^{207}Po ε decay 1978Sc12,1970As01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev, S. Lalkovski	NDS 112, 707 (2011)	1-Aug-2010

Parent: ^{207}Po: E=0; J^π=5/2$^-$; $T_{1/2}$=5.80 h *2*; Q(ε)=2909 *7*; %ε+%β^+ decay=99.979 *2*

1978Sc12: Facility: Goettingen cyclotron; Source: ^{207}Po produced in ^{209}Bi(d,4n) reaction at E(d)=27 MeV. Detectors: one 100 mm^2 x 2 mm Si(Li), FWHM = 1.8 keV at 624 keV; one 10%Ge(Li); Measured: Eγ, Iγ, Ice(K).

1970As01: Facility: Uppsala syncro-cyclotron; Source: ^{207}Po from Bi_2O_3(p,3n) reaction at E(p)=34 MeV. ^{207}Po extracted and deposited on 10 cm^2 Ag foil; Detectors: 3 cm^2 x 0.8 cmGe(Li);

Others: 1986Be07, 1983He09, 1971Sh22, 1969Ho37, 1956St60, 1958Ar56.

$\gamma^\pm$/405.7γ=0.071 *3* (1971Sh22). Others: 1969Ho37, 1956St60.

^{207}Bi Levels

E(level)[†]	J^π[‡]	$T_{1/2}$[‡]	Comments
0.0	9/2$^-$	31.55 y *4*	
669.79 *7*	11/2$^-$		
742.76 *7*	7/2$^-$		
892.48 *7*	9/2$^-$		
992.46 *7*	7/2$^-$		
1148.47 *8*	5/2$^-$		
1211.4 *7*	9/2$^-$		
1360.47 *14*	(7/2)$^-$		
1372.74 *8*	5/2$^-$		
1680.28 *9*	(3/2)$^-$		
1690.86 *11*	5/2$^-$		
1762.82 *11*	5/2$^-$		
1902.31 *9*	1/2$^+$		
2060.39 *9*	3/2$^+$	103 ps *10*	$T_{1/2}$: From 345.2K-γ(t) coin. in 1986Be07.
2120.1 *4*	(3/2)$^-$		
2405.68 *11*	5/2$^+$		

† From a least-squares fit to Eγ.
‡ From the Adopted Levels, unless otherwise noted.

ε,β^+ radiations

E(decay)	E(level)	Iβ^+ [†#]	Iε[‡#]	Log *ft*	I(ε+β^+)[#]	Comments
(503 *7*)	2405.68		3.12 *9*	6.676 *19*	3.12 *9*	εK=0.7526 *11*; εL=0.1841 *8*; εM+=0.0632 *3*
(789 *7*)	2120.1		0.176 *6*	8.368 *18*	0.176 *6*	εK=0.7766 *4*; εL=0.1671 *3*; εM+=0.05633 *10*
(849 *7*)	2060.39		21.2 *5*	6.357 *13*	21.2 *5*	εK=0.7793 *3*; εL=0.16512 *22*; εM+=0.05555 *9*
(1007 *7*)	1902.31		0.30 *7*	8.89[1u] *11*	0.30 *7*	εK=0.7518 *5*; εL=0.1846 *4*; εM+=0.06364 *15*
(1146 *7*)	1762.82		0.06 *5*	9.2 *4*	0.06 *5*	εK=0.7883 *2*; εL=0.1587 *1*; εM+=0.05299 *5*
(1536 *7*)	1372.74		0.18 *9*	8.98 *22*	0.18 *9*	εK=0.7939; εL=0.15424 *7*; εM+=0.05121 *3*
(1549 *7*)	1360.47		0.047 *24*	9.57 *23*	0.047 *24*	εK=0.7940; εL=0.15413 *7*; εM+=0.05116 *3*
(1761 *7*)	1148.47	<0.001	<0.4	>8.8	<0.4	av Eβ=354.0 *31*; εK=0.7944; εL=0.15232 *6*; εM+=0.05046 *3*
1915 *10*	992.46	0.371 *14*	63.7 *14*	6.632 *11*	64.1 *14*	av Eβ=422.4 *33*; εK=0.79324 *9*; εL=0.15100 *6*; εM+=0.04997 *3* E(decay): from Eβ+=893 *10* (1958Ar56).
2162 *12*	742.76	0.153 *10*	10.9 *7*	7.51 *3*	11.1 *7*	av Eβ=531.9 *31*; εK=0.7884 *2*; εL=0.14868 *7*; εM+=0.04913 *3* E(decay): From Eβ+=1140 *12* (1958Ar56).

Continued on next page (footnotes at end of table)

^{207}Po ε decay 1978Sc12,1970As01 (continued)

ε,β^+ radiations (continued)

† Iβ(893)/Iβ(1140)=2.1, Iβ^+/ce(K)(406)=0.29 *3* (1958Ar56).
‡ From an intensity imbalance at each level.
# For absolute intensity per 100 decays, multiply by 0.99979 *2*.

