI detectors.
XUNDL data set compiled by J. Chenkin and B. Singh (McMaster), July 5, 1999, is consulted.

^{125}La Levels

E(level)	Jπ	Comments
0.0†	(3/2+)	E(level): 1999Ha29 assume the 3/2+ level, rather than the 11/2−, as the ground state. The 11/2− level is 8.8 keV above the ground state.
0.0+x[b]	(9/2+)	
8.8[&] 7	(11/2−)	
128.8 7	(5/2+)	
230.91+x[c] 19	(11/2+)	
249.4[&] 7	(15/2−)	
296.5† 5	(7/2+)	
493.4+x[b] 4	(13/2+)	
644.0† 6	(11/2+)	
685.8[&] 7	(19/2−)	
784.4+x[c] 4	(15/2+)	
1073.0[a] 8	(15/2−)	
1099.9+x[b] 5	(17/2+)	
1111.6 7	(17/2)	
1120.4† 6	(15/2+)	
1289.3[&] 7	(23/2−)	
1435.2+x[c] 5	(19/2+)	
1481.6[a] 7	(19/2−)	
1615.8‡ 6	(19/2+)	
1727.5 7	(21/2−)	
1782.6+x[b] 6	(21/2+)	
1801.5† 7	(19/2+)	
1978.9[@] 7	(21/2+)	
2013.8[a] 7	(23/2−)	
2033.5[&] 7	(27/2−)	
2075.0‡ 7	(23/2+)	
2134.4+x[c] 6	(23/2+)	
2331.0[#] 8	(23/2+)	
2412.0† 7	(23/2+)	
2448.3+x[b] 7	(25/2+)	
2459.2[@] 7	(25/2+)	
2631.5‡ 7	(27/2+)	
2660.5[a] 7	(27/2−)	
2746.6+x[c] 8	(27/2+)	
2864.1[#] 8	(27/2+)	
2885.3[&] 7	(31/2−)	
3030.4+x[b] 9	(29/2+)	
3038.5[@] 7	(29/2+)	

Continued on next page (footnotes at end of table)

^{94}Mo(^{40}Ca,2αpγ) 1999Ha29 (continued)

^{125}La Levels (continued)

E(level)	Jπ	E(level)	Jπ	E(level)	Jπ	E(level)	Jπ
3300.7‡ *7*	(31/2+)	4502.4+x[b] *15*	(37/2+)	6525.4@ *13*	(45/2+)	9391.8& *13*	(55/2−)
3371.3+x[c] *10*	(31/2+)	4589.6@ *10*	(37/2+)	6910.9‡ *11*	(47/2+)	9436.6?[a] *19*	(55/2−)
3401.5[a] *8*	(31/2−)	4773.1& *8*	(39/2−)	6924.4& *11*	(47/2−)	9945.7@ *18*	(57/2+)
3541.6# *8*	(31/2+)	4954.8‡ *8*	(39/2+)	7145.5[a] *13*	(47/2−)	10268.1‡ *14*	(59/2+)
3716.4+x[b] *10*	(33/2+)	5117.7[a] *11*	(39/2−)	7257.1?# *16*	(47/2+)	10680.8?& *16*	(59/2−)
3749.4@ *9*	(33/2+)	5259.6# *11*	(39/2+)	7573.1@ *14*	(49/2+)	11266.7?@ *20*	(61/2+)
3804.9& *8*	(35/2−)	5530.1@ *12*	(41/2+)	7958.1‡ *12*	(51/2+)	11551.1‡ *17*	(63/2+)
4077.9‡ *7*	(35/2+)	5806.9& *9*	(43/2−)	8126.5& *12*	(51/2−)	12018.8?& *19*	(63/2−)
4110.3+x[c] *14*	(35/2+)	5909.0‡ *9*	(43/2+)	8266.6[a] *16*	(51/2−)	12924.1‡ *20*	(67/2+)
4217.2[a] *9*	(35/2−)	6097.5[a] *12*	(43/2−)	8710.7@ *15*	(53/2+)	14391.1?‡ *22*	(71/2+)
4353.9# *10*	(35/2+)	6233.1# *12*	(43/2+)	9072.1‡ *13*	(55/2+)		

† Band(A): 3/2[422], α=−1/2.
‡ Band(B): 3/2[422](E$_p$F$_p$), α=−1/2.
# Band(C): 1/2[420](E$_p$F$_p$), α=−1/2.
@ Band(c): 1/2[420](E$_p$F$_p$), α=+1/2.
& Band(D): 1/2[550], α=−1/2.
[a] Band(E): 1/2[550](γ vibration), α=−1/2.
[b] Band(F): 9/2[404] band, α=+1/2.
[c] Band(f): 9/2[404] band, α=−1/2.

