(HI,xnγ) 1984Ro20,1984Su10,1987SuZY

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan, S. K. Rathi, S. Garg	NDS 147, 382 (2018)	1-Dec-2017

1983Lo16: ^{208}Pb(^{13}C,4nγ) with E(^{13}C) = 75-95 MeV; target: self-supporting 99% enriched ^{208}Pb with thickness of 6 mg/cm^2; accelerator: Van de Graff facility at Brookhaven National Laboratory (USA); detector: two coaxial Ge(Li) detectors (21% efficiency and a resolution of about 2 keV(FWHM) at 1333 keV (^{60}Co)) placed at 90°and −125° with respect to beam direction.

1984Su10: ^{208}Pb(^{12}C,3nγ), ^{208}Pb(^{13}C,4nγ) with E(^{12}C) =70 MeV, E(^{13}C) =80 MeV; target: self-supporting 99.5% enriched ^{208}Pb; accelerator: cyclotron at RIKEN; detector: 70 cm^3 Ge(Li) for singles γ-rays spectra, surface barrier Si detector for α particles, 70 cm^3 Ge(Li) and 15 cm^3 LEPS for γγ-coincidence.

1984Ro20: ^{208}Pb(^{12}C,3nγ), ^{208}Pb(^{13}C,4nγ) with E(^{12}C,^{13}C) = 65-84 MeV; target: self-supporting >97% enriched ^{208}Pb; accelerator: VICKSI at HMI, Berlin and MP Tendem facility at Munich; detector: three Ge and Ge(Li) detectors (planar intrinsic Ge at 90°, coaxial Ge(Li)′s at 90° and 180°) used for γγ-coincidence.

1991Dr08: ^{208}Pb(^{12}C,3nγ), ^{208}Pb(^{13}C,4nγ) with E(^{12}C,^{13}C) = 78, 80 MeV; target: self-supporting enriched ^{208}Pb with thickness of 9 mg/cm^2; accelerator: 14UD Pelletron facility at ANU; detector: hyper pure Ge and small volume planar Ge with efficiency of 23%.

2014Mu04,2011MuZZ: ^{209}Bi(^{11}B,3nγ) with E(^{11}B)=65-78 MeV. Measured Eγ, Iγ, γγ using 12 Compton-suppressed HPGe detectors. Only a level scheme is provided in 2011MuZZ.

(γ)(γ): 1983Lo16, 1984Ro20, 1984Su10.

(Ra x-rays)(γ): 1983Lo16, 1984Su10.

(ce)(ce): 1984Ro20.

γ(θ): 1983Lo16, 1984Ro20, 1984Su10.

γ(E): 1983Lo16, 1984Ro20, 1984Su10.

(8.99-MeV α from 1.6 μs ^{217}Ra)(γ): (1984Su10). Coincidence data were used to identify the γ transitions in ^{217}Ra.

(pulsed ^{12}C)(γ)(t),(pulsed ^{13}C)(γ)(t): 1983Lo16, 1984Ro20, 1984Su10, 1991Dr08.

(γ)(γ)(t): 1983Lo16.

The level scheme presented here is constructed from 1984Ro20, 1984Su10, 1987SuZY, and 2011MuZZ. Some differences between the schemes shown by 1984Su10 and 1984Ro20 have been corrected in 1987SuZY, a later report by the authors of 1984Su10. There are some differences between 1987SuZY and 2011MuZZ which are indicated.

The level scheme given by 1983Lo16 disagrees with those of 1984Ro20 1984Su10, 1987SuZY and 2011MuZZ.

α: Additional information 1.

^{217}Ra Levels

The configurations given here were assigned by 1984Ro20 and 1984Su10 as being the main component of the state. Admixture of collective octupole excitation, configuration = (ν g$_{9/2}$)^3 3$^-$, to states with $J^\pi \leq 27/2^-$ was deduced by 1984Ro20 and 1984Su10 from enhanced E1 transitions.

E(level)[†]	Jπ[‡]	Comments
0.0[#]	9/2$^+$	
330.79[@] *18*	11/2$^+$	
539.61[#] *18*	13/2$^+$	
666.21[&] *23*	15/2$^-$	
696.0? *10*	13/2$^+$	E(level),Jπ: Level observed only in 2011MuZZ, J^π as proposed by 2011MuZZ. A 365.5γ is tentatively placed from a level at 1415.7 keV by 1984Ro20, which is not adopted here.
931.08[@] *24*	15/2$^+$	
1001.91[#] *23*	17/2$^+$	
1050.2 *4*		
1173.0[&] *3*	19/2$^-$	
1337.5[@] *3*	19/2$^+$	

Continued on next page (footnotes at end of table)

