Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Zoltan Elekes and Janos Timar	NDS 129, 191 (2015)	28-Feb-2015

Q(β^-)=−12530 *SY*; S(n)=12850 *SY*; S(p)=3060 *SY*; Q(α)=2180 *SY* 2012Wa38
ΔQ(β^-)=360, ΔS(n)=360, ΔS(p)=280, ΔQ(α)=360 (2012Wa38).
S(2n)=23460 syst, S(2p)=4070 syst, Q(εp)=4380 syst (2012Wa38).
Estimated uncertainties: 360 for S(2n), 200 for S(2p), 200 for Q(εp) (2012Wa38).

^{128}Nd Levels

Cross Reference (XREF) Flags

A ^{92}Mo(^{40}Ca,2p2nγ)

E(level)†	Jπ#	$T_{1/2}$‡	XREF	Comments
0@	0^+	5 s	A	%ε+%β^+=100; %εp=? No evidence of β-delayed proton emission was reported in 1985Wi07. $T_{1/2}$: tentative value from 2012Au07. Deduced from systematic trend in neighboring nuclides.
133.66@ *7*	2^+		A	
424.47@ *14*	4^+	16 ps *4*	A	
847.93@ *15*	6^+	<15 ps	A	
1377.08@ *16*	8^+		A	
1732.1b *3*	(4^-)		A	
1876.83a *23*	(5^-)		A	
1927.1 *5*	(5^-)		A	
1986.53@ *25*	10^+		A	
2052.74b *25*	(6^-)		A	
2223.49& *24*	(7^-)		A	Jπ: stretched dipole γ to 8^+, γ to 6^+; parity from systematics.
2268.10a *23*	$7^{(-)}$		A	
2482.9b *3*	(8^-)		A	
2653.3& *3*	(9^-)		A	
2655.9@ *4*	12^+		A	
2750.5a *3*	$9^{(-)}$		A	
3008.8b *4*	(10^-)		A	
3182.5& *4*	(11^-)		A	
3321.6a *4*	(11^-)		A	
3371.9@ *4*	14^+		A	
3589.2b *4*	(12^-)		A	
3795.4& *5*	(13^-)		A	
3954.8a *6*	(13^-)		A	
4135.7@ *5*	16^+		A	
4201.4b *5*	(14^-)		A	
4480.5& *5*	(15^-)		A	
4641.4a *8*	(15^-)		A	
4886.5b *5*	(16^-)		A	
4964.4@ *5*	18^+		A	
5231.8& *5*	(17^-)		A	
5368.6a *10*	(17^-)		A	

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Adopted Levels, Gammas (continued)

^{128}Nd Levels (continued)

E(level)†	Jπ#	XREF	E(level)†	Jπ#	XREF	E(level)†	Jπ#	XREF
5646.3[b] 7	(18⁻)	A	6941.5[&] 8	(21⁻)	A	9061.6[@] 8	26⁺	A
5874.2[@] 5	20⁺	A	7009.6[a] 17	(21⁻)	A	9301.9[b] 18	(26⁻)	A
6052.2[&] 6	(19⁻)	A	7381.9[b] 10	(22⁻)	A	10227.9[@] 10	28⁺	A
6164.6[a] 14	(19⁻)	A	7886.5[&] 13	(23⁻)	A	11444.6[@] 11	30⁺	A
6489.9[b] 9	(20⁻)	A	7938.1[@] 6	24⁺	A	12725.3[@] 12	32⁺	A
6868.7[@] 6	22⁺	A	8306.9[b] 14	(24⁻)	A	14081.3[@] 16	34⁺	A

