^{100}Mo(^{11}B,p2nγ) 2005Al25

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	ENSDF	1-Jul-2008

E=43 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma$(t), (charged particle)-γ coin, $\gamma\gamma(\theta)$(DCO) with the SACI-PERERE array. Light, charged particles were detected in SACI, a 4π charged particle telescope system consisting of 11 plastic phoswich scintillators. γ-rays were detected in PERERE array consisting of 4 HPGe detectors with BGO Compton shields.

^{108}Pd Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0@	0^+	2529.10 *25*		3421.02d *21*	9^-	4685.1c *5*	(12^-)
434.12@ *9*	2^+	2530.93 *23*		3424.9 *4*		4711.9 *3*	(13)
931.61f *11*	2^+	2549.50@ *17*	8^+	3728.13a *19*	$10^{(-)}$#	4778.53b *23*	13^-
1048.62@ *12*	4^+	2671.73e *24*	(5^+)	3748.9e *4*	(9^+)	4977.71@ *24*	14^+
1052.02 *22*	0^+	2710.26a *15*	$6^{(-)}$#	3790.7f *3*	(10^+)	5133.5 *3*	
1335.97g *12*	3^+	2762.02b *15*	7^-	3794.5c *3*	$10^{(-)}$	5326.5a *3*	(14^-)#
1625.01f *13*	4^+	2842.81d *16*	7^-	3799.39& *21*	12^+	5371.3e *15*	(13^+)
1771.90@ *15*	6^+	2919.3g *3*	(7^+)	3859.8 *4*		5609.2 *5*	
2047.8 *5*	3^-	2954.61f *17*	(8^+)	3964.72b *21*	11^-	5632.7b *3*	15^-
2084.28g *16*	5^+	3089.66c *17*	$8^{(-)}$	4121.5 *4*	(11)	5692.99& *25*	16^+
2231.5 *6*		3101.03a *16*	$8^{(-)}$#	4159.71@ *22*	12^+	6225.9a *9*	(16^-)#
2259.91f *16*	6^+	3111.1e *3*	(7^+)	4195.5d *3*	11^-	6518.0b *5*	(17^-)
2283.20 *18*		3258.08& *18*	10^+	4378.8 *3*	(11)	6829.0& *11*	18^+
2283.83 *23*		3281.02b *18*	9^-	4493.63a *21*	$12^{(-)}$#		
2325.18b *15*	5^-	3287.42 *18*		4528.9e *10*	(11^+)		
2472.6 *5*		3352.00@ *20*	10^+	4643.48& *23*	14^+		

† From least-squares fit to Eγ's .
‡ Assignments based on DCO ratio values for transitions.
# Tentative negative parity assignment based on systematic of even-mass isotopes of palladium.
@ Band(A): g.s., yrast band.
& Band(B): 10^+ band.
a Band(C): $\nu h_{11/2}\otimes\nu(g_{7/2},d_{5/2})$, α=0.
b Band(c): $\nu h_{11/2}\otimes\nu(g_{7/2},d_{5/2})$, α=1.
c Band(D): $\nu h_{11/2}\otimes\nu(g_{7/2},d_{5/2})$, α=0.
d Band(d): $\nu h_{11/2}\otimes\nu(g_{7/2},d_{5/2})$, α=1.
e Band(E): (5^+) band, α=1. Tentatively based on second lowest ($\nu h_{11/2}$) excitation.
f Band(F): γ vibrational band, α=0.
g Band(f): γ vibrational band, α=1.

$\gamma(^{108}Pd)$

R(DCO)=$I_\gamma(37°)/I_\gamma(101°)$, where $I_\gamma(37°)$ and $I_\gamma(101°)$ represent the intensity of a transition when gating on the 101° and 37° detector axes, respectively; for gating on a stretched $\Delta J=2$ transition, R(DCO)=1.0 and 0.49 for a $\Delta J=2$ and pure $\Delta J=1$, respectively. For mixed M1+E2 transitions, R(DCO) varies with δ, with a maximum of 1.4 and minimum of 0.2 for positive and negative mixing ratios, respectively (both for |d|?1). $\Delta I=0$ transitions can give R(DCO) values between 1.1 and 0.44 for pure $\Delta J=1$ and large mixing ratios, respectively.

