

**<sup>206</sup>Po ε+β<sup>+</sup> decay 1975Ka13,1975Ka14,1976Ja02**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 201,346 (2025)	21-Jan-2025

Parent: <sup>206</sup>Po: E=0.0; J<sup>π</sup>=0<sup>+</sup>; T<sub>1/2</sub>=8.8 d I; Q(ε)=1840 9; %ε+%β<sup>+</sup> decay=94.55 5

<sup>206</sup>Po-Q(ε+β<sup>+</sup>): From 2021Wa16.

Others: 1981El07, 1981Fu06, 1973Li26, 1973Fu05, 1958Ar61, 1957Ar61, 1956St60.

1975Ka13,1975Ka14: <sup>206</sup>Po was produced in <sup>209</sup>Bi(p,4n) reaction using a 39-MeV proton beam. The source was chemically purified. Measured: ce using π√2 β-spectrometer, γ rays using 30- and 50-cm<sup>3</sup> Ge(Li) detectors, γ-γ coin, and ce-γ coin.

The decay scheme of 1975Ka13,1975Ka14 is adopted.

<sup>206</sup>Bi Levels

E(level) <sup>†</sup>	J <sup>π</sup> <sup>‡</sup>	T <sub>1/2</sub> <sup>‡</sup>	Comments
0.0 <sup>#</sup>	6 <sup>+</sup>	6.243 d 3	
59.897 <sup>#</sup> 17	4 <sup>+</sup>	7.7 μs 2	T <sub>1/2</sub> : Weighted average of 7.6 μs 2 (1975Ka13) and 7.8 μs 3 (1957Ar61).
70.744 <sup>#</sup> 22	3 <sup>+</sup>		
82.818 <sup>#</sup> 19	5 <sup>+</sup>		
200.381 <sup>@</sup> 21	4 <sup>+</sup>		
352.690 <sup>&amp;</sup> 23	(3,4) <sup>+</sup>		
409.17 3	(2) <sup>+</sup>		
523.209 24	3 <sup>+</sup>		
733.91 3	(3) <sup>+</sup>		
878.09 3	2 <sup>+</sup>		
897.08 3	(3,4) <sup>+</sup>		
931.66 3	1 <sup>+</sup>		
1077.87 3	2 <sup>+</sup>		
1102.96 3	2 <sup>+</sup>		
1265.31 4	(2) <sup>+</sup>		
1389.48 <sup>a</sup> 3	1 <sup>+</sup>		
1523.65 6	1 <sup>+</sup>		
1567.67 4	1 <sup>+</sup>		
1600.20 4	(1) <sup>+</sup>		

<sup>†</sup> From a least-squares fit to Eγ.

<sup>‡</sup> From Adopted Levels, unless otherwise stated.

<sup>#</sup> Dominant configuration=π(h<sub>9/2</sub><sup>+1</sup>)⊗ν(f<sub>5/2</sub><sup>-1</sup>).

<sup>@</sup> Dominant configuration=π(h<sub>9/2</sub><sup>+1</sup>)⊗ν(p<sub>1/2</sub><sup>-1</sup>).

<sup>&</sup> Dominant configuration=π(h<sub>9/2</sub><sup>+1</sup>)⊗ν(p<sub>3/2</sub><sup>-1</sup>).

<sup>a</sup> Dominant configuration=π(f<sub>7/2</sub><sup>+1</sup>)⊗ν(f<sub>5/2</sub><sup>-1</sup>).

ε,β<sup>+</sup> radiations

E(decay)	E(level)	I <sub>ε</sub> <sup>#</sup>	Log ft <sup>‡</sup>	I(ε+β <sup>+</sup> ) <sup>†#</sup>	Comments
(240 9)	1600.20	1.9 3	7.72 9	1.9 3	εK=0.655 10; εL=0.253 7; εM+=0.0924 24
(316 9)	1523.65	0.77 10	8.43 7	0.77 10	εK=0.7076 46; εL=0.2157 31; εM+=0.0767 11
(451 9)	1389.48	77 10	6.81 6	77 10	εK=0.7469 19; εL=0.1880 12; εM+=0.0651 5
(908 9)	931.66	19.8 27	8.09 6	19.8 27	εK=0.7840 5; εL=0.16171 25; εM+=0.05430 17

<sup>†</sup> Calculated from γ-ray intensity balances.

<sup>‡</sup> Additional information 1.

<sup>#</sup> For absolute intensity per 100 decays, multiply by 0.9455 5.

<sup>206</sup>Po ε+β<sup>+</sup> decay **1975Ka13,1975Ka14,1976Ja02 (continued)**

γ(<sup>206</sup>Bi)

I<sub>γ</sub> normalization: From I(γ+ce)[59.908γ] + I(γ+ce)[82.802γ]=100 and by assuming no direct γ feeding to the ground state (J<sup>π</sup>=6<sup>+</sup>).

<u>E<sub>γ</sub><sup>†</sup></u>	<u>I<sub>γ</sub><sup>†a</sup></u>	<u>E<sub>i</sub>(level)</u>	<u>J<sub>i</sub><sup>π</sup></u>	<u>E<sub>f</sub></u>	<u>J<sub>f</sub><sup>π</sup></u>	<u>Mult.<sup>@</sup></u>	<u>δ<sup>@</sup></u>	<u>α<sup>&amp;</sup></u>	<u>Comments</u>
10.836 22	1.269 25	70.744	3 <sup>+</sup>	59.897	4 <sup>+</sup>	M1(+E2)	<0.0031	319 5	%I <sub>γ</sub> =0.301 34 α(M)=242 4 α(N)=62.1 10; α(O)=12.67 19; α(P)=1.506 23 I <sub>γ</sub> : From intensity balance by the evaluator. Mult.: M1:M2:M3:M4:M5:N1:N2:N3:O1:O2:P1=9400 80: 1050 20: 98 8:≤2.7: ≤1.9: 2300 30: 245 9:27.6 31:476 16: 32 10: 83 29 (1975Ka13). Other: M1:N2:N3:O1:O23:O45P=1.00:0.0285 11:0.00277 63:0.0584 17: 0.00645 47: 0.00933 34 (1975Ka13); N1:N2:N3:O1:O23:O45P=1.00:0.116 4:0.0113 30:0.239 4:0.0264 18:0.0381 11 (1981Fu06) and O1:O23:O45P=1.00:0.110 8:0.160 5 (1981Fu06). δ: From M2/M1=0.112 3, M3/M1=0.0105 9, N1/M1=0.245 12 (1975Ka13) and N2/N1=0.116 4, N3/N1=0.0113 30 (1981Fu06).
32.532 19	0.0334 25	1600.20	(1) <sup>+</sup>	1567.67	1 <sup>+</sup>	M1+E2	0.095 9	63.7 26	%I <sub>γ</sub> =0.0079 11 α(L)=48.4 19; α(M)=11.7 5 α(N)=2.98 13; α(O)=0.594 23; α(P)=0.0656 18 Mult.: L1:L2:L3=44.2 24: 10.5 9: 18 3 (1975Ka13). δ: From L2/L1(exp)=0.238 24 (1975Ka13). I <sub>γ</sub> : Determined by the evaluator from the measured Ice(L1) in 1975Ka13 and the theoretical α(L1) for the indicated multipolarity. The normalization was done relative to data for 677.7γ, E2 from 1975Ka13.
53.610 43	0.069 9	931.66	1 <sup>+</sup>	878.09	2 <sup>+</sup>	[M1]		11.78 17	%I <sub>γ</sub> =0.0164 28 α(L)=9.00 13; α(M)=2.119 30 α(N)=0.542 8; α(O)=0.1107 16; α(P)=0.01318 19 I <sub>γ</sub> : Determined by the evaluator from Ice(L1) in 1975Ka13 and the theoretical α(L1) for a pure M1 transition. The normalization was done relative to data for 677.7γ, E2 from 1975Ka13.
59.908 18	5.4 6	59.897	4 <sup>+</sup>	0.0	6 <sup>+</sup>	E2		72.4 10	%I <sub>γ</sub> =1.283 17 α(L)=53.8 8; α(M)=14.25 20 α(N)=3.62 5; α(O)=0.663 9; α(P)=0.0500 7 Mult.: L1:L2:L3:M1:M2:M3:M4:M5:N:O=120 5:5290 16: 4870 14: 40.4 36: 1320 40: 1330 30: 19.9 17: 18.6 14:756 31:208 8 (1975Ka13).
82.802 22	0.40 5	82.818	5 <sup>+</sup>	0.0	6 <sup>+</sup>	M1(+E2)	<0.05	3.32 5	%I <sub>γ</sub> =0.095 16 α(L)=2.54 4; α(M)=0.598 9 α(N)=0.1529 23; α(O)=0.0312 5; α(P)=0.00371 5