γ(^{207}Bi)

Iγ normalization: From Σ Ti(to g.s.)=99.979 *2*. The ε+β^+ branch to the g.s. is second forbidden and is expected to have a negligible intensity.

E_γ[‡]	I_γ[‡&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ	α[†]	Comments
99.954 *7*	8.2 *8*	992.46	7/2⁻	892.48	9/2⁻	M1+E2	0.32 *3*	9.88 *15*	α(K)=7.55 *17*; α(L)=1.76 *6*; α(M)=0.428 *16*; α(N+..)=0.133 *5* α(N)=0.109 *4*; α(O)=0.0218 *8*; α(P)=0.00236 *5* I_γ: From Ice(L1)=9.8 *10* (1958Ar56) and α. δ: from L12/L3=8.2 *12* (1958Ar56).
139.7	0.028	1902.31	1/2⁺	1762.82	5/2⁻	[M2]		24.5	α(K)=16.65 *24*; α(L)=5.86 *9*; α(M)=1.502 *21*; α(N+..)=0.477 *7* α(N)=0.390 *6*; α(O)=0.0784 *11*; α(P)=0.00877 *13* I_γ: From Ice(K)=0.46 (1958Ar56) if mult=M2. Iγ not measured directly.
149.6[#] *2*	7.4 *4*	892.48	9/2⁻	742.76	7/2⁻	M1(+E2)	<0.6	3.0 *3*	α(K)=2.3 *3*; α(L)=0.50 *4*; α(M)=0.120 *12*; α(N+..)=0.037 *4* α(N)=0.031 *3*; α(O)=0.0061 *5*; α(P)=0.000679 *13* Mult.,δ: α(K)exp=2.4 *4* (Ice(K)=12.0 *15* in 1958Ar56) (1970As01). Other: L12/L3≥16 (1958Ar56).
156.1[#] *1*	3.2 *3*	1148.47	5/2⁻	992.46	7/2⁻	M1(+E2)	<0.3	2.79 *9*	α(K)=2.25 *9*; α(L)=0.416 *11*; α(M)=0.099 *3*; α(N+..)=0.0309 *10* α(N)=0.0252 *8*; α(O)=0.00512 *13*; α(P)=0.000597 *9* I_γ: From Ice(K)=7.2 *7* (1958Ar56) and α. Mult.,δ: K/L=5.8 *6* (1958Ar56). K/L determines mult=E1 or M1(+E2). If E1, then Iγ=63 and such a γ-ray would be a prominent line in the spectrum.
158.084 *7*	24.5 *12*	2060.39	3/2⁺	1902.31	1/2⁺	M1+E2	4.5 *+15−8*	1.14 *4*	α(K)=0.37 *5*; α(L)=0.571 *9*; α(M)=0.1504 *25*; α(N+..)=0.0460 *8* α(N)=0.0383 *7*; α(O)=0.00712 *12*; α(P)=0.000576 *8* α(N)=0.0379 *7*; α(O)=0.00706 *12*; α(P)=0.000576 *8* Mult.: α(K)exp=0.37 *4* (Ice(K)=11.5 *1* in 1958Ar56) (1970As01). δ: From α(K)exp. K/L=0.75 *8* (1958Ar56) gives δ≈4.8.
ˣ177.7[#]	1.3 *6*					M1(+E2)	<0.7	1.77 *22*	α(K)=1.39 *24*; α(L)=0.293 *12*; α(M)=0.070 *5*; α(N+..)=0.0220 *13* α(N)=0.0180 *11*; α(O)=0.00361 *16*; α(P)=0.000402 *12* Mult.: From α(K)exp>2.0 (Ice(K)=2), K/L1=7.1 (1958Ar56). I_γ: From Ice(K)=1.8 *8* (1978Sc12) and α.
ˣ205.2[#] *2*	1.04 *6*					M1(+E2)	<0.6	1.21 *13*	α(K)=0.96 *13*; α(L)=0.188 *3*; α(M)=0.0449 *10*; α(N+..)=0.0141 *3* α(N)=0.01147 *24*; α(O)=0.00231 *4*; α(P)=0.000264 *12* Mult.,δ: K/L=5.1 *7* (1958Ar56) consistent with M1(+E2) or E1. If E1, Iγ=19.7 (from Ice(K)=1.2 *2* (1958Ar56)) and such a γ-ray would have been observed. I_γ: From Ice(K)(K)=1.00 *6* (1978Sc12) and α. Photon peak masked in spectrum.
ˣ214.4[#]	<2					M1+E2		0.8 *5*	α(K)=0.5 *4*; α(L)=0.161 *6*; α(M)=0.0400 *11*; α(N+..)=0.01241 *22* α(N)=0.0102 *3*; α(O)=0.00200 *6*; α(P)=0.00020 *4* Mult.,I_γ: α(K)exp>0.38 (1958Ar56).
222.030 *7*	74.4 *22*	1902.31	1/2⁺	1680.28	(3/2)⁻	E1		0.0620	α(K)=0.0504 *7*; α(L)=0.00893 *13*; α(M)=0.00210 *3*;

