^{94}Mo(^{32}S,2pnγ),^{74}Se(^{52}Cr,2pnγ) 1988Wy02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 174, 1 (2021)	15-Apr-2021

1988Wy02: two measurements were performed at the Daresbury Nuclear Structure Facility: In the measurement of ^{92}Mo(^{34}S,2pnγ), E=150 and 155 MeV ^{32}S beam was incident on a ^{94}Mo target. γ rays were detected with the TESSA3 spectrometer. Measured $\gamma\gamma$-coin. In the measurement of ^{74}Se(^{52}Cr,p2nγ), E=290 MeV ^{52}Cr beam was incident on a ^{74}Se target. Reaction products were separated using the Daresbury Recoil Separator and γ rays were detected with an array of Ge detectors. Measured Eγ. Deduced levels, J, π, band structures. Comparisons with self-consistent cranking calculations.

Other (HI,xnγ) studies:

1987JaZV: ^{95}Mo(^{31}P,2npγ) E=121 MeV.

1974CoZI: ^{110}Cd(^{16}O,3nγ) E=52-66 MeV.

^{123}Ba Levels

E(level)†	J$^\pi$@	E(level)†	J$^\pi$@	E(level)†	J$^\pi$@	E(level)†	J$^\pi$@
0[c]	5/2$^{(+)}$	1172.0[d] 12	(15/2$^+$)	3243.0?[d] 18	(27/2$^+$)&	7244.6[a] 25	(47/2$^-$)
93.0[a] 10	(7/2$^-$)	1326.0[a] 16	(19/2$^-$)	3352.3[b] 19	(29/2$^-$)	7882[b] 3	(49/2$^-$)
169.0[d] 8	(7/2$^+$)	1482.0[c] 13	(17/2$^+$)	3584.0?#[c] 19	(29/2$^+$)	8402[a] 3	(51/2$^-$)
203.0[b] 13	(9/2$^-$)	1819.0[d] 13	(19/2$^+$)	3593.4[a] 20	(31/2$^-$)	9133?[b] 3	(53/2$^-$)
336.0[a] 13	(11/2$^-$)	1831.0[b] 17	(21/2$^-$)	4001.7[b] 20	(33/2$^-$)	9607?‡[a] 3	(55/2$^-$)
374.0[c] 8	(9/2$^+$)	2019.0[a] 17	(23/2$^-$)	4362.6[a] 21	(35/2$^-$)	10841?‡[a] 3	(59/2$^-$)
583.0[b] 14	(13/2$^-$)	2156.0#[c] 14	(21/2$^+$)	4764.6[b] 21	(37/2$^-$)	12148[a] 4	(63/2$^-$)
612.0[d] 10	(11/2$^+$)	2517.0[d] 15	(23/2$^+$)	5212.6[a] 22	(39/2$^-$)	13551[a] 4	(67/2$^-$)
757.0[a] 15	(15/2$^-$)	2616.0[b] 18	(25/2$^-$)	5673.6[b] 22	(41/2$^-$)		
878.0[c] 11	(13/2$^+$)	2799.9[a] 18	(27/2$^-$)	6175.6[a] 23	(43/2$^-$)		
1137.0[b] 15	(17/2$^-$)	2866.0#[c] 16	(25/2$^+$)	6717.6[b] 24	(45/2$^-$)		

† From a least-squares fit to γ-ray energies, assuming ΔEγ=1 keV.

‡ Order of 1205γ and 1234γ is not firmly established (1988Wy02).

In 1988Wy02, energies of the 2106 level and the levels at 2816 and 3534 above it in band 3 are based on a 674γ to 1482 level as labeled in Figure 1, but the level-energy difference of 2106 and 1482 is 624. In a recent measurement of ^{108}Cd(^{19}F,3npγ) by 2016Ch30, a 673.5γ is observed to feed the 1482 level. So the evaluator considers that the energies of the three levels above from 1988Wy02 are misprint instead of the 674γ being considered as a misprint in the previous evaluation by 2004Oh11 and their energies and some Eγ values from level-energy differences have been revised here accordingly.

@ From Adopted Levels, unless otherwise noted.

& Proposed by 1988Wy02 based on band assignment.

[a] Band(A): Band 1, configuration=7/2[523], α=−1/2.

[b] Band(a): Band 2, configuration=7/2[523], α=+1/2.

[c] Band(B): Band 3, configuration=5/2[402], α=+1/2.

[d] Band(b): Band 4, configuration=5/2[402], α=−1/2.