<sup>206</sup>Po ε+β<sup>+</sup> decay **1975Ka13,1975Ka14,1976Ja02 (continued)**

$\gamma(^{206}\text{Bi})$ (continued)									
$E_\gamma$ †	$I_\gamma$ † <sup>a</sup>	$E_i$ (level)	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. @	$\delta$ @	$\alpha$ &	Comments
<sup>x</sup> 109.484 33 117.536 28	0.58 9	200.381	4 <sup>+</sup>	82.818	5 <sup>+</sup>	M1(+E2)	0.11 11	6.39 14	Mult.: L1:L2:M:N:O=54.4 25: 5.5 5: 18.9 17: 2.3 8: 1.9 13. δ: From L2/L1=0.101 10 (1975Ka13). %I <sub>γ</sub> =0.138 26 α(K)=5.16 18; α(L)=0.93 5; α(M)=0.220 13 α(N)=0.0564 33; α(O)=0.0115 6; α(P)=0.001352 33 Mult.: K:L1:L2:M:N:O=101 29: 18.2 7: 2.04 17: 3.91 22: 11.1 3: 0.43 16; α(K) <sub>exp</sub> =5.0 +9-7 (1975Ka13). δ: From L1/K=0.18 5, L2/K=0.020 6 and M/K=0.039 11 (1975Ka13).
124.17# 5	0.16 4	1389.48	1 <sup>+</sup>	1265.31	(2) <sup>+</sup>	(E2)		2.69 4	%I <sub>γ</sub> =0.038 10 α(K)=0.415 6; α(L)=1.688 24; α(M)=0.448 6 α(N)=0.1139 16; α(O)=0.02103 30; α(P)=0.001638 23 E <sub>γ</sub> : From a level energy difference. E <sub>γ</sub> =124.669 keV 43 in 1975Ka13. I <sub>γ</sub> : Determined by the evaluator from the measured Ice(K) in 1975Ka13 and the theoretical α(K) for the indicated multipolarity. The normalization was done relative to data for 677.7γ, E2 from 1975Ka13. Mult.: K:L1:L2=2.52 58:0.44 9:0.35 19 (1975Ka13). %I <sub>γ</sub> =0.038 7 α(K)=3.72 9; α(L)=0.738 18; α(M)=0.176 5 α(N)=0.0451 13; α(O)=0.00909 23; α(P)=0.001036 16 Mult.: K:L1:L2:L3:M:N=26 3: 6.0 3: 0.77 7: 0.16 7: 0.79 11: 0.37 12; α(K) <sub>exp</sub> =4.7 +15-11 (1975Ka13). δ: From L1/K=0.231 29 and L2/K=0.0296 24 (1975Ka13). %I <sub>γ</sub> =0.15 4 α(K)=3.14 4; α(L)=0.551 8; α(M)=0.1297 18 α(N)=0.0332 5; α(O)=0.00678 10; α(P)=0.000806 11 Mult.: K:L1:L2:L3:M=78 5: 10.5 5: 1.19 12: 0.21 7: 2.81 18; α(K) <sub>exp</sub> =3.6 +12-7 (1975Ka13). δ: From L1/K=0.135 11 and L2/K=0.0153 18 (1975Ka13). %I <sub>γ</sub> =0.057 11 α(K)=2.71 21; α(L)=0.540 30; α(M)=0.129 9 α(N)=0.0330 23; α(O)=0.0067 4; α(P)=0.000757 14 Mult.: K:L1=24 12: 2.36 17; α(K) <sub>exp</sub> =2.9 +4-3 (1975Ka13). δ: From α(K) <sub>exp</sub> =2.9 +4-3 (1975Ka13). %I <sub>γ</sub> =0.114 33 α(K)=2.79 4; α(L)=0.493 7; α(M)=0.1161 17 α(N)=0.0297 4; α(O)=0.00606 9; α(P)=0.000719 10 Mult.,δ: K:L1:L2=41 3: 5.7 3: 0.65 9: α(K) <sub>exp</sub> =2.5 +9-6 (1975Ka13).
129.644 22	0.160 26	200.381	4 <sup>+</sup>	70.744	3 <sup>+</sup>	M1+E2	0.26 +4-5	4.69 9	
140.486 28	0.63 14	200.381	4 <sup>+</sup>	59.897	4 <sup>+</sup>	M1(+E2)	<0.07	3.86 5	
144.166 28	0.24 4	878.09	2 <sup>+</sup>	733.91	(3) <sup>+</sup>	M1(+E2)	<0.44	3.42 18	
146.180 26	0.48 13	1077.87	2 <sup>+</sup>	931.66	1 <sup>+</sup>	M1(+E2)	<0.11	3.44 5	

<sup>206</sup>Po ε+β<sup>+</sup> decay **1975Ka13,1975Ka14,1976Ja02 (continued)**

γ(<sup>206</sup>Bi) (continued)

$E_\gamma$ †	$I_\gamma$ †α	$E_i$ (level)	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. @	$\delta^@$	$\alpha\&$	Comments
152.308 50	0.19 3	352.690	(3,4) <sup>+</sup>	200.381	4 <sup>+</sup>	M1(+E2)	<0.17	3.05 5	%I <sub>γ</sub> =0.045 9 α(K)=2.47 5; α(L)=0.440 7; α(M)=0.1039 18 α(N)=0.0266 5; α(O)=0.00542 9; α(P)=0.000640 9 Mult.,δ: K:L1:L2=18 3: 3.1 3: 0.29 9 (1975Ka13). I <sub>γ</sub> : Determined by the evaluator from the measured Ice(K) in 1975Ka13 and the theoretical α(K) for the indicated multipolarity. The normalization was done relative to data for 677.7γ, E2 from 1975Ka13.
162.31# 5	0.48 7	1265.31	(2) <sup>+</sup>	1102.96	2 <sup>+</sup>	(E2)		0.950 13	%I <sub>γ</sub> =0.114 21 α(K)=0.262 4; α(L)=0.512 7; α(M)=0.1352 19 α(N)=0.0344 5; α(O)=0.00639 9; α(P)=0.000510 7 E <sub>γ</sub> : From adopted gammas. I <sub>γ</sub> : Determined by the evaluator from the measured Ice(K) in 1975Ka13 and the theoretical α(K) for the indicated multipolarity. The normalization was done relative to data for 677.7γ, E2 from 1975Ka13.
170.501 21	1.40 13	523.209	3 <sup>+</sup>	352.690	(3,4) <sup>+</sup>	M1(+E2)	<0.14	2.219 34	Mult.: K:L1=4.8 6:0.69 29 (1975Ka13). %I <sub>γ</sub> =0.33 5 α(K)=1.803 29; α(L)=0.318 5; α(M)=0.0749 11 α(N)=0.01916 28; α(O)=0.00391 6; α(P)=0.000464 7 Mult.: K:L1:L2:M:N:O=74.5 23: 11.6 5: 1.20 19: 2.46 20: 0.39 10: 0.20 9; α(K) <sub>exp</sub> =1.5 +3-2 (1975Ka13). δ: From L1/K=0.156 8, L2/K=0.0161 26, M/K=0.0330 29 and α(K) <sub>exp</sub> =1.5 +3-2 (1975Ka13).
171.340 24	0.44 4	1102.96	2 <sup>+</sup>	931.66	1 <sup>+</sup>	M1+E2	0.36 +16-27	2.04 15	%I <sub>γ</sub> =0.105 15 α(K)=1.61 17; α(L)=0.324 11; α(M)=0.077 4 α(N)=0.0198 9; α(O)=0.00399 14; α(P)=0.000452 8 Mult.: K:L1:L2:M:O=22.3 9: 4.8 3: 0.50 21: 1.02 12: 0.10 7; α(K) <sub>exp</sub> =1.52 +19-15 (1975Ka13). δ: From L1/K=0.215 16, M/K=0.046 6 and α(K) <sub>exp</sub> =1.52 +19-15 (1975Ka13).
<sup>x</sup> 177.035 24									
178.203 20	0.19 4	1567.67	1 <sup>+</sup>	1389.48	1 <sup>+</sup>	M1(+E2)	<0.5	1.84 13	%I <sub>γ</sub> =0.045 11 α(K)=1.47 14; α(L)=0.286 7; α(M)=0.0683 26 α(N)=0.0175 7; α(O)=0.00352 10; α(P)=0.000403 9 Mult.: K:L1:L2=13.9 10: 2.17 19: 0.24 8; α(K) <sub>exp</sub> =2.07 +55-37 (1975Ka13). δ: From L1/K(exp)=0.156 18 and α(K) <sub>exp</sub> =2.07 +55-37 (1975Ka13).
180.791 19	0.44 5	1077.87	2 <sup>+</sup>	897.08	(3,4) <sup>+</sup>	M1+E2	0.33 29	1.77 23	%I <sub>γ</sub> =0.105 17 α(K)=1.41 24; α(L)=0.274 10; α(M)=0.065 4 α(N)=0.0167 10; α(O)=0.00337 14; α(P)=0.000386 13

