^{110}Pd(^{3}He,pnγ) 1987Ze04

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 110, 1239 (2009)	1-Feb-2008

E(^{3}He)= 18 MeV.
Measured: γ, $\gamma(\theta)$, $\sigma(\gamma,e^*)$, $\gamma\gamma$.
Enriched target 97.7% ^{110}Pd.

^{111}Ag Levels

The authors identifies four rotational bands, and compared the results with a symmetric particle-rotor model.

E(level)	J$^{\pi}$[†]	E(level)	J$^{\pi}$[†]	E(level)	J$^{\pi}$[†]	E(level)	J$^{\pi}$[†]
0[‡]	1/2$^-$	1013.34	9/2$^+$	1417.90	5/2$^-$	1682.3	
59.84 *2*	7/2$^+$	1024.10[‡]	9/2$^-$	1440.26	7/2$^+$,9/2	1704.2	(5/2$^+$,7/2$^+$)
130.18	9/2$^+$	1062.2	3/2$^+$	1441.9	(5/2$^-$)	1705.6	9/2$^-$
289.71[‡]	3/2$^-$	1085.4	(7/2$^+$)	1451.9		1748.62[‡]	11/2$^-$,13/2$^-$
376.77[&]	3/2$^+$	1086.76	3/2$^+$,(5/2$^+$)	1463.4[@]	(5/2$^-$,7/2$^-$)	1751.6	11/2$^+$,13/2$^+$
391.34[‡]	5/2$^-$	1119.70	(3/2$^+$)	1466.9	(1/2)	1765.3	11/2$^+$,13/2
404.90[&]	1/2$^+$	1125.39	11/2$^+$	1471.4		1768.5	
545.67[&]	7/2$^+$	1153.46[@]	7/2$^-$	1474.6	15/2$^+$,(13/2$^+$)	1781.7	9/2$^+$,(11/2$^+$)
568.5	5/2$^+$	1159.8		1496.4	(1/2)	1798.8	7/2,9/2
568.8	(5/2$^+$,7/2$^+$)	1170.2	3/2$^+$,(5/2$^+$)	1505.9		1802.4	(3/2,5/2)
606.85[&]	5/2$^+$	1180.14	5/2$^+$	1518.50	5/2$^+$,7/2$^+$	1821.6	9/2$^-$,(11/2$^-$)
641.92[#]	3/2$^-$	1198.87	(1/2)	1542.8		1905.7	9/2$^-$,11/2$^-$
683.16	9/2$^+$	1202.3	11/2,13/2	1545.7	1/2,3/2	1959.8	
705.37	11/2$^+$	1210.39	3/2	1549.4[#]	9/2$^-$,11/2$^-$	1965.1	9/2,11/2$^+$
710.22	7/2$^+$	1262.6		1574.0[&]	11/2$^+$,(13/2$^+$)	1987.8	13/2$^-$
809.27[@]	5/2$^-$	1276.6[&]	9/2$^+$	1602.6	5/2$^+$,7/2	2087.0	
824.37	13/2$^+$,11/2$^+$	1284.6	7/2$^-$,(5/2$^-$)	1611.9		2100.8	(11/2$^-$)
845.93[‡]	7/2$^-$	1299.16	5/2$^-$,7/2$^-$	1621.5	3/2	2130.8	11/2,13/2
876.56	9/2$^+$	1301.8		1638.9		2352.7	(15/2,17/2)
958.89[&]	11/2$^+$	1376.7[#]	7/2$^-$	1665.2			
986.91[#]	5/2$^-$,(7/2$^-$)	1387.9	(11/2)	1674.9	(3/2)		

[†] From known J^{π}, A_{22}, and excitation functions.
[‡] Band(A): negative-parity rotational band 1/2$^-$ [301].
[#] Band(B): negative-parity rotational band 3/2$^-$ [301].
[@] Band(C): negative-parity rotational band 5/2$^-$ [303].
[&] Band(D): positive-parity rotational band 1/2$^+$ [431].

$\gamma(^{111}Ag)$

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^{\pi}$	E$_f$	J$_f^{\pi}$
59.8[†]		59.84	7/2$^+$	0	1/2$^-$
70.4[†]		130.18	9/2$^+$	59.84	7/2$^+$
87.0[†]		376.77	3/2$^+$	289.71	3/2$^-$
101.63 *10*	30 *6*	391.34	5/2$^-$	289.71	3/2$^-$
119.0 *5*	15 *5*	824.37	13/2$^+$,11/2$^+$	705.37	11/2$^+$

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^{110}Pd(^{3}He,pnγ) 1987Ze04 (continued)