† From least-squares fit to Eγ's.
‡ From Doppler-shift attenuation in ^{92}Mo(^{40}Ca,2p2nγ), except as noted.
# Based on band structure and measured DCO values in ^{92}Mo(^{40}Ca,2p2nγ), unless otherwise noted. In-band quadrupole transitions are taken as E2-s. Bandhead spins of the side bands are based on DCO ratios of linking transitions to known spin levels and relative excitation intensities of the bands in HI fusion-evaporation reaction.
@ Band(A): g.s. band. First crossing at $\hbar\omega\approx0.37$ MeV due to alignment of a $h_{11/2}$ proton pair; second crossing at $\hbar\omega\approx0.57$ MeV due to alignment of a $h_{11/2}$ p-neutron pair.
& Band(B): $\pi h_{11/2}(d_{3/2}$ or $s_{1/2})$ band.
a Band(C): $\pi h_{11/2}d_{5/2}$ band, α=1.
b Band(D): $\pi h_{11/2}d_{5/2}$ band, α=0.

γ(^{128}Nd)

E_i(level)	J_i^π	E_γ†	I_γ	E_f	J_f^π	Mult.‡	Comments
133.66	2⁺	133.66 7	100	0	0⁺	[E2]	Mult.: supported by DCO (2002Ze09).
424.47	4⁺	290.81 12	100	133.66	2⁺	E2	Mult.: from DCO in 2002Ze09 and RUL.
847.93	6⁺	423.46 5	100	424.47	4⁺	E2	Mult.: from DCO in 2002Ze09 and RUL.
1377.08	8⁺	529.13 5	100	847.93	6⁺	[E2]	Mult.: supported by DCO (2002Ze09).
1732.1	(4⁻)	1307.6 5	100	424.47	4⁺	(E1)	Mult.: based on band configuration assignments and other weak arguments.
1876.83	(5⁻)	145		1732.1	(4⁻)		
		1029.0 2	100 9	847.93	6⁺	(E1)	Mult.: based on band configuration assignments and other weak arguments.
		1454		424.47	4⁺		
1927.1	(5⁻)	1079 1	100	847.93	6⁺		E_γ: from Fig. 1 of 2002Ze09; not shown in Table I.
1986.53	10⁺	609.46 19	100	1377.08	8⁺	[E2]	Mult.: supported by DCO (2002Ze09).
2052.74	(6⁻)	176.1 2	100 12	1876.83	(5⁻)	(M1+E2)	Mult.: from DCO in 2002Ze09 and band structure.
		320.6 2	79 12	1732.1	(4⁻)	(E2)	Mult.: from band structure.
2223.49	(7⁻)	846.4 2	100 10	1377.08	8⁺	(E1)	Mult.: from band configurations; Supported by DCO (2002Ze09).
		1377		847.93	6⁺		
2268.10	7(−)	215.6 5	68 13	2052.74	(6⁻)		
		340.9 5	63 4	1927.1	(5⁻)		
		391 1	<54	1876.83	(5⁻)	(E2)	Mult.: from band structure.
		890.8 2	100 13	1377.08	8⁺	(E1)	Mult.: from band configurations; Supported by DCO (2002Ze09).
2482.9	(8⁻)	214.2 5	39 7	2268.10	7(−)		
		259.8 5	51 7	2223.49	(7⁻)		
		430.3 2	100 11	2052.74	(6⁻)	(E2)	Mult.: from band structure.
2653.3	(9⁻)	429.8 2	100 7	2223.49	(7⁻)	(E2)	Mult.: from band structure; Supported by DCO (2002Ze09).
		667 1	<21.4	1986.53	10⁺		
2655.9	12⁺	669.4 2	100	1986.53	10⁺	[E2]	Mult.: supported by DCO (2002Ze09).

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Adopted Levels, Gammas (continued)