Continued on next page (footnotes at end of table)

^{100}Mo(^{11}B,p2nγ) 2005Al25 (continued)

γ(^{108}Pd) (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Comments
132.8 *3*	0.28 *6*	2842.81	7^-	2710.26	$6^{(-)}$	
205.6 *2*	0.68 *11*	2530.93		2325.18	5^-	DCO=0.80 *24*
246.8 *1*	0.96 *10*	3089.66	$8^{(-)}$	2842.81	7^-	DCO=0.42 *7*
258.3 *1*	1.15 *10*	3101.03	$8^{(-)}$	2842.81	7^-	DCO=0.43 *8*
303.4 *2*	0.39 *6*	3258.08	10^+	2954.61	(8^+)	DCO=0.9 *3*
313.1 *9*	0.68 *14*	2084.28	5^+	1771.90	6^+	DCO=0.70 *9*
327.7 *1*	2.49 *17*	3089.66	$8^{(-)}$	2762.02	7^-	DCO=0.55 *14*
339.0 *1*	1.87 *14*	3101.03	$8^{(-)}$	2762.02	7^-	DCO=0.58 *11*
373.6 *14*	0.20 *5*	3794.5	$10^{(-)}$	3421.02	9^-	
385.2 *1*	2.76 *20*	2710.26	$6^{(-)}$	2325.18	5^-	DCO=0.70 *15*
390.7 *1*	2.32 *16*	3101.03	$8^{(-)}$	2710.26	$6^{(-)}$	DCO=0.81 *20*
404.4 *1*	3.85 *26*	1335.97	3^+	931.61	2^+	DCO=0.91 *15*
434.1 *1*	122.1 *10*	434.12	2^+	0.0	0^+	DCO=0.97 *5* I_γ: from sum of intensities of transitions feeding the 2^+ level.
436.8 *1*	2.66 *20*	2762.02	7^-	2325.18	5^-	DCO=1.08 *25*
439.4 *2*	0.81 *15*	3111.1	(7^+)	2671.73	(5^+)	DCO=0.85 *29*
497.4 *1*	10.5[‡] *6*	931.61	2^+	434.12	2^+	DCO=0.84 *8* δ: $-10\leq\delta\leq-3$ or $\delta=-0.48$ *16*; the former is consistent with the known value of $\delta=-3.1$ *4* from ^{108}Pd in ENSDF.
511.3 *1*	2.40 *27*	2283.20		1771.90	6^+	
519.0 *1*	7.1 *3*	3281.02	9^-	2762.02	7^-	DCO=1.00 *18*
525.4[@] *1*	1.42 *18*	3287.42		2762.02	7^-	
541.3 *1*	10.0 *4*	3799.39	12^+	3258.08	10^+	DCO=1.09 *11*
572.4[@] *3*	0.57 *11*	3859.8		3287.42		
576.5 *1*	2.25 *23*	1625.01	4^+	1048.62	4^+	
578.2 *2*	0.86 *14*	3421.02	9^-	2842.81	7^-	DCO=1.1 *4*
614.6 *1*	100 *3*	1048.62	4^+	434.12	2^+	DCO=0.99 *5*
617.9 *2*	4.0 *5*	1052.02	0^+	434.12	2^+	
627.1 *1*	3.29 *21*	3728.13	$10^{(-)}$	3101.03	$8^{(-)}$	DCO=0.84 *21*
634.9 *1*	7.1[‡] *4*	2259.91	6^+	1625.01	4^+	DCO=1.2 *3*
637.8 *2*	0.80 *13*	3748.9	(9^+)	3111.1	(7^+)	
659.0 *2*	0.97 *16*	3421.02	9^-	2762.02	7^-	DCO=0.94 *26*
683.7 *1*	4.01 *23*	3964.72	11^-	3281.02	9^-	DCO=0.91 *17*
693.3 *1*	7.0[‡] *5*	1625.01	4^+	931.61	2^+	DCO=1.49 *24* DCO value for 693+695 peaks. Separate analysis leads to less reliable 1.8 *3* and 1.1 *3* values, respectively (authors′ note).
694.7 *1*	3.2[‡] *3*	2954.61	(8^+)	2259.91	6^+	DCO=1.49 *24* DCO value for 693+695 peaks. Separate analysis leads to less reliable 1.8 *3* and 1.1 *3* values, respectively (authors′ note).
704.8 *2*	1.43 *15*	3794.5	$10^{(-)}$	3089.66	$8^{(-)}$	
708.6 *1*	14.9 *6*	3258.08	10^+	2549.50	8^+	DCO=1.05 *11*
723.2 *1*	75.8 *25*	1771.90	6^+	1048.62	4^+	DCO=0.97 *5*
748.3 *1*	4.1[‡] *3*	2084.28	5^+	1335.97	3^+	DCO=1.4 *3*
757.2 *2*	1.73 *26*	2529.10		1771.90	6^+	
765.5 *1*	1.92 *16*	4493.63	$12^{(-)}$	3728.13	$10^{(-)}$	DCO=0.82 *15*
774.5 *2*	1.45 *20*	4195.5	11^-	3421.02	9^-	DCO=1.5 *5*
777.6 *1*	40.1 *14*	2549.50	8^+	1771.90	6^+	DCO=0.97 *7*
780.0 *9*	0.28 *12*	4528.9	(11^+)	3748.9	(9^+)	
802.5 *1*	13.2 *5*	3352.00	10^+	2549.50	8^+	DCO=0.98 *10*
807.7 *1*	5.48 *28*	4159.71	12^+	3352.00	10^+	DCO=0.97 *12*
813.8 *1*	2.11 *16*	4778.53	13^-	3964.72	11^-	DCO=0.91 *15*
818.0 *1*	1.72 *16*	4977.71	14^+	4159.71	12^+	DCO=0.99 *20*
832.9 *2*	1.07 *12*	5326.5	(14^-)	4493.63	$12^{(-)}$	