γ(^{207}Bi) (continued)

E_γ [‡]	I_γ [‡&]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [@]	δ	α [†]	Comments
									α(N+..)=0.000648 *9* α(N)=0.000531 *8*; α(O)=0.0001051 *15*; α(P)=1.137×10^{-5} *16* Mult.: α(K)exp=0.041 *+15−10* (Ice(K)=3.5 *8* in 1958Ar56) (1970As01).
222.690 *9*	5.2 *5*	892.48	9/2$^-$	669.79	11/2$^-$	M1(+E2)	≤0.51	0.98 *8*	α(K)=0.79 *8*; α(L)=0.148 *3*; α(M)=0.0351 *5*; α(N+..)=0.01101 *16* α(N)=0.00898 *13*; α(O)=0.00182 *3*; α(P)=0.000210 *9* δ: From L12/L3≥15 (1958Ar56).
224.270 *7*	11.7 *6*	1372.74	5/2$^-$	1148.47	5/2$^-$	M1(+E2)	<0.5	0.96 *8*	α(K)=0.77 *8*; α(L)=0.145 *3*; α(M)=0.0344 *5*; α(N+..)=0.01078 *16* α(N)=0.00880 *13*; α(O)=0.00178 *3*; α(P)=0.000206 *9* Mult.,δ: From K/L=5.5 *9* (1958Ar56) and L12/L3≥15 (1958Ar56) lead to δ<0.62 and δ≤0.5, respectively; α(K)exp=0.44 *7* from Ice(K)=5.2 *8* in 1958Ar56 and Iγ=11.7 *6* (1978Sc12);
249.745 *10*	94 *5*	992.46	7/2$^-$	742.76	7/2$^-$	M1		0.768	α(K)=0.626 *9*; α(L)=0.1086 *16*; α(M)=0.0255 *4*; α(N+..)=0.00802 *12* α(N)=0.00653 *10*; α(O)=0.001334 *19*; α(P)=0.0001588 *23* Mult.: From α(K)exp=0.55 *3* (Ice(K)=53.23 *12*); K/L=5.52 *10*; L/M+=3.5 *8* (1978Sc12). Other: α(K)exp=0.59 *5* (Ice(K)=53 *3* in 1958Ar56) (1970As01). δ: pure M1 from L12/L3 (1958Ar56); <0.02 from A_2=−0.376 *9* and A_4=−0.0002 *5* using $\gamma(\theta$,T) in 1983He09.
^{x}288.0[#] *3*	2.4 *5*					M1(+E2)	<0.7	0.46 *7*	α(K)=0.37 *6*; α(L)=0.069 *5*; α(M)=0.0164 *9*; α(N+..)=0.0051 *3* α(N)=0.00419 *22*; α(O)=0.00085 *6*; α(P)=9.8×10^{-5} *10* Mult.,δ: From α(K)exp>0.28 and K/L=5.6 *8* (1958Ar56). I_γ: From Ice(K)(K)=0.9 *2* (1958Ar56) and α.
297.63 *9*	57.2 *16*	2060.39	3/2$^+$	1762.82	5/2$^-$	E1		0.0310	α(K)=0.0253 *4*; α(L)=0.00434 *6*; α(M)=0.001017 *15*; α(N+..)=0.000315 *5* α(N)=0.000258 *4*; α(O)=5.14×10^{-5} *8*; α(P)=5.68×10^{-6} *8* Mult.: From α(K)exp=0.0206 *17* (Ice(K)=1.37 *8*) (1978Sc12); Other: α(L1)exp=0.005 (Ice(L1)=0.3 in 1958Ar56) (1970As01).
307.81 *10*	35.1 *11*	1680.28	(3/2)$^-$	1372.74	5/2$^-$	M1+E2	0.23 *+8−11*	0.416 *14*	α(K)=0.338 *12*; α(L)=0.0597 *13*; α(M)=0.0141 *3*; α(N+..)=0.00442 *9* α(N)=0.00360 *7*; α(O)=0.000733 *15*; α(P)=8.66×10^{-5} *22* α(N)=0.00364 *6*; α(O)=0.000744 *12*; α(P)=8.84×10^{-5} *15* Mult.: From α(K)exp=0.338 *11* (Ice(K)=12.23 *5*) (1978Sc12); Other: α(K)exp=0.39 *4* (Ice(K)=14 *1* in 1958Ar56) (1970As01). δ: From α(K)exp. L12/L3≥18 (1958Ar56) and K/L=5.6 *6* (1958Ar56) lead to δ<0.65 and <0.63, respectively.
330.39 *12*	13.9 *5*	1690.86	5/2$^-$	1360.47	(7/2)$^-$	M1+E2	0.35 *10*	0.328 *17*	α(K)=0.265 *15*; α(L)=0.0478 *15*; α(M)=0.0113 *3*;

$^{207}_{83}$Bi$_{124}$-4

γ(^{207}Bi) (continued)