$\gamma(^{111}Ag)$ (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π
141.5 *5*	6[@] *1*	710.22	7/2$^+$	568.8	(5/2$^+$,7/2$^+$)
166.3 *5*	30 *2*	876.56	9/2$^+$	710.22	7/2$^+$
168.90 *10*	125 *5*	545.67	7/2$^+$	376.77	3/2$^+$
202.0 *5*	14 *3*	606.85	5/2$^+$	404.90	1/2$^+$
221.9 *5*	6 *2*	2352.7	(15/2,17/2)	2130.8	11/2,13/2
230.1 *5*	19 *3*	606.85	5/2$^+$	376.77	3/2$^+$
248.67 *10*	19 *4*	1125.39	11/2$^+$	876.56	9/2$^+$
250.6 *5*	11 *2*	641.92	3/2$^-$	391.34	5/2$^-$
262.6 *5*	16 *4*	1387.9	(11/2)	1125.39	11/2$^+$
278.8 *5*	15 *4*	568.5	5/2$^+$	289.71	3/2$^-$
289.71 *10*	825 *8*	289.71	3/2$^-$	0	1/2$^-$
307.3 *5*	15 *2*	1153.46	7/2$^-$	845.93	7/2$^-$
314.9 *5*	5 *1*	1474.6	15/2$^+$,(13/2$^+$)	1159.8	
316.93 *10*	22 *1*	376.77	3/2$^+$	59.84	7/2$^+$
344.87 *10*	15 *3*	986.91	5/2$^-$,(7/2$^-$)	641.92	3/2$^-$
352.21 *10*	82 *6*	641.92	3/2$^-$	289.71	3/2$^-$
376.77 *10*	664 *7*	376.77	3/2$^+$	0	1/2$^-$
391.34 *10*	1000 *9*	391.34	5/2$^-$	0	1/2$^-$
404.90 *10*	323 *6*	404.90	1/2$^+$	0	1/2$^-$
406.8 *5*	34 *4*	1013.34	9/2$^+$	606.85	5/2$^+$
413.22 *10*	190 *3*	958.89	11/2$^+$	545.67	7/2$^+$
415.49 *10*	369 *5*	545.67	7/2$^+$	130.18	9/2$^+$
417.93 *10*	128 *5*	809.27	5/2$^-$	391.34	5/2$^-$
438.4 *5*	100 *10*	568.8	(5/2$^+$,7/2$^+$)	130.18	9/2$^+$
439.3 *5*	12 *5*	1463.4	(5/2$^-$,7/2$^-$)	1024.10	9/2$^-$
442.35 *10*	63 *2*	1125.39	11/2$^+$	683.16	9/2$^+$
444.30 *10*	58 *2*	1013.34	9/2$^+$	568.8	(5/2$^+$,7/2$^+$)
454.4 *5*	100 *4*	1159.8		705.37	11/2$^+$
454.6 *5*	203 *6*	845.93	7/2$^-$	391.34	5/2$^-$
467.0 *5*	15 *4*	1013.34	9/2$^+$	545.67	7/2$^+$
476.67 *10*	62 *1*	606.85	5/2$^+$	130.18	9/2$^+$
478.63 *10*	18 *4*	1085.4	(7/2$^+$)	606.85	5/2$^+$
485.83 *10*	112 *2*	545.67	7/2$^+$	59.84	7/2$^+$
508.6 *5*	3.0×10^2 *10*	568.5	5/2$^+$	59.84	7/2$^+$
509.0 *5*	4.0×10^2 *10*	568.8	(5/2$^+$,7/2$^+$)	59.84	7/2$^+$
516.73 *10*	33 *1*	1085.4	(7/2$^+$)	568.8	(5/2$^+$,7/2$^+$)
519.2 *5*	42 *4*	1202.3	11/2,13/2	683.16	9/2$^+$
519.5 *5*	91 *7*	809.27	5/2$^-$	289.71	3/2$^-$
525.3 *5*	29 *4*	1549.4	9/2$^-$,11/2$^-$	1024.10	9/2$^-$
530.8 *5*	10 *1*	1376.7	7/2$^-$	845.93	7/2$^-$
540.7 *5*	10 *4*	1086.76	3/2$^+$,(5/2$^+$)	545.67	7/2$^+$
547.0 *5*	305 *5*	606.85	5/2$^+$	59.84	7/2$^+$
552.4 *5*	4 *3*	1705.6	9/2$^-$	1153.46	7/2$^-$
552.5 *5*	8 *3*	1262.6		710.22	7/2$^+$
552.9 *5*	39[‡] *4*	683.16	9/2$^+$	130.18	9/2$^+$
556.22 *10*	42 *2*	845.93	7/2$^-$	289.71	3/2$^-$
575.19 *10*	369 *5*	705.37	11/2$^+$	130.18	9/2$^+$
580.04 *10*	142 *4*	710.22	7/2$^+$	130.18	9/2$^+$
583.9 *5*	17 *2*	1542.8		958.89	11/2$^+$
595.9 *5*	58 *2*	986.91	5/2$^-$,(7/2$^-$)	391.34	5/2$^-$
598.6 *5*	21 *6*	1611.9		1013.34	9/2$^+$
603.5 *5*	9 *2*	1210.39	3/2	606.85	5/2$^+$
611.4 *5*	10 *1*	1180.14	5/2$^+$	568.8	(5/2$^+$,7/2$^+$)
615.1 *5*	35 *3*	1574.0	11/2$^+$,(13/2$^+$)	958.89	11/2$^+$
617.5 *5*	6 *2*	1463.4	(5/2$^-$,7/2$^-$)	845.93	7/2$^-$

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^{110}Pd(^{3}He,pnγ) 1987Ze04 (continued)