γ(^{125}La)

E_γ†	I_γ	E_i(level)	J_i^π	E_f	J_f^π
167.7 *5*	≈7	296.5	(7/2+)	128.8	(5/2+)
230.9 *2*	≈10	230.91+x	(11/2+)	0.0+x	(9/2+)
240.6 *2*	≈110	249.4	(15/2−)	8.8	(11/2−)
262.4 *5*	8.8 *4*	493.4+x	(13/2+)	230.91+x	(11/2+)
290.9 *5*	6.8 *3*	784.4+x	(15/2+)	493.4+x	(13/2+)
296.5 *5*	7.3 *3*	296.5	(7/2+)	0.0	(3/2+)
314 *1*	<1	2448.3+x	(25/2+)	2134.4+x	(23/2+)
315.4 *5*	4.9 *2*	1099.9+x	(17/2+)	784.4+x	(15/2+)
335.2 *5*	3.9 *2*	1435.2+x	(19/2+)	1099.9+x	(17/2+)
347.2 *5*	2.5 *1*	1782.6+x	(21/2+)	1435.2+x	(19/2+)
347.5 *2*	12.3 *6*	644.0	(11/2+)	296.5	(7/2+)
347.5 *5*	2.0 *1*	2075.0	(23/2+)	1727.5	(21/2−)
351.7 *5*	1.8 *1*	2134.4+x	(23/2+)	1782.6+x	(21/2+)
352 *1*	<1	2331.0	(23/2+)	1978.9	(21/2+)
384‡ *1*	<1	2459.2	(25/2+)	2075.0	(23/2+)
404.9 *5*	1.6 *1*	2864.1	(27/2+)	2459.2	(25/2+)
407‡ *1*	<1	3038.5	(29/2+)	2631.5	(27/2+)
408.7 *5*	1.2 *1*	1481.6	(19/2−)	1073.0	(15/2−)
425.6 *5*	2.5 *2*	1111.6	(17/2)	685.8	(19/2−)
436.4 *2*	100	685.8	(19/2−)	249.4	(15/2−)
459.2 *2*	21.4 *9*	2075.0	(23/2+)	1615.8	(19/2+)
476.4 *2*	18.9 *8*	1120.4	(15/2+)	644.0	(11/2+)
480.4 *5*	1.5 *1*	2459.2	(25/2+)	1978.9	(21/2+)
493.4 *5*	1.8 *1*	493.4+x	(13/2+)	0.0+x	(9/2+)

Continued on next page (footnotes at end of table)

^{94}Mo(^{40}Ca,2αpγ) 1999Ha29 (continued)

γ(^{125}La) (continued)