E_γ[‡]	I_γ[‡&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	δ	α[†]	Comments
									α(N+..)=0.00354 10 α(N)=0.00289 8; α(O)=0.000587 18; α(P)=6.9×10^{-5} 3 α(N)=0.00290 13; α(O)=0.00059 3; α(P)=6.9×10^{-5} 5 Mult.: α(K)exp=0.265 13 (Ice(K)=3.81 5) (1978Sc12); Other: α(K)exp=0.32 6 (Ice(K)=4.2 5 in 1958Ar56) (1970As01). δ: From α(K)exp.
345.32 9	119 3	2405.68	5/2$^+$	2060.39	3/2$^+$	M1(+E2)	0.30 6	0.297 9	α(K)=0.241 8; α(L)=0.0428 9; α(M)=0.01009 20; α(N+..)=0.00317 7 α(N)=0.00258 5; α(O)=0.000525 11; α(P)=6.19×10^{-5} 15 α(N)=0.00265 5; α(O)=0.000541 9; α(P)=6.43×10^{-5} 12 Mult.: α(K)exp=0.241 6 (Ice(K)=29.57 6); K/L=4.85 7; L/M+=3.3 6 (1978Sc12); Other: α(K)exp=0.31 3 (Ice(K)=34 3 in 1958Ar56) (1970As01). δ: From α(K)exp. L12/L3≥90 (1958Ar56) gives δ<0.2.
369.51 8	99.1 25	2060.39	3/2$^+$	1690.86	5/2$^-$	E1		0.0190	α(K)=0.01557 22; α(L)=0.00261 4; α(M)=0.000610 9; α(N+..)=0.000189 3 α(N)=0.0001548 22; α(O)=3.10×10^{-5} 5; α(P)=3.47×10^{-6} 5 Mult.: α(K)exp=0.016 3 (Ice(K)=1.7 3 in 1958Ar56) (1970As01); Note that M1/E2 assigned in 1978Sc12, based on α(K)exp=0.139 8 (Ice(K)=1.37 8) (1978Sc12).
380.10 10	3.5 3	2060.39	3/2$^+$	1680.28	(3/2)$^-$	E1+M2	0.32 +11−15		Mult.,δ: From α(K)exp=0.07 4 (Ice(K)=0.25 12) (1978Sc12).
390.10 18	9.4 14	1762.82	5/2$^-$	1372.74	5/2$^-$	M1+E2	<1.1	0.18 5	α(K)=0.14 4; α(L)=0.027 5; α(M)=0.0065 10; α(N+..)=0.0020 3 α(N)=0.00167 25; α(O)=0.00034 6; α(P)=3.9×10^{-5} 8 I_γ: Other: <6.3 (1971Sh22). Mult.,δ: α(K)exp>0.11 (Ice(K)=0.65 in 1958Ar56) (1970As01).
402.4[#] 4	7.7 8	1762.82	5/2$^-$	1360.47	(7/2)$^-$	(M1+E2)	<1.1	0.17 5	α(K)=0.13 4; α(L)=0.025 5; α(M)=0.0060 9; α(N+..)=0.0019 3 α(N)=0.00153 24; α(O)=0.00031 5; α(P)=3.6×10^{-5} 8 α(N)=0.0015 3; α(O)=0.00030 7; α(P)=3.4×10^{-5} 10 I_γ: From Ice(K)(K)=0.92 10 (1958Ar56) and α. Mult.,δ: From K/L=5 1 (1958Ar56).
405.78 8	563	1148.47	5/2$^-$	742.76	7/2$^-$	M1		0.205	α(K)=0.1672 24; α(L)=0.0287 4; α(M)=0.00673 10; α(N+..)=0.00211 3 α(N)=0.001720 25; α(O)=0.000352 5; α(P)=4.19×10^{-5} 6 Mult.: From α(K)exp=0.168 (Ice(K)=100); K/L=5.56 8; L/M+=3.3 6 (1978Sc12). Other: α(K)exp=0.18 2 (Ice(K)=100 in 1958Ar56) (1970As01). δ: <0.01 from A_2=0.069 6 and A_4=0 using γ(θ,T) in 1983He09; <0.055 from L12/L3 (1958Ar56).
[x]466.44 13	5.7 3					(E1,E2)			Mult.: α(K)exp<0.035 based on the evaluator′s estimate of Ice(K)(K)<0.2 for a possible 466γ ce(K) line.
468.5[#a]	≈1.8	1211.4	9/2$^-$	742.76	7/2$^-$	[M1]		0.1394	α(K)=0.1139 16; α(L)=0.0195 3; α(M)=0.00456 7;

γ(^{207}Bi) (continued)