$\gamma(^{111}Ag)$ (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π
623.32 *10*	346‡ *4*	683.16	9/2$^+$	59.84	7/2$^+$
624.5 *5*	8 *4*	1170.2	3/2$^+$,(5/2$^+$)	545.67	7/2$^+$
632.76 *10*	260 *4*	1024.10	9/2$^-$	391.34	5/2$^-$
641.7 *5*	31 *5*	1210.39	3/2	568.8	(5/2$^+$,7/2$^+$)
641.92 *10*	230 *5*	641.92	3/2$^-$	0	1/2$^-$
645.5 *5*	22 *3*	705.37	11/2$^+$	59.84	7/2$^+$
650.4 *5*	80 *4*	710.22	7/2$^+$	59.84	7/2$^+$
650.5 *5*	38 *4*	1474.6	15/2$^+$,(13/2$^+$)	824.37	13/2$^+$,11/2$^+$
654.2 *5*	15 *3*	1463.4	(5/2$^-$,7/2$^-$)	809.27	5/2$^-$
657.3 *5*	17 *5*	1062.2	3/2$^+$	404.90	1/2$^+$
685.7 *5*	39 *1*	1062.2	3/2$^+$	376.77	3/2$^+$
694.19 *10*	303 *5*	824.37	13/2$^+$,11/2$^+$	130.18	9/2$^+$
697.08 *10*	48 *3*	986.91	5/2$^-$,(7/2$^-$)	289.71	3/2$^-$
703.5 *5*	13 *2*	1549.4	9/2$^-$,11/2$^-$	845.93	7/2$^-$
709.99 *10*	87 *2*	1086.76	3/2$^+$,(5/2$^+$)	376.77	3/2$^+$
718.7† *5*		1705.6	9/2$^-$	986.91	5/2$^-$,(7/2$^-$)
724.52 *10*	36 *1*	1748.62	11/2$^-$,13/2$^-$	1024.10	9/2$^-$
730.9 *5*	47 *4*	1276.6	9/2$^+$	545.67	7/2$^+$
735.2 *5*	4 *2*	1376.7	7/2$^-$	641.92	3/2$^-$
735.3 *5*	7 *2*	1440.26	7/2$^+$,9/2	705.37	11/2$^+$
743.2 *5*	16 *6*	1119.70	(3/2$^+$)	376.77	3/2$^+$
746.32 *10*	74 *1*	876.56	9/2$^+$	130.18	9/2$^+$
752.5 *5*	3 *1*	1905.7	9/2$^-$,11/2$^-$	1153.46	7/2$^-$
755.8 *5*	10 *3*	1301.8		545.67	7/2$^+$
762.12 *10*	101 *2*	1153.46	7/2$^-$	391.34	5/2$^-$
768.8& *5*	25& *4*	1451.9		683.16	9/2$^+$
768.8& *5*	23& *4*	1474.6	15/2$^+$,(13/2$^+$)	705.37	11/2$^+$
774.8 *5*	16 *3*	1798.8	7/2,9/2	1024.10	9/2$^-$
775.2 *5*	11 *4*	1180.14	5/2$^+$	404.90	1/2$^+$
793.5 *5*	43 *5*	1170.2	3/2$^+$,(5/2$^+$)	376.77	3/2$^+$
797.5 *5*	5 *2*	1821.6	9/2$^-$,(11/2$^-$)	1024.10	9/2$^-$
800.0& *5*	11& *2*	1441.9	(5/2$^-$)	641.92	3/2$^-$
800.0& *5*	5& *2*	1959.8		1159.8	
803.4 *5*	7 *3*	1180.14	5/2$^+$	376.77	3/2$^+$
809.3 *5*	17 *8*	809.27	5/2$^-$	0	1/2$^-$
809.5 *5*	11 *4*	1768.5		958.89	11/2$^+$
816.82 *10*	50 *2*	876.56	9/2$^+$	59.84	7/2$^+$
828.7 *5*	6 *2*	958.89	11/2$^+$	130.18	9/2$^+$
829.6 *5*	3 *2*	1638.9		809.27	5/2$^-$
830.3 *5*	11 *4*	1119.70	(3/2$^+$)	289.71	3/2$^-$
833.6 *5*	8 *6*	1210.39	3/2	376.77	3/2$^+$
835.3 *5*	9 *6*	1518.50	5/2$^+$,7/2$^+$	683.16	9/2$^+$
840.8 *5*	23 *4*	1665.2		824.37	13/2$^+$,11/2$^+$
863.5 *5*	6 *3*	1153.46	7/2$^-$	289.71	3/2$^-$
893.3 *5*	35 *8*	1284.6	7/2$^-$,(5/2$^-$)	391.34	5/2$^-$
893.9 *5*	5 *4*	1024.10	9/2$^-$	130.18	9/2$^+$
903.8 *5*	12 *1*	1545.7	1/2,3/2	641.92	3/2$^-$
909.16 *10*	55 *1*	1198.87	(1/2)	289.71	3/2$^-$
920.70 *10*	24 *1*	1210.39	3/2	289.71	3/2$^-$
937.2 *5*	12 *5*	1505.9		568.8	(5/2$^+$,7/2$^+$)
940.9 *5*	22 *5*	1765.3	11/2$^+$,13/2	824.37	13/2$^+$,11/2$^+$
941.0 *5*	3 *2*	1965.1	9/2,11/2$^+$	1024.10	9/2$^-$
955.18 *10*	51 *2*	1085.4	(7/2$^+$)	130.18	9/2$^+$
985.2 *5*	15 *2*	1376.7	7/2$^-$	391.34	5/2$^-$

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^{110}Pd(^{3}He,pnγ) 1987Ze04 (continued)