(HI,xnγ) 1984Ro20,1984Su10,1987SuZY (continued)

^{217}Ra Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$	Comments
1454.4# *3*	21/2+		
1611.2& *4*	23/2−		
1667.5@ *3*	23/2+		
1896.4@ *4*	27/2+	0.29 ns *14*	$T_{1/2}$: from 1991Dr08. E(level): the order of the 229γ-405γ cascade is reversed in 2011MuZZ resulting in a level at 2072 keV. This is also the order proposed in 1984Su10, later revised in 1987SuZY to be as adopted here.
1971.3? *11*			E(level): level proposed only in 1987SuZY.
2029.7& *5*	27/2−		
2301.1a *4*	29/2+	0.30 ns *14*	$T_{1/2}$: from 1991Dr08.
2304.7? *11*			E(level): level proposed only in 1987SuZY.
2393.5a *6*	33/2+	4.62 ns *6*	$T_{1/2}$: from 1991Dr08. Others 5.0 *3* ns (1984Ro20), 4.1 *3* ns (1984Su10).
2521.3& *6*	(31/2−)		
2830.1? *8*	(33/2)		E(level): level proposed only by 1987SuZY. Jπ: from 1987SuZY.
2831.9?a *12*	37/2+		E(level),Jπ: From 2011MuZZ. A 439γ is placed by 1987SuZY as directly feeding the 2303-keV level.
2894.8? *8*	37/2+		E(level),Jπ: From 2011MuZZ. A 501.4γ is placed by 1987SuZY as directly feeding the 2303-keV level.
3132.2 *7*	(35/2−)		E(level): the 739γ is placed as directly populating the 2301-keV level by 2011MuZZ resulting in a level at 3040 keV.
3257.5 *6*	(37/2+)b		
3320.8? *13*			E(level): from 2011MuZZ. A 425.6γ is placed by 1987SuZY as depopulating a level at 3257 keV.
3346.8? *13*			E(level): from 2011MuZZ. A 452.8γ is placed by 1987SuZY as depopulating a level at 3257 keV.
3506.1 *7*	(39/2−)		
3628.8 *7*	(41/2+)b		
3669.8? *16*			E(level): placement from 2011MuZZ. A 349γ is placed by 1987SuZY as depopulating a level at 3606 keV. A 425.8γ is unassigned in 1984Ro20.
3825.4 *8*	(45/2+)b	1.49 ns *7*	$T_{1/2}$: from 1991Dr08.
4185.5 *9*	(47/2)		
4327.2? *13*	(51/2)		Jπ: from 1987SuZY. E(level): level proposed only by 1987SuZY.
4344.4? *13*			E(level): level proposed only by 2011MuZZ. Jπ: 51/2− is proposed in 2011MuZZ, which would require the depopulating 519γ to be E3.
4822.6? *14*	(55/2)		E(level): level proposed by 1987SuZY. The 495γ is placed as depopulating a level at 4680 keV in 2011MuZZ. Jπ: from 1987SuZY.
4999.3? *15*			

† From a least-squares fit to Eγ, by evaluators.

‡ From 1984Ro20 based on γ-angular distributions and γ-multipolarities deduced from conversion electron data, except where noted.

Seq.(A): configuration : $(\nu\, g_{9/2})^3$.

@ Seq.(B): configuration : $((\nu\, g_{9/2})^2(\nu\, i_{11/2}))$.

& Seq.(C): configuration : $((\nu\, g_{9/2})^2(\nu\, j_{15/2}))$.

a Seq.(D): configuration : $((\nu\, i_{11/2})^2(\nu\, g_{9/2}))$.

b 1984Ro20 suggest that these states may have two $j_{15/2}$ neutron and/or some proton excitations. The isomeric state is suggested to include a large amount of $((\nu\, i_{11/2})^2 10^+(\nu\, g_{9/2})29/2^+)$ coupled to the 2^+ state of ^{214}Ra configuration. No definite assignment could be made.

(HI,xnγ) 1984Ro20,1984Su10,1987SuZY (continued)