E_γ †	I_γ	E_i(level)	J_i^π	E_f	J_f^π
495.3 *2*	18.6 *8*	1615.8	(19/2$^+$)	1120.4	(15/2$^+$)
502.8 *5*	1.2 *1*	3541.6	(31/2$^+$)	3038.5	(29/2$^+$)
504.2 *5*	2.2 *1*	1615.8	(19/2$^+$)	1111.6	(17/2)
529.8 *5*	1.0 *1*	2331.0	(23/2$^+$)	1801.5	(19/2$^+$)
532.2 *5*	6.2 *3*	2013.8	(23/2$^-$)	1481.6	(19/2$^-$)
533.4 *5*	1.9 *1*	2864.1	(27/2$^+$)	2331.0	(23/2$^+$)
553.5 *5*	3.3 *2*	784.4+x	(15/2$^+$)	230.91+x	(11/2$^+$)
556.4 *2*	23 *1*	2631.5	(27/2$^+$)	2075.0	(23/2$^+$)
579.1 *5*	6.2 *3*	3038.5	(29/2$^+$)	2459.2	(25/2$^+$)
582.1 *5*	1.9 *1*	3030.4+x	(29/2$^+$)	2448.3+x	(25/2$^+$)
603.5 *2*	80 *3*	1289.3	(23/2$^-$)	685.8	(19/2$^-$)
606.6 *5*	3.7 *2*	1099.9+x	(17/2$^+$)	493.4+x	(13/2$^+$)
610.2 *5*	1.7 *1*	2412.0	(23/2$^+$)	1801.5	(19/2$^+$)
612.2 *5*	2.8 *1*	2746.6+x	(27/2$^+$)	2134.4+x	(23/2$^+$)
624.7 *5*	1.4 *1*	3371.3+x	(31/2$^+$)	2746.6+x	(27/2$^+$)
635.0 *5*	2.6 *1*	644.0	(11/2$^+$)	8.8	(11/2$^-$)
646.7 *5*	7.4 *4*	2660.5	(27/2$^-$)	2013.8	(23/2$^-$)
650.7 *5*	4.4 *2*	1435.2+x	(19/2$^+$)	784.4+x	(15/2$^+$)
665.7 *5*	2.8 *2*	2448.3+x	(25/2$^+$)	1782.6+x	(21/2$^+$)
669.2 *2*	20.1 *9*	3300.7	(31/2$^+$)	2631.5	(27/2$^+$)
677.7 *5*	2.5 *1*	3541.6	(31/2$^+$)	2864.1	(27/2$^+$)
681.0 *5*	2.6 *2*	1801.5	(19/2$^+$)	1120.4	(15/2$^+$)
682.9 *5*	3.8 *2*	1782.6+x	(21/2$^+$)	1099.9+x	(17/2$^+$)
686.0 *5*	1.1 *1*	3716.4+x	(33/2$^+$)	3030.4+x	(29/2$^+$)
699.3 *5*	3.4 *2*	2134.4+x	(23/2$^+$)	1435.2+x	(19/2$^+$)
710.9 *5*	9.4 *4*	3749.4	(33/2$^+$)	3038.5	(29/2$^+$)
739 *1*	<1	4110.3+x	(35/2$^+$)	3371.3+x	(31/2$^+$)
741.2 *5*	7.1 *3*	3401.5	(31/2$^-$)	2660.5	(27/2$^-$)
744.1 *2*	53 *2*	2033.5	(27/2$^-$)	1289.3	(23/2$^-$)
777.2 *2*	15.5 *7*	4077.9	(35/2$^+$)	3300.7	(31/2$^+$)
786 *1*	<1	4502.4+x	(37/2$^+$)	3716.4+x	(33/2$^+$)
786.1 *5*	3.0 *1*	2075.0	(23/2$^+$)	1289.3	(23/2$^-$)
795‡ *1*	<1	1481.6	(19/2$^-$)	685.8	(19/2$^-$)
796.5 *5*	1.0 *1*	2412.0	(23/2$^+$)	1615.8	(19/2$^+$)
812.3 *5*	2.6 *2*	4353.9	(35/2$^+$)	3541.6	(31/2$^+$)
815.7 *5*	5.2 *3*	4217.2	(35/2$^-$)	3401.5	(31/2$^-$)
824 *1*	<1	1073.0	(15/2$^-$)	249.4	(15/2$^-$)
840.2 *5*	7.6 *3*	4589.6	(37/2$^+$)	3749.4	(33/2$^+$)
851.8 *2*	34 *1*	2885.3	(31/2$^-$)	2033.5	(27/2$^-$)
862.5 *5*	3.4 *2*	1111.6	(17/2)	249.4	(15/2$^-$)
870.9 *5*	2.6 *1*	1120.4	(15/2$^+$)	249.4	(15/2$^-$)
876.9 *2*	12.3 *5*	4954.8	(39/2$^+$)	4077.9	(35/2$^+$)
900.5 *5*	4.2 *2*	5117.7	(39/2$^-$)	4217.2	(35/2$^-$)
905.7 *5*	1.8 *1*	5259.6	(39/2$^+$)	4353.9	(35/2$^+$)
919.6 *2*	20.2 *9*	3804.9	(35/2$^-$)	2885.3	(31/2$^-$)
930.1 *5*	4.4 *2*	1615.8	(19/2$^+$)	685.8	(19/2$^-$)
940.5 *5*	4.8 *2*	5530.1	(41/2$^+$)	4589.6	(37/2$^+$)
954.2 *5*	7.8 *3*	5909.0	(43/2$^+$)	4954.8	(39/2$^+$)
968.2 *2*	12.8 *6*	4773.1	(39/2$^-$)	3804.9	(35/2$^-$)
973.5 *5*	1.2 *1*	6233.1	(43/2$^+$)	5259.6	(39/2$^+$)
979.8 *5*	2.6 *2*	6097.5	(43/2$^-$)	5117.7	(39/2$^-$)
995.3 *5*	3.5 *2*	6525.4	(45/2$^+$)	5530.1	(41/2$^+$)
1001.9 *5*	5.1 *2*	6910.9	(47/2$^+$)	5909.0	(43/2$^+$)
1005.0 *5*	5.4 *3*	3038.5	(29/2$^+$)	2033.5	(27/2$^-$)
1024‡ *1*	<1	7257.1?	(47/2$^+$)	6233.1	(43/2$^+$)

Continued on next page (footnotes at end of table)

^{94}Mo(^{40}Ca,2αpγ) 1999Ha29 (continued)

γ(^{125}La) (continued)