$\gamma(^{111}Ag)$ (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π
1000.2 *5*	3 *2*	1705.6	$9/2^-$	705.37	$11/2^+$
1002.2 *5*	44 *3*	1062.2	$3/2^+$	59.84	$7/2^+$
1009.45 *10*	47 *5*	1299.16	$5/2^-$,$7/2^-$	289.71	$3/2^-$
1014.3 *5*	26 *4*	1621.5	3/2	606.85	$5/2^+$
1022.8 *5*	11 *1*	1153.46	$7/2^-$	130.18	$9/2^+$
1026.6 *5*	7 *1*	1086.76	$3/2^+$,$(5/2^+)$	59.84	$7/2^+$
1029.7 *5*	18 *2*	1159.8		130.18	$9/2^+$
1052.7 *5*	14 *4*	1621.5	3/2	568.5	$5/2^+$
1059.86 *10*	37 *2*	1119.70	$(3/2^+)$	59.84	$7/2^+$
1062.1 *5*	28 *5*	1466.9	(1/2)	404.90	$1/2^+$
1063.0 *5*	6 *2*	2087.0		1024.10	$9/2^-$
1068.7 *5*	11 *4*	1751.6	$11/2^+$,$13/2^+$	683.16	$9/2^+$
1079.9 *5*	6 *5*	1471.4		391.34	$5/2^-$
1091.5 *5*	10 *3*	1496.4	(1/2)	404.90	$1/2^+$
1094.8 *5*	5 *2*	1471.4		376.77	$3/2^+$
1116.2 *5*	5 *2*	1821.6	$9/2^-$,$(11/2^-)$	705.37	$11/2^+$
1120.30 *10*	60 *2*	1180.14	$5/2^+$	59.84	$7/2^+$
1128.19 *10*	45 *4*	1417.90	$5/2^-$	289.71	$3/2^-$
1138.4 *5*	9 *2*	1821.6	$9/2^-$,$(11/2^-)$	683.16	$9/2^+$
1163.4 *5*	4 *2*	1987.8	$13/2^-$	824.37	$13/2^+$,$11/2^+$
1200.3 *5*	4 *2*	1905.7	$9/2^-$,$11/2^-$	705.37	$11/2^+$
1245.2 *5*	7 *3*	1621.5	3/2	376.77	$3/2^+$
1247.4 *5*	6 *4*	1638.9		391.34	$5/2^-$
1256.0 *5*	5 *3*	1545.7	1/2,3/2	289.71	$3/2^-$
1256.7 *5*	9 *3*	1802.4	(3/2,5/2)	545.67	$7/2^+$
1262.3 *5*	8 *4*	1638.9		376.77	$3/2^+$
1270.0 *5*	7 *4*	1674.9	(3/2)	404.90	$1/2^+$
1282.5 *5*	13 *3*	1987.8	$13/2^-$	705.37	$11/2^+$
1290.9 *5*	13 *5*	1682.3		391.34	$5/2^-$
1306.4 *5*	26 *2*	2130.8	11/2,13/2	824.37	$13/2^+$,$11/2^+$
1310.08 *10*	19 *2*	1440.26	$7/2^+$,9/2	130.18	$9/2^+$
1388.32 *10*	36[#] *1*	1518.50	$5/2^+$,$7/2^+$	130.18	$9/2^+$
1417.6 *5*	4 *3*	2100.8	$(11/2^-)$	683.16	$9/2^+$
1458.7 *5*	17 *1*	1518.50	$5/2^+$,$7/2^+$	59.84	$7/2^+$
1542.8 *5*	32 *2*	1602.6	$5/2^+$,7/2	59.84	$7/2^+$
1574.0 *5*	19 *2*	1704.2	$(5/2^+$,$7/2^+)$	130.18	$9/2^+$
1621.1 *5*	17 *2*	1751.6	$11/2^+$,$13/2^+$	130.18	$9/2^+$
1644.4 *5*	13 *1*	1704.2	$(5/2^+$,$7/2^+)$	59.84	$7/2^+$
1651.4 *5*	21 *2*	1781.7	$9/2^+$,$(11/2^+)$	130.18	$9/2^+$
1691.5 *5*	15 *2*	1821.6	$9/2^-$,$(11/2^-)$	130.18	$9/2^+$
1721.8 *5*	17 *2*	1781.7	$9/2^+$,$(11/2^+)$	59.84	$7/2^+$
1775.5 *5*	8 *2*	1905.7	$9/2^-$,$11/2^-$	130.18	$9/2^+$
1905.2 *5*	8 *2*	1965.1	$9/2$,$11/2^+$	59.84	$7/2^+$
1970.6 *5*	30 *8*	2100.8	$(11/2^-)$	130.18	$9/2^+$

† Not observed, but known from other work. Eγ is a rounded-off value from Adopted Gammas.

‡ Iγ(553γ)/Iγ(623γ)=0.058 *10* in β^- decay.

Iγ(835γ):Iγ(1388γ):Iγ(1459γ)=48 *3*: 96 *7*: 100 *7* in β^- decay suggests that only part of the 1388γ in (^{3}He,pnγ) belongs with the 1518 level.

@ Iγ(141γ):Iγ(508γ):Iγ(650γ)=0.05 *2*: 100: 66 *3* in β^- decay suggests that only part of the 141.5γ in (^{3}He,pnγ) belongs with the 710 level.

& Multiply placed with intensity suitably divided.

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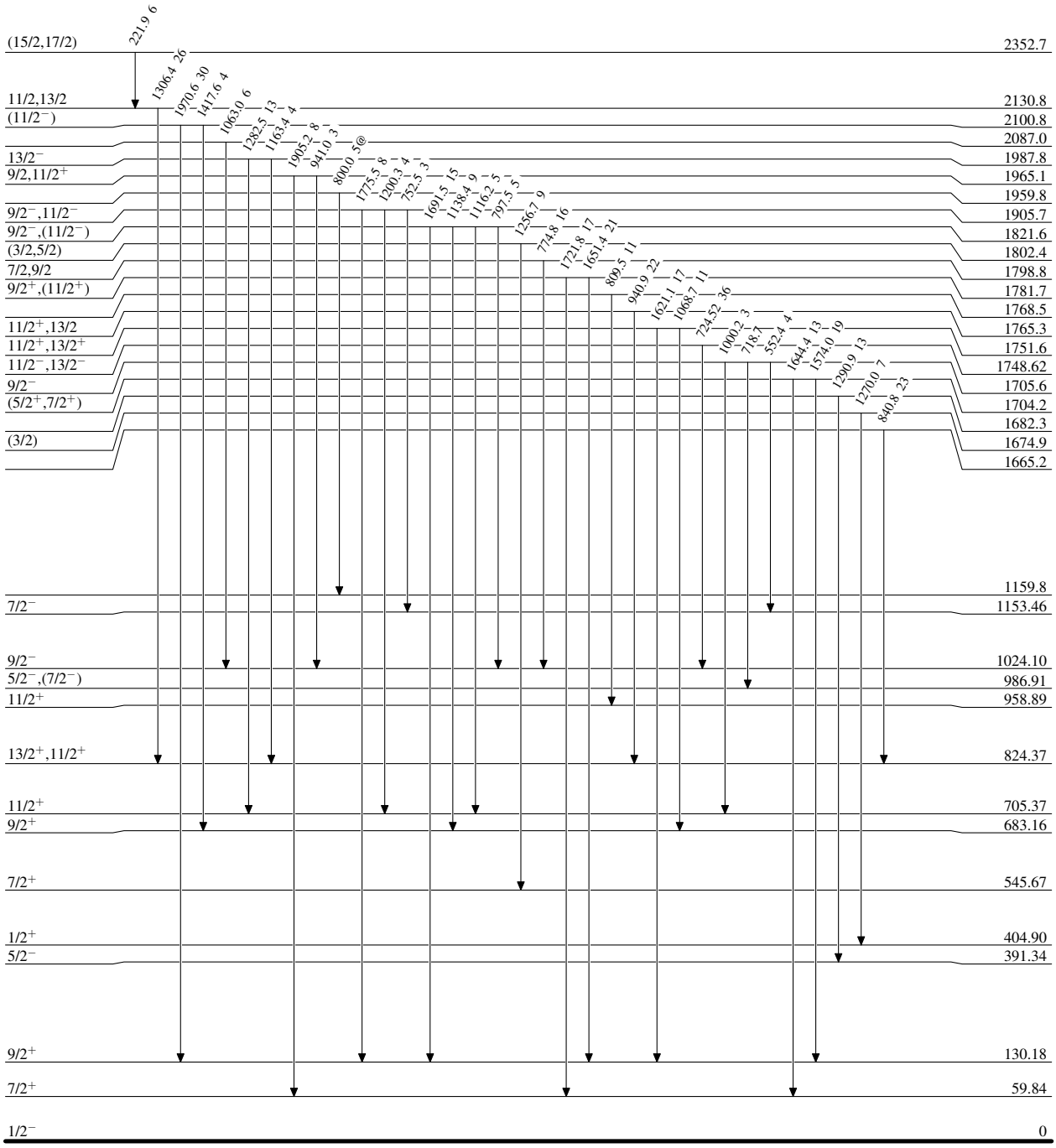
Level Scheme