E_γ [‡]	I_γ [‡&]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ	α [†]	Comments
									α(N+..)=0.001434 *20* α(N)=0.001167 *17*; α(O)=0.000239 *4*; α(P)=2.84×10^{-5} *4* I_γ: From Ice(K)=0.20 (1958Ar56), Iγ=1.8 if M1, and 8.1 if E2. Non observation in the photon spectrum suggests mult=M1.
503.33 *10*	9.8 *5*	2405.68	5/2$^+$	1902.31	1/2$^+$	(E2)		0.0302	α(K)=0.0212 *3*; α(L)=0.00682 *10*; α(M)=0.001705 *24*; α(N+..)=0.000528 *8* α(N)=0.000435 *6*; α(O)=8.45×10^{-5} *12*; α(P)=8.35×10^{-6} *12* Mult.: α(K)exp=0.026 *13* (Ice(K)=0.26 in 1958Ar56) (1970As01).
531.65 *10*	20.0 *7*	1680.28	(3/2)$^-$	1148.47	5/2$^-$	M1+E2	0.45 *10*	0.087 *5*	α(K)=0.071 *5*; α(L)=0.0125 *6*; α(M)=0.00295 *13*; α(N+..)=0.00092 *4* α(N)=0.00075 *4*; α(O)=0.000153 *7*; α(P)=1.81×10^{-5} *9* Mult.: From α(K)exp=0.071 *4* (Ice(K)=1.47 *5*); K/L=5.2 *6* (1978Sc12); Other: α(K)exp=0.049 *24* (Ice(K)=1.6 *3* in 1958Ar56) (1970As01). δ: From α(K)exp.
629.80 *9*	78.0 *20*	1372.74	5/2$^-$	742.76	7/2$^-$	M1(+E2)	<0.12	0.0635 *10*	α(K)=0.0520 *8*; α(L)=0.00881 *13*; α(M)=0.00206 *3*; α(N+..)=0.000648 *10* α(N)=0.000528 *8*; α(O)=0.0001079 *16*; α(P)=1.287×10^{-5} *19* Mult.: From α(K)exp=0.0536 *19* (Ice(K)=4.32 *4*); K/L=5.8 *3*; L/M+=2.9 *6* (1978Sc12); Other: α(K)exp=0.055 *8* (Ice(K)=4.5 *5* in 1958Ar56) (1970As01). δ: From α(K)exp. L12/L3≥30 (1958Ar56) and K/L=5.8 *3* (1958Ar56) lead to δ<0.97 and <0.76, respectively.
669.78 *11*	36.8 *11*	669.79	11/2$^-$	0.0	9/2$^-$	M1+E2	+0.24 *4*	0.0522 *11*	α(K)=0.0427 *9*; α(L)=0.00727 *14*; α(M)=0.00170 *3*; α(N+..)=0.000536 *10* α(N)=0.000436 *8*; α(O)=8.91×10^{-5} *16*; α(P)=1.060×10^{-5} *20* Mult.: From α(K)exp=0.0366 *16* (Ice(K)=1.39 *2*) (1978Sc12). Other: α(K)exp=0.061 *11* (Ice(K)=1.7 *2* in 1958Ar56) (1970As01). δ: From adopted gammas.
687.53 *10*	105 *3*	2060.39	3/2$^+$	1372.74	5/2$^-$	E1		0.00524 *8*	α=0.00524 *8*; α(K)=0.00434 *6*; α(L)=0.000686 *10*; α(M)=0.0001593 *23*; α(N+..)=4.97×10^{-5} *7* α(N)=4.05×10^{-5} *6*; α(O)=8.20×10^{-6} *12*; α(P)=9.50×10^{-7} *14* Mult.: From α(K)exp=0.0041 *3* (Ice(K)=0.44 *2*) (1978Sc12); Other: α(K)exp=0.0042 *8* (Ice(K)=0.48 *8* in 1958Ar56) (1970As01).
698.33 *23*	4.6 *3*	1690.86	5/2$^-$	992.46	7/2$^-$	M1(+E2)	<0.5	0.045 *4*	α(K)=0.037 *3*; α(L)=0.0063 *5*; α(M)=0.00148 *10*; α(N+..)=0.00047 *3* α(N)=0.000380 *25*; α(O)=7.8×10^{-5} *5*; α(P)=9.2×10^{-6} *7* α(N)=0.000403 *6*; α(O)=8.25×10^{-5} *12*; α(P)=9.85×10^{-6} *14* Mult.,δ: α(K)exp>0.033 (Ice(K)=0.20 in 1958Ar56) (1970As01).
742.72 *15*	1649 *35*	742.76	7/2$^-$	0.0	9/2$^-$	M1+E2	+0.334 *10*	0.0386	α(K)=0.0316 *5*; α(L)=0.00538 *8*; α(M)=0.001262 *19*; α(N+..)=0.000396 *6*

γ(^{207}Bi) (continued)