γ(^{128}Nd) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π	Mult.[‡]	Comments
2750.5	$9^{(-)}$	267.8 *5*	47 *10*	2482.9	(8^-)		
		482.3 *2*	100 *14*	2268.10	$7^{(-)}$	(E2)	Mult.: grom band structure; Supported by DCO (2002Ze09).
3008.8	(10^-)	258 *1*	<38	2750.5	$9^{(-)}$		
		526.0 *2*	100 *13*	2482.9	(8^-)	(E2)	Mult.: grom band structure.
3182.5	(11^-)	523.5[#] *5*	<23.1	2655.9	12^+		
		529.2 *2*	100 *8*	2653.3	(9^-)	(E2)	Mult.: grom band structure; Supported by DCO (2002Ze09).
3321.6	(11^-)	314 *1*	<50	3008.8	(10^-)		
		571.1 *2*	100 *17*	2750.5	$9^{(-)}$	(E2)	Mult.: grom band structure.
3371.9	14^+	716.0 *2*	100	2655.9	12^+	[E2]	Mult.: supported by DCO (2002Ze09).
3589.2	(12^-)	580.3 *2*	100	3008.8	(10^-)	(E2)	Mult.: grom band structure.
3795.4	(13^-)	612.9 *2*	100	3182.5	(11^-)	(E2)	Mult.: grom band structure.
3954.8	(13^-)	633.2 *5*	100	3321.6	(11^-)	(E2)	Mult.: from band structure.
4135.7	16^+	763.8 *2*	100	3371.9	14^+	[E2]	Mult.: supported by DCO (2002Ze09).
4201.4	(14^-)	612.2 *2*	100	3589.2	(12^-)	(E2)	Mult.: from band structure.
4480.5	(15^-)	685.1 *2*	100	3795.4	(13^-)	(E2)	Mult.: from band structure.
4641.4	(15^-)	686.6 *5*	100	3954.8	(13^-)	(E2)	Mult.: from band structure.
4886.5	(16^-)	685.1 *2*	100	4201.4	(14^-)	(E2)	Mult.: from band structure.
4964.4	18^+	828.7 *2*	100	4135.7	16^+	[E2]	Mult.: supported by DCO (2002Ze09).
5231.8	(17^-)	751.3 *2*	100	4480.5	(15^-)	(E2)	Mult.: from band structure.
5368.6	(17^-)	727.1 *5*	100	4641.4	(15^-)	(E2)	Mult.: from band structure.
5646.3	(18^-)	759.8 *5*	100	4886.5	(16^-)	(E2)	Mult.: from band structure.
5874.2	20^+	909.8 *2*	100	4964.4	18^+	[E2]	
6052.2	(19^-)	820.4 *2*	100	5231.8	(17^-)	(E2)	Mult.: from band structure.
6164.6	(19^-)	796 *1*	100	5368.6	(17^-)	(E2)	Mult.: from band structure.
6489.9	(20^-)	843.6 *5*	100	5646.3	(18^-)	(E2)	Mult.: from band structure.
6868.7	22^+	994.5 *2*	100	5874.2	20^+	[E2]	
6941.5	(21^-)	889.3 *5*	100	6052.2	(19^-)	(E2)	Mult.: from band structure.
7009.6	(21^-)	845 *1*	100	6164.6	(19^-)	(E2)	Mult.: from band structure.
7381.9	(22^-)	892.0 *5*	100	6489.9	(20^-)	(E2)	Mult.: from band structure.
7886.5	(23^-)	945 *1*	100	6941.5	(21^-)	(E2)	Mult.: from band structure.
7938.1	24^+	1069.3 *2*	100	6868.7	22^+	[E2]	
8306.9	(24^-)	925 *1*	100	7381.9	(22^-)	(E2)	Mult.: from band structure.
9061.6	26^+	1123.5 *5*	100	7938.1	24^+	[E2]	
9301.9	(26^-)	995 *1*	100	8306.9	(24^-)	(E2)	Mult.: from band structure.
10227.9	28^+	1166.3 *5*	100	9061.6	26^+	[E2]	
11444.6	30^+	1216.7 *5*	100	10227.9	28^+	[E2]	
12725.3	32^+	1280.7 *5*	100	11444.6	30^+	[E2]	
14081.3	34^+	1356 *1*	100	12725.3	32^+	[E2]	

[†] From ^{92}Mo(^{40}Ca,2p2nγ).