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^{100}Mo(^{11}B,p2nγ) 2005Al25 (continued)

γ(^{108}Pd) (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ[#]	Comments
835.0 *2*	1.50 *20*	2919.3	(7^+)	2084.28	5^+			
836.3 *3*	0.57 *12*	3790.7	(10^+)	2954.61	(8^+)			
842.4 *11*	0.26 *11*	5371.3	(13^+)	4528.9	(11^+)			
844.1 *1*	4.95 *25*	4643.48	14^+	3799.39	12^+			DCO=0.93 *19*
847.6 *4*	0.82 *20*	2472.6		1625.01	4^+			
854.2 *2*	0.76 *11*	5632.7	15^-	4778.53	13^-			DCO=0.85 *23*
863.4 *3*	0.86 *15*	4121.5	(11)	3258.08	10^+			DCO=0.67 *23*
875.4 *3*	0.93 *18*	3424.9		2549.50	8^+			
885.3 *3*	0.40 *9*	6518.0	(17^-)	5632.7	15^-			
890.6 *4*	0.36 *10*	4685.1	(12^-)	3794.5	$10^{(-)}$			
897.1 *4*	0.39 *10*	5609.2		4711.9	(13)			
899.4 *8*	0.24 *13*	6225.9	(16^-)	5326.5	(14^-)			
901.8 *1*	6.1[‡] *5*	1335.97	3^+	434.12	2^+	M1+E2	≤ -5	DCO=0.94 *16* δ: $\delta\leq -5$ or $\delta\leq 0.2$; the latter value is less likely for positive mixing ratio.
912.5 *2*	0.88 *13*	4711.9	(13)	3799.39	12^+			DCO=0.65 *15*
931.7 *2*	2.1 *3*	931.61	2^+	0.0	0^+			DCO=0.92 *26*
938.2 *1*	2.64 *23*	2710.26	$6^{(-)}$	1771.90	6^+			DCO=1.3 *3*
947.9 *2*	1.40 *24*	2283.83		1335.97	3^+			
966.1 *6*	0.35 *13*	5609.2		4643.48	14^+			
973.8 *2*	1.02 *14*	5133.5		4159.71	12^+			
990.2 *1*	15.4 *7*	2762.02	7^-	1771.90	6^+			DCO=0.53 *8*
1026.8 *2*	0.99 *16*	4378.8	(11)	3352.00	10^+			DCO=0.57 *26*
1049.5 *1*	1.32 *13*	5692.99	16^+	4643.48	14^+			DCO=0.88 *23*
1070.9 *1*	4.7 *3*	2842.81	7^-	1771.90	6^+			DCO=0.51 *10*
1136.0 *10*	0.41 *10*	6829.0	18^+	5692.99	16^+			DCO=0.90 *26*
1182.9 *5*	0.85 *25*	2231.5		1048.62	4^+			
1211.2 *5*	0.77 *21*	2259.91	6^+	1048.62	4^+			
1234.4 *9*	0.43 *23*	2283.83		1048.62	4^+			
1240.7 *5*	0.49 *16*	3790.7	(10^+)	2549.50	8^+			
1276.6 *1*	9.1 *6*	2325.18	5^-	1048.62	4^+			DCO=0.58 *9*
1482.9 *4*	1.18 *26*	2530.93		1048.62	4^+			
1613.7 *5*	1.2 *4*	2047.8	3^-	434.12	2^+			
1623.1 *2*	1.00 *18*	2671.73	(5^+)	1048.62	4^+			