γ(^{123}Ba)

E$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
93‡	93.0	(7/2$^-$)	0	5/2$^{(+)}$
110‡	203.0	(9/2$^-$)	93.0	(7/2$^-$)
133‡	336.0	(11/2$^-$)	203.0	(9/2$^-$)
169‡	169.0	(7/2$^+$)	0	5/2$^{(+)}$

Continued on next page (footnotes at end of table)

^{94}Mo(^{32}S,2pnγ),^{74}Se(^{52}Cr,2pnγ) 1988Wy02 (continued)

γ(^{123}Ba) (continued)

E_γ †	E_i(level)	J_i^π	E_f	J_f^π	E_γ †	E_i(level)	J_i^π	E_f	J_f^π
174‡	757.0	(15/2$^-$)	583.0	(13/2$^-$)	560	1172.0	(15/2$^+$)	612.0	(11/2$^+$)
184‡	2799.9	(27/2$^-$)	2616.0	(25/2$^-$)	569	1326.0	(19/2$^-$)	757.0	(15/2$^-$)
188‡	2019.0	(23/2$^-$)	1831.0	(21/2$^-$)	597‡	2616.0	(25/2$^-$)	2019.0	(23/2$^-$)
189‡	1326.0	(19/2$^-$)	1137.0	(17/2$^-$)	604	1482.0	(17/2$^+$)	878.0	(13/2$^+$)
205‡	374.0	(9/2$^+$)	169.0	(7/2$^+$)	647	1819.0	(19/2$^+$)	1172.0	(15/2$^+$)
238‡	612.0	(11/2$^+$)	374.0	(9/2$^+$)	650	4001.7	(33/2$^-$)	3352.3	(29/2$^-$)
240‡	3593.4	(31/2$^-$)	3352.3	(29/2$^-$)	674	2156.0	(21/2$^+$)	1482.0	(17/2$^+$)
243	336.0	(11/2$^-$)	93.0	(7/2$^-$)	693	2019.0	(23/2$^-$)	1326.0	(19/2$^-$)
247‡	583.0	(13/2$^-$)	336.0	(11/2$^-$)	694	1831.0	(21/2$^-$)	1137.0	(17/2$^-$)
266‡	878.0	(13/2$^+$)	612.0	(11/2$^+$)	698	2517.0	(23/2$^+$)	1819.0	(19/2$^+$)
294‡	1172.0	(15/2$^+$)	878.0	(13/2$^+$)	710	2866.0	(25/2$^+$)	2156.0	(21/2$^+$)
310‡	1482.0	(17/2$^+$)	1172.0	(15/2$^+$)	718@	3584.0?	(29/2$^+$)	2866.0	(25/2$^+$)
337‡	1819.0	(19/2$^+$)	1482.0	(17/2$^+$)	726@	3243.0?	(27/2$^+$)	2517.0	(23/2$^+$)
337‡	2156.0	(21/2$^+$)	1819.0	(19/2$^+$)	736	3352.3	(29/2$^-$)	2616.0	(25/2$^-$)
349‡	2866.0	(25/2$^+$)	2517.0	(23/2$^+$)	763	4764.6	(37/2$^-$)	4001.7	(33/2$^-$)
361‡	2517.0	(23/2$^+$)	2156.0	(21/2$^+$)	769	4362.6	(35/2$^-$)	3593.4	(31/2$^-$)
361‡	4362.6	(35/2$^-$)	4001.7	(33/2$^-$)	781	2799.9	(27/2$^-$)	2019.0	(23/2$^-$)
374	374.0	(9/2$^+$)	0	5/2$^{(+)}$	785	2616.0	(25/2$^-$)	1831.0	(21/2$^-$)
380	583.0	(13/2$^-$)	203.0	(9/2$^-$)	794	3593.4	(31/2$^-$)	2799.9	(27/2$^-$)
380‡	1137.0	(17/2$^-$)	757.0	(15/2$^-$)	850	5212.6	(39/2$^-$)	4362.6	(35/2$^-$)
402‡	4764.6	(37/2$^-$)	4362.6	(35/2$^-$)	909	5673.6	(41/2$^-$)	4764.6	(37/2$^-$)
408‡	4001.7	(33/2$^-$)	3593.4	(31/2$^-$)	963	6175.6	(43/2$^-$)	5212.6	(39/2$^-$)
421	757.0	(15/2$^-$)	336.0	(11/2$^-$)	1044	6717.6	(45/2$^-$)	5673.6	(41/2$^-$)
443	612.0	(11/2$^+$)	169.0	(7/2$^+$)	1069	7244.6	(47/2$^-$)	6175.6	(43/2$^-$)
448‡	5212.6	(39/2$^-$)	4764.6	(37/2$^-$)	1157	8402	(51/2$^-$)	7244.6	(47/2$^-$)
461‡	5673.6	(41/2$^-$)	5212.6	(39/2$^-$)	1164	7882	(49/2$^-$)	6717.6	(45/2$^-$)
502‡	6175.6	(43/2$^-$)	5673.6	(41/2$^-$)	1205#@	9607?	(55/2$^-$)	8402	(51/2$^-$)
504	878.0	(13/2$^+$)	374.0	(9/2$^+$)	1234#@	10841?	(59/2$^-$)	9607?	(55/2$^-$)
505‡	1831.0	(21/2$^-$)	1326.0	(19/2$^-$)	1251@	9133?	(53/2$^-$)	7882	(49/2$^-$)
552‡	3352.3	(29/2$^-$)	2799.9	(27/2$^-$)	1307	12148	(63/2$^-$)	10841?	(59/2$^-$)
554	1137.0	(17/2$^-$)	583.0	(13/2$^-$)	1403	13551	(67/2$^-$)	12148	(63/2$^-$)