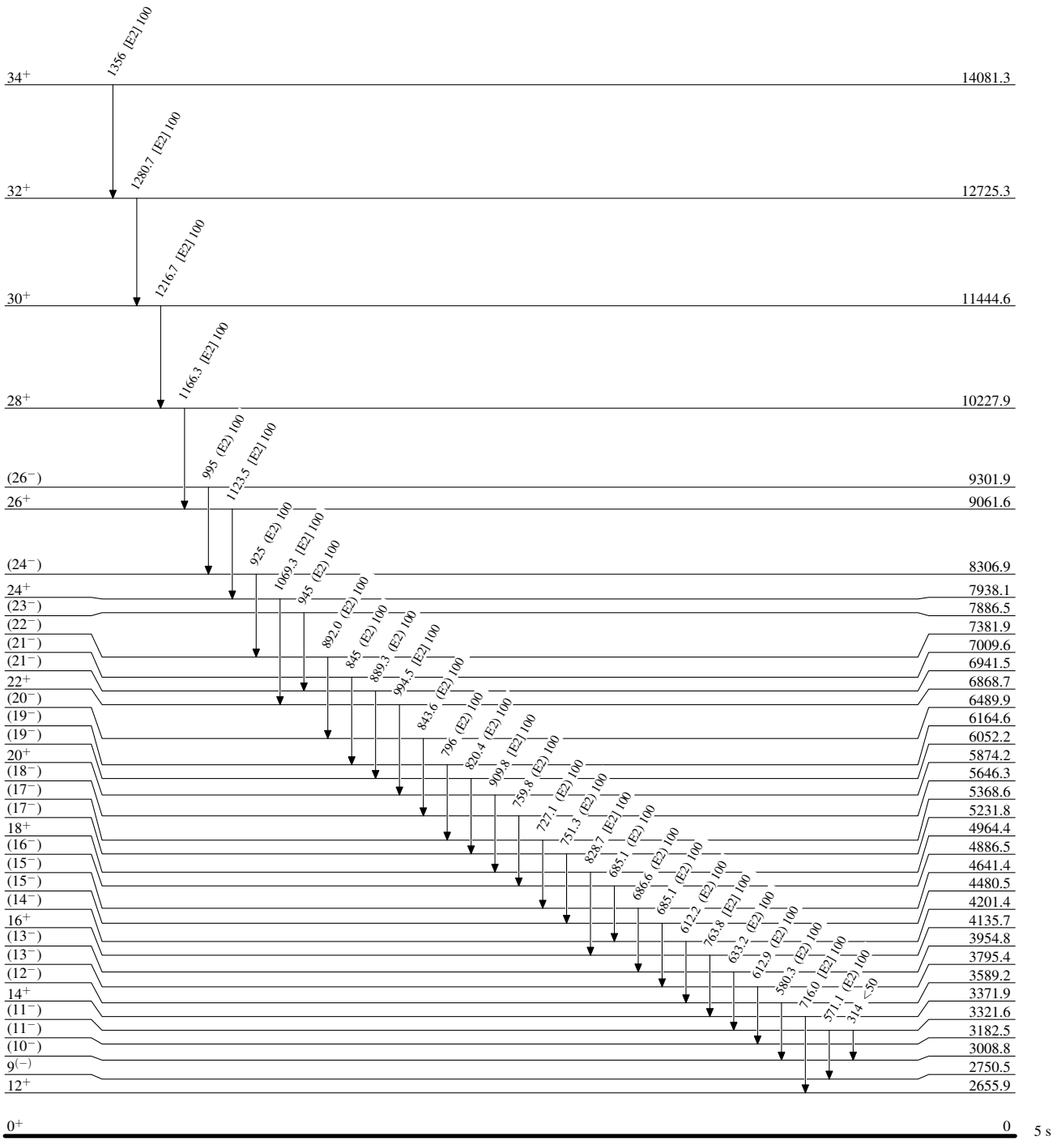
[‡] From DCO in ^{92}Mo(^{40}Ca,2p2nγ), unless otherwise noted. In-band quadrupole transitions are taken as E2-s.