Intensities: Type not specified
@ Multiply placed: intensity suitably divided

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



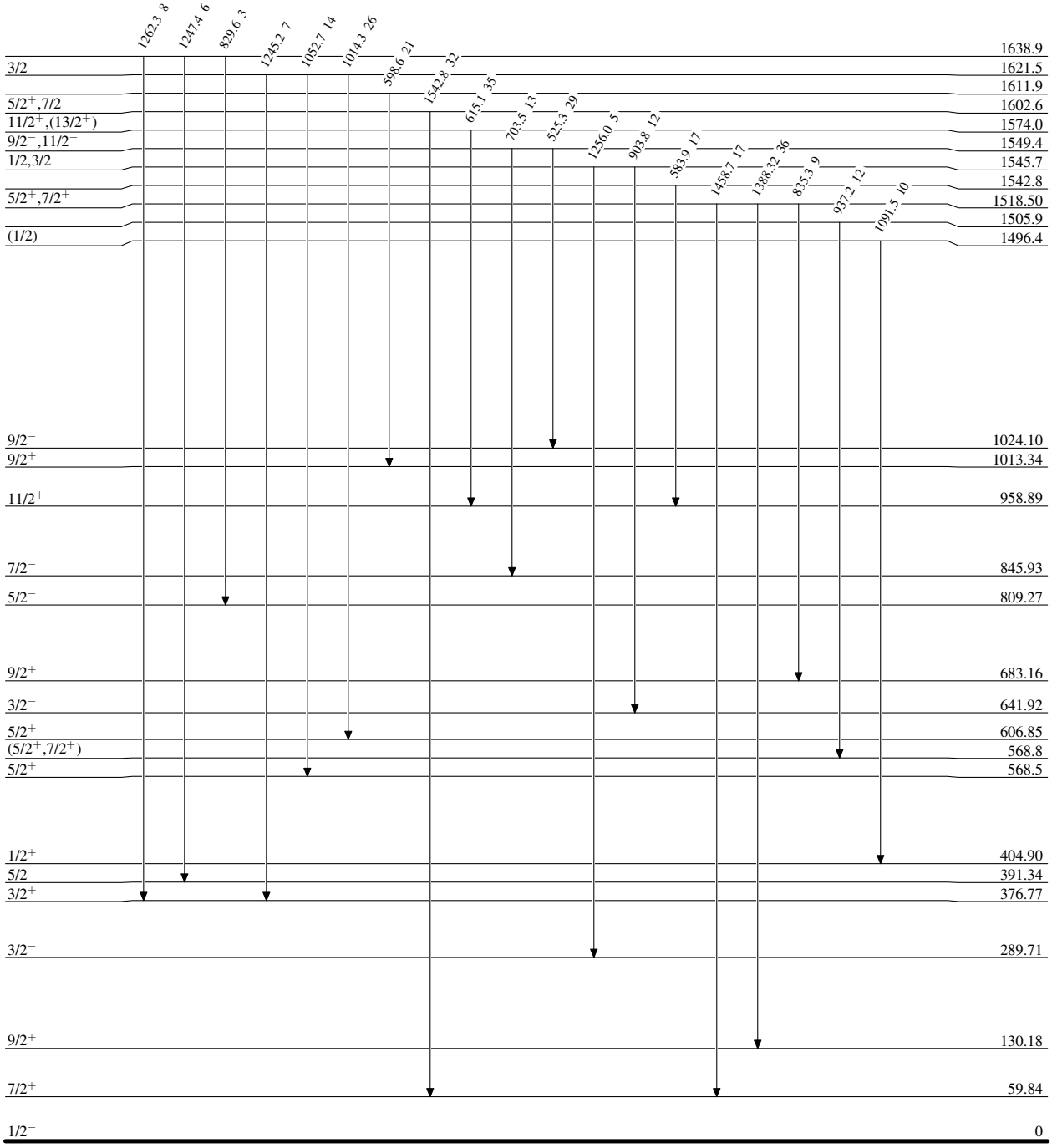
$^{111}_{47}Ag_{64}$

^{110}Pd(^{3}He,pnγ) 1987Ze04

Level Scheme (continued)