<sup>206</sup>Po ε+β<sup>+</sup> decay **1975Ka13,1975Ka14,1976Ja02 (continued)**

γ(<sup>206</sup>Bi) (continued)

<u>E<sub>γ</sub><sup>†</sup></u>	<u>I<sub>γ</sub><sup>†a</sup></u>	<u>E<sub>i</sub>(level)</u>	<u>J<sub>i</sub><sup>π</sup></u>	<u>E<sub>f</sub></u>	<u>J<sub>f</sub><sup>π</sup></u>	<u>Mult.<sup>@</sup></u>	<u>δ<sup>@</sup></u>	<u>α<sup>&amp;</sup></u>	<u>Comments</u>
205.936 50		1102.96	2 <sup>+</sup>	897.08	(3,4) <sup>+</sup>				Mult.: K:L1:L2=21.5 11: 3.33 23: 0.35 12; α(K)exp=1.41 +24-13 (1975Ka13). δ: From L1/K=0.155 13 and α(K)exp=1.41 +24-13 (1975Ka13).
210.672 51	0.18 6	733.91	(3) <sup>+</sup>	523.209	3 <sup>+</sup>	M1(+E2)	<0.4	1.17 6	%I <sub>γ</sub> =0.043 15 α(K)=0.95 6; α(L)=0.1742 25; α(M)=0.0413 6 α(N)=0.01055 16; α(O)=0.002143 30; α(P)=0.000250 7 Mult.,δ: α(K)exp=1.0 +8-4 (1975Ka13).
224.853 42	0.12 7	1102.96	2 <sup>+</sup>	878.09	2 <sup>+</sup>	M1+E2	1.92 +28-22	0.456 32	%I <sub>γ</sub> =0.029 17 α(K)=0.280 31; α(L)=0.1319 20; α(M)=0.0337 5 α(N)=0.00859 12; α(O)=0.001640 24; α(P)=0.000150 4 Mult.,δ: α(K)exp=0.28 (1975Ka13).
281.923 23	3.68 12	352.690	(3,4) <sup>+</sup>	70.744	3 <sup>+</sup>	M1(+E2)	<0.10	0.548 8	%I <sub>γ</sub> =0.87 10 α(K)=0.447 7; α(L)=0.0775 11; α(M)=0.01821 26 α(N)=0.00466 7; α(O)=0.000951 13; α(P)=0.0001132 16 Mult.: K:L1:L2:M:N=62.9 18: 11.5 6: 1.2 4: 1.29 12: 0.26 10; α(K)exp=0.49 3 (1975Ka13). δ: From L1/K=0.183 11, L2/K=0.0205 20 and α(K)exp=0.49 3 (1975Ka13).
286.410 26	105 2	1389.48	1 <sup>+</sup>	1102.96	2 <sup>+</sup>	M1(+E2)	<0.06	0.526 7	%I <sub>γ</sub> =24.9 28 α(K)=0.429 6; α(L)=0.0742 10; α(M)=0.01744 24 α(N)=0.00446 6; α(O)=0.000912 13; α(P)=0.0001085 15 Mult.,δ: K:L1:L2:L3:M:N:O=1630 40: 286 14: 32 4: 1.64 12: 64.5 23: 17.3 7: 3.01 17; α(K)exp=0.464 +22-18 (1975Ka13). δ: Other: -0.077<δ<0.077 from γγ(θ) in 1981E107.
292.799 30	0.188 12	352.690	(3,4) <sup>+</sup>	59.897	4 <sup>+</sup>	M1(+E2)	<0.4	0.471 26	%I <sub>γ</sub> =0.045 6 α(K)=0.381 24; α(L)=0.0682 20; α(M)=0.0161 4 α(N)=0.00411 10; α(O)=0.000838 24; α(P)=9.9×10 <sup>-5</sup> 4 Mult.,δ: K:L1:M=3.46 24: 0.70 8: 0.12 5; α(K)exp=0.53 +8-7 (1975Ka13).
311.558 30	18.7 4	1389.48	1 <sup>+</sup>	1077.87	2 <sup>+</sup>	M1(+E2)	<0.16	0.415 7	%I <sub>γ</sub> =4.4 5 α(K)=0.338 6; α(L)=0.0586 9; α(M)=0.01378 20 α(N)=0.00352 5; α(O)=0.000720 11; α(P)=8.56×10 <sup>-5</sup> 13 Mult.: K:L1:L2:L3:M:N:O=224 7: 39.4 15: 4.2 3: 0.25 5: 9.5 4: 2.6 3: 0.51 6; α(K)exp=0.346 +19-18 (1975Ka13). δ: From L2/K=0.0188 15, L3/K=0.00112 23, M/K=0.0424 22, N/K=0.0116 14, O/K=0.00228 28 and α(K)exp=0.346 +19-18 (1975Ka13); Other: -0.070<δ<0.170 from γγ(θ) in 1981E107.

<sup>206</sup>Po ε+β<sup>+</sup> decay **1975Ka13,1975Ka14,1976Ja02 (continued)**

γ(<sup>206</sup>Bi) (continued)