$\gamma(^{217}Ra)$

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α	Comments
92.5 *5*	6	2393.5	$33/2^+$	2301.1	$29/2^+$	E2	13.7 *4*	α(L)=10.1 *3*; α(M)=2.75 *8*; α(N)=0.725 *22*; α(O)=0.154 *5*; α(P)=0.0223 *7*; α(Q)=7.26×10^{-5} *18* Mult.: L3/L12=0.65 *10*, α(exp)>8 (1984Ro20).
119.1 *5*	2	1050.2		931.08	$15/2^+$			
122.7 *5*	8	3628.8	$(41/2^+)$	3506.1	$(39/2^-)$			
125.4 *5*		3257.5	$(37/2^+)$	3132.2	$(35/2^-)$			
126.6 *2*	57	666.21	$15/2^-$	539.61	$13/2^+$	E1	0.272	α(K)=0.212 *3*; α(L)=0.0450 *7*; α(M)=0.01082 *16*; α(N)=0.00282 *5*; α(O)=0.000618 *9* α(P)=9.84×10^{-5} *15*; α(Q)=5.24×10^{-6} *8* Mult.: α(tot)exp<0.63 (1984Ro20). Mult.: A_2=−0.20 *2*, A_4=−0.09 *2* (1984Ro20); A_2=−0.220 *20*, A_4=0.134 *28* (1984Su10). I_γ: other: 70.4 *20* (1984Su10).
141.7[@c]		4327.2?	(51/2)	4185.5	(47/2)			
156.8 *5*	6	1611.2	$23/2^-$	1454.4	$21/2^+$	D		Mult.: A_2=−0.26 *7*, A_4=−0.04 *2* (1984Ro20). I_γ: other: 6 *4* (1984Su10).
171.1 *5*	14	1173.0	$19/2^-$	1001.91	$17/2^+$	E1	0.1311 *21*	α(K)=0.1039 *17*; α(L)=0.0206 *4*; α(M)=0.00495 *8*; α(N)=0.001291 *21*; α(O)=0.000285 *5* α(P)=4.63×10^{-5} *8*; α(Q)=2.66×10^{-6} *5* Mult.: α(L)exp<0.05 (1984Ro20). Mult.: A_2=−0.18 *1*, A_4=−0.07 *1* (1984Ro20); A_2=−0.246 *34*, A_4=−0.088 *51* (1984Su10). I_γ: other: 24.8 *8* (1984Su10).
176.7[c] *5*	3	4999.3?		4822.6?	(55/2)			E_γ: placement from 1987SuZY. 1984Ro20 observe this γ but give no assignment.
196.6 *5*	18	3825.4	$(45/2^+)$	3628.8	$(41/2^+)$	Q		Mult.: A_2=0.40 *6*, A_4=−0.09 *7* (1984Ro20). I_γ: other: 14 *7* (1984Su10).
208.6[c]		539.61	$13/2^+$	330.79	$11/2^+$			E_γ: observed only in 2011MuZZ.
213.0 *5*	17	1667.5	$23/2^+$	1454.4	$21/2^+$	M1	1.83	α(K)=1.475 *23*; α(L)=0.272 *5*; α(M)=0.0650 *10*; α(N)=0.0172 *3*; α(O)=0.00391 *6* α(P)=0.000682 *11*; α(Q)=5.35×10^{-5} *9* Mult.: K/L= 5.5 *10*, α(K)exp>1.2 (1984Ro20). Mult.: A_2=−0.23 *1*, A_4=−0.01 *1* (1984Ro20); A_2=−0.211 *28*, A_4=0.204 *39* (1984Su10). I_γ: other: 24.2 *7* (1984Su10).
220.2[c]		2521.3	$(31/2^-)$	2301.1	$29/2^+$			E_γ: observed only in 2011MuZZ.
228.9 *2*	77	1896.4	$27/2^+$	1667.5	$23/2^+$	E2	0.364	α(K)=0.1238 *18*; α(L)=0.177 *3*; α(M)=0.0475 *7*; α(N)=0.01255 *19*; α(O)=0.00270 *4* α(P)=0.000403 *6*; α(Q)=5.34×10^{-6} *8* Mult.: K/L= 0.66 *30* (1984Ro20). Mult.: A_2=0.38 *1*, A_4=−0.14 *1* (1984Ro20); A_2=0.325 *11*, A_4=−0.049 *15* (1984Su10). I_γ: other: 71.1 *18* (1984Su10).
248.6 *5*	8	3506.1	$(39/2^-)$	3257.5	$(37/2^+)$	D		Mult.: A_2=−0.44 *8*, A_4=−0.28*12* (1984Ro20).
271.3		2301.1	$29/2^+$	2029.7	$27/2^-$			E_γ: from 2011MuZZ, also proposed in 1987SuZY.
275[@c]		2304.7?		2029.7	$27/2^-$			
281.4 *2*	39	1454.4	$21/2^+$	1173.0	$19/2^-$	E1	0.0407	α(K)=0.0327 *5*; α(L)=0.00603 *9*; α(M)=0.001437 *21*; α(N)=0.000376 *6*; α(O)=8.39×10^{-5} *12* α(P)=1.397×10^{-5} *20*; α(Q)=8.93×10^{-7} *13* Mult.: α(K)exp=0.04 (1984Ro20).