Intensities: Type not specified
@ Multiply placed: intensity suitably divided

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



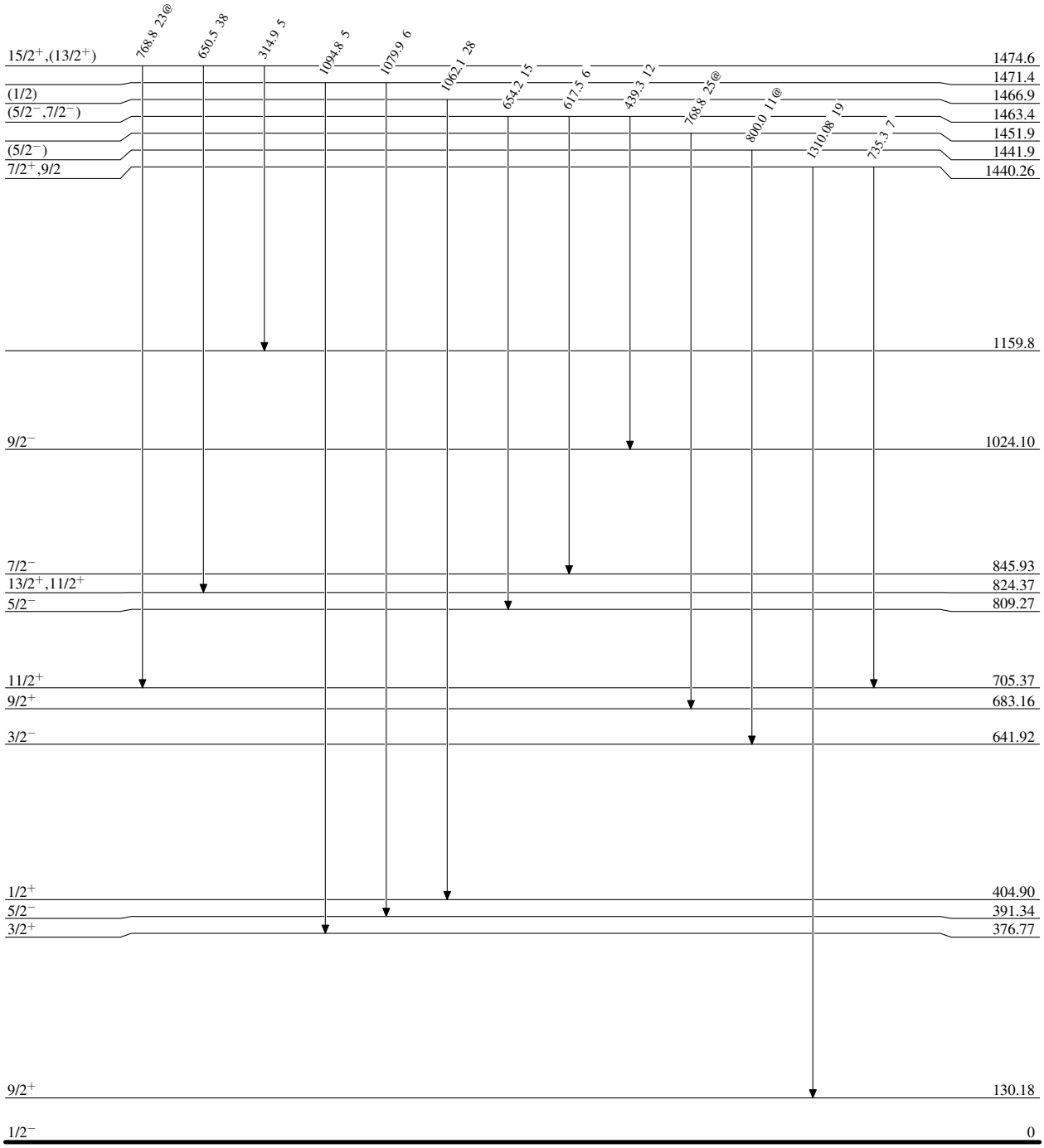
$^{111}_{47}Ag_{64}$

^{110}Pd(^{3}He,pnγ) 1987Ze04

Level Scheme (continued)