E_γ[‡]	I_γ[‡&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	δ	α[†]	Comments
									α(N)=0.000323 *5*; α(O)=6.59×10^{-5} *10*; α(P)=7.83×10^{-6} *12* Mult.: From α(K)exp=0.0332 *7* (Ice(K)=56.50 *7*) and K/L=5.76 *9* (1978Sc12). Other: α(K)exp=0.036 *3* (Ice(K)=59 *5* in 1958Ar56) (1970As01). δ: From A_2=0.414 *8* and A_4=0.0048 *3* in $\gamma(\theta$, T) (1983He09).
770.7 *4*	22.2 *6*	1762.82	5/2$^-$	992.46	7/2$^-$	M1+E2	0.66 *11*	0.0298 *19*	α(K)=0.0243 *16*; α(L)=0.00425 *23*; α(M)=0.00100 *6*; α(N+..)=0.000314 *17* α(N)=0.000256 *14*; α(O)=5.2×10^{-5} *3*; α(P)=6.1×10^{-6} *4* α(N)=0.000260 *17*; α(O)=5.3×10^{-5} *4*; α(P)=6.2×10^{-6} *5* I_γ: Others: <35 (1970As01), 46 *6* (1971Sh22). The value of 1971Sh22 leads to δ>1.9, in disagreement with K/L. Mult.: From α(K)exp=0.0240 *15* (Ice(K)=0.55 *2*); K/L=6.9 *15* (1978Sc12); Other: α(K)exp>0.018 (Ice(K)=0.74 *10* in 1958Ar56) (1970As01). δ: From α(K)exp; K/L=6.9 *15* (1978Sc12) gives δ<1.1.
892.4 *3*	20.9 *5*	892.48	9/2$^-$	0.0	9/2$^-$	E2+M1	1.4 *2*	0.0145 *13*	α(K)=0.0117 *11*; α(L)=0.00215 *16*; α(M)=0.00051 *4*; α(N+..)=0.000159 *12* α(N)=0.000130 *9*; α(O)=2.63×10^{-5} *19*; α(P)=3.03×10^{-6} *24* Mult.: From α(K)exp=0.0121 *7* (Ice(K)=0.26 *1*) (1978Sc12). Other: α(K)exp=0.011 *3* (Ice(K)=0.26 *5* in 1958Ar56) (1970As01).
911.77 *23*	985 *18*	2060.39	3/2$^+$	1148.47	5/2$^-$	E1		0.00308 *5*	α=0.00308 *5*; α(K)=0.00256 *4*; α(L)=0.000397 *6*; α(M)=9.19×10^{-5} *13*; α(N+..)=2.87×10^{-5} *4* α(N)=2.34×10^{-5} *4*; α(O)=4.75×10^{-6} *7*; α(P)=5.57×10^{-7} *8* Mult.: From α(K)exp=0.00245 *7* (Ice(K)=2.49 *2*) (1978Sc12); Other: α(K)exp=0.0026 *2* (Ice(K)=2.6 *2* in 1958Ar56) (1970As01). δ: <0.01 from A_2=0.0722 *19* and A_4=0 using $\gamma(\theta$,T) in 1983He09.
947.9 *3*	69.3 *14*	1690.86	5/2$^-$	742.76	7/2$^-$	M1(+E2)	<0.59	0.0202 *19*	α(K)=0.0166 *16*; α(L)=0.00280 *24*; α(M)=0.00066 *6*; α(N+..)=0.000206 *17* α(N)=0.000168 *14*; α(O)=3.4×10^{-5} *3*; α(P)=4.1×10^{-6} *4* α(N)=0.000169 *12*; α(O)=3.5×10^{-5} *3*; α(P)=4.1×10^{-6} *4* Mult.,δ: From α(K)exp=0.018 *3* (Ice(K)=1.24 *16*) (1989Sc12). K/L1=3.2 *6* (1958Ar56) and K/L=4.44 *21* (1978Sc12) are inconsistent with M1(+E2) (6.0 and 5.96 for M1, and 6.8 and 4.90 for E2, respectively). Other: α(K)exp=0.022 *2* (Ice(K)=1.3 *1* in 1958Ar56) (1970As01).
^{x}955.6 *4*	5.54 *22*								
992.39 *20*	3437 *62*	992.46	7/2$^-$	0.0	9/2$^-$	M1+E2	−0.109 *5*	0.0195	α(K)=0.01597 *23*; α(L)=0.00267 *4*; α(M)=0.000624 *9*; α(N+..)=0.000196 *3* α(N)=0.0001596 *23*; α(O)=3.27×10^{-5} *5*; α(P)=3.90×10^{-6} *6*

γ(^{207}Bi) (continued)