Continued on next page (footnotes at end of table)

(HI,xnγ) 1984Ro20,1984Su10,1987SuZY (continued)

$\gamma(^{217}Ra)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α	Comments
								Mult.: A_2=−0.16 *1*, A_4=−0.05 *2* (1984Ro20); A_2=−0.206 *13*, A_4=−0.007 *18* (1984Su10). I_γ: other: 49.5 *19* (1984Su10).
287.3 *5*	3	1337.5	19/2$^+$	1050.2				A_2=−0.53 *11*; A_4=−0.29 *16* (1984Ro20).
330.0 *2*	46[&]	1667.5	23/2$^+$	1337.5	19/2$^+$	(E2)	0.1148	α(K)=0.0582 *9*; α(L)=0.0419 *6*; α(M)=0.01106 *16*; α(N)=0.00292 *5*; α(O)=0.000633 *9* α(P)=9.71×10^{-5} *14*; α(Q)=2.27×10^{-6} *4* Mult.: α(K)exp>0.13 (1984Ro20). Mult.: A_2=0.24 *1*, A_4=−0.08 *1* (1984Ro20); A_2=0.248 *14*, A_4=−0.007 *19* (1984Su10). I_γ: other: 43 *3* (1984Su10).
330.8 *2*	26[&]	330.79	11/2$^+$	0.0	9/2$^+$	M1+E2	0.33 *22*	α(K)=0.25 *19*; α(L)=0.061 *20*; α(M)=0.0150 *41*; α(N)=0.0040 *11*; α(O)=8.9×10^{-4} *26* α(P)=1.48×10^{-4} *52*; α(Q)=9.0×10^{-6} *68* Mult.: K/L>2.17 *50* (1984Ro20). Mult.: A_2=0.24 *1*, A_4=−0.08 *1* (1984Ro20); A_2=0.248 *14*, A_4=−0.007 *19* (1984Su10). I_γ: other: 35 *3* (1984Su10).
335.6 *5*	7[&]	1337.5	19/2$^+$	1001.91	17/2$^+$	D		Mult.: A_2=−0.19 *1*; A_4=−0.04 *1* (1984Ro20).
335.7 *2*	38[&]	1001.91	17/2$^+$	666.21	15/2$^-$	D		Mult.: A_2=−0.19 *1*, A_4=−0.04 *1* (1984Ro20); A_2=−0.159 *25*, A_4=0.060 *35* (1984Su10).
349.0[c]		3669.8?		3320.8?				E_γ: from 2011MuZZ. A 349γ is placed by 1987SuZY as depopulating a level at 3606 keV.
360.1[bc]		1971.3?		1611.2	23/2$^-$			E_γ: placement from 1987SuZY.
360.1[b] *2*	26	4185.5	(47/2)	3825.4	(45/2$^+$)	D		Mult.: A_2=−0.27 *6*, A_4=−0.08 *11* (1984Ro20); A_2=−0.233 *36*, A_4=−0.035 *50* (1984Su10). I_γ: other: 22.8 *9* (1984Su10).
365.2[c]		696.0?	13/2$^+$	330.79	11/2$^+$			E_γ: placement from 2011MuZZ. In 1984Ro20 a 365.5γ with Iγ=2 is tentatively placed from a level at 1415.7 keV. A_2=−0.51 *13*; A_4=−0.26 *21* (1984Ro20).
371.3 *2*	29	3628.8	(41/2$^+$)	3257.5	(37/2$^+$)	Q		Mult.: A_2=0.21 *16*, A_4=−0.13 *24* (1984Ro20); A_2=0.368 *39*, A_4=0.003 *53* (1984Su10). I_γ: other: 21.8 *10* (1984Su10).
374.0 *5*	2	3506.1	(39/2$^-$)	3132.2	(35/2$^-$)	(Q)		Mult.: A_2=0.15 *21*, A_4=−0.13 *24* (1984Ro20).
391.2		931.08	15/2$^+$	539.61	13/2$^+$			E_γ: from 1987SuZY. Other: 391.8 (2011MuZZ).
404.7 *2*	99	2301.1	29/2$^+$	1896.4	27/2$^+$	E2(+M1)	0.19 *13*	α(K)=0.15 *11*; α(L)=0.033 *13*; α(M)=0.0081 *29*; α(N)=0.00214 *76*; α(O)=4.8×10^{-4} *18* α(P)=8.1×10^{-5} *34*; α(Q)=5.2×10^{-6} *38* Mult.: A_2=−0.18 *1*, A_4=−0.05 *1* (1984Ro20); A_2=−0.147 *12*, A_4=−0.020 *17* (1984Su10). Mult.: α(K)exp=0.07 *3* (1984Ro20) suggests E2 multipolarity with M1 admixture. However, the angular distribution implies a dipole nature. The intensity balance at the 1896.4-keV level is: I(γ+ce)(404.7γ)-I(γ+ce)(228.9γ)≈ 0, if 404.7γ is E2 and ≈25 if it is M1. I_γ: other: 88 *3* (1984Su10).
406.4 *2*	36	1337.5	19/2$^+$	931.08	15/2$^+$	Q		Mult.: A_2=0.36 *1*, A_4=−0.11 *1* (1984Ro20); A_2=0.282 *24*, A_4=0.009 *32* (1984Su10). I_γ: other: 43.4 *15* (1984Su10).
418.5 *5*	14	2029.7	27/2$^-$	1611.2	23/2$^-$	Q		Mult.: A_2=0.33 *4*, A_4=−0.11 *1* (1984Ro20); A_2=0.405 *62*, A_4=0.123 *84* (1984Su10). I_γ: other: 15.0 *6* (1984Su10).