† From 1988Wy02. Values are read from Fig 1, unless otherwise noted.
‡ Transitions are indicated in Fig 1 of 1988Wy02 with no Eγ values given. Values are from level energy differences.
# Order of 1205γ and 1234γ is not firmly established (1988Wy02).
@ Placement of transition in the level scheme is uncertain.

Legend

γ Decay (Uncertain)

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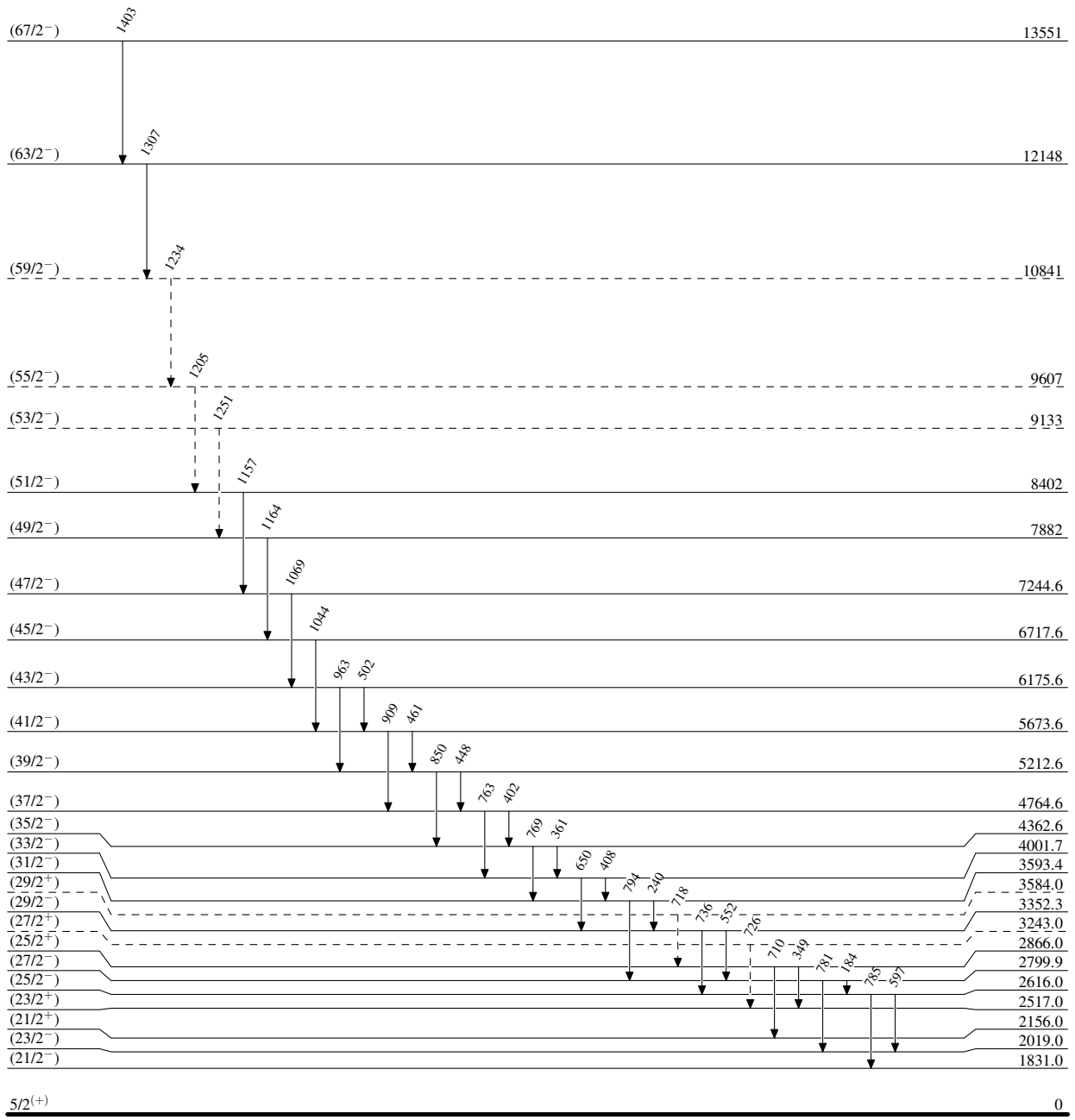
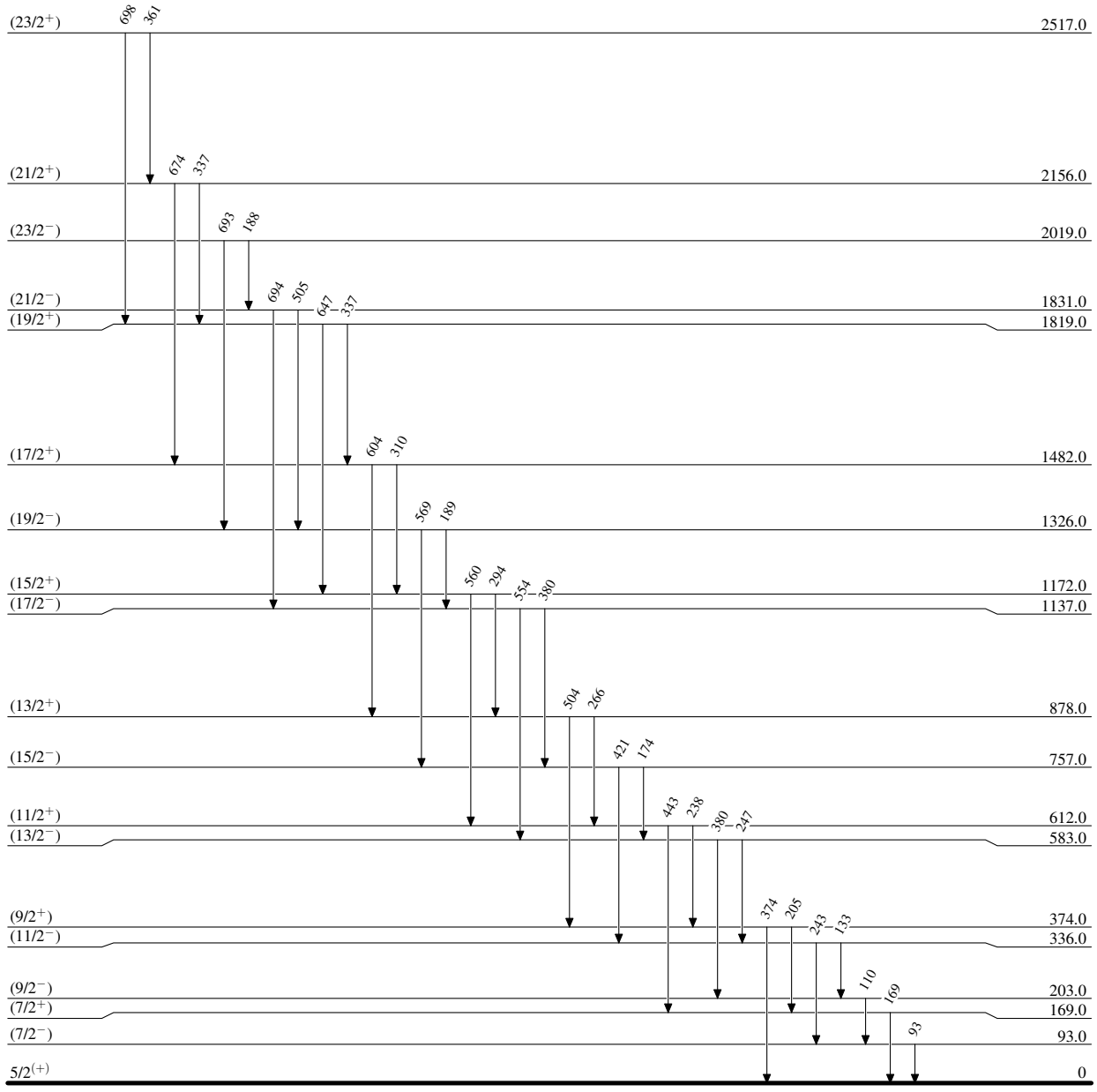
Level Scheme