$E_\gamma$ †	$I_\gamma$ †α	$E_i$ (level)	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. @	$\delta$ @	$\alpha$ &	Comments
322.809 33	0.54 3	523.209	3 <sup>+</sup>	200.381	4 <sup>+</sup>	M1(+E2)	<0.5	0.352 29	%I <sub>γ</sub> =0.128 16 α(K)=0.285 26; α(L)=0.0512 24; α(M)=0.0121 5 α(N)=0.00309 13; α(O)=0.000629 28; α(P)=7.4×10 <sup>-5</sup> 4 Mult.,δ: K:L1:M=6.0 3: 0.95 9: 0.21 8; α(K)exp=0.32 +4-3 (1975Ka13).
324.728 40	0.430 28	733.91	(3) <sup>+</sup>	409.17	(2) <sup>+</sup>	M1+E2	0.53 20	0.31 4	%I <sub>γ</sub> =0.102 13 α(K)=0.250 32; α(L)=0.0477 29; α(M)=0.0114 6 α(N)=0.00290 16; α(O)=0.000587 35; α(P)=6.7×10 <sup>-5</sup> 6 Mult.,δ: From α(K)exp=0.25 3 (1975Ka13).
338.441 34	84.5 17	409.17	(2) <sup>+</sup>	70.744	3 <sup>+</sup>	M1(+E2)	-0.01 8	0.334 5	%I <sub>γ</sub> =20.1 23 α(K)=0.273 4; α(L)=0.0470 7; α(M)=0.01103 16 α(N)=0.00282 4; α(O)=0.000576 8; α(P)=6.87×10 <sup>-5</sup> 10 Mult.: K:L1:L2:L3:M:N:O=819 21: 135 5: 15.0 22: 0.78 9: 34.2 13: 10.3 5: 4.15 21; α(K)exp=0.280 +13-12 (1975Ka13). δ: From γγ(θ) in 1981El07. Other: 0.13 18 from L1/K=0.165 7, L2/K=0.0183 27, M/K=0.0418 19 and α(K)exp=0.53 8 (1975Ka13).
343.968 41	0.26 8	1077.87	2 <sup>+</sup>	733.91	(3) <sup>+</sup>	M1		0.320 4	%I <sub>γ</sub> =0.062 20 α(K)=0.261 4; α(L)=0.0449 6; α(M)=0.01055 15 α(N)=0.00270 4; α(O)=0.000551 8; α(P)=6.57×10 <sup>-5</sup> 9 Mult.: α(K)exp=0.21 +12-6 (1975Ka13).
354.866 37	1.74 7	878.09	2 <sup>+</sup>	523.209	3 <sup>+</sup>	M1(+E2)	<0.25	0.287 8	%I <sub>γ</sub> =0.41 5 α(K)=0.234 7; α(L)=0.0407 8; α(M)=0.00957 18 α(N)=0.00245 5; α(O)=0.000500 10; α(P)=5.93×10 <sup>-5</sup> 13 Mult.: K:M=15.3 6: 0.47 6; α(K)exp=0.254 +21-19 (1975Ka13). δ: From α(K)exp=0.254 +21-19 (1975Ka13).
369.077 37	0.76 5	1102.96	2 <sup>+</sup>	733.91	(3) <sup>+</sup>	M1(+E2)	<0.20	0.260 5	%I <sub>γ</sub> =0.181 23 α(K)=0.212 4; α(L)=0.0367 6; α(M)=0.00863 14 α(N)=0.00221 4; α(O)=0.000451 8; α(P)=5.36×10 <sup>-5</sup> 10 Mult.,δ: K:L1=7.4 4:0.94 8; α(K)exp=0.278 +32-28 (1975Ka13).
381.220 41	0.78 5	733.91	(3) <sup>+</sup>	352.690	(3,4) <sup>+</sup>	M1(+E2)	<0.4	0.230 13	%I <sub>γ</sub> =0.185 24 α(K)=0.187 11; α(L)=0.0328 13; α(M)=0.00772 27 α(N)=0.00197 7; α(O)=0.000402 15; α(P)=4.76×10 <sup>-5</sup> 22 Mult.: K:L1:N=5.7 3: 1.09 9: 0.08 3; α(K)exp=0.21 3 (1975Ka13). δ: From L1/K=0.191 19 and α(K)exp=0.21 3 (1975Ka13).
452.472 48	1.42 6	523.209	3 <sup>+</sup>	70.744	3 <sup>+</sup>	M1(+E2)	<0.26	0.149 4	%I <sub>γ</sub> =0.34 4 α(K)=0.122 4; α(L)=0.0210 5; α(M)=0.00493 11 α(N)=0.001261 28; α(O)=0.000257 6; α(P)=3.06×10 <sup>-5</sup> 8 Mult.,δ: K:L1=6.5 3: 1.34 9; α(K)exp=0.133 12 (1975Ka13).

6

<sup>206</sup>Po ε+β<sup>+</sup> decay **1975Ka13,1975Ka14,1976Ja02 (continued)**

$\gamma(^{206}\text{Bi})$ (continued)									
$E_\gamma$ †	$I_\gamma$ †a	$E_i$ (level)	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. @	$\delta$ @	$\alpha$ &	Comments
457.765 49	0.68 4	1389.48	1 <sup>+</sup>	931.66	1 <sup>+</sup>	M1(+E2)	<0.4	0.141 8	%I $\gamma$ =0.162 20 $\alpha$ (K)=0.115 7; $\alpha$ (L)=0.0199 8; $\alpha$ (M)=0.00468 19 $\alpha$ (N)=0.00120 5; $\alpha$ (O)=0.000244 10; $\alpha$ (P)=2.89×10 <sup>-5</sup> 14 Mult.: K:L1:M=2.95 17: 0.66 6: 0.20 6; $\alpha$ (K)exp=0.125 15 (1975Ka13). $\delta$ : From $\alpha$ (K)exp=0.125 15 (1975Ka13).
463.381 48	7.9 3	523.209	3 <sup>+</sup>	59.897	4 <sup>+</sup>	M1(+E2)	<0.27	0.140 4	%I $\gamma$ =1.88 22 $\alpha$ (K)=0.1142 35; $\alpha$ (L)=0.0197 5; $\alpha$ (M)=0.00462 11 $\alpha$ (N)=0.001181 27; $\alpha$ (O)=0.000241 6; $\alpha$ (P)=2.87×10 <sup>-5</sup> 7 Mult.: K:L1:M:N=33.4 12: 6.4 3 :1.81 10: 0.42 6; $\alpha$ (K)exp=0.122 10 (1975Ka13). $\delta$ : From L1/K=0.192 11 and $\alpha$ (K)exp=0.122 10 (1975Ka13).
468.983 52	1.14 5	878.09	2 <sup>+</sup>	409.17	(2) <sup>+</sup>	M1(+E2)	<0.28	0.135 4	%I $\gamma$ =0.271 32 $\alpha$ (K)=0.110 4; $\alpha$ (L)=0.0190 5; $\alpha$ (M)=0.00446 11 $\alpha$ (N)=0.001141 28; $\alpha$ (O)=0.000233 6; $\alpha$ (P)=2.77×10 <sup>-5</sup> 8 Mult.: K:L1:M:N=5.0 3: 1.07 8: 0.28 4: 0.063 23; $\alpha$ (K)exp=0.127 +13-9 (1975Ka13). $\delta$ : From M/K=0.056 9 and $\alpha$ (K)exp=0.127 +13-9 (1975Ka13).
511.359 52	106 2	1389.48	1 <sup>+</sup>	878.09	2 <sup>+</sup>	M1(+E2)	<0.20	0.1089 22	%I $\gamma$ =25.2 28 $\alpha$ (K)=0.0890 18; $\alpha$ (L)=0.01522 27; $\alpha$ (M)=0.00357 6 $\alpha$ (N)=0.000913 16; $\alpha$ (O)=0.0001866 33; $\alpha$ (P)=2.22×10 <sup>-5</sup> 4 Mult.: K:L1:L2:L3:M:N=336 9: 60.1 19: 6.07 24: 0.36 5: 15.7 6: 4.99 21; $\alpha$ (K)exp=0.0916 +43-41 (1975Ka13). $\delta$ : From L1/K=0.179 7, L3/K=0.00107 15, M/K=0.0467 22, N/K=0.0149 8, and $\alpha$ (K)exp=0.346 +19-18 (1975Ka13); Other: -0.152< $\delta$ <0.152 from $\gamma\gamma(\theta)$ in 1981El07.
522.469 52	69.3 14	931.66	1 <sup>+</sup>	409.17	(2) <sup>+</sup>	M1+E2	-0.16 +8-11	0.1024 27	%I $\gamma$ =16.5 19 $\alpha$ (K)=0.0837 23; $\alpha$ (L)=0.01432 32; $\alpha$ (M)=0.00336 7 $\alpha$ (N)=0.000859 19; $\alpha$ (O)=0.000176 4; $\alpha$ (P)=2.09×10 <sup>-5</sup> 5 Mult.: K:L1:L2:L3:M:N=214 6: 37.1 13: 3.87 24: 0.26 3: 10.2 4: 2.72 20; $\alpha$ (K)exp=0.089 4 (1975Ka13). $\delta$ : From $\delta$ =-0.16 6 using $\gamma\gamma(\theta)$ in 1981El07 and L1/K=0.173 8, L2/K=0.0181 12, L3/K=0.00121 14, M/K=0.0477 23, N/K=0.0127 10 and $\alpha$ (K)exp=0.089 4 (1975Ka13). Sign is from 1981El07.
533.557 63	0.374 29	733.91	(3) <sup>+</sup>	200.381	4 <sup>+</sup>	M1(+E2)	<0.29	0.0959 31	%I $\gamma$ =0.089 12 $\alpha$ (K)=0.0783 26; $\alpha$ (L)=0.0134 4; $\alpha$ (M)=0.00315 8 $\alpha$ (N)=0.000806 21; $\alpha$ (O)=0.000165 4; $\alpha$ (P)=1.96×10 <sup>-5</sup> 6 Mult., $\delta$ : From $\alpha$ (K)exp=0.105 +16-13 (1975Ka13).