E_γ [‡]	I_γ [‡&]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [@]	δ	α [†]	Comments
									Mult.: From α(K)exp=0.0164 (Ice(K)=54.29 *6*); K/L=5.94 *9*; L/M+=3.1 *8* (1978Sc12). Other: α(K)exp=0.016 *1* (Ice(K)=54 *4* in 1958Ar56) (1970As01). δ: From A_2=−0.005 *4* and A_4=0.0012 using $\gamma(\theta$,T) (1983He09).
1020.3 *5*	8.2 *2*	1762.82	5/2$^-$	742.76	7/2$^-$	(M1)		0.0183	α(K)=0.01498 *21*; α(L)=0.00250 *4*; α(M)=0.000585 *9*; α(N+..)=0.000184 *3* α(N)=0.0001495 *21*; α(O)=3.06×10^{-5} *5*; α(P)=3.66×10^{-6} *6* Mult.: α(L1)exp≈0.005 (Ice(L1)=0.05 in 1958Ar56) compared with 0.0023 (M1).
^{x}1038.3 *6*	3.1 *3*								
1148.47 *21*	337 *6*	1148.47	5/2$^-$	0.0	9/2$^-$	E2		0.00536 *8*	α=0.00536 *8*; α(K)=0.00430 *6*; α(L)=0.000809 *12*; α(M)=0.000192 *3*; α(N+..)=6.09×10^{-5} *9* α(N)=4.90×10^{-5} *7*; α(O)=9.87×10^{-6} *14*; α(P)=1.117×10^{-6} *16*; α(IPF)=9.26×10^{-7} *15* Mult.: From α(K)exp=0.00394 *10* (Ice(K)=1.37 *1*); K/L=5.13 *21*; L/M+=4.0 *7* (1978Sc12). Other: α(K)exp=0.0033 *7* (Ice(K)=1.50 *15* in 1958Ar56) (1970As01).
1211.4 *7*	3.9 *2*	1211.4	9/2$^-$	0.0	9/2$^-$	M1		0.01176	α(K)=0.00965 *14*; α(L)=0.001603 *23*; α(M)=0.000375 *6*; α(N+..)=0.0001265 *18* α(N)=9.58×10^{-5} *14*; α(O)=1.96×10^{-5} *3*; α(P)=2.35×10^{-6} *4*; α(IPF)=8.81×10^{-6} *17* I_γ: Others: 7.4 *12* (1971Sh22), <7 (1970As01). Mult.: α(K)exp>0.016 (Ice(K)=0.13 *2* in 1958Ar56) (1970As01), compared with 0.0097 (M1); E0 admixtures are possible.
1317.3 *5*	5.3 *4*	2060.39	3/2$^+$	742.76	7/2$^-$	[M2]		0.0224	α(K)=0.0181 *3*; α(L)=0.00327 *5*; α(M)=0.000774 *11*; α(N+..)=0.000253 *4* α(N)=0.000198 *3*; α(O)=4.05×10^{-5} *6*; α(P)=4.81×10^{-6} *7*; α(IPF)=9.14×10^{-6} *14* I_γ,Mult.: α(K)exp>0.0026 (1958Ar56) is consistent with mult=E2 (α(K)=0.0034); however, the transition is placed from (3/2)$^+$ to 7/2$^-$. Ice(K)≈0.013 (1958Ar56) leads to Iγ=0.72 (M2) and 1.9 (E3). Note that 1970As01 report Iγ<5.0.
1360.5 *3*	30.2 *6*	1360.47	(7/2)$^-$	0.0	9/2$^-$	M1(+E2)	<0.5	0.0083 *5*	α=0.0083 *5*; α(K)=0.0068 *5*; α(L)=0.00113 *7*; α(M)=0.000263 *15*; α(N+..)=0.000128 *7* α(N)=6.7×10^{-5} *4*; α(O)=1.38×10^{-5} *8*; α(P)=1.64×10^{-6} *10*; α(IPF)=4.55×10^{-5} *23* α(N)=6.3×10^{-5} *8*; α(O)=1.30×10^{-5} *16*; α(P)=1.54×10^{-6} *20*; α(IPF)=4.3×10^{-5} *5* Mult.,δ: From α(K)exp=0.0077 *14* (Ice(K)=0.24 *4*) (1978Sc12). Other: α(K)exp=0.0066 *10* (Ice(K)=0.23 *3* in 1958Ar56) (1970As01).
1372.5 *4*	70.6 *14*	1372.74	5/2$^-$	0.0	9/2$^-$	E2		0.00386 *6*	α=0.00386 *6*; α(K)=0.00311 *5*; α(L)=0.000553 *8*; α(M)=0.0001304 *19*; α(N+..)=6.98×10^{-5} *10* α(N)=3.33×10^{-5} *5*; α(O)=6.73×10^{-6} *10*; α(P)=7.74×10^{-7} *11*; α(IPF)=2.90×10^{-5} *5*

$^{207}_{83}$Bi$_{124}$-8

γ(^{207}Bi) (continued)