[†] Obtained from 1p-gated matrix analysis.
[‡] R(DCO) value obtained from gating on 434 transition.
[#] Extracted by 2005Al25 from DCO values by gating on 434 transition.
[@] 525 and 572 transitions seem to be incorrectly ordered in level scheme of figure 2 of 2005Al25 based upon intensity balances and level energy information in authors′ table I.

^{100}Mo(^{11}B,p2nγ) 2005Al25

Level Scheme

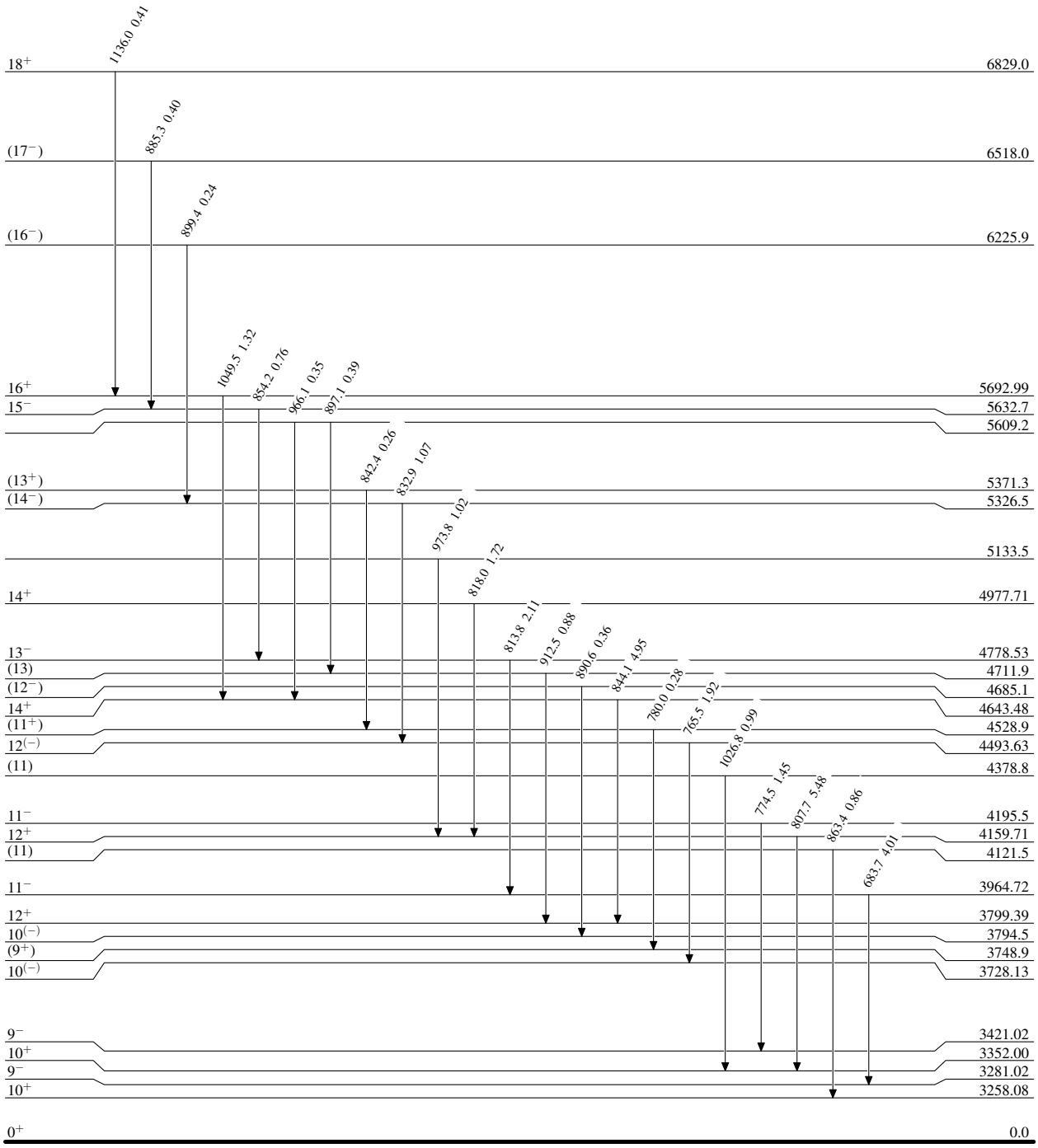
Intensities: Relative I_γ