<sup>206</sup>Po ε+β<sup>+</sup> decay **1975Ka13,1975Ka14,1976Ja02 (continued)**

γ(<sup>206</sup>Bi) (continued)

$E_\gamma$ †	$I_\gamma$ †a	$E_i$ (level)	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. @	$\delta$ @	$\alpha$ &	Comments
544.393 70	0.16 6	897.08	(3,4) <sup>+</sup>	352.690	(3,4) <sup>+</sup>	M1(+E2)	<1.1	0.075 19	%I <sub>γ</sub> =0.038 15 α(K)=0.061 16; α(L)=0.0109 21; α(M)=0.0026 5 α(N)=0.00066 12; α(O)=0.000134 26; α(P)=1.57×10 <sup>-5</sup> 34 Mult.: α(K)exp=0.14 +7-5 (1975Ka13). δ: From α(K)exp=0.14 +7-5 (1975Ka13).
554.636 56	6.86 27	1077.87	2 <sup>+</sup>	523.209	3 <sup>+</sup>	M1(+E2)	<0.25	0.0872 23	%I <sub>γ</sub> =1.63 19 α(K)=0.0713 19; α(L)=0.01217 27; α(M)=0.00286 6 α(N)=0.000730 16; α(O)=0.0001492 33; α(P)=1.78×10 <sup>-5</sup> 4 Mult.: K:L1:M:N=19.4 7: 3.27 15: 0.75 5: 0.083 22; α(K)exp=0.0817 +64-59 (1975Ka13). δ: From L1/K=0.169 10, M/K=0.0387 29 and α(K)exp=0.0817 +64-59 (1975Ka13).
579.778 60	4.66 19	1102.96	2 <sup>+</sup>	523.209	3 <sup>+</sup>	M1(+E2)	<0.4	0.075 4	%I <sub>γ</sub> =1.11 13 α(K)=0.0615 35; α(L)=0.0106 5; α(M)=0.00248 11 α(N)=0.000634 28; α(O)=0.000129 6; α(P)=1.54×10 <sup>-5</sup> 8 Mult.,δ: K:L:M=11.3 4: 1.93 10: 0.61 5; α(K)exp=0.0701 +55-51 (1975Ka13).
591.8 ‡	0.196 24	1523.65	1 <sup>+</sup>	931.66	1 <sup>+</sup>	[M1,E2]		0.048 27	%I <sub>γ</sub> =0.047 8 α(K)=0.038 23; α(L)=0.0073 31; α(M)=0.0017 7 α(N)=4.5×10 <sup>-4</sup> 18; α(O)=9; α(P)=1.0×10 <sup>-5</sup> 5
645.583 67	1.55 6	1523.65	1 <sup>+</sup>	878.09	2 <sup>+</sup>	M1(+E2)	<0.25	0.0585 15	%I <sub>γ</sub> =0.37 4 α(K)=0.0479 13; α(L)=0.00814 19; α(M)=0.00191 4 α(N)=0.000488 11; α(O)=9.97×10 <sup>-5</sup> 23; α(P)=1.188×10 <sup>-5</sup> 29 Mult.,δ: K:L=3.01 14: 0.65 5; α(K)exp=0.0561 +50-46 (1975Ka13).
<sup>x</sup> 664.077 77	0.10 4					M1(+E2)		0.036 20	%I <sub>γ</sub> =0.024 10 α(K)=0.029 17; α(L)=0.0054 23; α(M)=0.0013 5 α(N)=3.3×10 <sup>-4</sup> 13; α(O)=6.6×10 <sup>-5</sup> 28; α(P)=8 Mult.: α(K)exp=0.042 +37-17 (1975Ka13).
668.750 71	3.78 15	1077.87	2 <sup>+</sup>	409.17	(2) <sup>+</sup>	M1+E2	0.271 22	0.0519 8	%I <sub>γ</sub> =0.90 11 α(K)=0.0424 7; α(L)=0.00724 11; α(M)=0.001697 26 α(N)=0.000434 7; α(O)=8.86×10 <sup>-5</sup> 14; α(P)=1.055×10 <sup>-5</sup> 17 Mult.,δ: K:L=5.80 24: 1.16 7; α(K)exp=0.0443 +38-34 (1975Ka13).
677.709 73	6.49 26	878.09	2 <sup>+</sup>	200.381	4 <sup>+</sup>	E2		0.01543 22	%I <sub>γ</sub> =1.54 18 α(K)=0.01161 16; α(L)=0.00289 4; α(M)=0.000707 10 α(N)=0.0001804 25; α(O)=3.56×10 <sup>-5</sup> 5; α(P)=3.74×10 <sup>-6</sup> 5 Mult.: K:L1:L2:M=2.82 13: 0.69 5: 0.31 3: 0.193 25; α(K)exp=0.0126 11 (1975Ka13).

8



<sup>206</sup>Po ε+β<sup>+</sup> decay **1975Ka13,1975Ka14,1976Ja02 (continued)**

γ(<sup>206</sup>Bi) (continued)

$E_\gamma$ †	$I_\gamma$ †α	$E_i$ (level)	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. @	$\delta$ @	$\alpha$ &	Comments
693.812 75	0.90 5	1102.96	2 <sup>+</sup>	409.17	(2) <sup>+</sup>	M1(+E2)	<0.48	0.0463 33	%Iγ=0.214 27 α(K)=0.0378 28; α(L)=0.0065 4; α(M)=0.00152 9 α(N)=0.000388 23; α(O)=7.9×10 <sup>-5</sup> 5; α(P)=9.4×10 <sup>-6</sup> 6 Mult.,δ: K:L=1.24 7: 0.23 3; α(K)exp=0.0397 +48-42 (1975Ka13).
<sup>x</sup> 719.699 77	0.21 6					M1(+E2)		0.029 16	%Iγ=0.050 15 α(K)=0.024 13; α(L)=0.0043 19; α(M)=1.0×10 <sup>-3</sup> 4 α(N)=2.6×10 <sup>-4</sup> 11; α(O)=5.3×10 <sup>-5</sup> 23; α(P)=6.2×10 <sup>-6</sup> 29 Mult.: α(K)exp=0.039 +25-14 (1975Ka13).
722.034 75	0.30 5	1600.20	(1) <sup>+</sup>	878.09	2 <sup>+</sup>	(E2)		0.01349 19	%Iγ=0.071 14 α(K)=0.01027 14; α(L)=0.002443 34; α(M)=0.000595 8 α(N)=0.0001519 21; α(O)=3.01×10 <sup>-5</sup> 4; α(P)=3.19×10 <sup>-6</sup> 4 Mult.: α(K)exp=0.0128 +42-36 (1975Ka13).
<sup>x</sup> 727.343 78	0.417 22					M1(+E2)		0.029 15	%Iγ=0.099 12 α(K)=0.023 13; α(L)=0.0042 18; α(M)=1.0×10 <sup>-3</sup> 4 α(N)=2.6×10 <sup>-4</sup> 11; α(O)=5.2×10 <sup>-5</sup> 22; α(P)=6.0×10 <sup>-6</sup> 29 Mult.: α(K)exp=0.036 +11-9 (1975Ka13).
<sup>x</sup> 741.5 ‡ 807.385 82	0.046 14 100 2	878.09	2 <sup>+</sup>	70.744	3 <sup>+</sup>	M1(+E2)	<0.23	0.0328 7	%Iγ=0.0109 35 %Iγ=23.8 27 α(K)=0.0269 6; α(L)=0.00453 9; α(M)=0.001061 22 α(N)=0.000271 6; α(O)=5.55×10 <sup>-5</sup> 12; α(P)=6.62×10 <sup>-6</sup> 14 Mult.: K:L:M=100 3: 19.9 7: 5.06 19; α(K)exp=0.0289 +15-14 (1975Ka13). δ: From L/K=0.199 9 and α(K)exp=0.0289 +15-14 (1975Ka13); Other: -0.056<δ<0.210 from γγ(θ) in 1981El07.
818.231 84	4.60 18	878.09	2 <sup>+</sup>	59.897	4 <sup>+</sup>	E2		0.01042 15	%Iγ=1.09 13 α(K)=0.00808 11; α(L)=0.001777 25; α(M)=0.000430 6 α(N)=0.0001096 15; α(O)=2.181×10 <sup>-5</sup> 31; α(P)=2.364×10 <sup>-6</sup> 33 Mult.: K:M=1.38 7: 0.085 9; α(K)exp=0.0086 +8-7 (1975Ka13).
826.442 94	<0.67	897.08	(3,4) <sup>+</sup>	70.744	3 <sup>+</sup>	[M1,E2]		0.021 11	%Iγ<0.159 %Iγ<0.168 α(K)=0.017 9; α(L)=0.0030 13; α(M)=7.2×10 <sup>-4</sup> 30 α(N)=1.8×10 <sup>-4</sup> 8; α(O)=3.7×10 <sup>-5</sup> 16; α(P)=4.3×10 <sup>-6</sup> 20 Mult.: α(K)exp≥0.0019.
837.235 87	0.44 3	897.08	(3,4) <sup>+</sup>	59.897	4 <sup>+</sup>	M1(+E2)	<0.4	0.0290 15	%Iγ=0.105 14 α(K)=0.0237 12; α(L)=0.00401 18; α(M)=0.00094 4 α(N)=0.000240 11; α(O)=4.91×10 <sup>-5</sup> 22; α(P)=5.85×10 <sup>-6</sup> 28 Mult.: K:L:M=0.50 3:0.073 9: 0.020 5; α(K)exp=0.033 5