Continued on next page (footnotes at end of table)

(HI,xnγ) 1984Ro20,1984Su10,1987SuZY (continued)

γ(^{217}Ra) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
426.0[c]		3320.8?		2894.8?	37/2$^+$		E_γ: from 2011MuZZ. A 425.6γ is placed by 1987SuZY as depopulating a level at 3257 keV. A 425.8γ is unassigned in 1984Ro20.
437[c]		2830.1?	(33/2)	2393.5	33/2$^+$		E_γ: observed by 1987SuZY.
438.2[b] *5*	17	1611.2	23/2$^-$	1173.0	19/2$^-$	Q	Mult.: A_2=0.27 *2*, A_4=−0.10 *2* (1984Ro20); A_2=0.161 *41*, A_4=−0.074 *57* (1984Su10). E_γ: Doublet (1984Su10,1984Ro20). The other component is weak (1984Ro20). I_γ: other: 22.3 *7* (1984Su10).
438.4[c]		2831.9?	37/2$^+$	2393.5	33/2$^+$		E_γ: from 2011MuZZ. A 439γ is placed by 1987SuZY as directly feeding the 2303-keV level.
452.0[c]		3346.8?		2894.8?	37/2$^+$		E_γ: from 2011MuZZ. A 452.8γ is placed by 1987SuZY as depopulating a level at 3257 keV.
452.5 *2*	38	1454.4	21/2$^+$	1001.91	17/2$^+$	Q	Mult.: A_2=0.34 *2*, A_4=−0.15 *2* (1984Ro20); A_2=0.324 *25*, A_4=−0.024 *33* (1984Su10). I_γ: other: 35 *15* (1984Su10).
462.3 *2*	28	1001.91	17/2$^+$	539.61	13/2$^+$	Q	Mult.: A_2=0.32 *2*; A_4=−0.13 *2* (1984Ro20); A_2=0.283 *23*, A_4=−0.030 *32* (1984Su10). I_γ: other: 35.4 *12* (1984Su10).
491.6 *5*	3	2521.3	(31/2$^-$)	2029.7	27/2$^-$		
495.4[c] *5*	8	4822.6?	(55/2)	4327.2?	(51/2)		E_γ: placement from 1987SuZY. 1984Ro20 observe this γ but give no assignment, while 2011MuZZ place a 495.0γ as depopulating a level at 4680 keV.
501.3[c] *5*	15	2894.8?	37/2$^+$	2393.5	33/2$^+$	Q	Mult.: A_2=0.25 *8*, A_4=−0.01 *11* (1984Ro20); A_2=0.247 *59*, A_4=0.136 *81* (1984Su10). I_γ: other: 13.4 *8* (1984Su10). E_γ: from 2011MuZZ. A 501.4γ is placed by 1987SuZY as directly feeding the 2303-keV level.
506.8 *2*	36	1173.0	19/2$^-$	666.21	15/2$^-$	Q	Mult.: A_2=0.38 *2*, A_4=−0.11 *2* (1984Ro20); A_2=0.315 *36*, A_4=0.009 *49* (1984Su10). I_γ: other: 38.3 *21* (1984Su10).
[x]516.9[ac]							
519.0[c]		4344.4?		3825.4	(45/2$^+$)		E_γ: observed only by 2011MuZZ.
528.6[c]		2830.1?	(33/2)	2301.1	29/2$^+$		E_γ: observed by 1987SuZY.
539.6 *2*	100	539.61	13/2$^+$	0.0	9/2$^+$	Q	Mult.: A_2=0.35 *1*, A_4=−0.12 *1* (1984Ro20); A_2=0.338 *12*, A_4=−0.007 *17* (1984Su10). I_γ: other: 100 *7* (1984Su10).
600.3 *2*	40	931.08	15/2$^+$	330.79	11/2$^+$	Q	Mult.: A_2=0.39 *4*, A_4=−0.11 *4* (1984Ro20); A_2=0.359 *25*, A_4=−0.070 *34* (1984Su10). I_γ: other: 43.6 *31* (1984Su10).
738.8 *5*	2	3132.2	(35/2$^-$)	2393.5	33/2$^+$		E_γ: placement from 1984Ro20 and 1987SuZY. Placement is from a 3040-keV level in 2011MuZZ.
864.0 *2*	40	3257.5	(37/2$^+$)	2393.5	33/2$^+$	Q	Mult.: A_2=0.47 *2*, A_4=−0.18 *3* (1984Ro20); A_2=0.299 *40*, A_4=−0.111 *54* (1984Su10). I_γ: other: 30.6 *9* (1984Su10).

