Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huang Xiaolong and Kang Mengxiao	NDS 121, 395 (2014)	1-Mar-2014

Q(β^-)=−696×10[1] *4*; S(n)=10060 *SY*; S(p)=1107 *18*; Q(α)=5832 *5* 2012Wa38

^{195}Bi Levels

Cross Reference (XREF) Flags

- A ^{181}Ta(^{20}Ne,6nγ)
- B (HI,xnγ)
- C ^{199}At α decay (6.92 s)
- D ^{199}At α decay (0.31 s)

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	XREF	Comments
0.0	[9/2$^-$]	183 s *4*	ABC	%α=0.03 *2*; %ε+%β^+=99.97 *2* %α,%ε+%β^+: from %α=0.01-0.05 (1985Co06). Others: %$\alpha\le$0.02 (1990AnZR), <0.2 (1991Ry01,1986BrZQ,1974Le02), <0.15 (1972Ga27). J$^\pi$: from shell model (1986Lo05). Configuration=πh9/2+ν0$^+$ (1986Lo05). T$_{1/2}$: from α(t) measurement in ^{195}Bi α decay (183 s) (1985Co06). Others: 187 s *4* (1984Co13), 170 s *20* (1974Le02), 240 s (1970Ta14).
401 *7*	[1/2$^+$]	87 s *1*	D	%α=33 *17*; %ε+%β^+=67 *17* %α,%ε+%β^+: from %α=16$^-$ 49 (1985Co06). Others: %α=4 (1974Le02), 3.9 (1972Ga27). No evidence of IT decay has been observed (from systematics (1980Sc26), the largest B(M4)(W.u.)(s1/2 to h9/2) observed in this mass region is <2. If one assumes that limit is valid here, then, with Eγ=401 *7*, α(401γ)=5.6 *4*, where the uncertainty comes from uncertainty in Eγ, and T$_{1/2}$=87 s *1*, one gets %IT<6.). E(level): from ^{195}Bi α decay (87 s). J$^\pi$: from shell model. Configuration=πs1/2 intruder state (1985Co06). T$_{1/2}$: from α(t) measurement (1985Co06). Others: 90 s *5* (1974Le02), 100 s *15* (1984Co13).
886.7[&] *1*	13/2$^+$	32 ns *2*	AB	Configuration=πi13/2+ν0$^+$ (1986Lo05).
1230.39[&] *14*	15/2$^+$		AB	
1537.8 *4*	17/2$^{(+)}$		A	
1621.83[&] *22*	17/2$^+$		AB	Configuration=πh9/2+ν5$^-$ (1986Lo05).
2043.59[&] *22*	19/2$^+$		AB	
2194.3 *3*	23/2$^+$	80 ns *10*	AB	
2309.2 *5*	25/2$^{(-)}$		AB	
2395.5 *5*	(29/2$^-$)	750 ns *50*	AB	T$_{1/2}$: Others: 0.625 us *+2013−208* (2003Gl05),0.71 us *28* (2004Gl04). J$^\pi$: from shell model (1986Lo05). Configuration=πh9/2+ν12$^+$ (1986Lo05).
2465.20[&] *24*	(21/2$^+$)		A	
2922.6[&] *7*	(23/2$^+$)		A	
y[@]	J		B	
261.5+y[@]	J+2		B	
562.9+y[@]	J+4		B	
904.8+y[@]	J+6		B	
1285.5+y[@]	J+8		B	
1706.1+y[@]	J+10		B	
2164.0+y[@]	J+12		B	
2659.0+y[@]	J+14		B	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{195}Bi Levels (continued)

† For the states connected with Eγ, E(level) are from Eγ using least-squares fit to data.
‡ Based on γ(θ), $T_{1/2}$, ce, and systematic properties of the odd-A Bi isotopes; assignments are tentative because presumed $9/2^-$ ground state (π h9/2) is not firmly established. Assignments are from ^{181}Ta(^{20}Ne,6nγ), except as noted. J^π for SD band members from band membership. SD band assignment from configuration with neighboring nuclei.
# From γ(t) pulsed-beam timing measurements in (HI,xnγ), except as noted.
@ Band(A): SD band (1996Cl01). Percent population ≈0.7 (1996Cl01) relative to 888γ (g.s. transition from $13/2^+$).
& Band(B): $\pi i_{13/2}$ g.s. band (2012Pa18).