9

<sup>206</sup>Po ε+β<sup>+</sup> decay **1975Ka13,1975Ka14,1976Ja02 (continued)**

$\gamma(^{206}\text{Bi})$ (continued)									
$E_\gamma$ †	$I_\gamma$ †a	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. @	$\delta$ @	$\alpha$ &	Comments
860.933 89	15.6 6	931.66	1 <sup>+</sup>	70.744	3 <sup>+</sup>	E2			(1975Ka13). $\delta$ : From L/K=0.146 20, M/K=0.04 1 and $\alpha(\text{K})_{\text{exp}}=0.0289$ +15-14 (1975Ka13). $\%I_\gamma=3.7$ 4 $\alpha(\text{K})=0.00734$ 10; $\alpha(\text{L})=0.001569$ 22; $\alpha(\text{M})=0.000378$ 5 $\alpha(\text{N})=9.65\times 10^{-5}$ 14; $\alpha(\text{O})=1.923\times 10^{-5}$ 27; $\alpha(\text{P})=2.101\times 10^{-6}$ 29 Mult.: K:L1:L2:M:N=4.36 17: 0.91 4: 0.049 7: 0.329 22: 0.077 10; $\alpha(\text{K})_{\text{exp}}=0.0081$ +7-6 (1975Ka13).
866.23 10	0.158 14	1389.48	1 <sup>+</sup>	523.209	3 <sup>+</sup>	E2			$\%I_\gamma=0.038$ 5 $\alpha(\text{K})=0.00725$ 10; $\alpha(\text{L})=0.001545$ 22; $\alpha(\text{M})=0.000372$ 5 $\alpha(\text{N})=9.50\times 10^{-5}$ 13; $\alpha(\text{O})=1.895\times 10^{-5}$ 27; $\alpha(\text{P})=2.072\times 10^{-6}$ 29 Mult.: $\alpha(\text{K})_{\text{exp}}=0.0087$ +29-24 (1975Ka13).
877.9 ‡	0.091 13	1077.87	2 <sup>+</sup>	200.381	4 <sup>+</sup>	[E2]			$\%I_\gamma=0.022$ 4 $\alpha(\text{K})=0.00707$ 10; $\alpha(\text{L})=0.001496$ 21; $\alpha(\text{M})=0.000360$ 5 $\alpha(\text{N})=9.19\times 10^{-5}$ 13; $\alpha(\text{O})=1.834\times 10^{-5}$ 26; $\alpha(\text{P})=2.009\times 10^{-6}$ 28
902.531 91	1.09 4	1102.96	2 <sup>+</sup>	200.381	4 <sup>+</sup>	E2			$\%I_\gamma=0.259$ 30 $\alpha(\text{K})=0.00672$ 9; $\alpha(\text{L})=0.001400$ 20; $\alpha(\text{M})=0.000337$ 5 $\alpha(\text{N})=8.59\times 10^{-5}$ 12; $\alpha(\text{O})=1.716\times 10^{-5}$ 24; $\alpha(\text{P})=1.887\times 10^{-6}$ 26 Mult.: K:L:M=0.24 4: 0.09 3: 0.026 7 (1975Ka13).
<sup>x</sup> 944.1 ‡	0.032 9								$\%I_\gamma=0.0076$ 23
<sup>x</sup> 947.241 96	0.186 15					M1(+E2)		0.015 7	$\%I_\gamma=0.044$ 6 $\alpha(\text{K})=0.012$ 6; $\alpha(\text{L})=0.0021$ 9; $\alpha(\text{M})=5.0\times 10^{-4}$ 21 $\alpha(\text{N})=1.3\times 10^{-4}$ 5; $\alpha(\text{O})=2.6\times 10^{-5}$ 11; $\alpha(\text{P})=3.1\times 10^{-6}$ 14 Mult.: $\alpha(\text{K})_{\text{exp}}=0.016$ +9-8 (1975Ka13).
<sup>x</sup> 969.4 ‡	0.033 9								$\%I_\gamma=0.0078$ 23
980.225 95	31.2 6	1389.48	1 <sup>+</sup>	409.17	(2) <sup>+</sup>	M1+E2	0.34 +14-16	0.0189 11	$\%I_\gamma=7.4$ 8 $\alpha(\text{K})=0.0155$ 9; $\alpha(\text{L})=0.00261$ 14; $\alpha(\text{M})=0.000610$ 32 $\alpha(\text{N})=0.000156$ 8; $\alpha(\text{O})=3.19\times 10^{-5}$ 17; $\alpha(\text{P})=3.80\times 10^{-6}$ 21 Mult.: K:L:M:N=17.2 6: 3.06 12: 0.75 3: 0.230 16; $\alpha(\text{K})_{\text{exp}}=0.0159$ 9 (1975Ka13).
1007.146 97	13.5 5	1077.87	2 <sup>+</sup>	70.744	3 <sup>+</sup>	M1(+E2)	<0.19	0.01866 33	$\delta$ : From L/K=0.178 8 and $\alpha(\text{K})_{\text{exp}}=0.0159$ 9 (1975Ka13), and $\delta=0.3815$ using $\gamma\gamma(\theta)$ in 1981E107. $\%I_\gamma=3.2$ 4 $\alpha(\text{K})=0.01532$ 28; $\alpha(\text{L})=0.00256$ 4; $\alpha(\text{M})=0.000599$ 10 $\alpha(\text{N})=0.0001531$ 26; $\alpha(\text{O})=3.13\times 10^{-5}$ 5; $\alpha(\text{P})=3.74\times 10^{-6}$ 7

<sup>206</sup>Po ε+β<sup>+</sup> decay **1975Ka13,1975Ka14,1976Ja02 (continued)**