Intensities: Type not specified
@ Multiply placed: intensity suitably divided

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



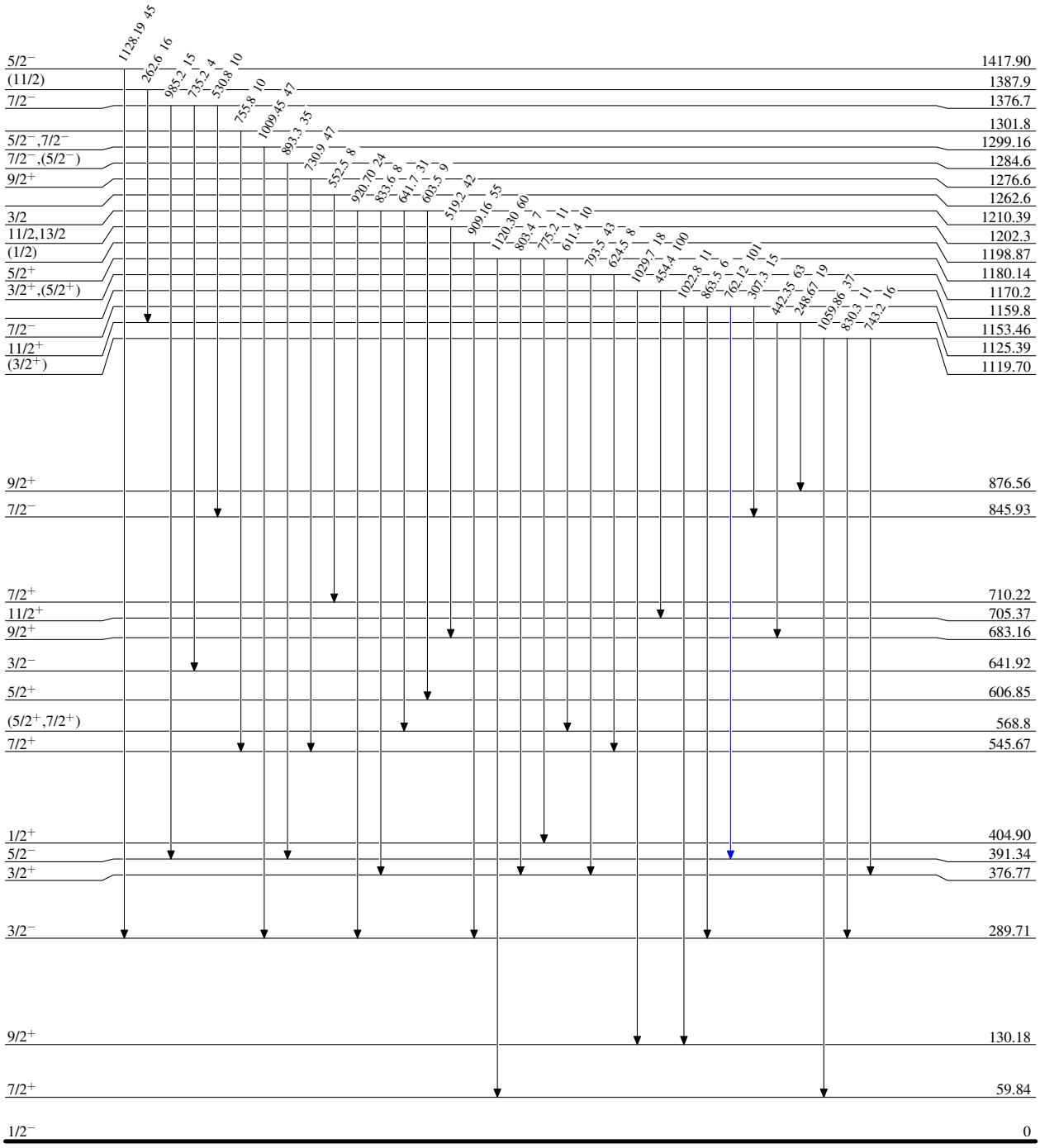
$^{111}_{47}Ag_{64}$

^{110}Pd(^{3}He,pnγ) 1987Ze04

Level Scheme (continued)

Intensities: Type not specified
@ Multiply placed: intensity suitably divided

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



$^{111}_{47}Ag_{64}$

^{110}Pd(^{3}He,pnγ) 1987Ze04

Level Scheme (continued)

Intensities: Type not specified
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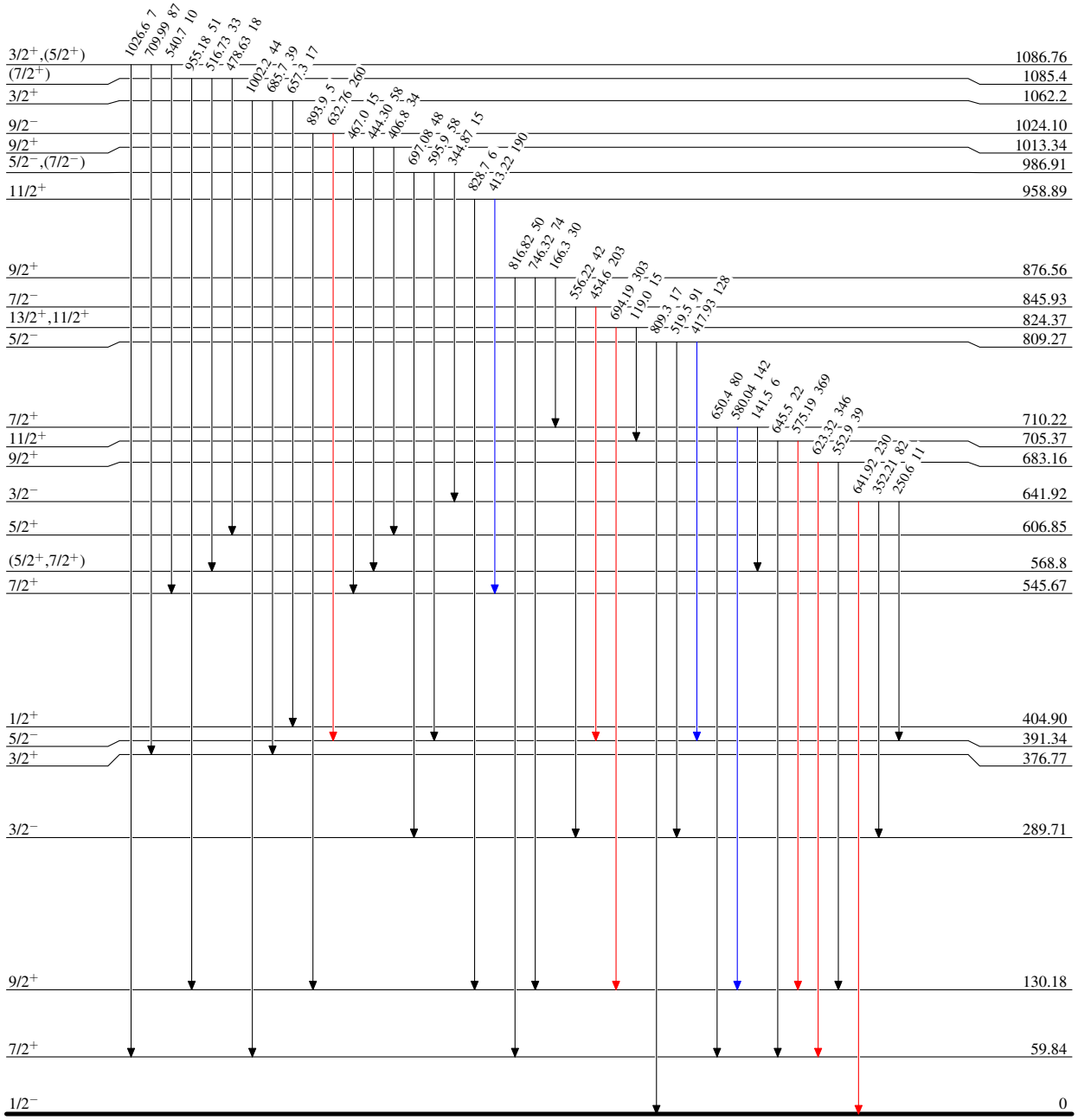
$I_\gamma > 10\% \times I_\gamma^{max}$