[†] From 1984Ro20, except where noted.

[‡] Relative photon intensities measured by 1984Ro20 in the (^{13}C,4n) reaction at 75 MeV beam energy. ΔI_γ's are <10% for strong lines (1984Ro20). See 1984Ro20 for I_γ's measured in the (^{12}C,3n) reaction at 67 MeV. I_γ's measured in the (^{13}C,4n) reaction at 80 MeV by 1984Su10 are included in the comments.

[#] From γ angular-distribution measurements (1984Ro20 and 1984Su10) and ce data of 1984Ro20.

[@] Transition was observed by 1987SuZY only.

Continued on next page (footnotes at end of table)

(HI,xnγ) 1984Ro20,1984Su10,1987SuZY (continued)

$\gamma(^{217}Ra)$ (continued)

& From coincidence data (1984Ro20).
[a] A 516.9γ is placed by 1987SuZY as depopulating a level at 3259 keV and populating a level at 2831 keV. This level energy difference, however, would imply a γ ray of 438 keV.
[b] Multiply placed.
[c] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

(HI,xnγ) 1984Ro20,1984Su10,1987SuZY

Level Scheme

Intensities: Relative I_γ

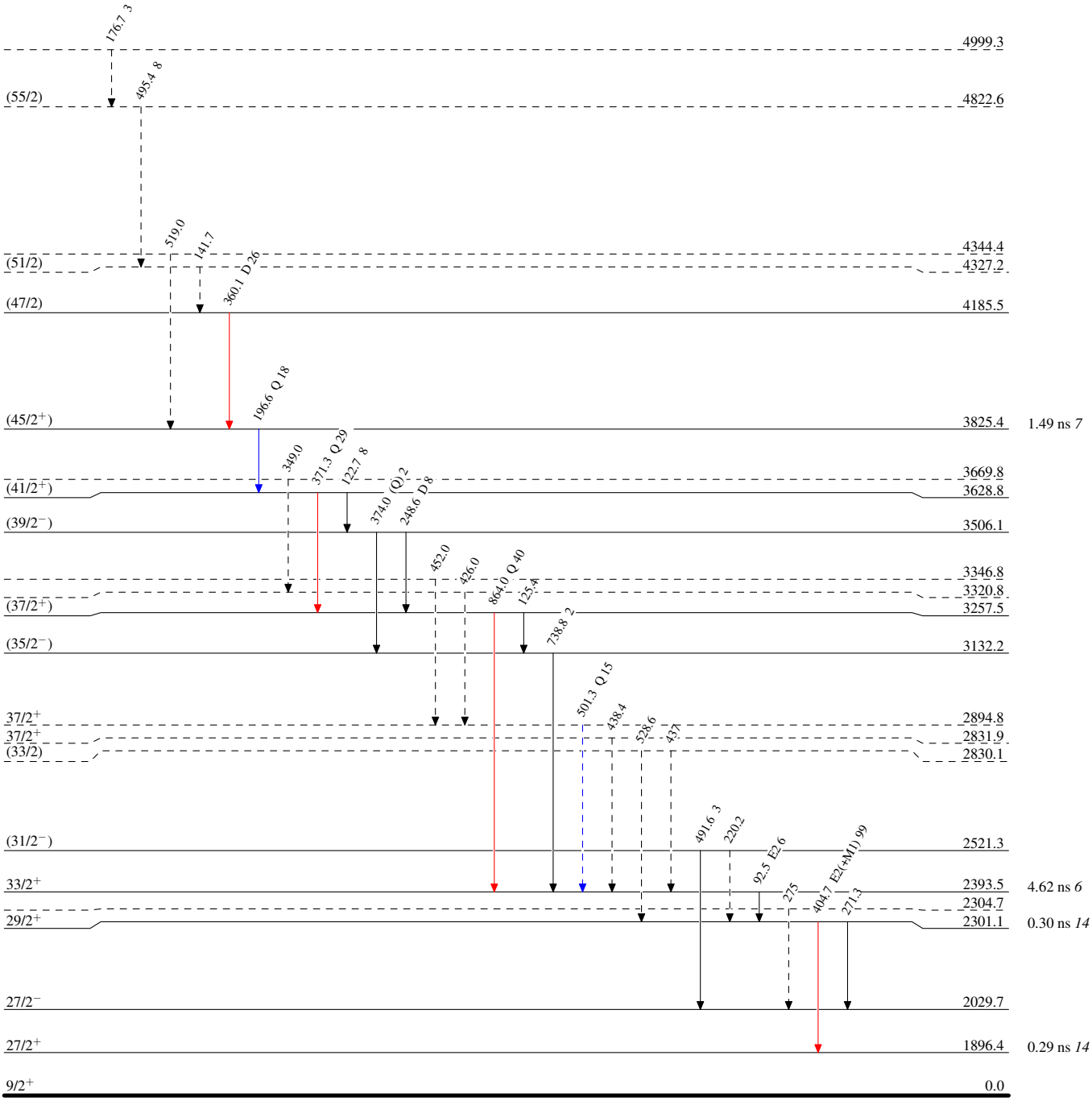
Legend

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

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

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

γ Decay (Uncertain)



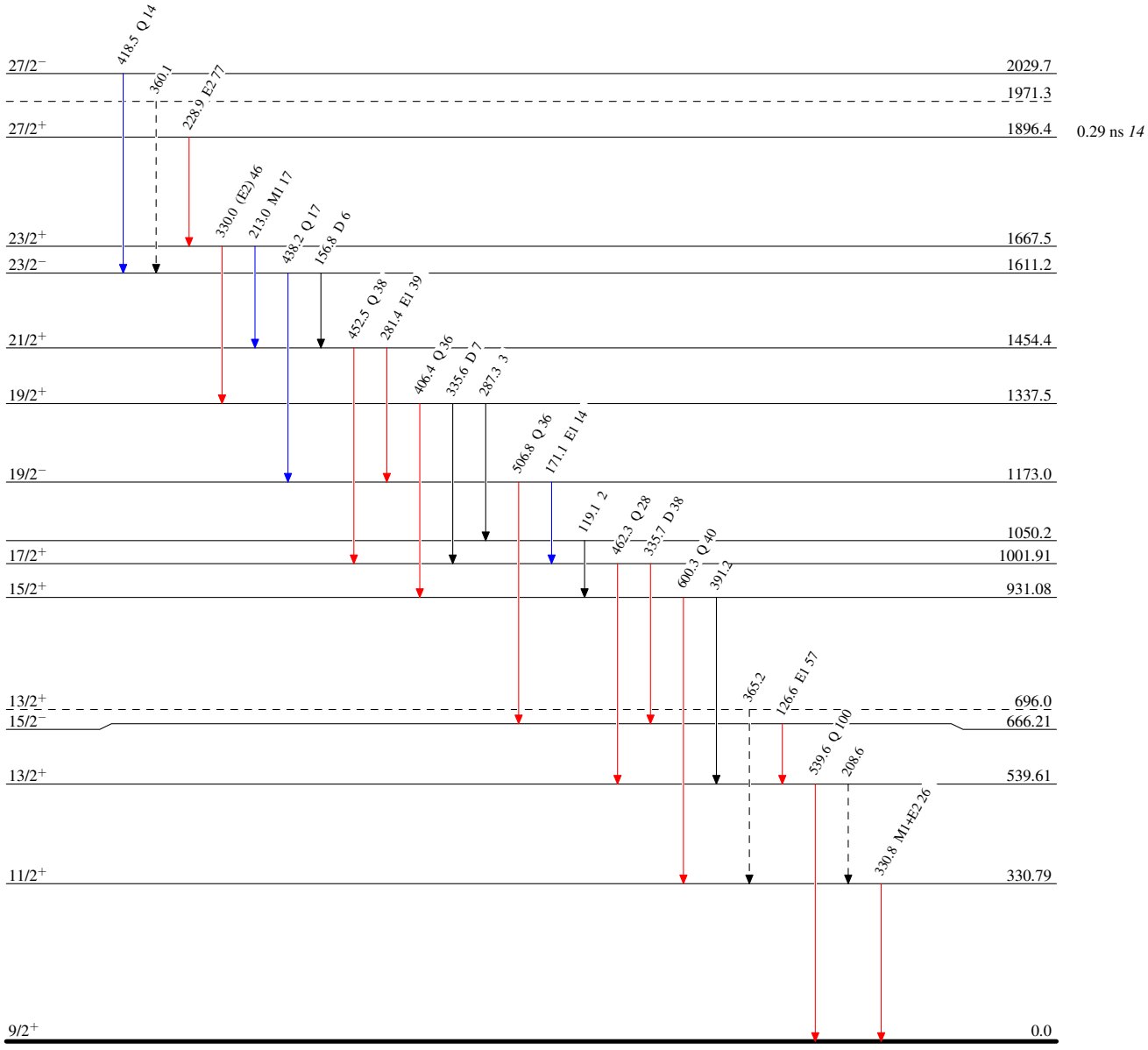
$^{217}_{88}Ra_{129}$

(HI,xnγ) 1984Ro20,1984Su10,1987SuZY

Level Scheme (continued)