Legend

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

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

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



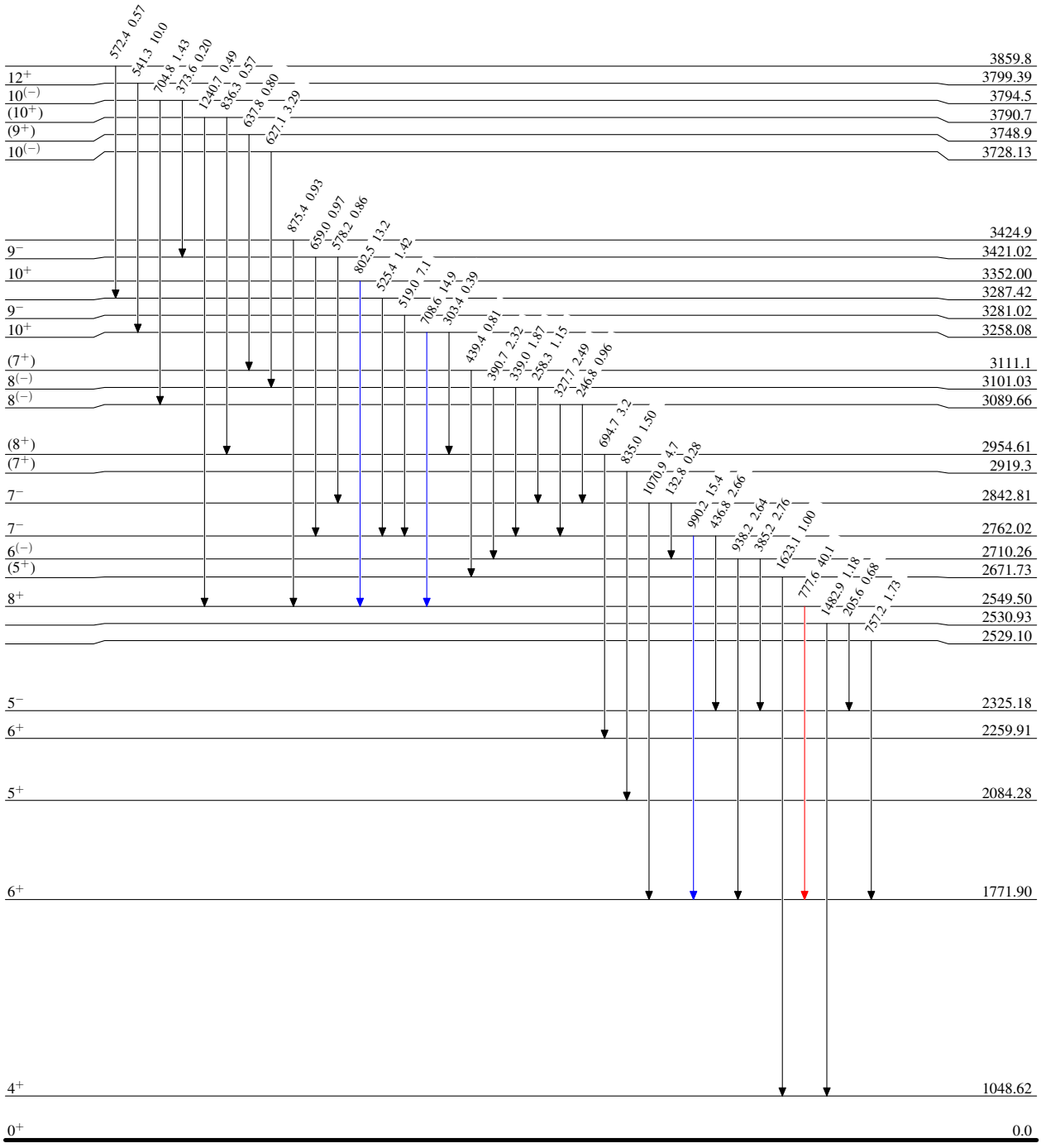
$^{108}_{46}Pd_{62}$

^{100}Mo(^{11}B,p2nγ) 2005Al25

Level Scheme (continued)

Intensities: Relative I_γ

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



$^{108}_{46}Pd_{62}$

^{100}Mo(^{11}B,p2nγ) 2005Al25

Level Scheme (continued)