γ(^{195}Bi)

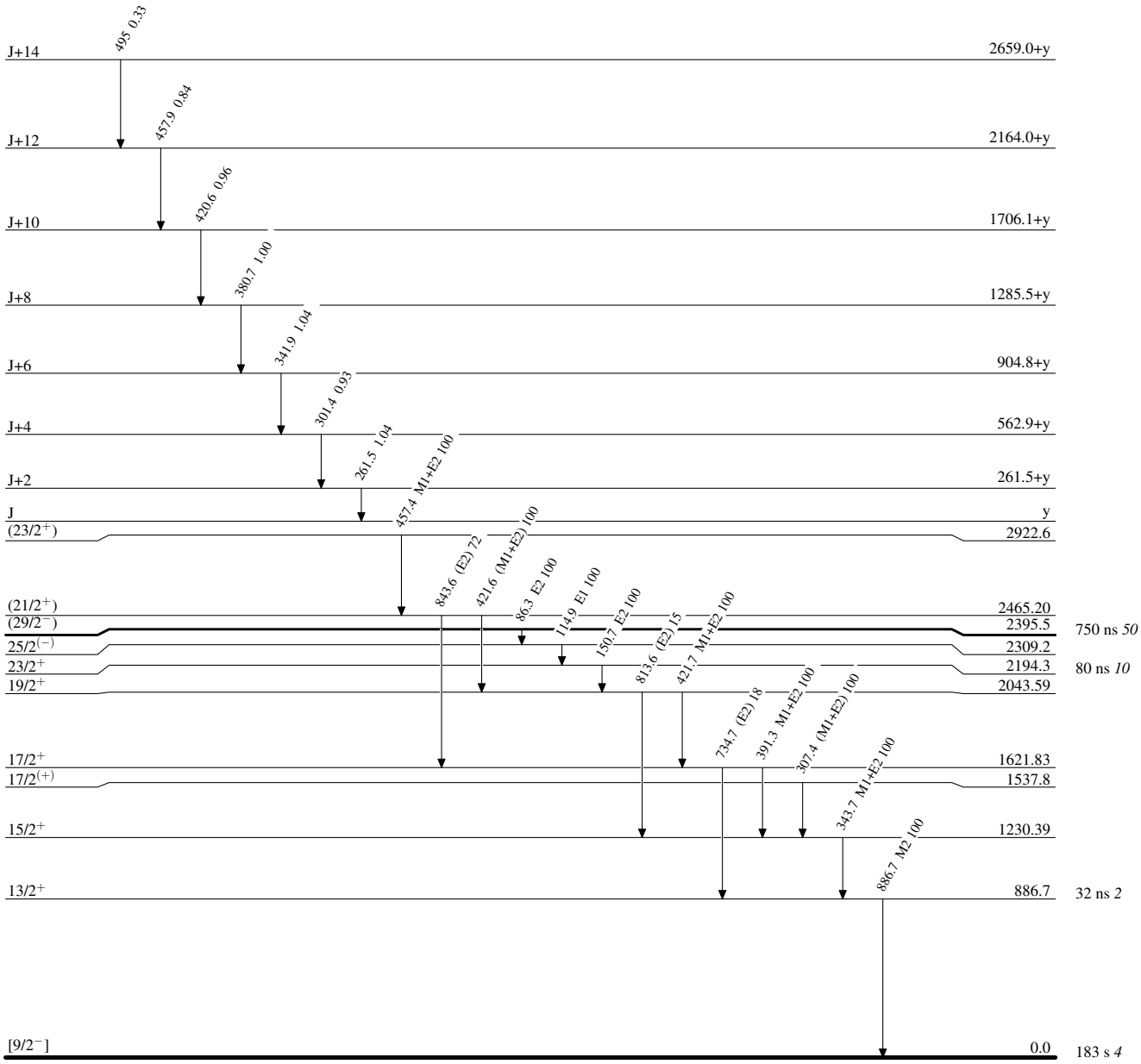
E_i(level)	J_i^π	E_γ†	I_γ‡	E_f	J_f^π	Mult.#	α&	Comments
886.7	$13/2^+$	886.7 *1*	100	0.0	[$9/2^-$]	M2	0.0648	B(M2)(W.u.)=0.049 *3* α(K)exp=0.082 *15* (1986Lo05).
1230.39	$15/2^+$	343.7 *1*	100	886.7	$13/2^+$	M1+E2	0.20 *12*	
1537.8	$17/2^{(+)}$	307.4 *3*	100	1230.39	$15/2^+$	(M1+E2)	0.27 *17*	
1621.83	$17/2^+$	391.3 *2*	100 *8*	1230.39	$15/2^+$	M1+E2	0.14 *9*	
		734.7 *6*	18 *4*	886.7	$13/2^+$	(E2)	0.01301	
2043.59	$19/2^+$	421.7 *1*	100 *22*	1621.83	$17/2^+$	M1+E2	0.12 *7*	
		813.6 *3*	15 *3*	1230.39	$15/2^+$	(E2)	0.01054	
2194.3	$23/2^+$	150.7 *2*	100	2043.59	$19/2^+$	E2	1.269	B(E2)(W.u.)=0.60 *8*
2309.2	$25/2^{(-)}$	114.9 *3*	100	2194.3	$23/2^+$	E1	0.316	
2395.5	$(29/2^-)$	86.3 *2*	100	2309.2	$25/2^{(-)}$	E2	12.61 *23*	B(E2)(W.u.)=0.172 *12*
2465.20	$(21/2^+)$	421.6 *1*	100 *13*	2043.59	$19/2^+$	(M1+E2)	0.12 *7*	
		843.6 *4*	72 *21*	1621.83	$17/2^+$	(E2)	0.00980	
2922.6	$(23/2^+)$	457.4 *6*	100 *5*	2465.20	$(21/2^+)$	M1+E2	0.09 *6*	
261.5+y	J+2	261.5 *5*	1.04@ *10*	y	J			
562.9+y	J+4	301.4 *5*	0.93@ *10*	261.5+y	J+2			
904.8+y	J+6	341.9 *5*	1.04@ *10*	562.9+y	J+4			
1285.5+y	J+8	380.7 *5*	1.00@ *10*	904.8+y	J+6			
1706.1+y	J+10	420.6 *5*	0.96@ *10*	1285.5+y	J+8			
2164.0+y	J+12	457.9 *5*	0.84@ *10*	1706.1+y	J+10			
2659.0+y	J+14	495 *1*	0.33@ *8*	2164.0+y	J+12			