E_γ‡	I_γ‡&	E_i(level)	J^π_i	E_f	J^π_f	Mult.@	α†	Comments
								Mult.: From α(K)exp=0.0036 *6* (Ice(K)=0.26 *4*) (1978Sc12); Other: α(K)exp=0.0033 *4* (Ice(K)=0.25 *3* in 1958Ar56) (1970As01).
1377.3 *4*	10.2 *3*	2120.1	(3/2)$^-$	742.76	7/2$^-$	[E2]	0.00384 *6*	α=0.00384 *6*; α(K)=0.00309 *5*; α(L)=0.000549 *8*; α(M)=0.0001294 *19*; α(N+..)=7.06×10^{-5} *10* α(N)=3.30×10^{-5} *5*; α(O)=6.68×10^{-6} *10*; α(P)=7.69×10^{-7} *11*; α(IPF)=3.01×10^{-5} *5*
^{x}1586.8 *5*	3.1 *2*					(M1)	0.00606 *9*	α=0.00606 *9*; α(K)=0.00485 *7*; α(L)=0.000800 *12*; α(M)=0.000187 *3*; α(N+..)=0.000219 *3* α(N)=4.77×10^{-5} *7*; α(O)=9.77×10^{-6} *14*; α(P)=1.171×10^{-6} *17*; α(IPF)=0.0001605 *23* Mult.: From α(K)exp=0.0056 *22* (1978Sc12). Other: α(K)exp>0.0025 (1958Ar56).
^{x}1613	<0.4							
1662.9 *4*	16.5 *9*	2405.68	5/2$^+$	742.76	7/2$^-$	E1	0.001366 *20*	α=0.001366 *20*; α(K)=0.000906 *13*; α(L)=0.0001360 *19*; α(M)=3.14×10^{-5} *5*; α(N+..)=0.000293 α(N)=7.99×10^{-6} *12*; α(O)=1.630×10^{-6} *23*; α(P)=1.94×10^{-7} *3*; α(IPF)=0.000283 *4* Mult.: α(K)exp=0.0010 *3* (Ice(K)=0.022 *4* in 1958Ar56) (1970As01).
^{x}1747.4 *6*	2.2 *5*						0.00487 *7*	α=0.00487 *7*; α(K)=0.00379 *6*; α(L)=0.000624 *9*; α(M)=0.0001457 *21*; α(N+..)=0.000309 *5* α(N)=3.72×10^{-5} *6*; α(O)=7.62×10^{-6} *11*; α(P)=9.14×10^{-7} *13*; α(IPF)=0.000263 *4*
1763.3 *4*	12.1 *10*	1762.82	5/2$^-$	0.0	9/2$^-$	E2	0.00258 *4*	α=0.00258 *4*; α(K)=0.00198 *3*; α(L)=0.000333 *5*; α(M)=7.79×10^{-5} *11*; α(N+..)=0.000184 *3* α(N)=1.99×10^{-5} *3*; α(O)=4.04×10^{-6} *6*; α(P)=4.73×10^{-7} *7*; α(IPF)=0.0001593 *23* Mult.: From α(K)exp=0.0019 *3* (Ice(K)=0.024 *6*) (1978Sc12); Other: α(K)exp=0.0019 *5* (Ice(K)=0.027 *5* in 1958Ar56) (1970As01).
^{x}1798.7 *6*	0.8 *2*						0.00458 *7*	α=0.00458 *7*; α(K)=0.00352 *5*; α(L)=0.000579 *9*; α(M)=0.0001352 *19*; α(N+..)=0.000341 *5* α(N)=3.46×10^{-5} *5*; α(O)=7.08×10^{-6} *10*; α(P)=8.49×10^{-7} *12*; α(IPF)=0.000298 *5* Mult.: α(K)exp≈0.0066 compared with 0.0038 (M1).
^{x}1846.8# *2*	19.4 *11*					E1	0.001327 *19*	α=0.001327 *19*; α(K)=0.000762 *11*; α(L)=0.0001139 *16*; α(M)=2.62×10^{-5} *4*; α(N+..)=0.000425 α(N)=6.68×10^{-6} *10*; α(O)=1.365×10^{-6} *20*; α(P)=1.629×10^{-7} *23*; α(IPF)=0.000417 *6* α(N)=6.68×10^{-6} *11*; α(O)=1.365×10^{-6} *22*; α(P)=1.63×10^{-7} *3*; α(IPF)=0.000417 *9* Mult.: α(K)exp=0.00084 *22* (Ice(K)=0.016 *4* in 1958Ar56) (1970As01).
^{x}1926	<0.3							
^{x}1953	<0.2							
2060.8 *4*	71 *3*	2060.39	3/2$^+$	0.0	9/2$^-$	(E3)	0.00372 *6*	α=0.00372 *6*; α(K)=0.00285 *4*; α(L)=0.000527 *8*; α(M)=0.0001251 *18*;

From ENSDF

γ(^{207}Bi) (continued)

E_γ[‡]	I_γ[‡&]	E_i(level)	Comments
			α(N+..)=0.000213 *3* α(N)=3.20×10^{-5} *5*; α(O)=6.47×10^{-6} *9*; α(P)=7.48×10^{-7} *11*; α(IPF)=0.0001741 *25* Mult.: α(K)exp=0.0025 *4* (Ice(K)=0.18 *2*) (1978Sc12) is consistent with mult=M1 (0.0025), or E3 (0.0029). The γ is placed from (3/2)$^+$ to 9/2$^-$.
[x]2600	<0.8		I_γ: <4 in 1970As01.

[†] Additional information 1.
[‡] From 1978Sc12, unless otherwise noted.
[#] From 1958Ar56.
[@] From ce data of 1958Ar56 and 1978Sc12, normalized to Ice(K)(K)=100 for the 405.75γ, unless otherwise stated.
[&] For absolute intensity per 100 decays, multiply by 0.01724 *22*.
[a] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

$^{207}_{83}Bi_{124}$-10

^{207}Po ε decay 1978Sc12,1970As01

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

Legend