Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	S. -c. Wu	NDS 108,1057 (2007)	1-Mar-2007

Q(β^-)=−2718 *8*; S(n)=6650 *10*; S(p)=5781 *9*; Q(α)=8197 *6* 2012Wa38
Note: Current evaluation has used the following Q record −2723 16 *6647* 10 *5778* 10 *8200* 7 2003Au03.

Calculations, compilations, systematics:
Cluster formation: 1986Ir01.
p-n interaction energy: 1990Mo11.
Equilibrium deformation energy: 1988So08.
Single-particle levels: 1984So09.
Spontaneous emission of heavy ions: 1986Po06.
Superdeformed and hyperdeformed configurations: 1995We02.

^{216}Rn Levels

Cross Reference (XREF) Flags

A ^{220}Ra α decay
B (HI,xnγ)

E(level)†	Jπ‡	$T_{1/2}$	XREF	Comments
0.0#	0^+	45 μs *5*	AB	%α=100 $T_{1/2}$: from 1961Ru06.
461.4# *2*	2^+		AB	Jπ: stretched E2 to 0^+ g.s.
840.5# *3*	4^+		B	Jπ: stretched E2 to 2^+.
1225.9# *4*	6^+		B	Jπ: stretched E2 to 4^+.
1645.0# *4*	8^+		B	Jπ: stretched E2 to 6^+.
1785.7 *4*			B	
1837.5 *5*	$(8^+,9^+,10^+)$		B	E(level): Eγ=102.2 and 192.5 are in cascade from a 1939.7 keV 10^+ level, through a level at either 1747.2 keV or 1837.5 keV, to the 1645.0 keV state. The evaluator has adopted the former possibility following the level scheme of 2006De09. Jπ: (E2) to 8^+; (E2) from 10^+.
1932.0 *5*			B	
1939.7 *5*	10^+		B	Configuration=$\pi(h^4_{9/2})_0\otimes\nu(g^2_{9/2})_0\otimes(\nu g_{9/2}\otimes\nu i_{11/2})_{10}$. Jπ: stretched E2 to 8^+.
2342.5 *5*			B	
2405.6@ *5*	12^+		B	Jπ: E2 to 10^+; Band assignment.
2598.3& *5*	13^-		B	Jπ: E1 to 12^+; Band assignment.
2826.1@ *5*	14^+		B	Jπ: E2 to 12^+, E1 to 13^-.
2965.4 *6*			B	
3072.1& *6*	15^-		B	Jπ: E2 to 13^-, E1 to 14^+.
3238.3@ *6*	16^+		B	Jπ: E2 to 14^+, E1 to 15^-.
3469.4& *6*	17^-		B	Jπ: E2 to 15^-, E1 to 16^+.
3572.4@ *6*	18^+		B	Jπ: E2 to 16^+.
3779.7& *6*	19^-		B	Jπ: E2 to 17^-, E1 to 18^+.
4071.8@ *6*			B	
4299.7& *6*			B	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{216}Rn Levels (continued)

† From (HI,xnγ).
‡ From band structure in (HI,xnγ) data set, unless otherwise noted Bands based on 12^+ and 13^- form alternating parity bands connected by enhanced E1 transitions, consistent with octupole vibrational type structure.
# Band(A): g.s. band.
@ Band(B): 12^+ band.
& Band(C): 13^- band.

γ(^{216}Rn)