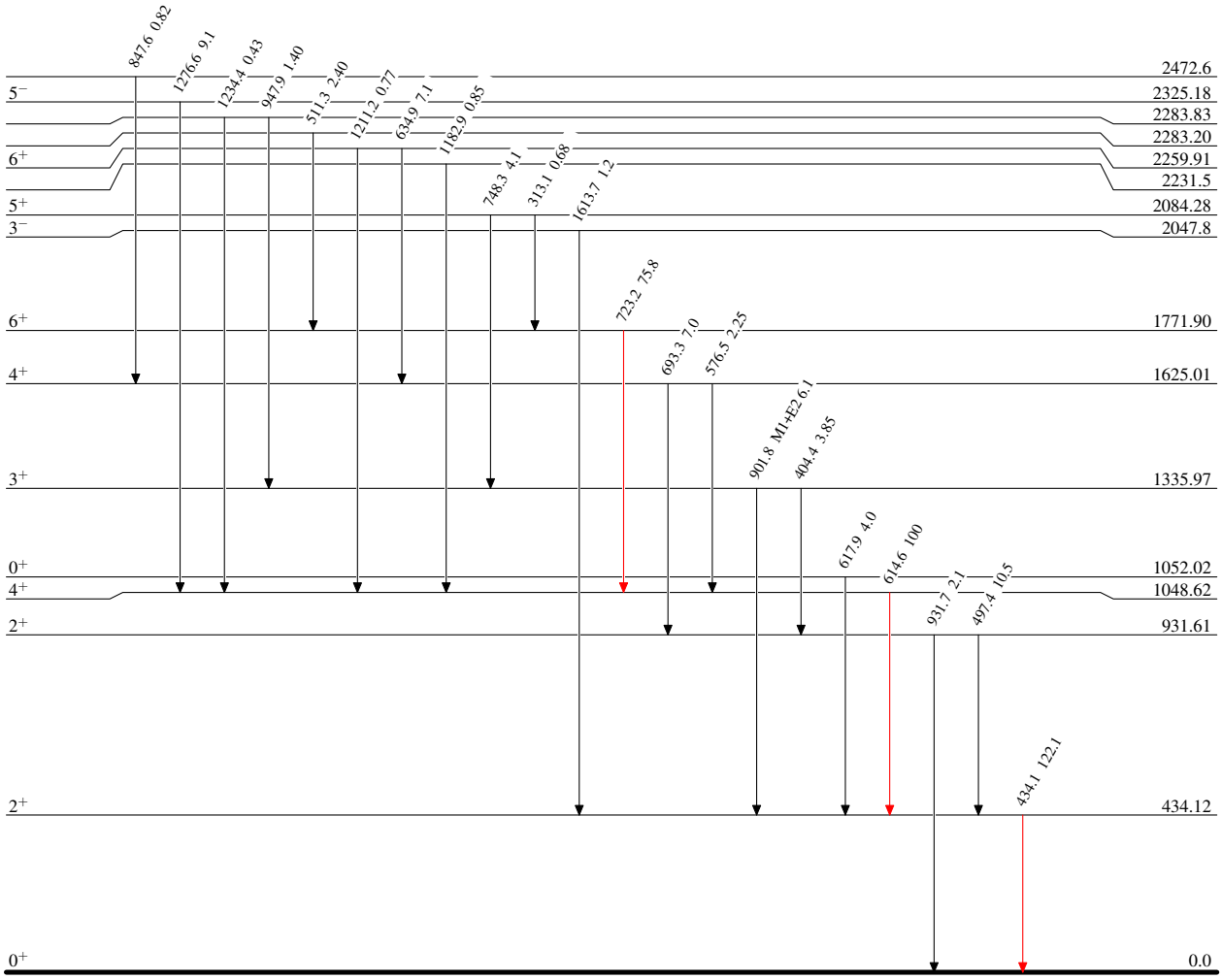
Intensities: Relative I_γ

Legend

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

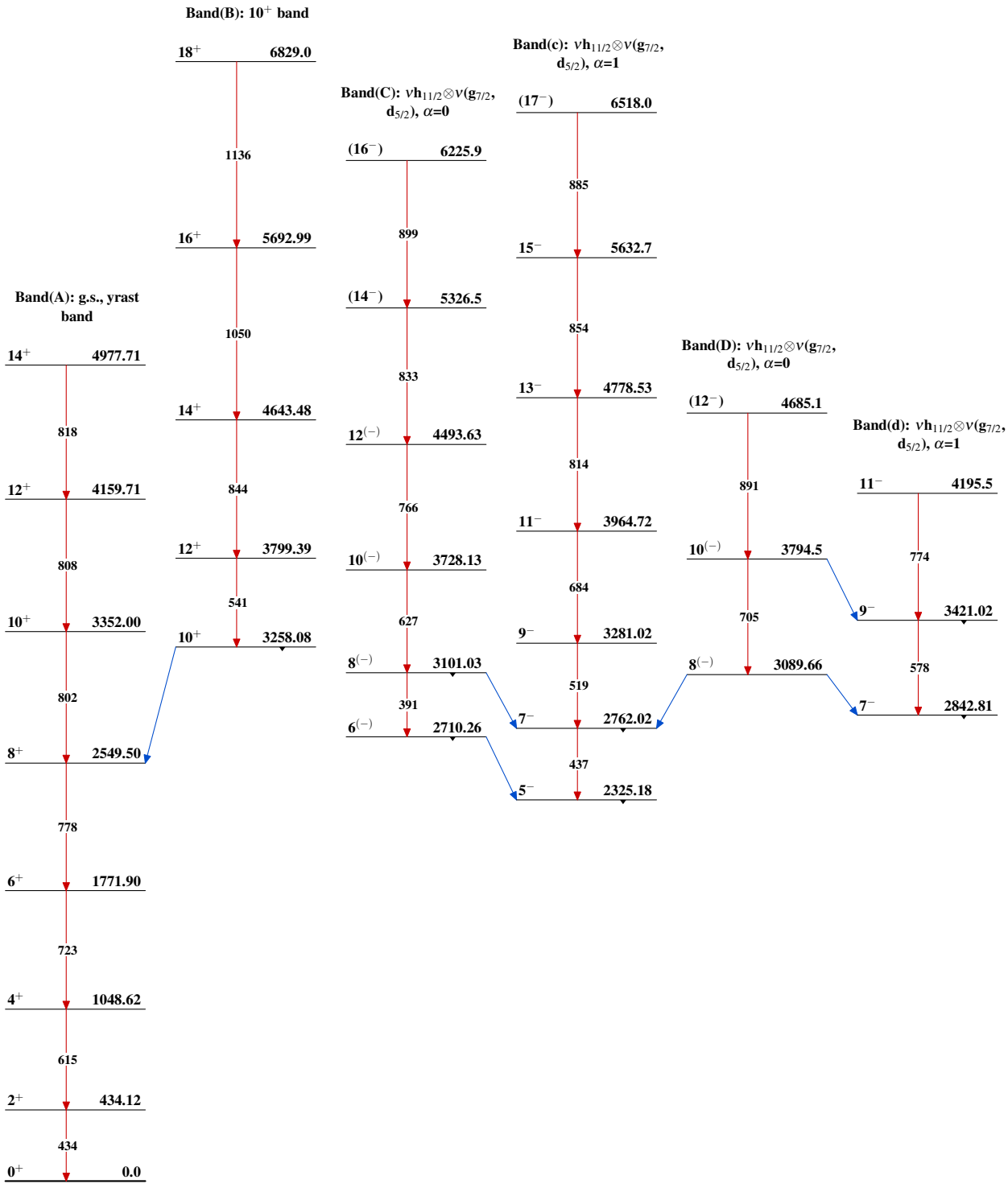