<u>γ(<sup>206</sup>Bi) (continued)</u>									
$E_\gamma$ †	$I_\gamma$ †a	$E_i$ (level)	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. @	$\delta$ @	$\alpha$ &	Comments
<sup>x</sup> 1008.87 10	0.39 27					M1(+E2)		0.013 6	Mult.: K:L=8.5 3: 1.5 7; $\alpha(K)_{exp}=0.0181$ 14 (1975Ka13). $\delta$ : From $\alpha(K)_{exp}=0.0181$ 14 (1975Ka13); Other: $0.105 \leq \delta < 0.447$ from $\gamma\gamma(\theta)$ in 1981El07. %I $\gamma$ =0.09 6 $\alpha(K)=0.010$ 5; $\alpha(L)=0.0018$ 7; $\alpha(M)=4.3 \times 10^{-4}$ 17 $\alpha(N)=1.1 \times 10^{-4}$ 4; $\alpha(O)=2.2 \times 10^{-5}$ 9; $\alpha(P)=2.6 \times 10^{-6}$ 11
<sup>x</sup> 1012.23 12	0.86 3					M1(+E2)		0.013 6	Mult.: $\alpha(K)_{exp}=0.028$ +70-13 (1975Ka13). %I $\gamma$ =0.204 24 $\alpha(K)=0.010$ 5; $\alpha(L)=0.0018$ 7; $\alpha(M)=4.3 \times 10^{-4}$ 17 $\alpha(N)=1.1 \times 10^{-4}$ 4; $\alpha(O)=2.2 \times 10^{-5}$ 9; $\alpha(P)=2.6 \times 10^{-6}$ 11
1017.93 13	1.6 5	1077.87	2 <sup>+</sup>	59.897	4 <sup>+</sup>	E2		0.00676 9	Mult.: $\alpha(K)_{exp}=0.0207$ 21 (1975Ka13). %I $\gamma$ =0.38 13 $\alpha(K)=0.00537$ 8; $\alpha(L)=0.001058$ 15; $\alpha(M)=0.0002528$ 35 $\alpha(N)=6.45 \times 10^{-5}$ 9; $\alpha(O)=1.294 \times 10^{-5}$ 18; $\alpha(P)=1.445 \times 10^{-6}$ 20
1032.26 10	145 3	1102.96	2 <sup>+</sup>	70.744	3 <sup>+</sup>	M1(+E2)	<0.35	0.0171 7	Mult.: $\alpha(K)_{exp}=0.0054$ +28-15 (1975Ka13). %I $\gamma$ =34 4 $\alpha(K)=0.0140$ 5; $\alpha(L)=0.00235$ 8; $\alpha(M)=0.000550$ 19 $\alpha(N)=0.000141$ 5; $\alpha(O)=2.87 \times 10^{-5}$ 10; $\alpha(P)=3.43 \times 10^{-6}$ 13 Mult., $\delta$ : K:L:M:N=80.4 24: 15.4 6: 3.82 14: 1.15 15; $\alpha(K)_{exp}=0.016$ 9 (1975Ka13); Other: $-0.076 < \delta < -0.027$ from $\gamma\gamma(\theta)$ in 1981El07.
1043.17 13	1.27 5	1102.96	2 <sup>+</sup>	59.897	4 <sup>+</sup>	E2		0.00645 9	%I $\gamma$ =0.30 4 $\alpha(K)=0.00513$ 7; $\alpha(L)=0.001001$ 14; $\alpha(M)=0.0002389$ 33 $\alpha(N)=6.10 \times 10^{-5}$ 9; $\alpha(O)=1.224 \times 10^{-5}$ 17; $\alpha(P)=1.371 \times 10^{-6}$ 19 Mult.: K:L=0.231 17: 0.021 3; $\alpha(K)_{exp}=0.00526$ +61-57 (1975Ka13).
1114.49 14	1.30 8	1523.65	1 <sup>+</sup>	409.17	(2) <sup>+</sup>	M1(+E2)	<0.4	0.0139 6	%I $\gamma$ =0.31 4 $\alpha(K)=0.0114$ 5; $\alpha(L)=0.00191$ 8; $\alpha(M)=0.000447$ 19 $\alpha(N)=0.000114$ 5; $\alpha(O)=2.34 \times 10^{-5}$ 10; $\alpha(P)=2.79 \times 10^{-6}$ 12; $\alpha(IPF)=4.82 \times 10^{-7}$ 18
1190.92 14	2.08 8	1600.20	(1) <sup>+</sup>	409.17	(2) <sup>+</sup>	E2		0.00501 7	Mult., $\delta$ : K:L=0.58 4: 0.103 22; $\alpha(K)_{exp}=0.0124$ 13 (1975Ka13). %I $\gamma$ =0.49 6 $\alpha(K)=0.00403$ 6; $\alpha(L)=0.000747$ 10; $\alpha(M)=0.0001772$ 25 $\alpha(N)=4.52 \times 10^{-5}$ 6; $\alpha(O)=9.11 \times 10^{-6}$ 13; $\alpha(P)=1.035 \times 10^{-6}$ 14; $\alpha(IPF)=3.07 \times 10^{-6}$ 4
1194.57# 5	0.18 4	1265.31	(2) <sup>+</sup>	70.744	3 <sup>+</sup>	M1(+E2)		0.009 4	Mult.: K:L:M:N=0.285 15: 0.042 4: 0.014 4; $\alpha(K)_{exp}=0.00396$ 34 (1975Ka13). %I $\gamma$ =0.043 11

γ(<sup>206</sup>Bi) (continued)

$E_\gamma$ <sup>†</sup>	$I_\gamma$ <sup>†a</sup>	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. <sup>@</sup>	$\alpha$ <sup>&amp;</sup>	Comments
1318.68 13	2.86 11	1389.48	1 <sup>+</sup>	70.744	3 <sup>+</sup>	E2	0.00415 6	$\alpha(\text{K})=0.0070$ 30; $\alpha(\text{L})=0.0012$ 5; $\alpha(\text{M})=2.8\times 10^{-4}$ 11 $\alpha(\text{N})=7.2\times 10^{-5}$ 27; $\alpha(\text{O})=1.5\times 10^{-5}$ 6; $\alpha(\text{P})=1.7\times 10^{-6}$ 7; $\alpha(\text{IPF})=4.7\times 10^{-6}$ 14 $E_\gamma$ : From adopted gammas. Mult.: $\alpha(\text{K})_{\text{exp}}=0.017$ +8-5 (1975Ka13). $\%I_\gamma=0.68$ 8
1452.74 15	0.256 15	1523.65	1 <sup>+</sup>	70.744	3 <sup>+</sup>	E2	0.00350 5	$\alpha(\text{K})=0.00335$ 5; $\alpha(\text{L})=0.000601$ 8; $\alpha(\text{M})=0.0001420$ 20 $\alpha(\text{N})=3.62\times 10^{-5}$ 5; $\alpha(\text{O})=7.32\times 10^{-6}$ 10; $\alpha(\text{P})=8.39\times 10^{-7}$ 12; $\alpha(\text{IPF})=1.840\times 10^{-5}$ 26 Mult.: K:L=0.328 23: 0.065 6; $\alpha(\text{K})_{\text{exp}}=0.00331$ +42-38 (1975Ka13). $\%I_\gamma=0.061$ 8
1496.90 18	1.11 4	1567.67	1 <sup>+</sup>	70.744	3 <sup>+</sup>	E2	0.00333 5	$\alpha(\text{K})=0.00281$ 4; $\alpha(\text{L})=0.000491$ 7; $\alpha(\text{M})=0.0001157$ 16 $\alpha(\text{N})=2.95\times 10^{-5}$ 4; $\alpha(\text{O})=5.98\times 10^{-6}$ 8; $\alpha(\text{P})=6.91\times 10^{-7}$ 10; $\alpha(\text{IPF})=4.93\times 10^{-5}$ 7 Mult.: $\alpha(\text{K})_{\text{exp}}=0.00316$ +77-69 (1975Ka13). $\%I_\gamma=0.264$ 31
<sup>x</sup> 1566.40 18								$\alpha(\text{K})=0.00266$ 4; $\alpha(\text{L})=0.000462$ 6; $\alpha(\text{M})=0.0001088$ 15 $\alpha(\text{N})=2.77\times 10^{-5}$ 4; $\alpha(\text{O})=5.62\times 10^{-6}$ 8; $\alpha(\text{P})=6.51\times 10^{-7}$ 9; $\alpha(\text{IPF})=6.21\times 10^{-5}$ 9 Mult.: $\alpha(\text{K})_{\text{exp}}=0.00204$ +42-22 (1975Ka13).
<sup>x</sup> 1571.02 16								

<sup>†</sup> From 1975Ka13, unless otherwise stated.  $E_\gamma$  were determined in 1975Ka13 from the ce data, except as noted.

<sup>‡</sup> From γ-ray data in 1975Ka13.

# Placement in the level scheme is not certain.

@ Determined from measured sub-shell ce ratios and  $\alpha(\text{K})_{\text{exp}}$  values in 1975Ka13, unless otherwise stated.  $\delta$  were obtained using the briccmixing code.

& Additional information 2.

<sup>a</sup> For absolute intensity per 100 decays, multiply by 0.237 27.

<sup>x</sup> γ ray not placed in level scheme.