E_γ †	I_γ	E_i(level)	J_i^π	E_f	J_f^π	E_γ †	I_γ	E_i(level)	J_i^π	E_f	J_f^π
1033.8 *5*	6.7 *3*	5806.9	(43/2$^-$)	4773.1	(39/2$^-$)	1232.3 *5*	2.2 *2*	1481.6	(19/2$^-$)	249.4	(15/2$^-$)
1041.6 *5*	3.1 *2*	1727.5	(21/2$^-$)	685.8	(19/2$^-$)	1235 *1*	<1	9945.7	(57/2$^+$)	8710.7	(53/2$^+$)
1047.2 *5*	3.0 *1*	7958.1	(51/2$^+$)	6910.9	(47/2$^+$)	1265.3 *5*	1.3 *1*	9391.8	(55/2$^-$)	8126.5	(51/2$^-$)
1047.7 *5*	1.9 *1*	7573.1	(49/2$^+$)	6525.4	(45/2$^+$)	1283 *1*	<1	11551.1	(63/2$^+$)	10268.1	(59/2$^+$)
1048.0 *5*	1.2 *1*	7145.5	(47/2$^-$)	6097.5	(43/2$^-$)	1289‡ *1*	<1	10680.8?	(59/2$^-$)	9391.8	(55/2$^-$)
1064 *1*	<1	1073.0	(15/2$^-$)	8.8	(11/2$^-$)	1293.1 *5*	2.5 *3*	1978.9	(21/2$^+$)	685.8	(19/2$^-$)
1114.0 *5*	1.9 *1*	9072.1	(55/2$^+$)	7958.1	(51/2$^+$)	1321‡ *1*	<1	11266.7?	(61/2$^+$)	9945.7	(57/2$^+$)
1117.5 *5*	4.1 *2*	6924.4	(47/2$^-$)	5806.9	(43/2$^-$)	1328.1 *5*	2.8 *3*	2013.8	(23/2$^-$)	685.8	(19/2$^-$)
1121 *1*	<1	8266.6	(51/2$^-$)	7145.5	(47/2$^-$)	1338‡ *1*	<1	12018.8?	(63/2$^-$)	10680.8?	(59/2$^-$)
1137.5 *5*	1.3 *1*	8710.7	(53/2$^+$)	7573.1	(49/2$^+$)	1367.9 *5*	1.1 *1*	3401.5	(31/2$^-$)	2033.5	(27/2$^-$)
1169.9 *2*	10.4 *5*	2459.2	(25/2$^+$)	1289.3	(23/2$^-$)	1371.3 *5*	2.0 *1*	2660.5	(27/2$^-$)	1289.3	(23/2$^-$)
1170‡ *1*	<1	9436.6?	(55/2$^-$)	8266.6	(51/2$^-$)	1373 *1*	<1	12924.1	(67/2$^+$)	11551.1	(63/2$^+$)
1196.0 *5*	1.3 *1*	10268.1	(59/2$^+$)	9072.1	(55/2$^+$)	1467‡ *1*	<1	14391.1?	(71/2$^+$)	12924.1	(67/2$^+$)
1202.1 *5*	2.4 *1*	8126.5	(51/2$^-$)	6924.4	(47/2$^-$)						

† Uncertainties assigned (by evaluators) based on a general by 1999Ha29 that Δ(Eγ)=0.2 keV for most intense transitions and 0.5 keV for weak transitions.

‡ Placement of transition in the level scheme is uncertain.