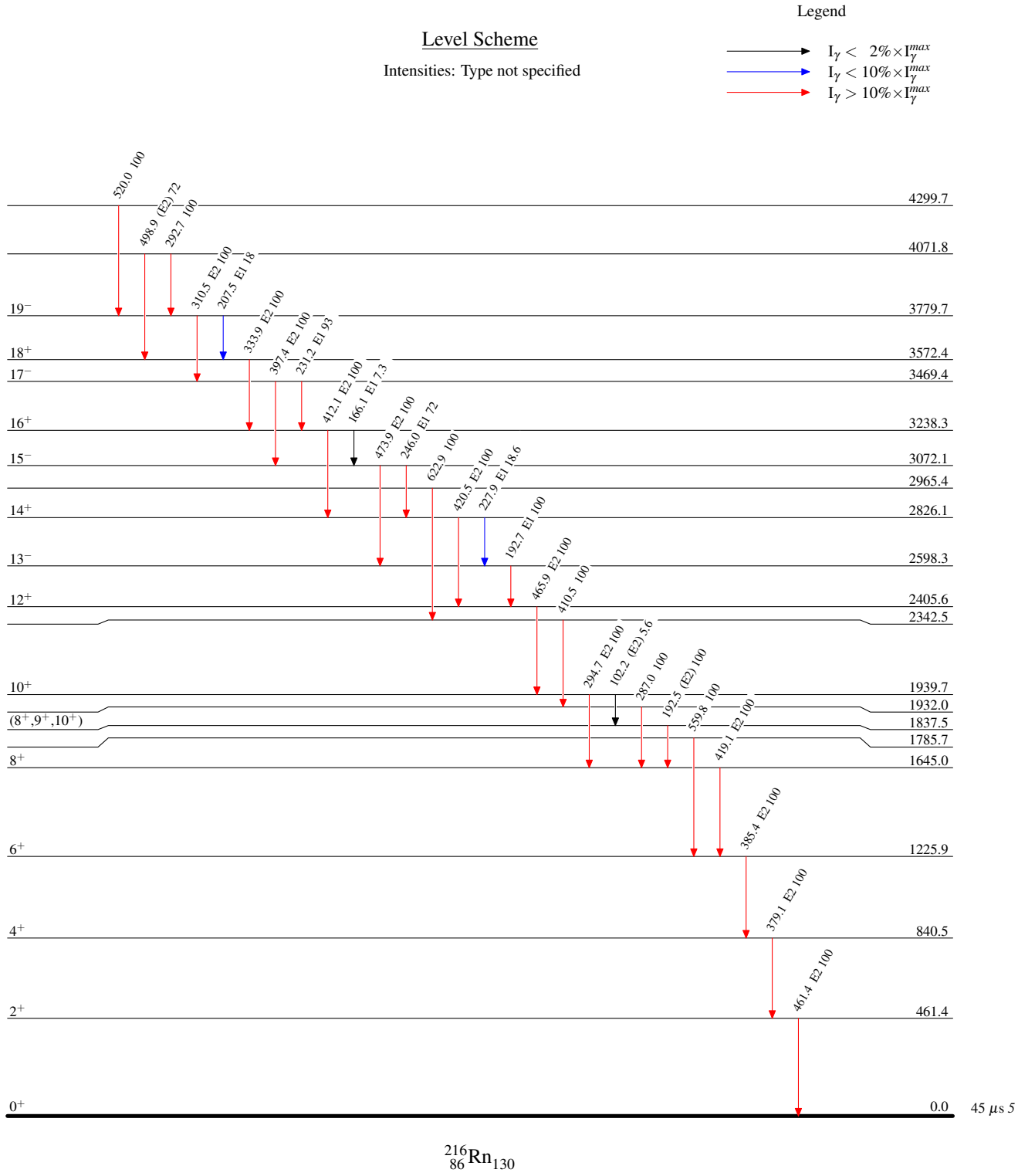
E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.†	α#
461.4	2^+	461.4 *2*	100	0.0	0^+	E2	0.0427
840.5	4^+	379.1 *2*	100	461.4	2^+	E2	0.0709
1225.9	6^+	385.4 *2*	100	840.5	4^+	E2	0.0678
1645.0	8^+	419.1 *2*	100	1225.9	6^+	E2	0.0544
1785.7		559.8 *2*	100	1225.9	6^+		
1837.5	$(8^+,9^+,10^+)$	192.5‡ *2*	100	1645.0	8^+	(E2)	0.600
1932.0		287.0 *2*	100	1645.0	8^+		
1939.7	10^+	102.2‡ *2*	5.6 *9*	1837.5	$(8^+,9^+,10^+)$	(E2)	7.62 *13*
		294.7 *2*	100 *9*	1645.0	8^+	E2	0.1456
2342.5		410.5 *2*	100	1932.0			
2405.6	12^+	465.9 *2*	100	1939.7	10^+	E2	0.0417
2598.3	13^-	192.7 *2*	100	2405.6	12^+	E1	0.0941
2826.1	14^+	227.9 *2*	18.6 *21*	2598.3	13^-	E1	0.0630
		420.5 *2*	100 *12*	2405.6	12^+	E2	0.0540
2965.4		622.9 *2*	100	2342.5			
3072.1	15^-	246.0 *2*	72 *6*	2826.1	14^+	E1	0.0526
		473.9 *2*	100 *13*	2598.3	13^-	E2	0.0400
3238.3	16^+	166.1 *2*	7.3 *11*	3072.1	15^-	E1	0.1350
		412.1 *2*	100 *8*	2826.1	14^+	E2	0.0568
3469.4	17^-	231.2 *2*	93 *6*	3238.3	16^+	E1	0.0609
		397.4 *2*	100 *12*	3072.1	15^-	E2	0.0625
3572.4	18^+	333.9 *2*	100	3238.3	16^+	E2	0.1008
3779.7	19^-	207.5 *2*	18 *4*	3572.4	18^+	E1	0.0788
		310.5 *2*	100 *13*	3469.4	17^-	E2	0.1246
4071.8		292.7 *2*	100 *20*	3779.7	19^-		
		498.9 *2*	72 *13*	3572.4	18^+	(E2)	0.0354
4299.7		520.0 *2*	100	3779.7	19^-		