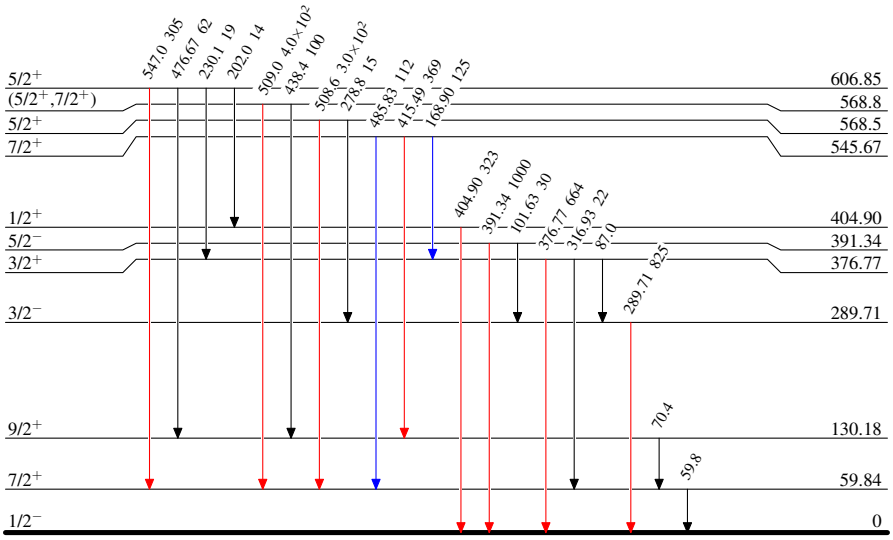
$^{111}_{47}Ag_{64}$

^{110}Pd(^{3}He,pnγ) 1987Ze04

Level Scheme (continued)

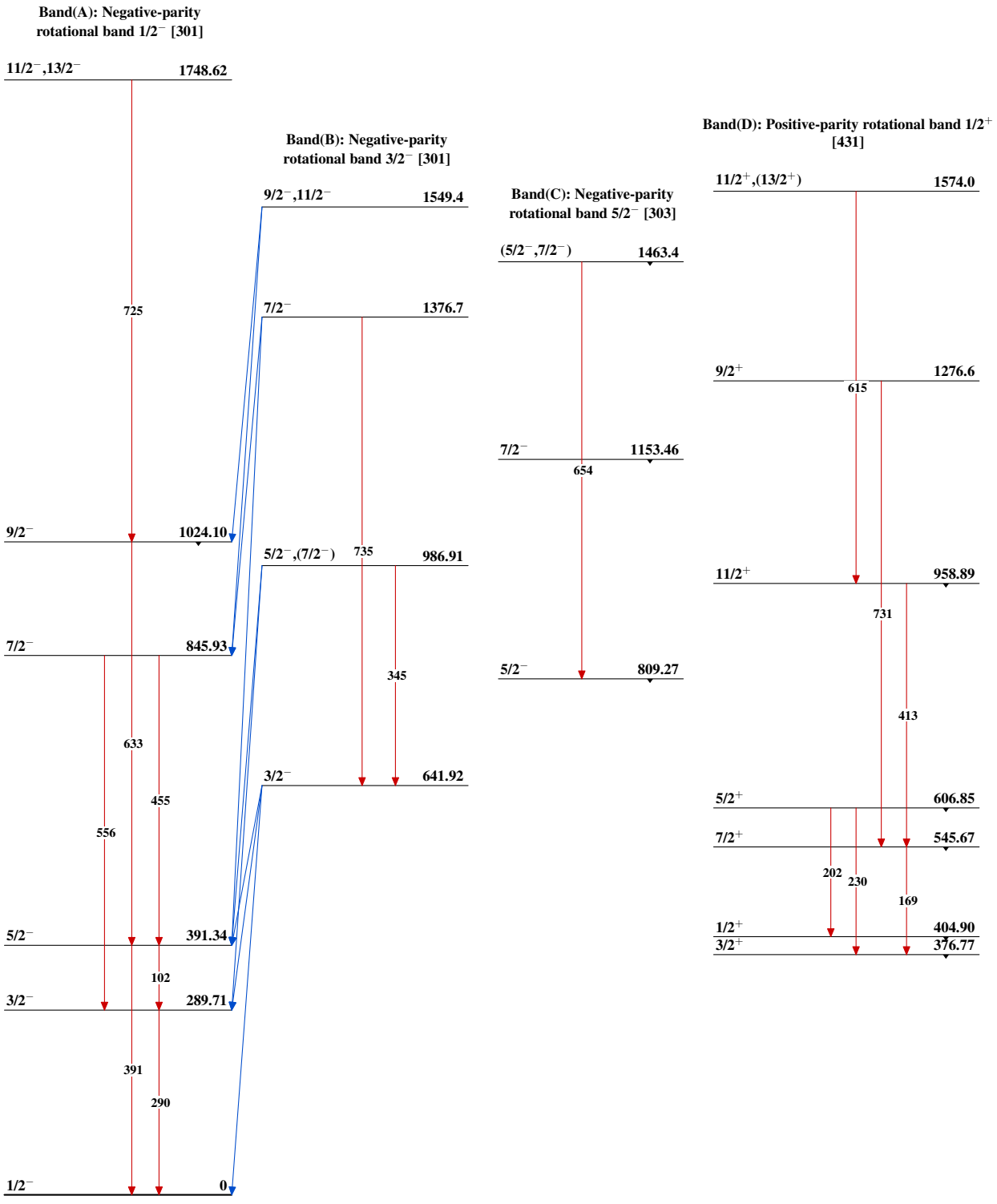
Intensities: Type not specified
@ Multiply placed: intensity suitably divided

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



$^{111}_{47}Ag_{64}$

^{110}Pd(^{3}He,pnγ) 1987Ze04



$^{111}_{47}Ag_{64}$