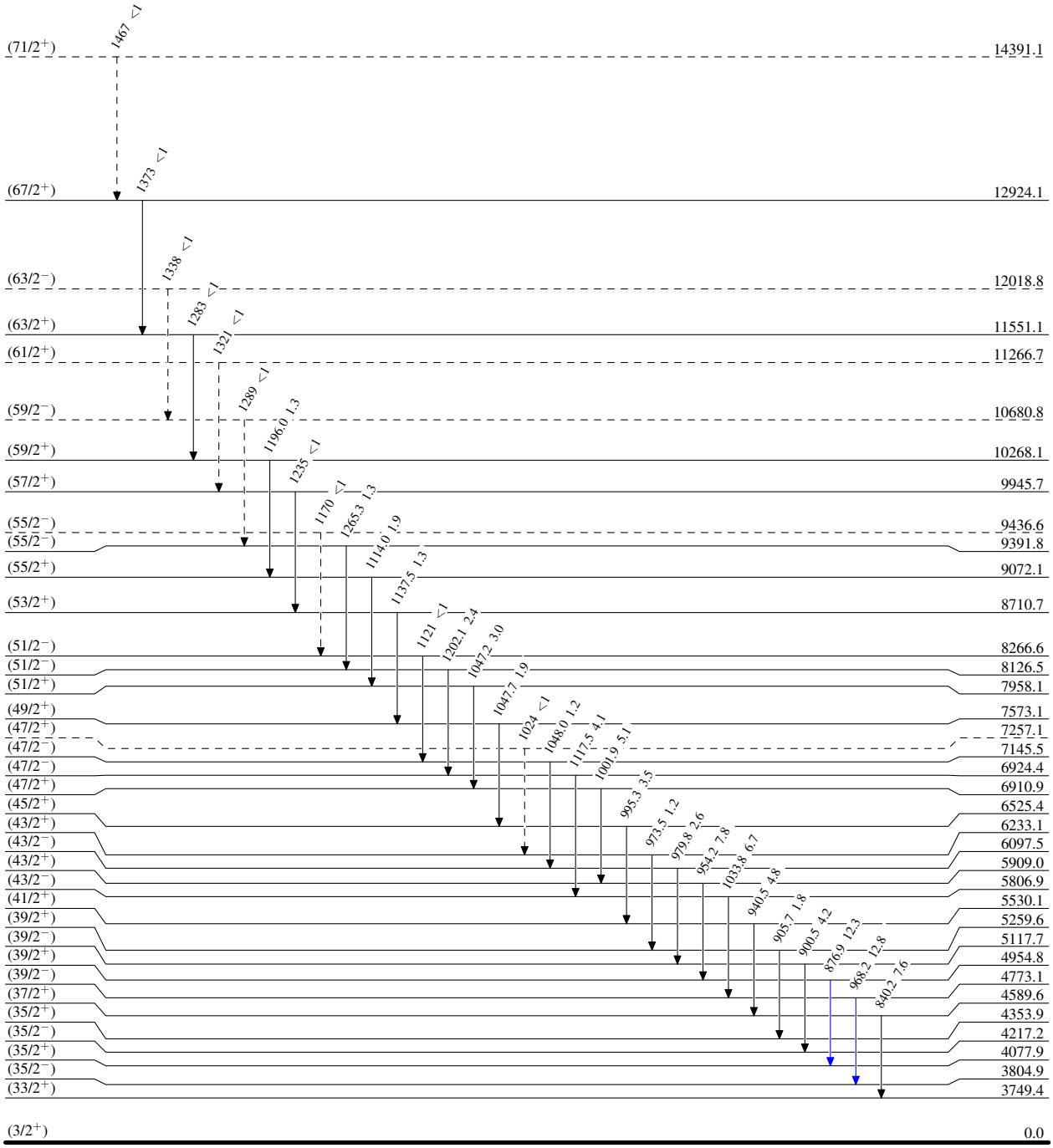
^{94}Mo(^{40}Ca,2αpγ) 1999Ha29

Level Scheme

Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



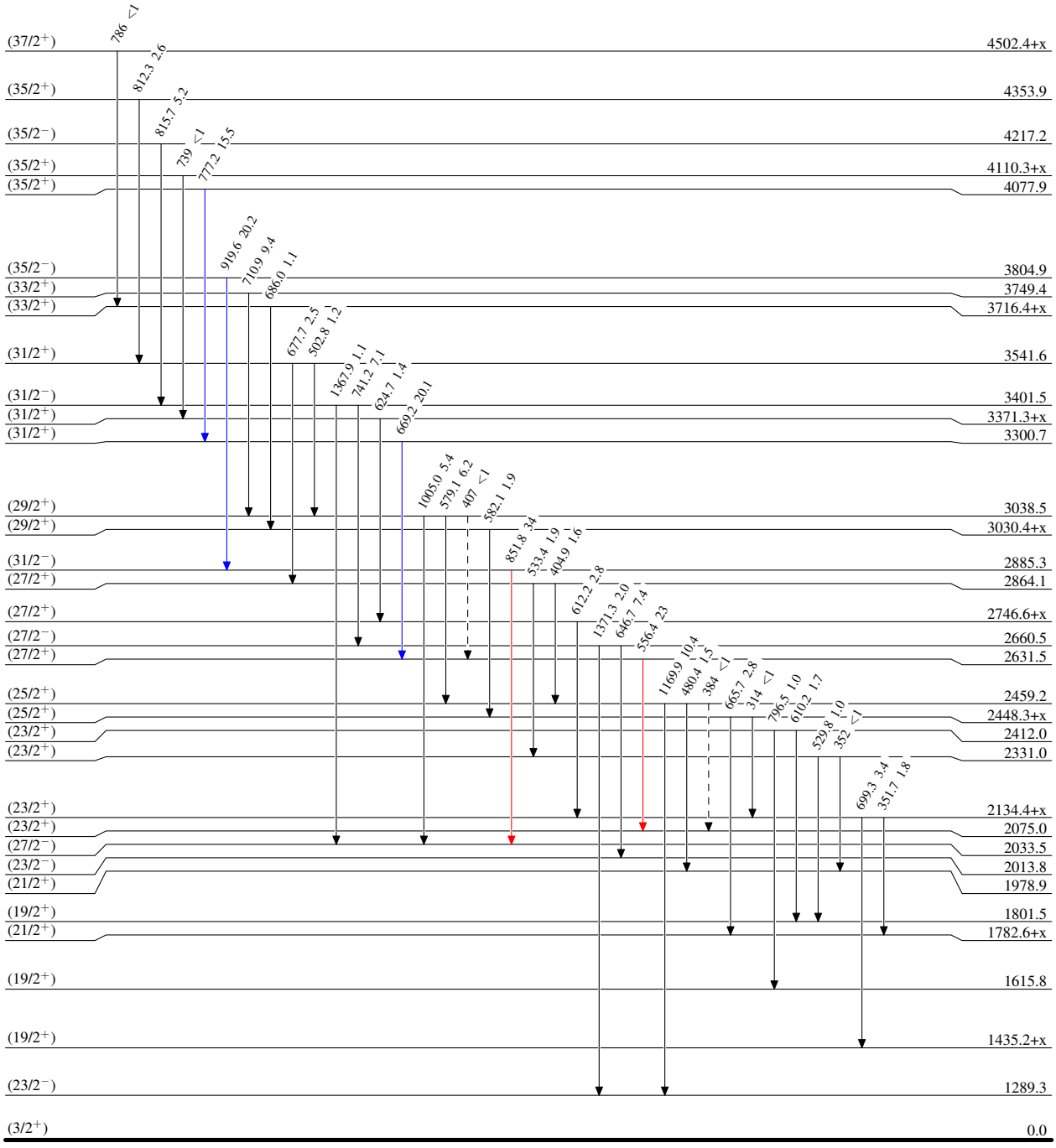
$^{125}_{57}La_{68}$

^{94}Mo(^{40}Ca,2αpγ) 1999Ha29

Level Scheme (continued)

Intensities: Relative I_γ

Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)