$^{123}_{56}Ba_{67}$

^{94}Mo(^{32}S,2pnγ),^{74}Se(^{52}Cr,2pnγ) 1988Wy02

Level Scheme (continued)



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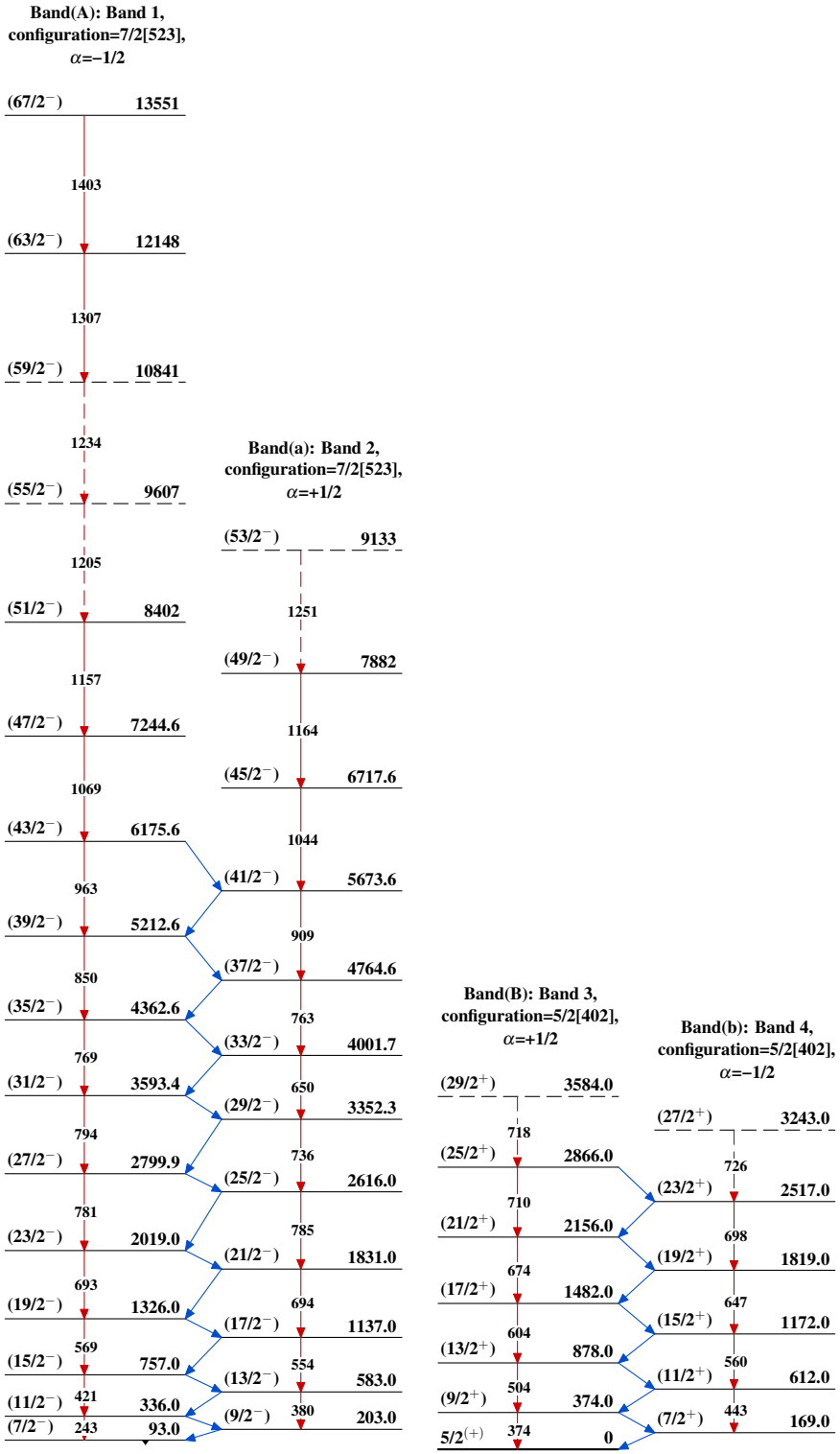
^{94}Mo(^{32}S,2pnγ),^{74}Se(^{52}Cr,2pnγ) 1988Wy02



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