$I_\gamma < 10\% \times I_\gamma^{max}$

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



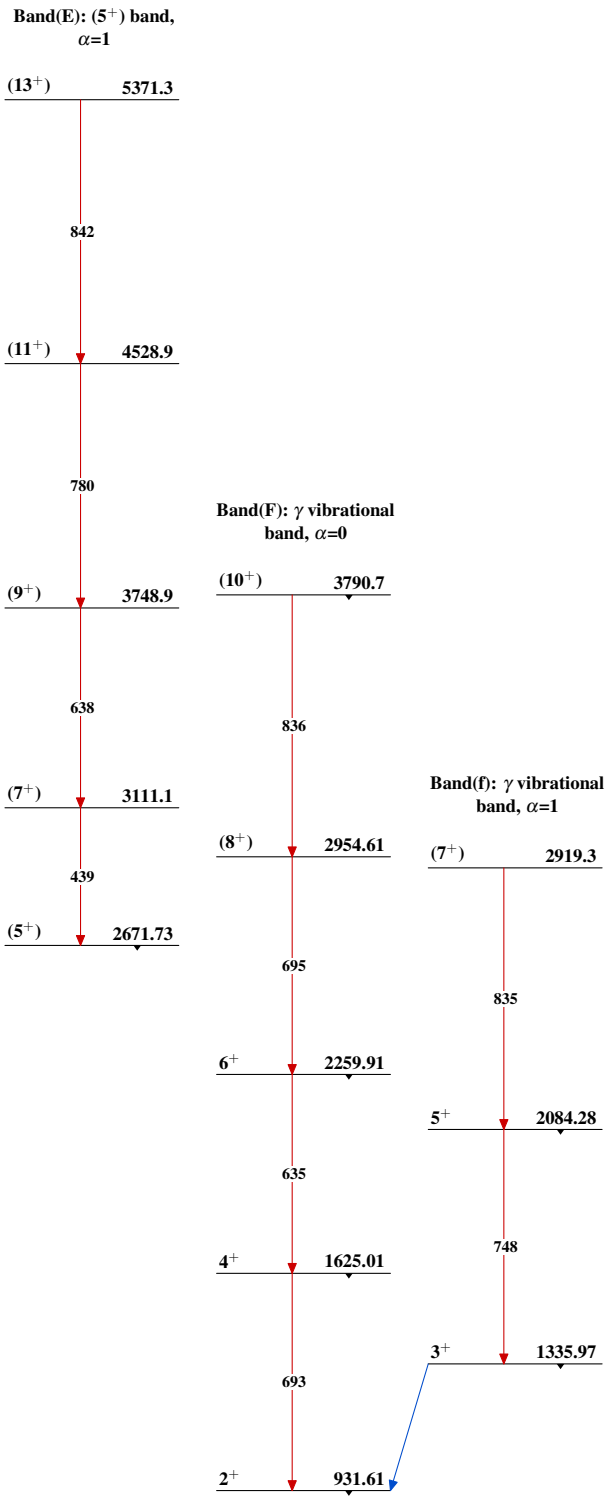
$^{108}_{46}Pd_{62}$

^{100}Mo(^{11}B,p2nγ) 2005Al25



$^{108}_{46}Pd_{62}$

^{100}Mo(^{11}B,p2nγ) 2005Al25 (continued)



$^{108}_{46}Pd_{62}$