† From ^{181}Ta(^{20}Ne,6nγ).
‡ Relative photon branching renormalized to 100 for the strongest branching from each level. For SD band, values are relative transition intensities within the band.
# From DCO value in ^{181}Ta(^{20}Ne,6nγ).
@ Relative transition intensity within the band.
& 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

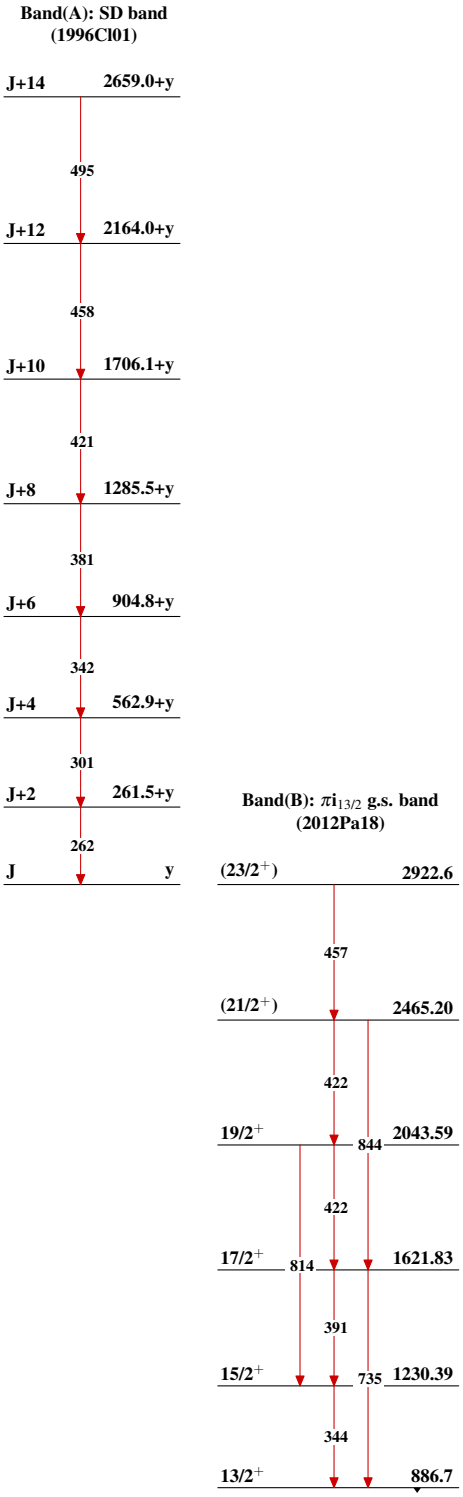
Level Scheme

Intensities: Relative photon branching from each level



$^{195}_{83}Bi_{112}$

Adopted Levels, Gammas



$^{195}_{83}Bi_{112}$