$^{125}_{57}La_{68}$

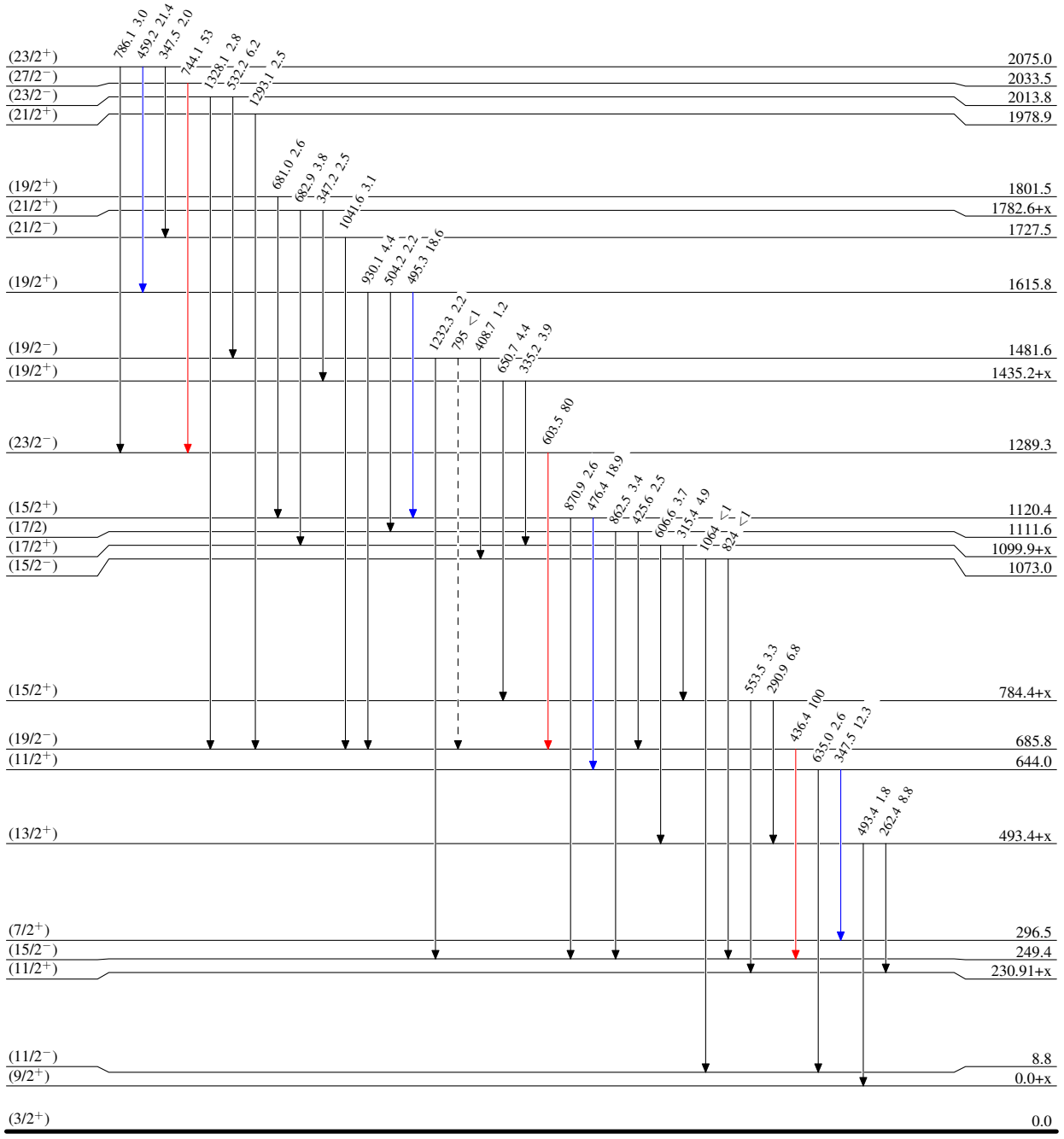
^{94}Mo(^{40}Ca,2αpγ) 1999Ha29

Level Scheme (continued)

Intensities: Relative I_γ

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)