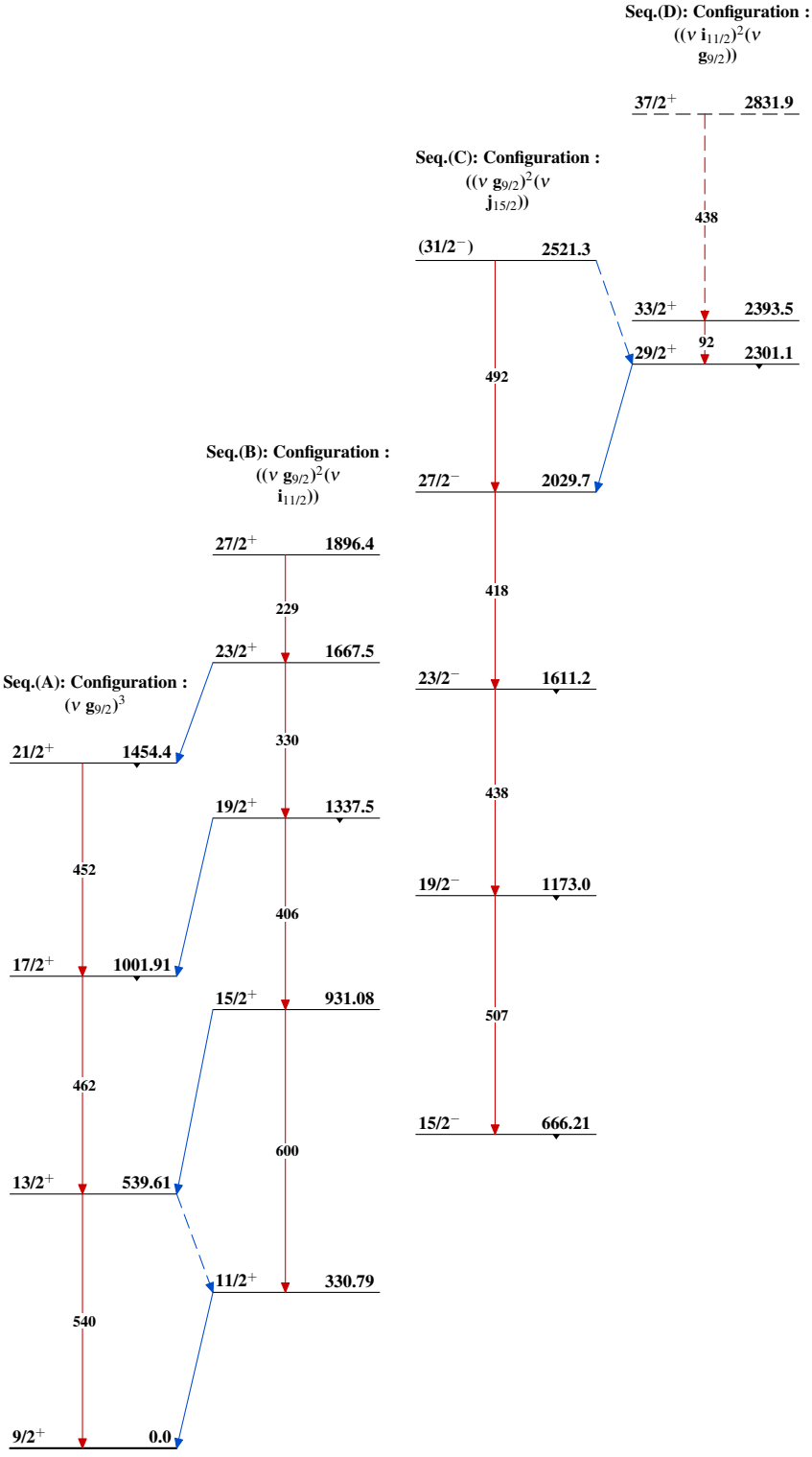
Intensities: Relative I_γ

Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)



$^{217}_{88}Ra_{129}$

(HI,xnγ) 1984Ro20,1984Su10,1987SuZY



$^{217}_{88}Ra_{129}$