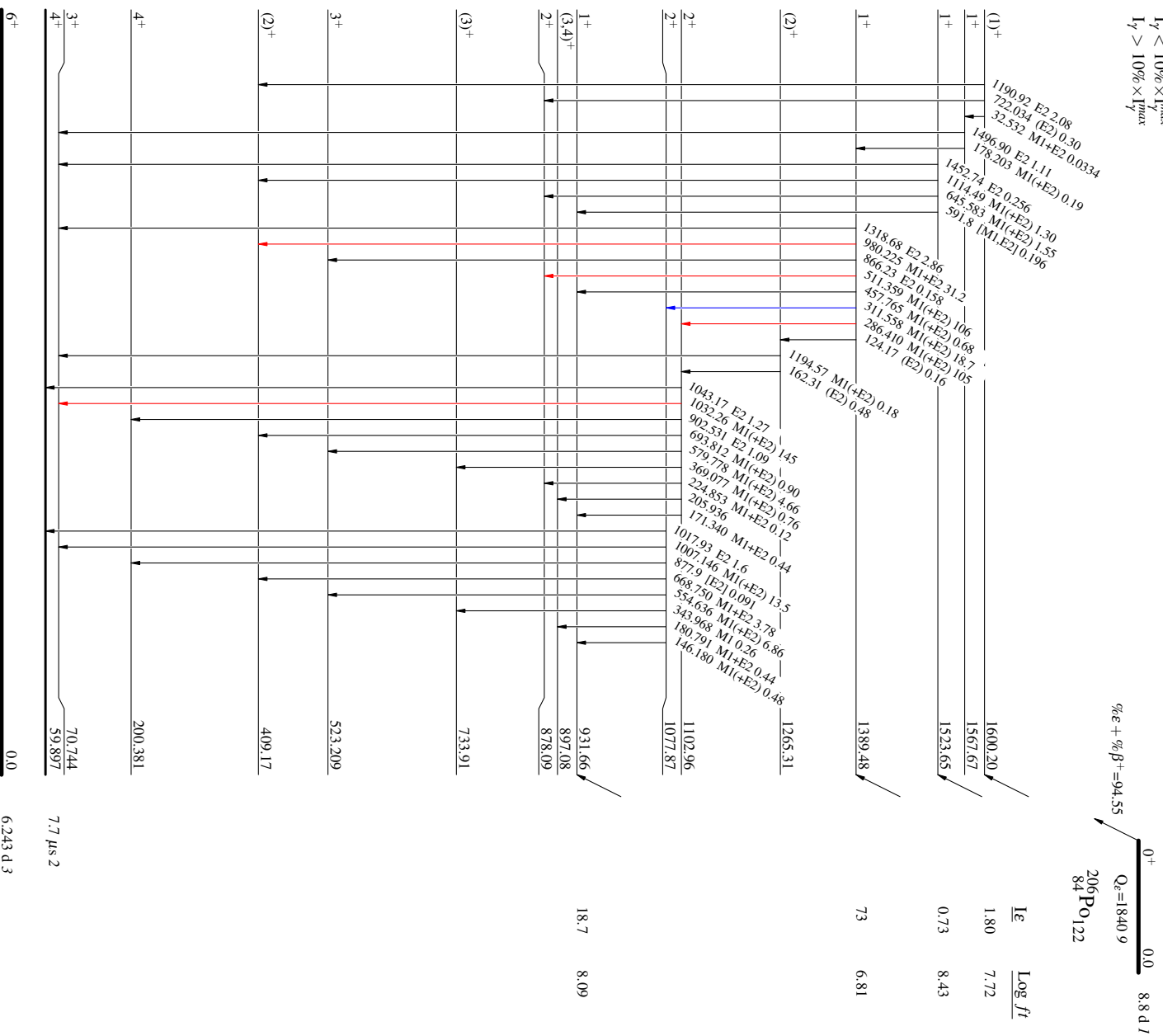
<sup>206</sup>Po e+β<sup>+</sup> decay 1975Ka13,1975Ka14,1976Ja02

Decay Scheme

Legend

- I<sub>y</sub> < 2% × I<sub>max</sub>
- I<sub>y</sub> < 10% × I<sub>max</sub>
- I<sub>y</sub> > 10% × I<sub>max</sub>

Intensities: Relative I<sub>y</sub>



<sup>206</sup>Bi<sub>123</sub>

<sup>206</sup>Po  $\epsilon+\beta^+$  decay 1975Ka13,1975Ka14,1976Ja02

Decay Scheme (continued)

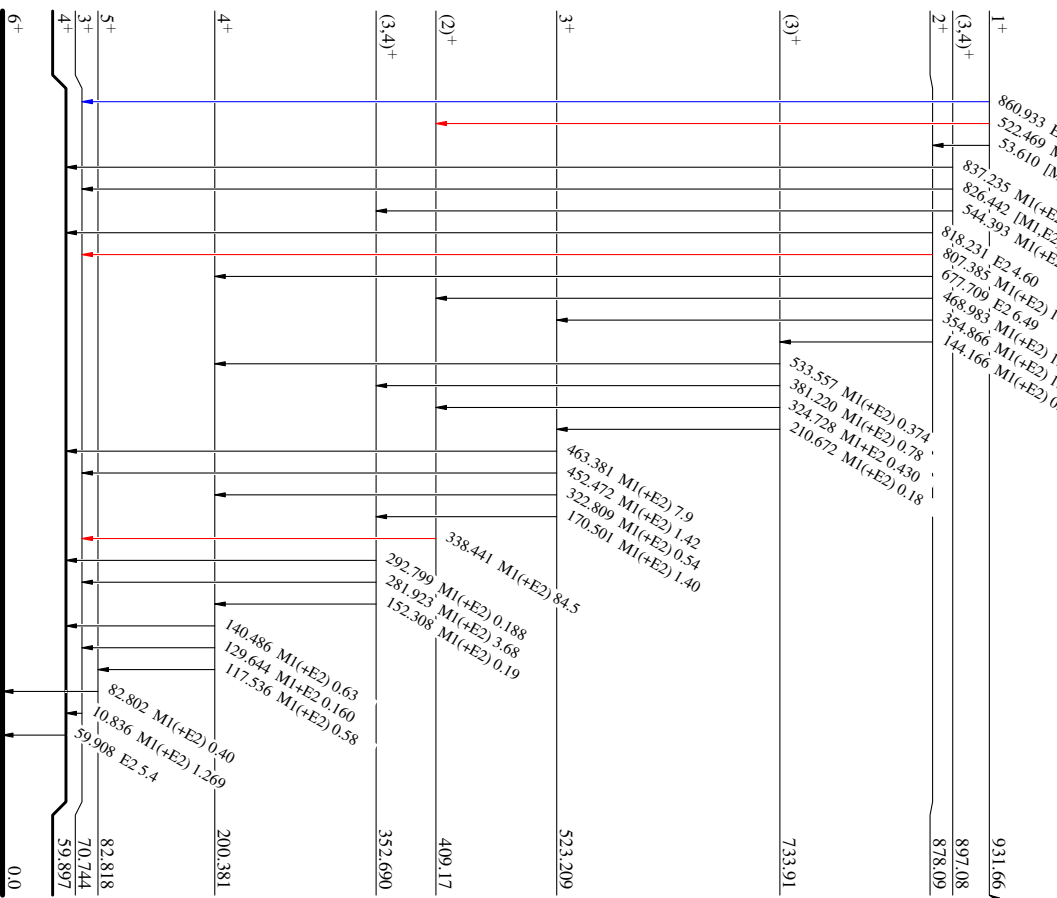
Legend

- $\blackrightarrow$   $I_\gamma < 2\% \times I_{\gamma max}$
- $\color{blue}\blackrightarrow$   $I_\gamma < 10\% \times I_{\gamma max}$
- $\color{red}\blackrightarrow$   $I_\gamma > 10\% \times I_{\gamma max}$

$\xrightarrow{0^+}$   $^{206}\text{Po}$   $Q_\beta = 1840.9$   $\xrightarrow{0.0}$   $^{84}\text{Po}$   $8.8 \text{ d } T$

$^{206}\text{Po}$   $18.7$

$^{84}\text{Po}$   $8.09$



<sup>206</sup>Bi<sub>123</sub>