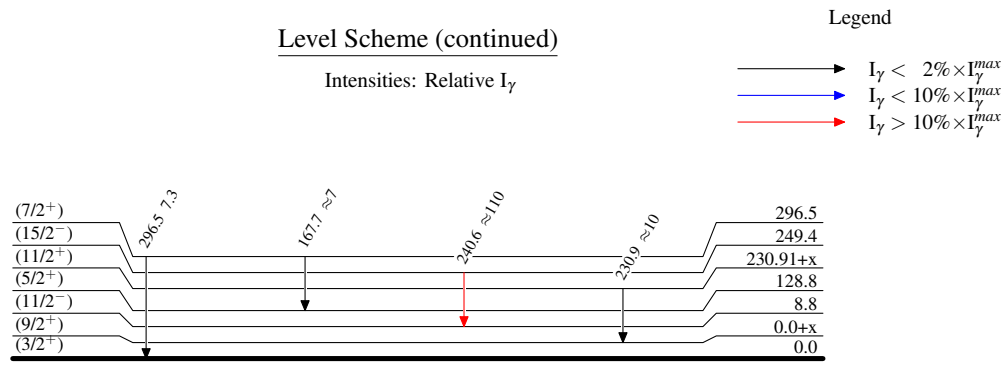


$^{125}_{57}La_{68}$

^{94}Mo(^{40}Ca,2αpγ) 1999Ha29

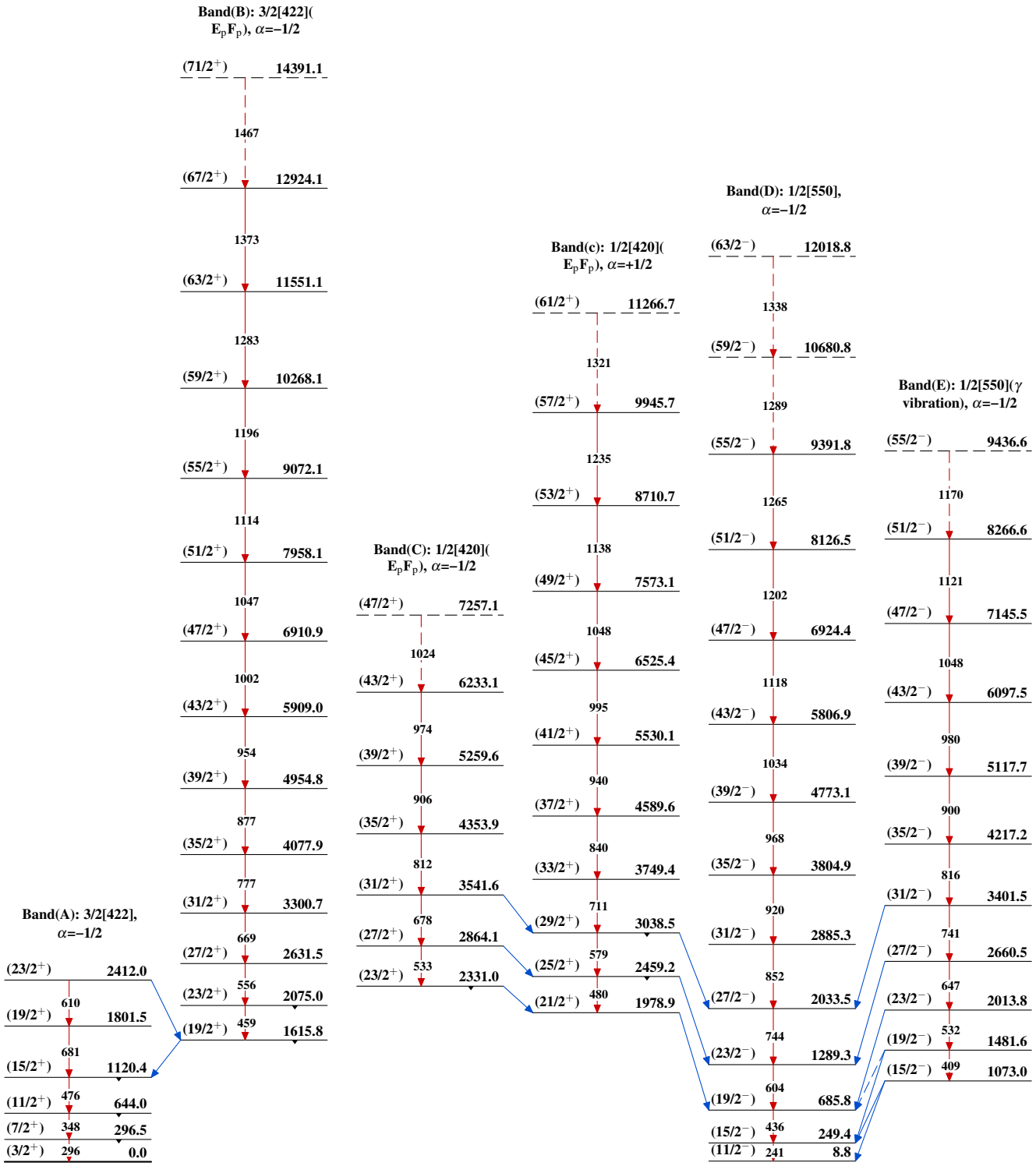
Level Scheme (continued)

Intensities: Relative I_γ



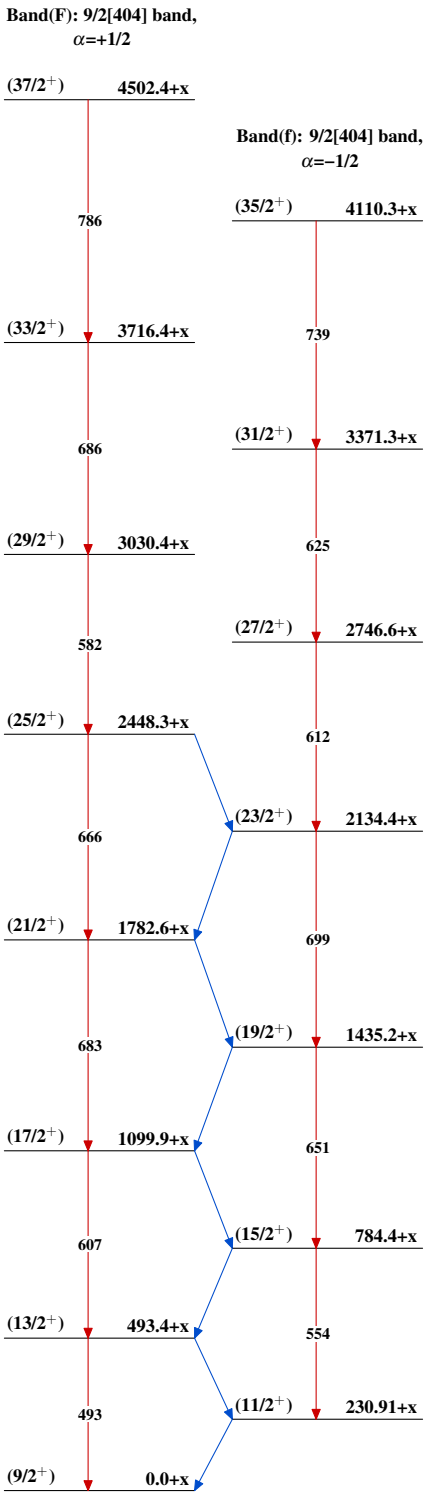
$^{125}_{57}La_{68}$

^{94}Mo(^{40}Ca,2αpγ) 1999Ha29



$^{125}_{57}La_{68}$

^{94}Mo(^{40}Ca,2αpγ) 1999Ha29 (continued)



$^{125}_{57}La_{68}$