[#] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



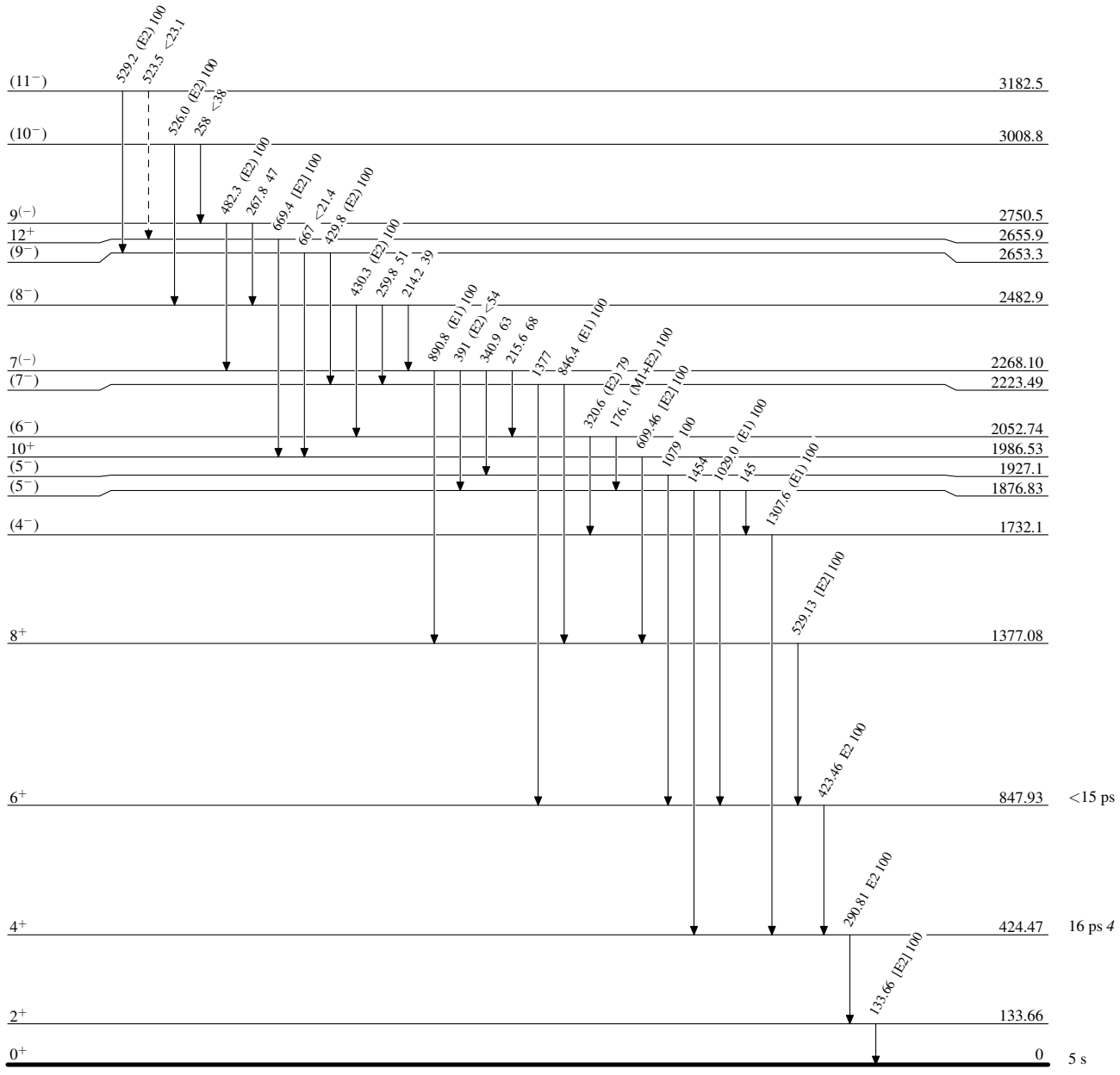
$^{128}_{60}Nd_{68}$

Adopted Levels, Gammas Legend

Level Scheme (continued)