† From (HI,xnγ).
‡ Eγ=102.2 and 192.5 are in cascade from a 1939.7 keV 10^+ level, through a level at either 1747.2 keV or 1837.5 keV, to the 1645.0 keV state. The evaluator has adopted the former possibility following the level scheme of 2006De09.
# Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

Adopted Levels, Gammas

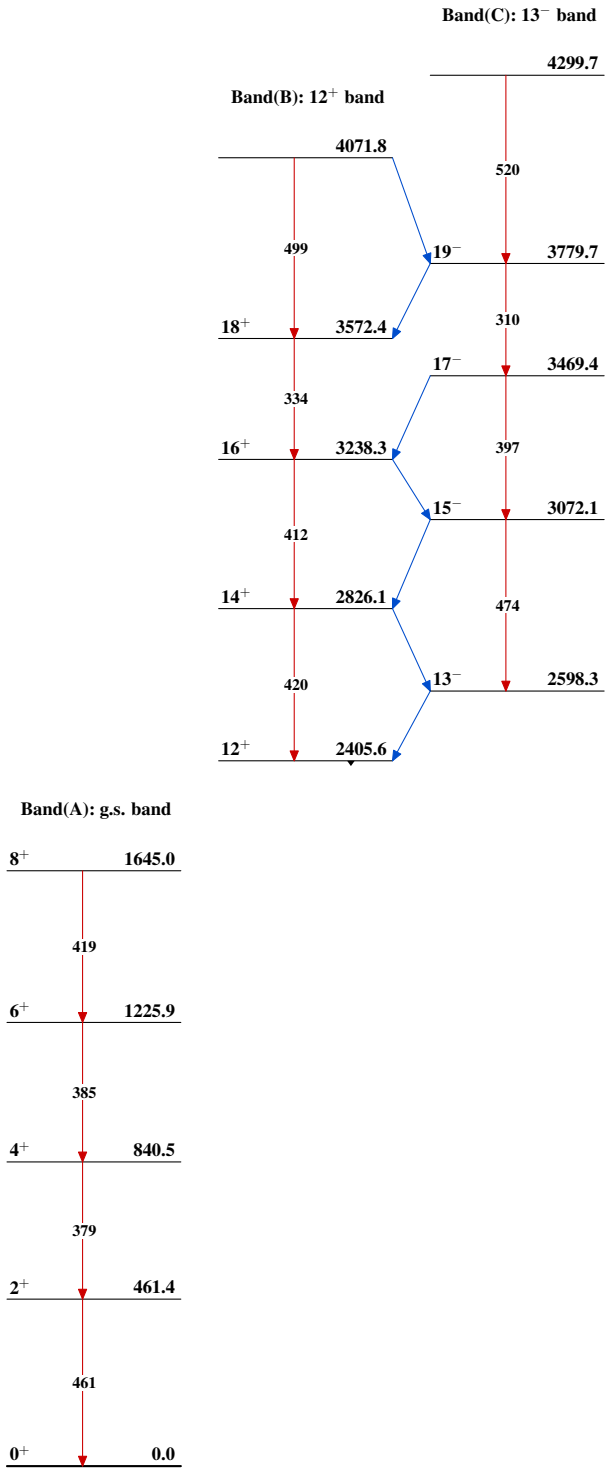
Level Scheme

Intensities: Type not specified



$^{216}_{86}Rn_{130}$

Adopted Levels, Gammas



$^{216}_{86}Rn_{130}$