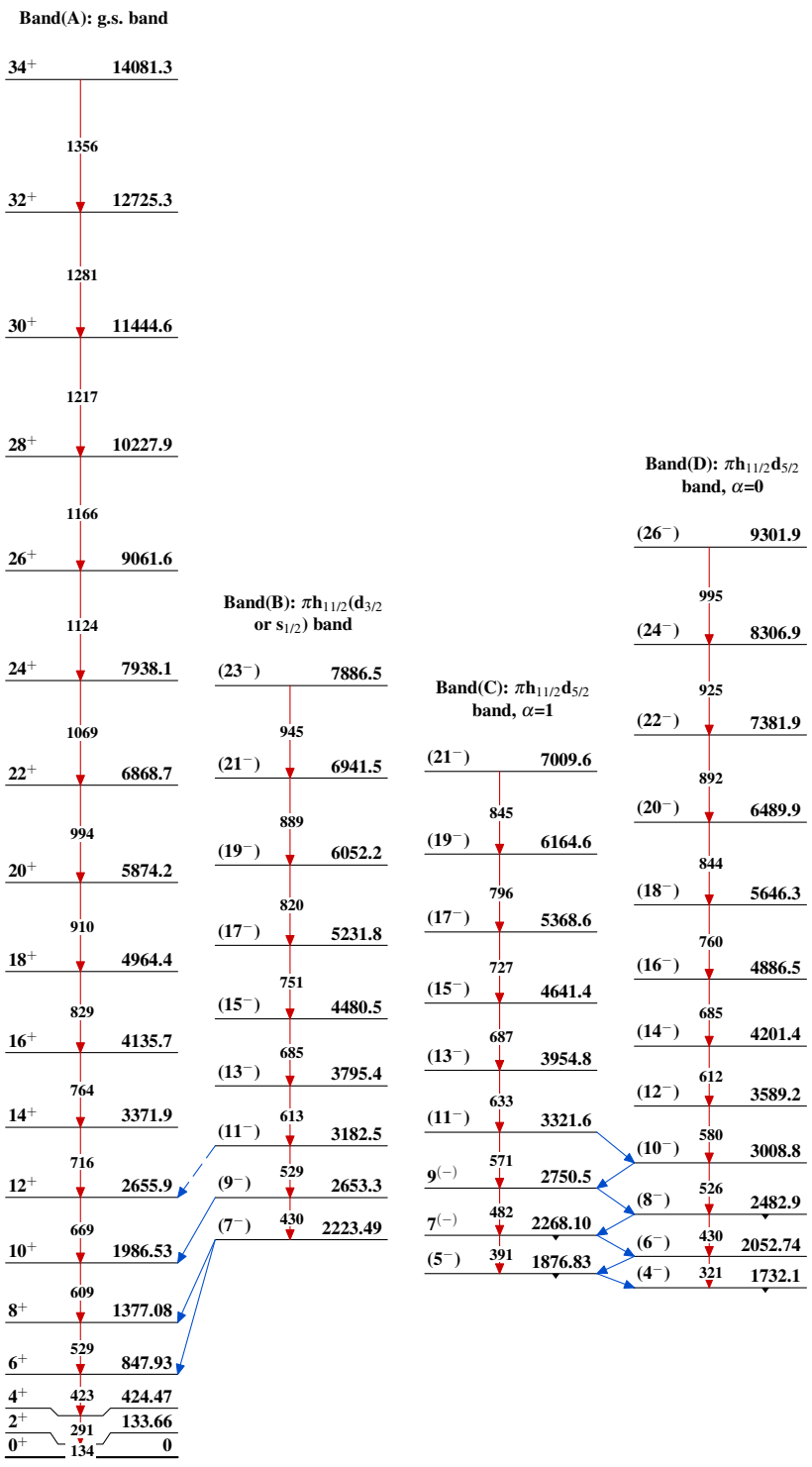
Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{128}_{60}Nd_{68}$

Adopted Levels, Gammas



$^{128}_{60}Nd_{68}$